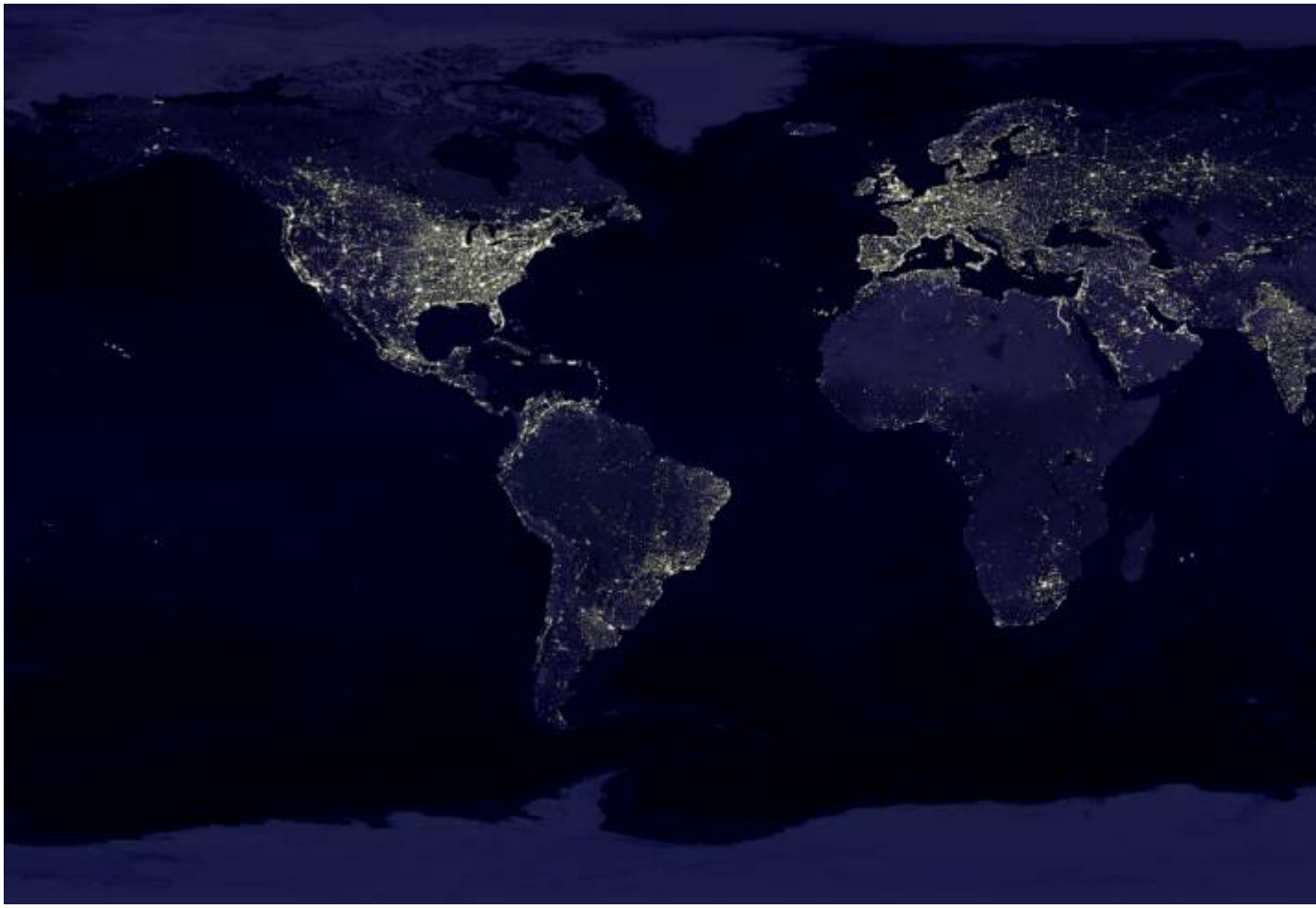

(proofed Half-Assed by neetha) – (delete this if you find covers)

ONE

To American President Dexter Hamilton, entering Greater Moscow in the spring of 2033 was a fifty-year leap into the past, an enigmatic separation from his familiar, changing, bustling world. The impressive modernity of Gagarin Airport, the city's newest civilian and military aviation facility, had not prepared him for the real Moscow. Although it was spring, there was snow in the city, grayed, trodden, piled. Along the motorcade route he caught glimpses of real antiques: diesel-powered trucks spouting the contaminants of burning fossil fuel to cloud the chill air. People swaddled in animal furs. Drab, stern, slab-sided apartment buildings that had been built shortly after World War II.

A curious nation, Russia. A country for the most part unchanged since the late 1900s, though if one stood outside and got an unobstructed view of the sky, there would be a glowing dot that might well be one of the USSR's space stations, whisking across the heavens, laden with enough destruction to lay waste a continent. The motorcade itself was also somewhat anachronistic. Hamilton had never ridden in one before. The assassination of President Tony Healy in 2016 had ended that practice in the United States; no President wanted to risk the violent inventiveness of terrorists. Healy, protected by hordes of men, including army units in armored vehicles, had been killed, along with many others, when a disgruntled air force pilot dived an advanced fighter plane nose on into the presidential limo. Apparently it was different in Moscow, he thought, probably because the Russian people had been under totalitarian control for well over a hundred years. The Moscovites, in fur hats and massive coats, waved dutifully as the motorcade passed, but they waved in unsmiling, almost eerie silence. As the luxurious electric-powered Moscova limousine slowed to enter Red Square, the stolid-faced, solidly built woman who sat facing them on a jump seat made an attempt at a smile, an attempt that failed coldly. Hamilton raised one eyebrow at his secretary of State, George Maxwell. George was miffed at the treatment they had received since arriving in Moscow, but unless you knew him well, you'd never know it.*Good old George,* Hamilton thought. Always so careful of ruffled feathers, always steeped in holy protocol. Hamilton personally didn't give a tinker's damn about this broad, stolid officer who had met them at Gagarin and whisked them aboard a sleek, newly painted military helicopter disguised as a civilian vehicle, but she was the cause of George Maxwell's chagrin: She had been the sole Soviet official to greet Air Force One after it glided down from orbital altitude to Gagarin Airport. To George, it was an insult to his President. To Hamilton, it had been expected. After all, he was the first American President to set foot on Russian soil in almost fifty years. Hamilton had always wanted to see Red Square other than on a viewscreen, and there it was, and the scene was orchestrated with an obviously placed, long, gleaming line of death, the Soviet arsenal of missiles: hunter-killers, surface to air, air to surface, and a few he didn't recognize. He guessed that the military fellows in his own party, relegated to the rear of the motorcade, would be eyeballing the display but without seeing anything new and exciting. Yuri Kolchak wouldn't be foolish enough to show any weapon that wasn't already known thoroughly by the West.

"Most of these people have never seen an American President," Theresita Pulaski said, indicating the silent, solemn citizens lining the square.

"And I've never seen them, " Hamilton said, leaning forward to wave his hand at them.

“There are those in the Soviet Union who want peace,” the general said. “Many of them.”

“Bless them, “ Hamilton said. “Let their voices be heard.”

The woman looked over her shoulder, out the window. The limousine speeded up, exiting the square. “Sometimes it is difficult,” she said.

Hamilton felt a quick stir of interest.*Talk, woman,* he thought.*Give me a clue.* But the woman was silent.

“You have a Polish name,” he said after a while.

“I carry it proudly,” she replied, but again fell into silence.

Under a lowering, slate sky, the Kremlin loomed redly beyond the frozen Moskva River, a cylindrical tower in the foreground, wedding-cake top thrusting a red star upward toward the gray sky. To Hamilton, and to millions, the triangularly shaped fortress housed most that was evil in the world. From there came the orders, flowing out over the ever-expanding Red world, the orders that precipitated battle and mutilation, fear and hopelessness. Within those stone walls gathered the aging, stern-faced men who had, for almost one hundred and twenty years, wanted total domination over all people everywhere. In those decades the cast of characters had changed often, the purpose never. No matter who was chosen Premier for that was now the title of the supreme Soviet leader, a title not used since the days of Khrushchev—the relationship between Russia and the United States remained tense, hostile, suspicious, dangerous.When Hamilton had first been notified that the presidential party would be housed in the Kremlin itself, he had been surprised and wondered if the Russians were having security problems and wanted to keep the Americans close at hand. But the people on the streets seemed reduced to unquestioning docility. He shrugged mentally as the limousine hummed through guarded gates, past heavily armed and stalwart men handpicked for Kremlin duty from the huge Red Army.

“We have allowed some time for you to rest,” General Theresita Pulaski said as she guided them from the vehicle.*Why?* Hamilton wondered. The entire trip via ballistic rocket, helicopter, and motorcade had taken only three hours.

He walked with long, quick strides, eager to get inside, eager to begin the summit meeting with Yuri Kolchak.

Dexter Hamilton, who had assumed his office just two short months earlier, was young to be serving in the presidency, only forty-six, having been born in 1987. He always went hatless, and his silvering hair—a tight, curled mass that clung to his well-formed head— seemed to be a tacit signal that, although young, here was a wise, experienced man. Behind the smile-crinkled blue eyes, the classic nose, the upturned mouth, there was the strength that had given him, first, governorship of North Carolina, next a seat in the Senate, then the Oval Office.

Now he was in Moscow to meet with the Soviet Premier, to attempt to control somehow the ever-increasing buildup of weapons of war.

Never had an American President faced such a difficult challenge, for nowadays the world was mostly Red. In Europe, only Germany and France maintained any freedom, with Great Britain clinging to the protection of the Final Four—the United States, Canada, Australia, and Japan. Starving Africa—with the sole exception of the beleaguered Republic of South Africa, which had survived a quick and limited exchange of nuclear weapons with Soviet-supported Black Africa— was a vassal state. The two Asian giants, China and India, having absorbed all of mainland and southeast Asia, were Communist, but impotently mired in famine and overpopulation. Meanwhile, South America was dominated by the

emerging imperialistic giant Brazil, whose armed forces had overwhelmed Cuba, ending Communist rule there. However, Communist insurgents continued to rebel against Brazilian authorities in the Caribbean and South America. An American fleet was stationed in the Pacific, but as of yet there had been no direct confrontation with the Russians. Almost everywhere, people were overcrowded and underfed, yet Russia and the United States continued to fill outer space with deadly weapons, poised for the ultimate confrontation.

Theresita Pulaski showed the American President and his secretary of State to their suites, where they freshened up and rested. Then she reappeared and escorted them to a large conference room. There Yuri Kolchak was already waiting, seated at a wide, gleaming walnut conference table. He was in uniform, surrounded by other members of the politburo.

As General Pulaski took a seat at the table, a lesser Soviet diplomat greeted Hamilton and Maxwell and led them to their own chairs, then made stiff, formal introductions. His voice droned on. From a half sphere three feet above Hamilton's head the crisp voice of an interpreter overrode the drone of the Russian language, the English words beamed down to an area confined to a few inches on either side of Hamilton's head.

Kolchak was a darkly handsome man, sturdy and heavy-browed. His slightly Slavic face was smooth, and his dark and bristly hair, which seemed to be a characteristic of all the Soviet leaders Hamilton had ever seen in pictures, showed no hint of gray. At forty-seven, just one year older than Hamilton, Kolchak was the youngest man ever to consolidate the various reins of power in the Soviet Union.

The agenda for the next three days was the subject under discussion, but there existed only Yuri Kolchak's almost black and yet burning eyes for Hamilton. There was something there that bothered Hamilton, a quality that he'd seen before. But where?

He put his mind into neutral, blanking out George's voice. He willed himself to go down into the dark, black depths of Kolchak's eyes, to penetrate into the mind behind those eyes. He'd always been a good judge of men. And here, eyes locked on his, was a man whom he wanted to influence more than he'd ever wanted to influence any man. The stakes were high: Dexter Hamilton wanted to be the American President who halted the eternal arms race and delivered the world, forever, from the threat of nuclear incineration.

Then the memory came to him, identifying the look in Kolchak's eyes. Dexter had been quite young, living on a tiny farm in Piedmont, North Carolina. He'd owned a little brown dog, and one day the dog wandered into a field and was swept up in a tomato picker. The dying, mutilated dog lay stunned and shocked, beyond yelping. Dexter knew he'd never forget the look in its large, luminous, brown eyes—terrible pain, disbelief, distance, and something he had never been able to identify until, as governor, he witnessed capital punishment. In Kolchak's eyes was that same undefin-able quality that he'd seen in the eyes of a dying dog and in the eyes of men about to die—a pain, a something that, it seemed, approached a madness.

Aghast, Hamilton put his attention on George, who was in fine fettle, his balding head gleaming with perspiration. All around the large table the men and the one woman were watching the secretary, some nodding their heads as the polite haggling over the agenda for the summit meeting droned on. Hamilton sneaked a look at his button-watch, having only to turn his left arm slightly to reveal the tiny triumph of American-Japanese technology. He was beginning to feel the growing length of this day.

He closed his eyes for a moment and squeezed the bridge of his nose to dispel drowsiness. When George Maxwell stopped midsentence, Hamilton quickly opened his eyes. George was standing with his mouth open, then went on talking, but with an uncharacteristic brittleness in his voice.

There was movement across the table from Hamilton. Yuri Kolchak was trying to rise, and something was wrong. He looked strained, pale. Two Red Army generals leaped to his side, helped him from the chair, and without a word, without explanation, apology, or a backward look, the Premier was escorted from the room. Now Hamilton knew his observation was correct; the man was obviously ill, perhaps even close to death. Hamilton found himself praying. "Not now, God. Give him time to work with me,"

In a way, Dexter Hamilton's prayers were answered. The next morning he was awakened in his luxurious suite in the Kremlin by a knock on the door and the appearance of a smiling, dark-haired little girl in livery. Pleasant aromas of coffee, real eggs, and melted butter came from the serving cart she was standing behind. There seemed to be a great number of covered serving bowls on the cart, certainly enough for more than one man. Well, he thought, rising from his bed to don his dressing gown, he would eat, then meet with George to go over the agenda meeting. They had not had an opportunity to talk privately the day before, and he wanted to discuss, among other matters, Yuri Kolchak's sudden departure from the meeting.

But just as he noticed that the girl was putting out two place settings of china on a table, he heard a deep, resonant voice behind him.

"Good morning, Mr. President. You slept well?"

Kolchak was dressed informally, tunic, trousers. There was no hint of his disability of the previous night. He extended a hand. Hamilton took it. Each grip was firm.

"Forgive me for surprising you," Kolchak said as the serving girl disappeared out the door. Hamilton stood aside, wishing that he'd awakened earlier. He felt seedy, unprepared. "But if I had taken time to warn you that I was coming, we'd have had to push our way through dozens of others."

"I understand,' Hamilton said. "Would you please have a seat and give me just a minute to freshen up?"

"Of course,' Kolchak said, "but don't bother to dress. Here we are very informal. Here in this room, it will be just the two of us."

Hamilton splashed water over his face, brushed his teeth, debated slipping quickly into some clothes, decided, well, what the hell, and went back into the large room. Kolchak was leaning back in his chair, and Hamilton took his seat across the table. There were real ham, flaky croissants, shirred eggs, fresh butter better than any Hamilton had enjoyed since he left the farm, and pastries.

"My people don't understand why you're here," Kolchak said. "In fact, some of them wonder if it isn't some kind of trick, since there is so much hate for us in your country, so much opposition to your coming here."

So that's the way it's going to be, Hamilton decided. No small talk.

Kolchak chewed thoughtfully for a moment. "In times past such conferences at least had meaning; one of the leaders of our two countries had something to gain—trying to influence domestic opinion, demonstrate statesmancraft, trying to sway what used to be called world opinion to his side."

"And now there's no such thing as world opinion," Hamilton said. "Is that what you're saying?"

Kolchak shrugged. "There are only two opinions that matter—yours and mine."

"And not much left of the world that is uncommitted, eh?"

"Exactly."

“Well, Yuri, you like straight talk, so here it is: I know that some of your military think I arranged this visit to take their eyes off some big, wild-haired scheme against the Soviet Union. I know your armed forces are on Stage Two alert. And you probably know we went to Stage Two to match you.”

Kolchak nodded.

“We’re not going to start anything, Yuri. I hope you believe me when I say that.”

“I was not one who looked for hidden meaning in your request for a conference.”

“Good. I’m here for one main reason, Yuri. I’m here to talk peace.”

“But as one of your countrymen said early in your history, ‘Men cry peace, peace, but there is no peace.’ ‘

“Impressive,” Hamilton said, smiling.

“The basic problem is, you see, that your country was established by elitists. That has never changed. You stiil consider yourselves to be a gift from your God to Earth, a shining example to be followed by all. You ignore that your idealized form of government never worked in your country and has never been successfully established elsewhere. The only difference between your form of socialism and ours is that your country still has a small, elitist group at the top, with a token sharing of assets with your so-called middle class. We see it as merely a subterfuge for keeping your masses in want and poverty.”

“Yuri, let’s not get bogged down in that stuff,” Hamilton said sincerely. “People have been debating all that for centuries. I want to talk about what we have in common. We’re all passengers on a small, increasingly overcrowded planet. It is time we stopped the competition and took down the bombs from the space stations, time we junked the missiles and the space weapons. Instead we should use our manpower and resources and money to better the lives of the human race.”

“A noble sentiment, with which I agree.”

“Good, good. We can do it, Yuri. I know it’ll be a long and involved process, but we’ll have almost eight full years. The men who bring peace to the world will be sung in history down through the ages. Let’s make those men you and me.”

“I could learn to like you,” Kolchak said.

“Thank you, Yuri. I feel the same way.”

“I will give you anything you want from this conference.”

The statement seemed simple enough, direct enough, but there was something wrong. Hamilton lifted his coffee cup, sipped, thinking. It was, he decided, the magnanimous tone Kolchak had used.

“Because you see, “ Kolchak said, his dark, hard eyes boring into Hamilton’s, “whatever you achieve in this present conference does not matter.” The Premier had finished eating. He leaned back, wiped his lips on a linen napkin, let it fall to his knee. “What matters is what you and I say here in this room.” He smiled. “Incidentally, the electronic surveillance instruments have been turned off. What I have to say is for your ears alone. I hope you will be receptive and reasonable.”

“I’ll do my best.”

“For centuries,” Kolchak said, “elitist and imperialist countries have delayed the destiny of the masses.

We can no longer allow that. Within my lifetime, Mr. President, the downtrodden of the world will be free to share in the fruits of their own labors."

"Mr. Premier, that does not sound like a man who wants peace."

"We will have peace. One way or the other. I, as much as anyone, hate the thought of nuclear war."

"Its a totally impossible thought," Hamilton said. "I'm sure you agree to that."

Kolchak rubbed his chin. His face had begun to undergo a change, his ruddy, healthy look fading to be replaced with a deep pallor.

"Most foreigners who come to Moscow are amazed that it has not changed much in fifty years," Kolchak said. "Did you notice that?"

"Yes. We're aware of your program of decentralization, building cities beyond the Urals."

"You, on the other hand, continually renew your cities. If Washington were to be destroyed, your entire government would be paralyzed, for you are quite centralized."

Hamilton felt a cold chill creeping up his neck.

"We know that Moscow would vanish from Earth in our first exchange of nuclear weapons; therefore, we do not renew it. Moscow is expendable."

"My God," Hamilton whispered. There was a calmness about Kolchak that was alarming.

"Within my lifetime, Mr. President, the revolution will be total." He paused. "With one single exception. Your country and mine have one thing in common. We are both too large, too dense in population, and too entrenched in a way of thinking, to be assimilated. We will allow the continued existence of the United States as a governmental entity. In time, with the rest of the world's workers freed from their masters and living in equality with their fellows, you will see reason and begin to work with the rest of the civilized world."

The man was mad. It was again in his eyes, with the look of death and hopelessness. Ever since the use of the first atomic bomb on Japan, men had dreaded that someday, in some country, a madman would be in a position to push the button. This, Hamilton felt, with a despair that made him want to strike out, was the man.

"Mr. Premier, this must be the first time in the history of my country that a President has been so threatened."

Kolchak shrugged. "We can no longer allow you to prevent the legitimate aspirations of the peoples of this world. We have liberated many countries. We will liberate more."

"Are you speaking of South America?"

"That, first."

"Are you declaring war? For we will fight you over that continent."

"There will be a war only if you choose to interfere."

Hamilton felt as if he'd been beaten physically. "What do your military advisors tell you about our strength?"

"That should both our countries let loose all their power there will be little, if any, life left on Earth. Some say that a few might survive in our shelters in Siberia until the radiation level will permit life on the surface again. All that doesn't really matter."

"What, in God's name, does matter?"

Kolchak leaned forward, his face pale, his lips twitching in obvious pain. "The triumph of right. That is all that matters."

"Your brand of right, of course?"

"Of course. There is no other. Now will you pull out of South America and let events take their course?"

"No."

Kolchak leaned back, sighed. "Then, Mr. President, prepare yourself for some very difficult decisions."

"We've faced tough decisions before, ' Hamilton said. "I'm not saying that because I think you're bluffing, Mr. Premier. In fact, you're scaring the living daylights out of me. I'll admit that quite frankly. But we won't stand aside and let you gobble up what's left."

Kolchak smiled. "I will use an old phrase very popular with your reactionaries—that it would be better to be dead than Red. I will give you that choice, if it comes to it. Understand this, Mr. President. Before I die, the world will be Red or dead, and quite frankly I don't give a"—he used a Russian obscenity unfamiliar to Hamilton—"which it is."

Hamilton heard himself saying words, inane words. "May you have a long life, Mr. Premier."

"No, my friend, you will not escape the responsibility in that way."

"You*are* ill," Hamilton said softly. Kolchak, with a cold smile, nodded.

"Perhaps we could help in some way. Our medical research—"

"Is no better than ours. You know that, Dexter."

It was the first time Kolchak had used Hamilton's first name. It was as if they had somehow become closer, two antagonists who had somehow welded their destinies together in a pact of blood, in a pledge of battle to the death.

"How long?" Hamilton asked.

"My particular cellular defect is quite predictable. In less than nine years, twelve important substances within my cells will have consumed themselves. I will be able to move about, to think, until the very end, and the end will be obviously predictable by some few weeks."

"I'm sorry," Hamilton said. "But we have time to think about it. Time to talk. Yuri, there's no winning a war. My God, man, we've both got enough warheads in space to do the job twice over. If either one of us pushes the button, the other will have only brief minutes, just time enough to launch a counterstrike. If you push the button I'm dead, but I'll have time to push my own button and you're dead."

"But I'm dead regardless of what happens," Kolchak said. With a wicked gleam in his black eyes, he added, "All I care about is that the world is ours ... or else it does not exist at all."

TWO

Urban renewal projects had, in the opinion of most, made Washington the world's most beautiful city. The White House sat in regal and antique splendor amid the landmarks of Capitol Hill and the green glory of the Mall. The crowded ghetto areas had been replaced with gleaming modern buildings designed to use the abundant solar energy, to please the eye, to utilize precious space to the utmost.

On the flight in from the rocket port, Hamilton looked down on the city, and thinking of what Kolchak had said, he saw it turn to ashes and molten waste before his eyes. The picture was so vivid that he held his breath and looked quickly over at George. In George's mind, the Moscow conference had gone damned well. The joint communique hammered out with the Russian foreign minister was most optimistic, a clear victory for President Hamilton's policies.

But never had an American President carried so terrible a secret as that which Dexter Hamilton took with him from the helicopter pad on the White House lawn into the waiting arms of his wife, Jennie. She wore white, very springlike, lovely, and she smelled of fresh hair and good, feminine things.

George had arranged specially for the media to be there, and Hamilton broke his embrace with his wife reluctantly to speak to them. What does a man say when he alone knows that a madman has his finger on the button in Moscow?

He praised the cooperation and goodwill of the Russian Premier. He urged caution, however, and warned against overoptimism. It would take time to reconcile their century-old differences.

When he was free at last, he walked briskly into the White House, gave orders that he was not to be disturbed, and went into his private quarters. There he held Jennie so long, fiercely embracing her, that she said, looking into his eyes, "Tell me." She knew her man well, knew that something was bothering him.

"I'm just so damned glad to be home, Jennie. Lord, I missed you."

"Let's have something light sent up," she said.

"Sounds wonderful," he said, looking at his cuff button-watch. "But—"

"But me no buts," she said. "I'll call the kitchen."

"Hold it for about two hours, Jennie. I want to meet with Oscar first." He smiled at her, patted her on the hip, and walked to the telephone. She heard him tell Oscar to meet him in the Hole in five minutes. She also knew him well enough not to persist.

The Hole was one hundred and fifty feet below ground level, directly under the Oval Office. It was not a bomb shelter; it had been built because the technology of spying—domestic, political, and foreign—had outstripped most protective devices.

The Hole was lead-lined, to halt any sort of wave, not just radiation. In addition, sophisticated electronics threw up walls of interference to block any intelligence device, in order to allow the President, his cabinet, and advisors at least one place in the world where they could be assured of absolute privacy.

Oscar Kost, scientific advisor to the President, sat at one end of the conference table. He had his neck brace on again. Any medical man would have been glad to tell him that arthritis, as a physical disease, was a thing of the past, but that learned opinion would not have eased the pain in Oscars neck.

He was a frail man, five feet eight, with mousy hair and bad skin. He was, Hamilton used to tell him, a prisoner of his own negative thinking, fragile and often in pain because he chose to be. Oscar had always replied that his affliction, his pain in the neck, was his punishment for total brilliance.

Some of Hamilton's staff said among themselves that Oscar Kost had imbued Hamilton with wild-eyed dreams when Hamilton was his student at the University of North Carolina. They said Kost had, in effect, infected Hamilton with impossibilities, with ambitions that would—if, for example, he went forward with his plan to ask Congress for more money for space exploration—be his downfall.

Kost had already helped himself to a cup of coffee. He did not rise when Hamilton entered, acknowledged the President only with a questioning, widening look of his ash-colored eyes.

Hamilton didn't speak until he had walked to the coffee urn and filled a cup. Then he went to the communications center and gave orders to have all protective fields activated. The door was locked from the inside.

He sat down to Oscar Kost's left and sighed.

"I didn't think it went as well as George is telling the news media," Kost said.

Hamilton slid the emerald from his ring and pushed a button that caused the tabletop to protrude a projector. At the same time a soft purring accompanied the lowering of a five-by-five screen at the other end of the table. Hamilton inserted the emerald into a receptacle.

"He know you were wired?" Kost asked.

"His was made to look like a ruby. It clashed with the color of his tunic."

"Russians never did have any fashion-consciousness," Kost said dryly, as Yuri Kolchak appeared in three dimensions on the screen, the entire private meeting in Hamilton's suite in the Kremlin, with the Soviet Premier threatening the American President with nuclear blackmail if the United States did not get out of South America.

When the projection was over, both men sat in darkness for a long minute, then Hamilton pushed a button for light. The projector disappeared into the tabletop, but only after Hamilton had removed the emerald recorder and replaced it in his ring. Kost rose, poured the rest of his coffee into a sink, got a glass and bottle, and poured two fingers of bourbon. Then he took his seat again.

"We have time," Kost said at last, after taking a long sip of raw bourbon. "If you knew you were going to die in eight years and you decided to take the world with you, when would you do it?"

"On the last day of the eighth year," Hamilton said. "But I'd start working toward my goal, wanting to enjoy victory for a while before I died. "

"But even if you didn't win, you'd hold off pushing the button."

"I suppose so," Hamilton agreed. "Then we have some time." "Oscar, I can't tell anyone about this." "I agree," Oscar said. "It might leak, then you'd have some who would want to make a preemptory strike and pray for what we both know is impossible, a quick kill of Russian nuclear capacity. Then you'd have those who'd want to surrender. Both courses are impossible. One way means the world is probably blown to bits; the other way means the world is handed over to the Russians." He drained his drink, poured another.

"When Kolchak begins to make his move, you and I are going to have to counter him."

"How do you feel about murder?" Kost asked quietly.

Hamilton felt the skin of his face tighten. "Kolchak?" Kost nodded. "But if we try it and blow it, it could

force him into pushing the button prematurely."

"We couldn't do it alone," Hamilton said. "We'd have to tell Sneaky Pete." Sneaky Pete was Pete Long-street, head of the CIA.

"You can trust him," Kost said. "Yes, but he would be the first to yell for a preemptive strike."

"Or to agree that we might gain some time by killing Kolchak. After all, Kolchak is the one with the terminal disease. Maybe the Red Army won't be as eager for nuclear war if we can find a way to leave them with their blasted honor."

Three days later, Oscar had delivered to Hamilton's desk a large envelope marked*For Presidential Eyes Only.* It contained the characteristics and facts of the Soviet power structure.

Although there was no hint as to the packet's purpose, Hamilton knew that Oscar was thinking about the assassination of Yuri Kolchak. Margin notes gave Oscar's predictions for dealing with the officials who might strong-arm their way into great power after his death.

Oscar held out no rosy hopes, but there was one encouraging note of possibility; unlike Kolchak, almost none of the secondary Soviet leaders would be inclined to push a button to bring on his death and the death of the world.

Oscar also indicated that he had something very exciting and of great importance to discuss.

It was time, Hamilton decided, to schedule a meeting with Oscar and Sneaky Pete Longstreet in the Hole.

Admiral Pete Longstreet was seated across the table from a coffee-guzzling Oscar Kost when Hamilton arrived in the Hole at ten minutes after ten that night. The heavy, lead-lined door hissed closed behind him, and Longstreet looked down at his cuff-watch and sighed. Tardiness could not be tolerated, even in the President.

Pete Longstreet looked much like a barrel in uniform. At sixty, bald except for a snowy fringe on the sides and back of his head, he gave the impression of solidity. He had large ears, a big, strong nose, and gray eyes behind thick-lensed glasses. He looked more like a fundamentalist preacher than the man who coordinated all the intelligence efforts of the country from his CIA office at Langley.

"What's the matter, Pete, got a late date?" Hamilton asked. He respected Longstreet's ability, but he wasn't about to let a hired hand, not even a valuable hired hand, put him down.

"Good evening, Mr. President," Longstreet said. Kost waved his coffee cup at Hamilton.

Hamilton took the chair at the head of the table.

"This is the simplest way to get started," Hamilton said, pushing the buttons that activated the projector, taking the emerald out of his ring and inserting it.

Longstreet watched the face of Yuri Kolchak in tense silence. When the screening was concluded, he said briskly, "There's only one thing to do. If we throw everything at them at once, without a hint of warning, there's a ten percent chance of avoiding a full counter-strike."

"That's out, Pete," Hamilton said. "Totally, finally, irrevocably out."

Longstreet clamped his mouth shut and glowered.

"I have two things to say," the President continued. "First, three people in the United States have seen this projection—and we're all in this room—and have heard his ultimatum. It*will* stay that way."

Longstreet nodded.

Hamilton felt that he could trust the CIA chief, even if he had inherited him from the previous President. "Two," he said, "I want you to make killing Yuri Kolchak top priority."

"Mr. President, that seems to be the only possible course of action." Longstreet cleared his throat. "But the KGB is damned good. The average useful life of an agent in action inside Russian territory is four months. We just lost two agents. At present there's only one man we can count on."

"Well, Pete, I'll leave the details up to you," Hamilton said. "Get back to me when you have something. I don't need to know specifics, just your private projection of the chances of success. Above all, a failed attempt must not be traceable to us. "

"When the time comes, Mr. President, I'd highly recommend that you have everything ready for a nuclear offensive. The one who pushes the button first—"

"Dies just as surely as the one who pushes it last," Hamilton said. "We won't keep you any longer, Pete. If you'll excuse us, I have some business with Oscar."

As the door hissed closed behind Pete Longstreet, Hamilton sighed, rose, poured himself a drink. He hoped whatever Kost's other news was, it was good for a change. "What's up, Oscar?" he asked as he came back to the table.

"Have you been briefed on, or have you even heard about, a project called Lightstep?"

"I draw a blank," Hamilton said.

"What would you say if I told you that there is a spacecraft traveling outward, already over three billion miles from the earth?"

"Russian?" Hamilton asked quietly.

"No," Kost said, smiling with half his mouth. "Have you ever been briefed on certain hidden funds accessible to government and military agencies, such as the Air Force Discretionary Fund?"

"I am vaguely aware that there are such arrangements, small amounts of money, relatively, I understand."

"Yeah, as some old guy in the Senate once said, a billion here, a billion there, and pretty soon you're getting into some significant money. To date, Project Lightstep has cost just under twenty billion."

"Give me the particulars," Hamilton said.

"I've been looking into some space-research programs. There are some brief and not very informative reports in the presidential-eyes-only section of the central data bank, in language so vague that it's hard to tell just what Project Lightstep is all about. I got interested when I requested the Defense Department send me information about the project and got back a cryptic little burst of type stating that Project Lightstep was nearing the critical point, the vehicle being out beyond the orbit of Pluto."

Hamilton whistled.

"I got on the phone with the secretary of Defense and told him you had a great deal of interest in Project Lightstep, without coming out and asking him what the hell it was. He said he was standing by for the final

test before preparing a complete briefing for you. He refused to discuss it on the telephone. I have a feeling this is something that Defense thinks has high weapons potential, and what's more important, Dex, I have a hunch this may mean a breakthrough in space travel."

"I can't believe that there could have been a breakthrough without someone's knowing," Hamilton said.

"It's a big government," Oscar said. "There are agencies that keep operating, not subject to changes in personnel just because there's a new President. Plus, the army, the navy, the air force all have their own discretionary funds, which are fed at a steady rate without having to go through Congress. In terms of the overall budget the total amount is small, but there's enough cash there to run quite a few wild-haired research projects."

"Let's look into it, Oscar."

Oscar reached for a telephone, pushed in the code for the secretary of Defense, and handed the telephone to the President.

"Hello, Jim. Glad to see I'm not the only one working overtime. Oscar spoke with you the other day about a project that interests me. Where can I find out all about it as quickly as possible?"

After listening several minutes, he handed Oscar the phone, scratched his chin, grinned. "Feel up to a flight to California?"

"Sounds interesting," Oscar said.

"So it is, my friend," Hamilton said, still keeping Oscar in suspense. He saw a light come into Kost's eyes that he hadn't seen there since his college days.

THREE

Dexter Hamilton and Oscar Kost arrived at Vandenberg Air Force Base in California the next morning and were introduced by a two-star general to Harry Shaw, a small, dark man, with a wide forehead and thin mouth that was, nevertheless, capable of a wide smile. His hair seemed to have a tendency toward both wildness and thinness and was controlled by a shorter-than-usual haircut. The most surprising thing about Shaw was a radiation of warmth that was obvious when he stuck out his hand without hesitation. Hamilton shook it with a smile.

Shaw was not what the President had envisioned as the scientist in charge of Project Lightstep. For one thing, he was around forty, a very tightly controlled, energetic forty.

"This is a genuine pleasure, Mr. President, Mr. Kost," Shaw said. "I had hoped that someday I'd get to meet you."

"The pleasure is mutual," Hamilton said. "I have to confess that I know absolutely nothing about this project. Please start at the beginning."

The men sat down at a table, where a private brought them coffee.

"I'll try to make it brief," Shaw said. "When I was an undergraduate I worked with platinum metals and their ability to store heat and energy. I was, for a while, hot on the trail of a new source of energy, but it wasn't until I got my hands on a supply of rhenium that I began to make any progress. By exciting rhenium molecules with heat and light and a catalyst, I came out slightly on the plus side, gained a bit more energy than was expended in creating it. I was about ready to give up when I decided to hit a few molecules of rhenium with antimatter, and as a result we almost lost Los Angeles. The reaction was

contained, but just barely," Shaw added.

"You were on a Department of Defense grant?" Hamilton asked.

"Yes," Shaw said. "I had to report that the experiment was a failure."

"On the theory that our bombs are already big and mean enough?" Hamilton asked.

"Don't you think they are?"

Hamilton's brain was revving up. Would a bigger and better bomb make Yuri Kolchak take his finger off the button? Probably not. It was, after all, merely a matter of degree. If simple old hydrogen bombs would destroy all life on Earth, why bother with something else?

"Harry," Hamilton said, "just tell me what you've got out beyond Pluto."

"A space vehicle disguised as a simple planetary probe. If we've succeeded, that vehicle, propelled by rhenium, has made a round trip to within a few million miles of the star closest to our system. Proxima Centauri. '

Hamilton felt a sudden surge of joy. He glanced at Kost. Oscar's hooded eyes were gleaming.

"A little over five hours ago, the probe, named the*Dreamer,* passed Pluto's orbit and the primary gravitational influence of the solar system," Shaw said. "At that point phase two began—the trip to and from Proxima Centauri—traveling faster than the speed of light. Now all we have to do is wait. When the countdown clock hits zero, the transmission from*Dreamer* will reach Earth and we'll have one of two things. If all went well, we'll have close-up pictures of Proxima Centauri. If it failed, we'll have nothing, and we'll know that we've built another bomb."

"How much time did you allow for the trip from Pluto to Proxima Centauri?" Kost asked.

"We allowed one billionth of a second for the trip out, five minutes there for recording data, and one billionth of a second for the trip back to starting point."

"Thirty trillion miles in a billionth of a second?" Kost asked.

"There is no time where*Dreamer* went," Shaw said. "It is outside of space and time, outside all physical bounds. It's as if it simply stepped up that beam of light . . . lightstep."

"How did you come to the decision to use rhenium?" Oscar asked.

Harry smiled. "Maybe it was just bad luck. We've run a few experiments on metals more available, such as tungsten. So far none has the excitation quantity of rhenium. We decided that it was rhenium or nothing, Mr. President, because that's the only element that exhibits the possibility of releasing molecular-bonding energies in a controlled stream."

"Just how rare is it?" Hamilton asked.

"The rarest on earth. Less than one-thousandth part per million."

"Have you got all you need?" Oscar asked.

"For the moment. But we'd be hard put to gather enough for even one more test."

"We'll find you some rhenium," Hamilton said. "One way or the other. How much would it take to

power a passenger-carrying vehicle?"

"Just over two metric tons."

"Does zero gravity have any effect on lightstep?" Kost asked. "Why have you waited until the vehicle is past Pluto to begin phase two?"

Shaw said, "You're getting to my weakness now. We know from the time we almost lost Los Angeles that there's no directing the force in a field of gravity. We hope that in the absence of gravity—except, of course, for that diffuse force that holds the galaxy together—the explosive reaction will be channeled into a smooth, steady, instantaneous push." Shaw smiled. "When we pushed the button for phase two, I prayed a lot; we could, with two tons of rhenium, have produced an explosion that would have wiped out the galaxy."

If this thing worked, whatever risk had been taken was worth it. For the first time since his meeting with Yuri Kolchak, Hamilton felt a swelling of hope in his breast. As the countdown clock jerked its second hand closer to the critical moment when*Dreamer's* transmission would be received by Vandenburg, a fantastic and exciting dream grew inside Dexter Hamilton: If Yuri Kolchak was indeed a madman and sent the whole world up in smoke and dust and fire, there was one last hope for the human race.

Ironic. Once before a man had dreamed of a vehicle to save life from destruction. That time it was the ark, and Noah had gathered the precious seeds of life and secured them safely beyond destruction.

"One minute and counting," an amplified voice said, breaking the tense silence.

Hamilton's eyes were on the clock.

"Thirty seconds. Twenty-nine, twenty-eight—"

But wasn't it brash to see himself as a nuclear-age Noah?

"Ten, nine, eight—"

Screens came to life, flickered, were blank. There was an air of supreme tension in the room, a breathless hush except for the counting voice.

"—five, four, three, two, ONE!"

A large screen flickered, static lines flowering, diminishing, and then the screen was filled with fire, harsh, golden, roiling, boiling fire.

"Oh, God, no," Hamilton said.

"Wait," Harry Shaw said, his voice cracking with excitement. "We're not on the scopes. We're on radio telemetry."

And slowly, slowly, the screen changed, the fire slowly becoming more distant.

"The camera is changing lenses," Shaw yelled. "We were too close."

Seen close up, a sun is an awesome furnace, the golden fires of thermonuclear reaction forming slowly roiling masses on its curved surface.

A cheer went up.

“It worked! Thank God, it worked!” Harry Shaw yelled, doing a little dance. It worked! Man could travel faster than light. With some luck, and some tricky, very secret planning, there could be people, Americans, out there where the*Dreamer* sat.

Now there was hope. At least some would survive. Hamilton knew he would see to that. He could not trust Yuri Kolchak to leave the United States alone. Kolchak would want total world domination, and Dexter would never bow down and live under Communism. There’d be a part of the United States of America alive, out there in space. And if the missiles began to lance down from the orbiting space stations, at least a seed stock of humankind, in the form of Americans, would be alive.

FOUR

Neither Rudy nor Use Virchow could remember when their native countries had been anything but socialist republics within the vast Russian empire. Use’s sister, whom Rudy called the Token Pole, could, but she discouraged talk about the days when both Rudy’s East Germany and Ilse’s Poland were independent, if subordinate, states.

Ilse and her sister, General Theresita Pulaski—the very woman who had escorted President Hamilton during his visit to Russia in the spring of 2033—seemed to Rudy to be more accepting of the way things were than he. Ilse, blond and diminutive, a computer programmer, knew that her husband was rebellious, but she had no idea to what degree. Until Rudy received an impressive array of deadly assassination devices and some frightening instructions from a clerk at the Rritish Embassy, which he visited from time to time in his work as commercial-refrigeration repair expert, Ilse had no idea that her husband was a traitor.

“Not a traitor!” Rudy denied emphatically. “To be against an oppressor is not being a traitor. I consider myself to be a German patriot.”

When Rudy Virchow, in his midthirties, handsome, virile, told Ilse the reason for and the purpose of his assignment from the CIA, with whom he had first made contact in East Berlin some ten years past, she could not stop weeping.

“It would seem to me that it is the Americans who want nuclear war,” she said. “Surely killing the Premier will have just that result.”

“Not if it comes from within,” Rudy said.

“And that means you will have to confess.”

“We will think of that later,” Rudy said.

“I don’t understand,” Ilse wailed. “You’re willing to risk death, and worse, and you can’t even be sure the Americans are telling you the truth. They use people. You mean nothing to them. Have they arranged for us to get out of Russia if you do it?”

“They said they would give us every assistance, but that doesn’t really matter,” Rudy said. “What matters, my Ilse, is that your Rudolf will save the world from nuclear war.”

“I beg you not to do it,” Ilse said, weeping again. Destroy those horrible weapons they have given you.”

He looked at her soberly. “I believe the Americans, Ilse. Look what is happening all over the world. Kolchak must be pushing for a final confrontation, and the Americans will not bow down to him. If Kolchak lives, the missiles will fly, and the orbiting space stations will unload their cargo of death. If we die trying to prevent that, well, that might be merciful.”

"I hate this talk of dying," Use said, and he took her in his arms and held her. After a fit of weeping that left her exhausted but relieved, she blew her nose and in a choked voice said, "You know that I would go with you anywhere, do anything you ask. I am scared to death, but I will not stand in your way."

"Thank you,*Liebchen.* Now let's make a fine meal for the Token Pole when she arrives. I want her to be in a receptive mood."

"You're not going to tell her?"

"Perhaps no. Perhaps yes. We'll see."

It always depressed Theresita Pulaski to visit her sister and brother-in-law, because of the claustrophobic smallness of their apartment. It gave Theresita the shivers to think of living in such a place, so she made her duty call to see her sister no more than once a month, and sometimes less often.

After dinner, the table was cleared and folded away, giving them room to sit—Use and Rudy on the little sofa, and the general, out of uniform now, her blouse open at the neck, sat in the master's easy chair.

"Are the Americans really putting up significant resistance in South America?" Rudy asked abruptly.

"South America is not your concern, ' Theresita said, automatically raising her eyes to the hanging light in the center of the room, where the listening device that was in every dwelling place in Moscow was usually placed.

"Ah, so the Token Pole has become Russianized."

"Rudy," Use said.

"No, it's all right," Theresita said.

"I have reason to believe that the Americans will make a stand and that our heroic Premier will then force the world to the brink again," Rudy said.

"Is this common talk?" Theresita asked.

"Not by me," Rudy said. "But I believe it is true that Kolchak has a terminal illness and is quite mad."

Theresita's eyes narrowed. For a moment Rudy feared that he had gone too far.

"Why do you say such a thing?" she asked. "Have you picked up such rumors while working inside the Kremlin?"

"Yes," Rudy said, and he realized from her worried expression, from her tone of voice, that he had given his sister-in-law much food for thought. "How do you feel about it, Theresita?" he continued. "Are you willing to die along with Kolchak?"

"You are talking treason," the general said evenly.

"Do you ever think treason, my good Pole? I am not willing to stand idly by and see a madman push us into the final war," Rudy said.

"What do you propose to do to prevent it?"

He shrugged, spread his hands. "Think about it," he said. "In the old days, before you became the one female Polish general allowed to sit at the foot of the throne, you had many regrets. Would you like to

see Poland an independent nation again?"

"Of course."

"And if Poland burns along with the remainder of the world—"

"Where do you get your information?" she asked.

Rudy walked to the chest of drawers and took out the packet he'd received from the clerk at the British Embassy. He opened it and laid out three weapons supplied by the CIA to the would-be assassin. Her face went pale.

"Theresita, have you forgotten that your father died under the treads of a Russian tank?" Rudy asked.

"That was long ago. This is sheer madness. You can never succeed."

"Not alone," Rudy said. "Not alone."

"No," Theresita said, reaching for her coat.

"You won't turn me in," Rudy said. "Because it would mean that your sister would face execution too. Consequently, you can't stop me. I am not going to let a madman send the bombs down on America, for I don't want to have my wife die under American bombs. You are either with me or you will forget all of this."

"Use," Theresita said, "I will arrange a transfer for you both tomorrow." She looked at Rudy. "You may go or you may stay, as you choose. But you, Use, will be on the way to somewhere very far off within two days."

"No," Use said, her voice trembling. "I believe him."

General Theresita Pulaski felt her legs trembling. She was unable to speak, for she believed him too. Rudy was right; but she would have much preferred to die without having to decide whether to stand aside and do nothing and let matters take their course.

"Think about it, Theresita," Rudy said, as she went out the door. "Think about it very carefully. "

She knew that she would do little else, and as she went below to her waiting driver and staff car, she wanted to do violent and vile things to her brother-in-law for putting her into such a position.

It was a simple matter to equip and launch three new stellar probes. Oscar Kost had reappeared at Van-denberg with presidential orders to prepare the probes with a priority of finding a star or stars with planets suitable for human habitation. That was done within ninety days, for somehow Oscar Kost had been able to buy the necessary rhenium from Canada, Australia, and even from Brazil. Oscar had delegated the buying of it—and even larger quantities of other scarce metals—to dozens of agencies, so no one would get too interested in why the United States was hoarding tons of a metal whose yearly production was measured in mere pounds.

Then suddenly the supply simply dried up while Oscar was trying to accumulate enough rhenium to power the Shaw Drive—so called by those involved in the project to honor Harry Shaw's scientific achievement—on the starship. Canada simply didn't have any more. The situation was much the same in Australia. Brazil? They hadn't even been polite about it. Once the Brazilian government stumbled onto the fact that private firms were selling scarce metals to American interests, an edict from on high cut off that source completely.

Wouldn't it be terrible, Harry Shaw thought, that as the world went up in flames the lifeboat burned along with everything else for lack of a couple of tons of a rather odd metal that was necessary to power the drive mechanism?

Otherwise, all was progressing according to plan. The three interstellar probes had been launched within minutes of each other, and the spacecraft itself was now under construction in Utah, underground, in the midst of a seven-hundred-acre plot slated for nuclear-waste disposal. Harry Shaw had been flown to Washington two months ago for a briefing with the President.

"Harry," Hamilton had said, "you pick the people to work with you. We've got just over fifteen billion dollars for your immediate use."

Shaw whistled. "We won't need that much," he said. "Not for a two-passenger vehicle."

"The ship will be a bit bigger than that," Hamilton said, smiling.

"Just how much bigger?" Shaw asked.

"We're thinking in terms of one thousand colonists, plus necessary crew," Hamilton said, watching for Shaw's reaction. "Your ship, Harry, could be the last hope of the human race. We're talking about a serious colonization effort—about seeding the planets of the stars with life, humankind, animals, plants."

"You have a great sense of urgency, Mr. President, if you'll excuse me for saying so. '

"The way I figure it, Harry," Hamilton said, "we have eight years before we have to decide between nuclear war with the Russians or surrender."

Shaw was silent, white-faced.

"We have to hide the starship as long as possible," Hamilton continued. "The Russians must not learn that we have a means of continuing the American way of life on some distant planet. Otherwise, they might force the final showdown early. We have to keep this as secret as your Project Lightstep. No one in Congress or the news media will be briefed. The ideal would be to have the world in ignorance until lift-off time. I don't think we'll attain the ideal conditions, but we'll try.

"We'll want any recommendations you may have for a passenger list, to establish a society and a technology that will be functional rapidly. In time, if there's still an Earth, we'd like ships stepping back and forth between this planet and the stars, taking our surplus of people out, bringing back food, raw materials, all the things we're short of here."

"What if the probes come back without finding a habitable planet?" Harry asked.

"That's a chance we're going to have to take," Hamilton had said. "We've got just the one chance, and I'd be the greatest fool in history if I didn't take it. So we're going to build a starship, Harry, and pray to the living God that once she's built she'll have someplace to go."

II

OPERATION: SPIRIT OF AMERICA

FIVE

For a President, there is no such thing as idle waiting. Dexter Hamilton was in constant contact with the personnel in Utah, where the starship was being fitted together by thousands of high-security technicians;

with Sneaky Pete Longstreet, who had heard nothing from his agent in Russia but had not given up on the possibility of Yuri Kolchak's assassination; with Kolchak himself, who flatly refused Hamilton's invitation for another summit meeting, stating there was no change in his attitude toward world domination; and with Oscar Kost, who reported that East Germany had begun to hoard rhenium. Hamilton asked what the chances were that the Communists might duplicate Harry Shaw's rhenium drive, and Oscar felt the chances were slim.

"My guess is that they'll see the weapons potential first," Oscar said.

"That's all we need—the Russians with a superbomb. "

"But if they realize they can use the rhenium to travel through space, Kolchak could change his mind. If he sees a real chance to spread his beliefs to the stars—"

"If that's the way it turns out, ' Dexter said, "I want our ship to be the first to leave this solar system. I want the first settlers on the distant planets to be Americans."

As the months passed, Hamilton began to hope either that the Communist scientists had missed the significance of rhenium or that they had accumulated the metal out of sheer cussedness, simply because, for some reason, the United States wanted it.

Life went on. Full-scale war raged in many parts of the world, but it was conventional stuffy men merely being ripped apart with conventional explosives and some of the new death-beam weapons. Kolchak stepped up military activities in South America, with Russian soldiers wearing Latin American uniforms. The United States retaliated, their soldiers also in false uniforms, dying in ever-increasing numbers in the undeclared war.

The installation in Utah kept growing. Oscar Kost, as project director, spent more and more time there, and Hamilton missed him. But Oscar was not only drafting the finest minds in the free world—from Japan, Canada, Australia, Great Britain, and the United States, specialists in*everything* —but also coordinating all the space labs in the free world, which were at work on specific problems, not aware of the overall picture, thinking in each case that the United States was merely intent on developing the living potential on existing space stations.

In February of 2036, Hamilton left Washington by rocket for Vandenburg Air Force Base to witness either one of the most significant moments for humankind, or one of the most disappointing. It was the beginning of an election year, and the opposition was very much in disarray because Hamilton had proven to be a very popular President.

Kost met him at Vandenberg, with Harry Shaw, who was looking fresh and excited. He was about to activate lightstep, bringing back the three separate probes, which were still beyond the orbit of Pluto, with the information they carried. The lightstep activating messages had been sent hours ago, before Hamilton left the White House. And for almost five and a half hours the results of those orders had been traveling back toward Earth, at the speed of light.

Now they waited to see what pictures would appear on the huge viewscreens at the control center. Hamilton's timing was perfect; he had just sat down when the golden, fierce flare of a star filled the screen. When the cameras focused there was a collective gasp of pure pleasure, for there were six planets swimming grandly around a star—beautiful globes that grew even more wonderful as, one by one, moving from the outermost toward the planets nearer the sun, the probe's optical instruments focused in. Frozen planet, gas giant, gas giant with two giant moons, and then a beautiful blue planet with hints of white clouds and golden land masses, a planet so like Earth that a cheer swept through the control room.

Everyone was shaking everyone else's hand. Hamilton made the rounds, congratulating all those who had worked on the project, hugging Harry Shaw to his chest, saying, "By God, man, you did it!"

And the icing on the cake was that another probe found yet another star, only a skip and a jump away as interstellar distances go, which showed a family of planets.

"What's the name of the closer star, the one with the Earth-like planet?" Hamilton asked when the celebration was over and the control-room crew was busy accepting the printed information from the probes.

"It's called 61 Cygni A," Harry Shaw said. "The neighbor star we're calling 61 Cygni B. It's very dim from Earth, and it isn't even included in most star charts."

Dexter Hamilton closed his eyes for a moment and offered up a silent prayer. Then he looked around. "All right, boys," he said, his voice full of excitement. "Now we've got someplace to go. Let's get there as fast as we can."

SIX

General Theresita Pulaski was escorted into the Premier's private suite by two heavily armed personal guards. Electronic scanners examined her for weapons ranging from metallic objects through the various artificial substances down to biological poisons.

Cleared, she advanced, saluted smartly. "You requested a briefing on the combat readiness of the non-Russian divisions on the Western front, sir," she said crisply, opening her briefcase.

"Proceed," Kolchak said, motioning her to a chair in front of the desk.

He looked well, Theresita was thinking, as she began to read in a clear, strong voice. Then, later, she looked up, and his head was lowered, as if in thought.

When Kolchak's forehead hit the blotter on his desk with a dull thud she dropped her papers and ran to him. He was breathing rapidly, almost panting. She lifted his head. His eyes had rolled back, white showing through half-closed eyelids. His pulse was faint.

"Guards!" she called.

The door burst open. The two bodyguards had weapons at the ready, and for a frightened moment she thought they would shoot her.

"He has fainted," she said.

A guard ran to the desk, opened a drawer, pushed a button.

"I have had some medical training. Help me get him onto the couch," Theresita ordered.

The guard obeyed. Kolchak, still breathing shal-lowly and rapidly, was stretched out on his back when his personal doctor came in on the run, bent over him, straightened, and ordered the guards to summon a stretcher and bearers. When one of the guards departed, the doctor opened his bag, filled a mist syringe, and with a little explosive hissing sound, injected a clear fluid into Kolchak's arm. Kolchak's breathing began to even out, but he was still unconscious.

The doctor turned to Theresita. "If you value your life, you will not mention this to anyone. You did not see any of this," he said, his voice low and threatening.

She was silent. She*had* seen. The pallor of the Premier's face told her that something was seriously wrong with him.

She dismissed the remaining guard, who hesitated at first, then obeyed when the doctor nodded. She looked into the doctor's squinting, black eyes.

"Not many have dared threaten me," she said evenly. "Are you asking me to lie about this?"

"The Premier has a minor illness only," the doctor said, obviously backing down. "There is no need to spread rumors."

She had his measure now. Without Kolchak, he was nothing more than a frightened man. He was, however, a powerful man with Kolchak alive and conscious, and she hesitated for a moment before going on.

"You are not the only one in the Premier's confidence, " she said. "I, too, know that he is dying."

The shocked look on the doctor's face faded quickly, but not too quickly for her to feel a moment's fear and great despair. So her brother-in-law was right.

For months she'd been trying to erase the memory of that night in the dingy little apartment, the night when Rudy Virchow had told her that the Premier was determined to conquer the world or take it down in blazes with him before he died. For months she had told herself that it was merely a plot by the inept American CIA to have Kolchak assassinated. During the months since Rudy had shown her his CIA-supplied weapons, she had carefully followed the Premier's movements. Once during that period Kolchak had disappeared for two days. Discreet inquiry had located him in the hospital. That in itself was not sufficient proof, but now Kolchak's comatose unconsciousness convinced her.

She had been only recently promoted, given another star. Her duties were more and more confidential, nearing the top-secrecy rating inside the Kremlin. As a senior military advisor, she sat in on briefings from the KGB and was aware of the strong American resistance in South America. Unbeknownst to the Russian masses, there was a full-scale war going on in the jungles and mountains of South America. Everything pointed to Rudy's being right. And now she was sure that Kolchak's illness was terminal.

For days after Kolchak had been wheeled on a stretcher from his office to the hospital, she half expected to hear a stern knock on the door when she went to her quarters. Then Kolchak called her back to finish her briefing on the combat readiness of non-Russian divisions, and when she'd finished, he looked at her and said, "I trust that my momentary weakness is not general knowledge."

"I spoke to no one, sir," she said.

"That is for the best, General," he said. "The doctor said that you studied emergency first aid as a young woman, that you'd taken good care of me before he arrived." She nodded. "I need someone with me at all times," he continued. "If, for example, I had passed out over dinner, I might have drowned myself in my own soup." He chuckled.

"I would advise a trained nurse, sir," she said.

"That would be bothersome. You, unlike a trained nurse, are well versed on matters military. You can make sense for me of military jargon from the fronts. You will, General Pulaski, become my number-one aide, with another star on your shoulder patch. Do you know of anything that would make you unsuitable for that position?"

"No, sir. I'm very flattered."

"Good. There is a suite of rooms just next to mine. It's quite luxurious. During working hours, when I am alone, your office will be open to mine."

"Thank you, sir," she said, rising. She could not help but be pleased. She was a Pole, and now she held the next highest military rank in all of Russia. She might even become a marshal, with Yuri Kolchak's support.

She clicked her heels, saluted, turned smartly, and was halted short of the door by his voice.

"One other thing, General Pulaski," he said. "Since we're going to be working closely, we might as well understand each other totally."

She turned, saw a smile on his handsome face. "I have no wife. You are unmarried and a very attractive woman. If, at any time, you should find yourself in need of male companionship, my capacity is undimin-ished in that area."

By Lenin's beard, he should not have said that!

And he was going on. "It would be quite a nice arrangement, by the way. There is a connecting door between our suites. The position I hold dictates that I act discreetly in such matters, you see."

"Thank you, sir," she said, turning and marching out the door. He should not have said that! All through her military career she had been forced to fight the advances of men. ("You'll find, Private Pulaski, that the training is easier for attractive women who cooperate" ... "I have you in mind for promotion, Lieutenant Pulaski; would you care to come to my quarters tonight and discuss the, ah, possibilities?") Now from the top! And he had approached her as if she were some naive officer's candidate fresh in from the provinces.

When she was installed in the suite next to his, and in the office next to his, she received an upgrading of her clearance and was privy to everything below the very top level, which was limited to Kolchak and the most powerful few of the politburo. She began to search carefully for more evidence that her brother-in-law was right, but where does one look to find out if the Premier is mad enough to force nuclear war?

On a cool night in September, still racked with indecision, thinking one minute that Rudy Virchow was right, the next minute that Yuri Kolchak was the sanest man alive, she resolved to put the matter to rest once and for all. She knew the best way to a man's secrets; she dressed in a filmy, silken nightgown that came just above her knees and knocked on the connecting door to Kolchak's bedroom and entered upon his invitation.

He was leaning back against a pile of pillows, reading glasses low on his nose, a pile of papers across his covered knees.

"Ah, Marshal," he said, upon seeing her. He had hoped she'd come, but he knew her to be a fiercely independent woman of great pride, and until she appeared in his bedroom, he had doubted that she would accept his invitation.

He let his eyes feed on Theresita as she stood at the end of his bed. Health seemed to radiate from her, and perhaps that—as much as her oval face, her mass of light brown hair, the generous curves of womanhood— was what had attracted him. She was a big woman, true, but of exquisitely proportioned femininity. In uniform she'd given only a hint of the full, lush curves that were now emphasized by her scanty nightgown. She was smiling, her well-formed lips full, her large, brown eyes smiling with her mouth.

The gown was thin enough to show her bulging nipples and the brown circles around them, the healthy mass of hair over her pubic area.

"I find my bed quite cold and lonely tonight," she said. In spite of herself, she felt a quiver of odd excitement, and that quiver grew to a torrent as Yuri Kolchak proved that his ability in that department was indeed not diminished.

SEVEN

Dune Rodrick began pushing buttons even before the controller gave him a go from the pad at Everglades. The on-board computer was clicking off digits and blinks, and he felt power build in the seat of his pants as the little trainer rose slowly and gracefully to the hissing roar of hydrojets. At five hundred feet his view encompassed the watery national park to the south and the high-density towers of the sun cities to the north, east, and west.

His departure had been squeezed in between a relay of shuttles, and as he got clearance and flight path instructions from National Control he saw out of the corner of his eye one of these enormous space shuttles come wafting down from the northeast like a flat rock. He pushed a button, leaned back, and felt grim satisfaction as g-forces seemed to make him one with the padded couch and the space-service Airdart maximumed out at Mach 2.4 in three minutes and twenty-two seconds.

Yes, he could still take it. Just like the old boys back in the dim, dark pioneer days who climbed on top of a tube filled with explosives and lit the candle. Except that things had changed a little. Just at his back, behind the padded couch and the bulkheading, the liquid-hydrogen engine was a silently operating piece of engineering. And the sound of the roaring hiss of power was, of course, left far behind, and there were no vibrations, only a sense of serene peace belied by the swift movement of the ground seventy thousand feet below.

He saw the Mississippi, a gleaming ribbon of reflected sunlight, and the squares and angles of the ever-present cities climbing and dipping in the pleasant, piney, rolling mountains of southeastern Arkansas. Before long the command tower was beeping at him and a cheerful female voice was telling him that he'd have to loaf a while to allow a couple of transporters to clear the strip at Desert Haven. He didn't mind. He didn't get to solo often enough. Sure, it was a kick to squeeze into the command chair in an orbiter and have it all under control, to know all the hundreds of instruments and to go through the always careful and complicated check-down and then feel the vast power of rockets engaging, but there was just nothing to match being a part of a sweet little bird like the Airdart.

He stepped down from speed, felt the angle of thrust alter, loafed across the Utah landscape, losing altitude rapidly until he could see it down there.

Desert Haven. It sounded like some new development for retired seniors. But from fifteen thousand feet it looked like a lot of construction sites he'd seen.

Lightweight metal temporary housing. Bustling machines clearing rocks for more housing. The dust. The big workhorse air transporters rumbling along the runway, two orbiting the field waiting for landing instructions. One of the crawling freighters taking off down the strip to accelerate slowly and then lift ponderously into the air to struggle for height.

To a trained eye, at his low altitude, it was evident that there was something there beneath the so carefully landscaped desert. There was just a hint of a subtle change of tone or texture in a large area near the temporary-housing areas. In a few more months, after a few more of the infrequent rains, it would take process photography to see that the desert hadn't been there forever.

It was big, whatever it was.

Rodrick was somewhat stoic in his attitude toward his orders to report for a briefing to one Harry Shaw. He was a serviceman, first and foremost. His dedication had not always served his best interests, he suspected, and he realized that his thoughts were being influenced by the fact that he had probably flown right over Ellen's little den of artistic splendor somewhere down there in southeastern Arkansas. He didn't think about Ellen too often. There are some women who just are not temperamentally suited to being the wife of a space-service officer, and Ellen had been one of those. "No hard feelings, darling," she had said, "but I have decided that I want a permanent and not a spare-time husband." Well, that was Ellen.

"You may come on down and join our happy crew, Captain," said the woman in the temporary tower down there at Desert Haven, and he dropped the Airdart like a lead arrow and lifted her with a flair into balance just before disaster, which brought from the tower, "Whoopee, hot dog!"

Well, he didn't know what the hell he was doing out there in the western wasteland anyhow, and he was busy trying to dream up some excuse to take the long way back to Everglades, around the world, when he was finished.

He was met by a National Service Corps woman—a corporal. He was zipped by all-terrain crawler to a well-camouflaged entrance to the underground, then transferred to a monorail bullet that made smooth rock walls zip past with dismaying speed. Speed on the ground, near objects as solid as those virgin rock walls, made Rodrick a bit uneasy, but his guide was chattering away, telling him how wonderful it must be to fly up into space all the time and see the world spinning around down there.

"Ever been up?" he asked as the bullet began to decelerate, sending him forward against the restraining gear.

"Just once," she said. "I loved it."

"Maybe we can work something out." He gave her the patented Dune Rodrick grin, still a bit boyish, just a trifle suggestive. "I don't know how long I'll be out here, but just in case, give me your name and how to get in touch and when you're free. "

Dune Rodrick was thankful that women seemed to be drawn to him. He didn't question it. He simply accepted it as a gift and enjoyed it. Sometimes it seemed to him that it came with the territory, but he never let such doubts linger long. It was natural for women to be attracted to men like him; it had been happening ever since the first of the old barnstormers donned goggles and a leather hat with earflaps and dared the sky to crunch him. From what he'd read, the first of the old daredevils to ride the flying bombs back in the pioneer days at Canaveral had been no slouches in the love department, but a man had to feel that it was something in*him,* not just in his chosen occupation, that made the difference.

The National Service Corps corporal turned him over to the security boys, who gave him a thorough going-over to prove to themselves that he was indeed Captain Duncan Rodrick of the U.S. Space Service. Then they opened a metal door and escorted him into a long hallway that led to a little office, where a small, dark, smiling man met him with outstretched hand.

Duncan Rodrick stood tall at six feet three, was slim and athletic, had about him at all times a hint of parade-ground posture, but was, in spite of it, comfortable to be with. He had dark blond hair that was still youthfully thick, trimmed to service regulations, and a lean, clear-skinned face. His uniform was tailored.

Harry Shaw still tended to think of responsible birdmen as white-haired, over fifty, a bit thick in the waist,

with the secure, kindly look of a country doctor about the eyes. But this Duncan Rodrick was no passenger-liner driver. He was a space bird, and his record and his personality profile had indicated that he was stable, responsible, and knowledgeable in two important fields of science: physics and chemistry. Top of his class at the space academy. Excellent record. Senior captain at forty-three. Not a mean accomplishment in a very competitive field.

Rodrick looked younger than his age, and Shaw, when he looked into Rodrick s eyes—piercing blue, crinkled at the corners by the sun and laughter, the eyes of a young hawk—decided that he both liked and trusted the captain instinctively.

"How much did they tell you, Captain?" Harry Shaw asked.

"To come see you," Dune said.

"Okay. Well, where do I start?" Shaw sat down at his desk, and Rodrick recognized the standard space-service records folder and had no trouble seeing his name on the front of the folder.

"Tell me who you are," Rodrick said, "then why you need a space jockey out here in Utah."

"I'm project engineer," Shaw said, "and one of my functions is to screen the crew for an unusual space vehicle."

"Sir," Rodrick said, taking off his hat and sitting down in an imitation leather chair in front of the desk, "you now have my attention."

"We ran the data on all space-service officers through the computer. ..."

"Standard procedure." Duncan appeared relaxed, one elbow on the arm of the chair, but he was at full attention inside. He had dreams. The Martian sky, blue-black, empty. A huge nothingness of rocks and reddish sand and intriguing, ancient watercourses and water icecaps all cold and god-awful lonely. Lord, he'd like to go back.

"Your index of leadership is very impressive," Shaw said. "Note that you took a double major in applied psychology."

"That's affirmative," Rodrick said briskly.

"Are we up to date on personal attachments?" Shaw asked, looking at those blue, hawklike eyes and thinking,*Hell, this has to be our man.*

"Divorced four years. Unattached."

"No children."

"That's a roger."

"Command pilot on the last Mars expedition."

"Yes, sir."

"Would you have any objection to an assignment of long duration?" Shaw watched for reaction.

"None."*Hot damn,* he was thinking.*Hot damn.* Long duration. Months to Mars. Months back.

"From this moment on, Captain, you're to be bound by the National Security Acts."

"I understand."

Shaw rose. "Let's take a walk."

They boarded an elevator that plummeted, then jerked to a stop with a force Rodrick felt in the soles of his feet. The door opened, and he took two steps out into a vast, open area. He froze in his tracks. For a moment he lost his composure, was transformed into an openmouthed, awestruck kid.

"Great God almighty," he said.

The room was big enough to have its own atmosphere. The ceiling seemed almost miraculous in its hugeness, the circular walls sweeping away into the distance, the far areas dimmed by the fumes and smoke of hundreds of welders at work. But it was not the cavernous area that held Rodrick's eyes.

*She*sat there, skeletal in areas, plates hiding her bones in large areas, workmen made tiny by her mass, crawling over her like ants, bright flashes of molecular bond welders, clanks of contacting metal, a shouted order that seemed to echo away forever into the distance.

And she was built for space. He'd seen*pictures* of ships like this, paintings and drawings of various prototypes in both the scientific journals and the cultish, esoteric science-fiction press. She must be a quarter of a mile in diameter from rim to rim, and she'd obviously have centrifugal gravity as she rotated around the solid core of her giant wheel. The spokelike tubes connecting her core with the outer wheel could have any number of uses. Sleeping quarters, for example. Restful sleep in null gravity. Labs and factories in the core. Green areas, exercise spaces, daytime living quarters in the spinning rim where circular motion would give the illusion of gravity to the hundreds of people she'd carry. Yes, she was built for space, and here she was buried under the Utah badlands.

"I know how you feel," Harry Shaw said in answer to Rodrick's involuntary words of wonder.

"My only question is who do I have to kill to get on her when she goes?" Duncan said.

The ship had burned her image on his eyes. He followed Shaw back to the office, sat down in a daze, still trying to remember the complexity of her.

"She'll be the biggest thing in space," Rodrick said. "But why build her on the ground? All the other space stations were assembled in orbit."

"Good question," Shaw said. "She's not a space station, as such."

Rodrick felt his hands begin to shake. The dream came to him, flowing into his gut. But it was impossible. She couldn't possibly be a carrier to the distant stars.

Shaw pushed a button, and a planet very much like Earth appeared on a screen.

They must have sent out a probe two or three decades ago, Rodrick thought, to have a vehicle go to that beautiful water planet and come back. That's why Shaw had asked him if he minded an assignment of long duration. They'd found a way to push that big mother down there to near light speeds, and she'd be in space for years and years.

"I want to go, Dr. Shaw. Whatever it takes, I want to be on her when she lifts off."

"You impress me very favorably."

"Who else do I have to impress?"

"We'll get to that in a moment. There are some things you should know before you agree to being assigned ship's captain."

Rodrick took a deep breath. He had not even dared hope for that. He'd been thinking in terms of, say, fourth officer, or even eleventh flunky, whatever it took.

"First," Shaw said, "we will not be able to test the engines or the vehicle."

Warning bells began to go off in Duncan's head; a man could get killed in a nondebugged bird.

"Secondly, our probe was not near enough to get close-up pictures of that planet. All we know is that there are, apparently, no noxious gases in the atmosphere, and that there is free water in plenty. Oh, yes, we detected the carbon-dioxide output of plentiful plant life."

"Go on," Rodrick said.

"Crew of fifty," Shaw said.

"Sounds good."

"One thousand passengers," Shaw said, looking at him closely.

Bells of alarm. You never, never endanger the lives of the nonservice folk. He was tempted to say, "Thanks, but no thanks. No way do I take responsibility for a thousand nonservice lives in an untested vehicle."

"Where are we taking one thousand passengers?" Rodrick asked instead.

"That's 61 Cygni A," Shaw said, changing the image from one planet to the entire solar system.

"I draw a blank."

"Eleven point two light years that-a-way," Shaw said, pointing.

"You've had a ship out there and back?" Rodrick said, not daring to believe.

"Yes, and farther, with the usual life tests aboard. No humans, no experimental animals on board. Amino acids. Cells in suspension. DNA molecules. All undamaged."

"The power source was tested on the probes?"

"Right." Shaw sat back and looked at Rodrick, satisfied. "There's someone else I want you to meet before we continue," he said. "I'll get you clearance for Washington. He's holding time open for you if you're interested in the assignment."

Rodrick stood. "I'm ready to go."

Within the hour he was escorted into Dulles by two deadly, beautiful interceptor aircraft.

He liked President Dexter Hamilton from the beginning, for his down-to-earth humanness and the candor with which he explained, with the help of the somewhat chilling projection of Soviet Premier Yuri Kolchak, why it was necessary to take one thousand civilians on an untested ship into a journey of eleven and two-tenths light years with, unless they could dig up one heck of a lot of a scarce metal, not enough fuel to make a round trip.

It was a subdued and sobered Duncan Rodrick who flew in the early dusk back to Everglades Space Port. He spent a sleepless night in his quarters. By morning, however, he felt great. Great, but a bit humble. Who would ever have thought Rose Rodrick's fatherless little boy Duncan would ever be in sole command of a ship big enough for a few football fields and an amusement park with swimming pools? It was a tremendous load laid upon his shoulders by President Dexter Hamilton. "Once the ship clears atmosphere, Captain," Hamilton had said, "it will be up to you— your judgment, leadership, and ingenuity. We don't know what you'll find out there in the stars, but you will go knowing that there is a fair chance that you will be responsible for what might very well be the last survivors of the human race."

"You can handle it," Rodrick told himself. "You can handle it."

EIGHT

Things seemed, to Oscar Kost, to be going as well as could be expected. Considering the number of people involved with the Utah project, only one security leak had been uncovered: a microwave transmitter hidden on a sand dune. The CIA teams were alerted and had kept it under surveillance without success. Kost felt that someone had tipped off the spy and that now he'd never be detected. But Kost was sure no real harm had been done; after all, the crucial secret, the Shaw Drive, was still under unbroken security at Vandenberg, with some details still known only to Harry Shaw. Still, as with the atomic bomb two generations earlier, just enough information might have leaked out so that others could also come up with the secret or understand what the United States was up to in Desert Haven.

Thus he got a very, very bad feeling when Norad Missile Defense reported a new surge of preannounced shuttle activity from the Russian orbiter bases in lower Siberia.

"They gave advance notice," he told Dexter Hamilton, "for a major construction project, supplied from specific bases using their standard orbiters. They're already launching three and four runs a day, and the payloads are heavy."

"Maybe it is just another space station," Hamilton said, not believing what he was saying.

Three months later Norad received notice from the Brazilian government that their own major construction project would begin in space. So information about the Desert Haven project had leaked to the Brazilians too! Kost found his morale sinking even lower. He knew these were not ordinary space stations the minute he was shown photographs of the Russian and Brazilian projects. Without gravitational stress, a space station could be built with spidery networks of light metals. But the two so-called space stations that were taking skeletal form were being built with massive, strong metal beams and girders.

Allen Jones, an underwater architect who had designed and built the ceiling over the ship's construction bay in Utah, examined the photographs and grunted when Oscar asked him to estimate construction time. "Well, they completed the molecular bonding in about a third of the time it takes to do the same job under gravity."

"We've got a head start," Kost said.

"We'll need it, ' Jones told him.

Kost waited for one more development before informing the President of his conclusions. He hadn't wanted to bother Hamilton until he was sure, because Hamilton was in the middle of a heated fight during the midterm elections of 2038 for House and Senate seats. The bloody fighting in South America was the main political issue. More and more American families were being notified of the death or maiming of a son, husband, brother, or father, and Hamilton's administration was being blamed by the opposition.

"I think the Russians and Brazilians are managing to figure out the Shaw Drive for themselves," Oscar told the President. "Yesterday the Russians launched three so-called outer-planet probes. Then, just today, the Brazilians also put two vehicles up, and they're scooting away from Earth toward the outer solar system right behind the Russian vehicles."

Hamilton's face twitched. The strain of office, Kost noticed, was beginning to affect even him.

"What's Allen Jones's estimate of completion time for the Russian and the Brazilian ships?" Hamilton asked.

"They'll be structurally complete in less than a year. Say most of another year to outfit, equip, put the life-support systems in place, mount the engines. By the time they get word back from their probes in just over two years, they should be ready to launch," Oscar said. "If they're really eager, they could start the big ship moving outward while they're still waiting for the results of the stellar probes."

"What happens if their probes come up empty?"

Kost sighed. "We have to assume that their spies told them where we're going, that we've found a water planet."

Hamilton tapped his strong, white front teeth with a fingernail. "Damn, we can't take up valuable space on the ship with an army. What if the Russians, or the Brazilians, or both, not having found a planet of their own, decide to take ours away from us?"

"Well, we're just beginning our selection process," Kost said. "We could look for people with military experience, along with their other qualifications. That would limit us somewhat. Military service hasn't been popular with the scientific community for a long, long time."

"Wait a minute, Oscar. I may have it. I was just reading about a project financed by the Department of Defense. There's a woman at Cal Tech who has made some fantastic advances in mnemonic minicomputers, artificial brains. There were hints that weapons of great versatility have been developed in robotic form—" He paused, remembering. "A woman named Grace Monroe. Developed something called Mopro. Stands, as I remember, for Mobile Overt Protection Robotic Operator. How busy is Rodrick out in Utah?"

"Well, it's never unexciting," Kost said.

"Have him take a few off and chase down this Grace Monroe to take a look at her robot arsenal."

"Might be the answer," Kost agreed. "Store the thing away in a cargo hold until they reach the destination."

"Meanwhile, I'll have Norad keep an eye on those probes," Hamilton said. "We can intercept the signals and get a clue as to their intentions. And, Oscar, how are you doing on procurement of that blasted metal?"

Oscar spread his hands. "We're short over a metric ton for the trip to 61 Cygni, with a reserve for the short hop to the companion star as a safety precaution. And over three metric tons for a return trip."

"Well, keep on trying, Oscar." Hamilton rubbed his chin. "We might consider going public. There might be considerable rhenium lying around in junkyards and salvage depots as part of discarded electrical equipment. What do you think, Oscar?"

"I'd be surprised if we gathered more than a few pounds that way."

"Well, we'll keep the possibility in mind," Hamilton said, rising from his chair. "I'm not sure if it's all bad or half-bad, their apparently coming up with their own version of the Shaw Drive. I wish I could get inside Yuri Kolchak's head for a minute or two. There's no letup on the pressure on South America, and no signs that Moscow wants to cool it at all. We're just going to have to go ahead on the theory that things have not changed." He squared his shoulders, and his voice took on a serious tone. "The United States offers the last hope for this world. We're facing the gravest crisis anyone has faced in the history of humankind. My main efforts, my total purpose in life, is to assure that the good this country represents will not die. That ship*must* lift off, and no later than twenty-five months from the first of the month. It*must* reach that planet that orbits that far star known as 61 Cygni A. And if we have to fight for that planet, we must be prepared to fight, and win."

Theresita Pulaski was a soldier. But she was also a woman. Before she went into Yuri's bedroom clad in a revealing nightgown weeks ago, she had never used sex in any way to gain advantage in her chosen career. She had come to believe that she had done so in this case, for in his arms that night, she'd realized quite quickly that her entrance into his room had not been merely to find out if what her brother-in-law had told her was true. There'd been something else.*That* was confirmed as they made love, because although she was not inexperienced, no man had ever touched her so vitally as did Yuri Kolchak.

She had convinced her brother-in-law to wait, but for what she was not certain. Did she really need more time to prove that the man she loved intended to plunge the world into nuclear disaster, or was she selfishly stalling to have more time with Yuri?

He had not admitted to her that he was suffering from a terminal illness. And yet, knowing him as she did, she recognized in him a certain desperation, a feeling of urgency. "I have been thinking of our taking a grand tour," he had said several days earlier. "Africa. The pyramids. The ruins of the ancient Greeks. But we don't have enough time."

"That would be lovely," Theresita had said. "But enough time for what?" All formal titles of address had been dropped between them when they were alone. In office, in work situations, there was usually no title at all, no name used. In the bedroom it was different. There they used a variety of love names.

"My darling Marshal," Kolchak said, surprising her greatly, "once before I trusted a woman. I trusted her with things far less vital than the secrets I have shared with you."

"I withdraw my question," she said quickly. "I had no intent to pry."

"No, no, I should not be so cautious around you, my dearest," he said. He leaned toward her conspirato-rially. "There is not enough time for me to take a vacation and conquer South America. Besides, if I leave Russia, I will be an easy target."

Theresita stiffened. "You think someone wants to kill you?"

He shrugged. "If I told you, my sweet, big lady, that I would kill you if you didn't give to me something that you valued, perhaps more than life, would you try to save that something, and your life?"

"Uramm," she said. But she felt a sinking, terrible sadness inside her. So it was true. But didn't he realize that by issuing an ultimatum to President Hamilton that he was doing to her, and everyone else in the world, the very thing he'd just described?

And now she had to murder the only man she'd ever really loved.

NINE

It took a top secret, a secret clearance,*and* a confirmation call to the White House to get Captain Duncan Rodrick admitted to Grace Monroe's laboratory at Trans-world Robotics. Private industry was, it seemed, even more security-conscious than governmental agencies.

Transworld's underground plant and surface offices were located in high desert country in the central part of the state of Washington. Dune arrived there by Airdart and looked down on some pretty spectacular country as the plane approached Transworld's private airfield. He was escorted by an armed guard to the lab area, some three hundred feet underground, where a full-bodied woman in her early fifties, very attractive, rose from behind a desk to firmly shake his hand. "Hello, I'm Grace Monroe. It's so nice to meet you, Captain Rodrick."

Dune looked into smiling, brown eyes and began to like this woman. "You're not at all what I expected," he said.

"You expected a dirty white lab coat, stringy hair, thick-lensed glasses." Her laugh was contagious.

"Something like that. Typecasting for the lady genius."

"There is no need for me to be a genius and dowdy," Grace said affably. "Now, tell me in your own words why you're here, and then I'll know whether to be myself—which is overwhelmingly charming—or reserved and cool, in case you're here to pry something out of me that neither I nor Transworld would want pried out. Sometimes the most innocent requests from Oscar Kost develop into a friendly disregard for corporate secrets."

Dune held up his hands and laughed. "I just want to see Mopro," he said.

Grace laughed. "Well, that's a relief." She walked briskly to the desk and pushed a button. Her voice was crisp, authoritative. "Hold calls, please. Priority One, and I'll be in the armory."

Short walk. Familiar underground monorail. Gray stone walls fleeing past. Short walk.

"The model you'll be seeing is our newest, the TR-5A. You could have seen the TR-4's much nearer Washington at Aberdeen."

"I wanted to get my information from the source," Dune said as guards checked credentials and admitted them to a barren, lead-walled area. He followed Grace through more doors.

"Someone I want you to meet," Grace said, opening one last door.

A tall man in uniform was playing darts. At the sound of the door opening he carefully let loose three darts in quick order, all three thunking into the bull's-eye of the target within a quarter-inch circle.

"Very good, sir," Duncan said, coming to attention and giving the admiral who faced him a salute. It was returned sharply.

"Thank you," he said. He stood above average height, probably six feet two. He was in regulation officer's tans, cap square, no wrinkles, tailored, chest weighed on one side by a profusion of ribbons looking as if he'd won every medal the navy had to offer, the gold braid and insignia of a full admiral, face, body, and appearance of a thirty-year-old.

"This is the admiral," Grace said to Dune with an odd smile, then turned back. "We're going to put TR-5A through his paces. Would you care to join us?"

A boyish smile lit the admiral's face. "Oh, golly, Grace, I'd love to." He snapped to attention, the boyish

smile gone. "Dr. Monroe," he said, with stiff formality, "permission to arm and demonstrate my own marksmanship for our visitor?"

"Not this time, dear," Grace said. "This is TR-5A's show."

The straight, proud, military stance did not change, but a look of pain came over the admiral's handsome face, and a tear formed and rolled down his cheek. Grace sighed, turned to Dune. "Would you mind if the admiral also demonstrated his prowess?"

"Not at all," the captain said woodenly, wondering what the hell was going on. A grown man with the insignia of an admiral crying because he couldn't play with his weapons?

"All right, then," Grace said to the admiral. "But only the side arms, do you hear?"

"Yes, thank you," the admiral said, smiling gleefully.

"Now go activate TR-5A and put him through his paces for the captain."

They sat behind thick glass, looking down onto a platform. Duncan, still puzzled, didn't speak until they were seated.

"I don't quite understand all I'm seeing," he said.

"You'll have to excuse his emotionalism," Grace Monroe said. "After all, he's only two years old."

"Say again?"

"Oh, yes. I'm pleased that you didn't realize that immediately. While we're waiting, I'll tell you about our admiral. You wouldn't be seeing him at all if that devil Oscar Kost hadn't called out and given orders that *nothing* was to be held back from you. You are the seventh person to see the admiral, or even to know that anything like him exists."

"But he's*alive,"* Duncan protested.

"Yes, in the same sense that a computer that uses amino acids and biological synapses is alive. Don't get me wrong. He's very much a*person.* Emotionally, he is often a two-year-old. But he learns fast. Before we deliver him to the war room of the joint chiefs, he'll be an admiral in every respect."

Lights went on below, on the platform on the other side of the thick glass. The admiral, resplendent in duty tans, appeared, a standard-issue automatic balanced on his hip on either side. He faced them and saluted.

"Dr. Monroe and Captain Rodrick," he said, "I have set myself an interesting task, based on my current assimilation of techniques used by the South American insurrectionists when the current war was in the limited stage."

He turned, and the wall behind him rumbled upward to disappear into the ceiling. Now there was jungle there, a space fifty yards wide and perhaps a hundred yards deep, but truncated at the top so that as the admiral stepped into the bush his movements and whereabouts could be seen by the observers in the glassed-in booth.

Two yards into the jungle the ambush was sprung, and in a flurry of motion the admiral rolled and fired, sending realistic bodies falling, moving so swiftly that at times he was a blur. He moved on. A sudden explosion caused Duncan and Grace to leap to their feet. The admiral appeared in the smoke, unharmed.

"Admiral," Grace said, her voice urgent, "you're not invincible, damn it."

"Have no fear, Grace," said the admiral's voice from a hidden speaker somewhere in the booth.

Attacked from three sides, the admiral moved into that blur of motion, his handguns blazing, bodies of realistic guerrillas falling. After a scene of unbelievably swift hand-to-hand combat, he had made the circuit of the artificial jungle and was standing below them, his face serious. And for the first time Duncan saw a hint of something not human about him: His eyes glowed as if with an inner fire.

"He programmed that himself," Grace said. "I hadn't intended him to be a man of action, merely a walking data bank, an animate computer. But he's been full of little surprises."

The wall lowered behind the admiral, and there were vague, distant rumblings.

"That was quite impressive," Grace said to the admiral, who threw her a lighthearted salute and that engaging boyish grin.

If you'd let me use automatic weapons, it would have been more impressive," he said.

"Next time, dear," Grace said. "Please proceed."

"My God," Duncan said, as a*thing* glided onto the platform below. In bulk, it was about three times as thick in the middle as the admiral, six inches taller, vaguely humanoid and yet unmistakably a machine. His head was cylindrical and circled by ultrasensitive, multipurpose sensors. The arms were hinged, thick, massive, the legs individual, but apparently capable of being joined at the bottom with a crossbar so that there was a choice of articulated feet or else some sort of triangular tracked motor power.

The wall slid upward with a growl behind the thing and the admiral. Now the space extended far away, down a huge tunnel that ended in a wall of rumpled material.

"First, Captain," said the admiral, "we will demonstrate Mopro's stationary rapid-fire capability."

No audible orders were given. The TR-5A Mopro glided to face the long tunnel. In a microsecond two massive arms were flung up, five fingers on each "hand" extended, and into the booth, muffled by sound absorption, came the roar of ten automatic weapons, and from the outstretched "fingers" of the TR-5A came what seemed to be, at first, beams of light. And at the far end of the tunnel the rumpled material glowed and burned, each touch of fire indicating the impact point of an explosive, tiny projectile.

Dune's attention was fully on the fiery extensions of the robot, but he turned his head as Grace nudged him on the shoulder to see the admiral wheeling out an odd vehicle, moving swiftly.

"He'd exhaust his ammunition in just over a minute," Grace said. "Watch this."

The admiral jerked a belt of bullets from the odd vehicle, a port opened on the Mopro's backside, and the continuous belt of ammunition began to disappear into Mopro's bulk.

"Mopro can now fire for thirty minutes without stopping, and if you want a problem in applied metallurgy, try to find an alloy that will stand up to*that,"* Grace said. Then, with her voice raised, "Admiral, that is fine, thank you. We've had enough rapid fire."

There was a silence. The admiral was at attention as he said, "Now, Captain, rapid fire*and* heavy artillery. Let me point out that the charge in the artillery projectiles is reduced by necessity."

"To keep from blowing up the whole damned place," Grace said with a grin. "They've been after me for

a month to let them go down to an artillery range in Oklahoma to use live shells."

Again there was no audible order. As if in explanation to Dune's unspoken question, Grace said, "They communicate by radio."

Mopro began to lower himself, as if to kneel, but as his legs bent, the knees separated, braces driving down to the platform, the thighs aligning themselves at a slight angle, pointing cavernous muzzles toward the far end of the tunnel. The arms were raised. The rapid fire began, and from the trunks of the thighs came smoke and invisible missiles that exploded in blinding blazes of light amid the sparkling, smaller blazes of the rapid-fire bullets.

"Antitank fire," the admiral said calmly, and from Mopro's forehead there protruded a small laser cannon that added *its* own colorful fire of destruction to the rainbow of chaos at the end of the tunnel.

"Ground-to-air defense," the admiral said.

Tiny missiles, trailing rocket fire, blasted from Mopro's shoulders and impacted in the zone of fire.

"Acid fire," the admiral said.

The stream of fiery, fuming, deadly fire emerged as a swiftly speeding jet to splash far away against the end of the tunnel from, to Duncan, an unexpected source. The nozzle had appeared just at the joint of Mopro's massive thighs, a metallic penis that belched death.

Duncan laughed. "I think someone around here has a sense of humor," he said, smiling at Grace.

"Not fair," Grace said, but she was smiling in return. "We just ran out of space. After all, we had to have some space left for the power unit and the brain."

Now it was quiet. The far end of the tunnel blazed and smoked. The admiral was at attention. The TR-5A turned, lifted one massive arm in a salute.

"Thank you, gentlemen," Grace said. "You may now go and service yourselves."

Dune sat, somewhat stunned by the deadly display. If Oscar Kost wanted an army on board the ship, Mopro and the admiral would, he felt, do the trick.

Grace's full, attractive face was no longer smiling.

"Aren't you going to ask me why I build things of war?" she said.

"If you want to tell me."

"My specialty is the human brain, Captain. It's one of the few remaining mysteries of the universe. The mind makes us human. I have a burning desire to know what the mind is, how the brain functions, what it is that lives in those tiny electrical currents and the exchange of complex little chemicals between synapses. I soon found out that it would cost more money than any university could come up with, more than any private company was willing to risk. The admiral's semibiological brain was developed over a period of ten years at a cost of just under fourteen billion dollars."

"And the only place with enough money was the government," the captain said.

"Department of Defense. Always in the market for new weapons. Mopro is designed to replace the human soldier at the front. In fact, they're due to start moving some of the TR-4 models into combat soon. My TR-4's will kill a lot of people, if they hold up under jungle conditions, which I believe they

will. And the admiral is going to the joint chiefs as an aid to war planning. I don't want to live under Communism. I guess I'm no more immune from duty to country than anyone. Meanwhile, I've got one sweet setup here at Transworld, and free time to do my research. By building a brain like the admiral's, I come that much closer to understanding my own."

"The admiral is very impressive," Dune said.

"He represents a great advance." Grace rose. "Well, I don't have any idea why Professor Kost is interested in my boys, but I've invested a lot of work and some love into them, and he is not to treat them lightly."

"I'm sure he won't," Dune said.

He left Transworld Robotics for Washington to report to Oscar. Dune knew he had found both a new friend in Grace—one of the most genuinely friendly, warmest, and intelligent individuals he'd ever met—and the answer to protecting his ship against the Russians and Brazilians ... if they could find the necessary rhenium to send her into space.

"Where you been?" George Womble asked gruffly when the boy came into the cluttered office.

"You sent me to the post office, sir," Clay Girard said.

Clay had just had his twelfth birthday. But he had not celebrated it because his foster parents, George and Agnes, didn't believe in spoiling him. No gifts for Clay. No birthday cake.

"Well, where's the goddamn mail, then?" Womble snarled.

"Only bills," Clay said, handing over three envelopes with windows.

"What's that in your hand, then?"

"Well, it's a paper says the country needs a whole lot of— he paused, tried to pronounce the word with his lips —"a whole lot of r-ninum."

"Huh?"

"It's a white, silvery metal," Clay said. "Used way back in some electrical components."

"Let me see that," Womble said, jerking the paper out of Clay's hand. "That's rhenium, dummy," he growled.

"I thought maybe we might be able to find some in the salvage yard," Clay said. "They're paying a good price."

Money interested George Womble. He never had enough of it. The salvage business was damn slow these days. He read the paper, grunted, threw it onto the floor to join the other litter. "Might be a few grams of it on them old thermocouples, but not enough to fool with."

"This paper says the country needs it real bad," Clay said. "It says it don't matter how little. Even old fountain-pen points would help."

"This country's always needing something real bad," George said. "Government better be glad there's still a few guys like me not content to sit on our asses and draw welfare. And then take on extra trouble

and expense like you."

"Yes, sir," Clay said. Scarcely a day went by that he wasn't reminded of the generosity of George and Agnes Womble for having taken a parentless boy into their home. He'd grown scar tissue over that particular wound. He didn't mind what George or Agnes said, as long as they didn't punctuate words with physical action, of which there was a bit too much for Clay's taste.

"You mind, sir, if I look around back there in my spare time?"

"You ain't making good grades in school. And Ag-nes's always complaining because you never finish your work. What spare time?"

"Well, I'll try to do better, sir. And I'm all caught up on chores. If I find any of that—r-rhenium—I'll split half with you."

"Very goddamn generous," George said. "Since it's mine in the first place." But he believed in a kid earning his way. "Tell you what, you find the time, you go ahead. We'll apply any money comes from selling the stuff to your school fees and clothing."

"Thank you, sir," Clay said. He saw George lean back, yawn in preparation for a nap, and decided that it was a good time to start the search for that silvery metal the country needed so much. The paper didn't say why the country needed it; it just said premium prices would be paid at any federal reclamation depot.

Clay was about average size for his age, and growing fast, much to Agnes Womble's dismay. Welfare paid the Wombles a set fee to keep Clay Girard in their home, and the boy was growing so fast, he was eating up some of the profit in new clothes.

He had unruly black hair that hung down over his forehead, a small, almost delicate face—George Womble said he'd have made a damn fine-looking little girl—and smooth skin, tanned by his eagerness to get out into the open as often as possible, even if his "open" was a junkyard on the edge of the old, non-sun city of Chicago.

Clay knew the junkyard by heart. As he headed for an area of industrial scrap, a small black dog named Jumper romped out from under a dead automobile and leaped up to lick him in the face. The dog looked like a miniature German shepherd, but was a mongrel so mixed that it had come up with a breed almost its own.

Down the row, safely out of view of the office, was one of Clay's favorite pieces of junk. Just seeing it stirred the adventurer in him. He whistled to Jumper, and the little dog leaped into his arms to be carried up over a rotting rubber wheel onto the wing surface of an old 200 Series jet fighter. In the cockpit, with Jumper riding shotgun in the radar seat, Clay became Captain Clay Girard, the fearless battle ace, with his faithful sidekick, Lieutenant Jumper.

By the time Captain Girard had wiped out the Russian Air Force and returned, wounded and bleeding, to his base, it was almost dark. He had only time to turn over a few pieces of electric-type junk and see that it was going to take Clay Girard, master mechanic, quite a while to get into the guts of the stuff to look for that silvery, white, precious rhenium.

He picked up Jumper and hugged him, then made his way reluctantly toward the gate and the crumbling shack. Up above, the evening star was out. "Look, Jumper," he whispered. "See that star? Well, it's not a star. It's the planet Mars, and it's way, way off, across space, and one day we're gonna go there."

Next evening he wiped out the Red Air Force quickly and opened up some stuff and took bearing points off. They were sort of heavy, and they were not rusted. They were rhenium.

TEN

A Red cosmosliner was centered on the viewscreen in the Hole. It eased toward the side of the*Karl Marx,* which the official news agency Tass described as the biggest space station in space, slightly larger than an almost identical orbiting wheel called, by the Brazilians,*Estrela do Brasil.*

The cosmosliner, a workhorse shuttle powered by the Russians' most powerful rockets, matched velocity with the*Karl Marx,* then cargo arms thrust a large, rectangular, shrouded mass out of her cargo hold. The mass was transferred to the cargo arms of the*Karl Marx* and disappeared into the port.

"What do you think, Harry?" Oscar Kost asked.

"Right size," Harry said.

"They've been pressurized up there for six months. Last few months they've been installing electronics, furnishings, pumping rocket fuel into the tanks."

"People?"

"Just workers. Couple of space-service dudes in uniform."

"Plants?"

"Not that we could tell. Lots of sealed packages."

"Nothing tree-sized?"

"Nope."

"It'll take them a few weeks to wire their Drive." Shaw stretched wearily. By now they were all certain that the Russians had managed to come up with a Drive similar to the one invented by Harry Shaw. So much for the parts he had kept secret. "When they start loading the green stuff," Shaw went on, "you'll know they're getting ready to stabilize the atmospheric life-support system. First they'll have to send up tankers. No water tankers yet?"

"Not yet. Lines of them waiting at the Siberian bases now. "

"That means they're close. When they put the green plants and the water on board, the people will follow quickly. Let's see. Their probes are now about three months from going lightstep. They must have had some problems along the way, because we expected them to have the*Karl Marx* moving outward to meet the signals from the probes."

"What's your best estimate?"

"Maybe a year-end present for 2040 to the Russian people," Shaw said. "And the Brazilians wont be far behind. I'd guess they'll be going no more than thirty days after the Russians."

"How about us?" Kost looked gloomy.

"We could go tomorrow if we had the colonists aboard and wanted to cut it real fine—by that I mean have only one shot, the Cygni A planet. We're still a couple of hundred pounds short of enough rhenium to take the ship out to the companion star system if Cygni A turns out to be unsuitable."

"We're getting in about a pound a day from the salvage effort," Kost said. "We should have started sooner." He sipped coffee. "You read about that kid in Chicago?"

"The one who brought in almost two pounds of rhenium?"

"The all-American boy and his dog. Doing his duty to his country," Kost said. "I'm damned proud of him. Wish there were a few hundred others like him."

"Probably are."

Oscar Kost sat up straight, almost spilling his coffee, reached for the telephone, demanded the President's press secretary, and got him quickly.

"Listen, there was a newsstat about a kid named Clay Girard in Chicago. Gathered up almost two pounds of rhenium from old contact and bearing points and thermocouples. Even had a few antique fountain pens with rhodium and rhenium points. I want that kid to be a hero. I want every kid in the country duplicating him, trying to get on television. Got it?"

Time was growing desperately short. Harry Shaw had set up a plant out in Utah to purify the rhenium that, since the news media had made a hero of young Clay Girard, was coming in very well from the salvage efforts. Oscar's inspiration to put the youth of America to work had certainly borne fruit. President Dexter Hamilton was certain the ship would go. The selection process for the colonists was almost complete, and practically everyone who had been invited to partake in the great adventure had accepted readily.

He sighed, wishing it wasn't necessary to send the ship into space. He wished Kolchak would change his mind, or be killed by the one agent America had in Russia.

It was difficult to hope, because things had been going so badly. Sneaky Pete Longstreet had tried to contact Rudy Virchow, but with no success. Meanwhile, Hamilton called the Russian Premier. "Yuri, I was half hoping that you've had a change of heart, now that you have your own starship. With the universe open to both of us, there's enough there in the stars for both our countries."

"I want you to understand," Kolchak said. "I'm a man who has been cheated. In your country the promised average lifespan is over ninety years. I'm just halfway there and dying. But I will not be cheated of my place in the history books. I will be praised as the man who made the dreams of Marx and Lenin come true, or there will be*no* history books."

"Well, Yuri," Hamilton said, "I want*you* to understand me completely. There is one circumstance that will force me to push the button first. You see, I am determined that there*will* be history books—if not on this tired old planet, then on a planet out among the stars—and to assure that, I will do whatever it takes. Should any attempt be made to keep our ship from leaving this planet safely, I will see to it that yours doesn't leave."

"I have anticipated that," Kolchak said, without explanation.

"And should our ship leave with yours close behind, and should your people attempt to stop us or take over the planet we've found, you'd better have some fast thinkers on board, because our ship is leaving with orders to shoot first and worry later, and we've got some pretty respectable detection equipment and firepower on board."

"Your ship will be allowed to leave unchallenged," Kolchak had said.

"Glad to hear it."

"However," Kolchak warned, "should you then refuse to bring down your armed space stations, and should you continue to resist the legitimate aspirations of the peoples of South America, we have means to see that your ship never reaches its destination."

That last, Hamilton was sure, had to be a groundless threat. He'd seen to it that the ship had the capability to destroy a salvo of hundreds of killer missiles. And yet he had his doubts; if the Russians had their own version of the Shaw Drive, that meant their spies could have had access to every little hiding place aboard the giant ship for hiding means of destruction from within. Hamilton ordered a thorough search, the ship had been given a clean bill of health.

In early December of 2040, the eyes in the sky spotted the entire Russian fleet on a course for the coast of Chile, where the American-backed forces were massing for the final elimination of the Russian regulars and their allies. His first reaction, when he heard that the fleet was escorting enough troop ships to put over a hundred Red Army divisions on shore, was to check with Oscar Kost and Harry Shaw.

The ship was ready. She had rhenium fuel sufficient for the trip to 61 Cygni A and enough left over to check out the companion star's solar system. For weeks the orbiters had been working full-time, carrying water, rocket fuel, supplies to the space stations in orbit. The ship would lift on her own rockets, go into orbit, and then the tons and tons of water, the tons of rocket fuel, the tons of other supplies, would be shuttled to her in space. That would be a vulnerable time, for she could, at that point, be reached by rockets not only from the Russian space stations but from the surface.

"Gentlemen, I want her to go up on Christmas Eve," he said.

Shaw looked at Kost, his eyes widening. He broke into a smile. "We're ready, Mr. President."

"Except for one thing," Kost said.

Hamilton jerked his head up.

"The name," Kost said.

The President smiled, relieved.

Shaw suggested that the ship be called the*Dexter Hamilton,* for it had been Hamilton's baby all along. A lesser man would never have been able to make the basic decision to go against the apparent mood of the country and pour billions into space. A lesser man would have been defeated at more than one point during the ship's construction. Furthermore, Dexter Hamilton would be in office for a third term. Due to the international crisis, the Roosevelt amendment had been revoked, giving the President four more years.

"Well, I'm very flattered," Hamilton said, "but I don't think that'll do at all. There's only one name possible, because that's what she really is."

"Tell it to us," Kost said, "and we'll have the painters working this afternoon."

"She's the*Spirit of America,"* Hamilton said simply, then got up to keep his appointment with the joint chiefs of staff in their own Hole far down underneath the old Pentagon.

When he was let into the Hole, he began firing questions. "The Russian fleet has not altered course?"

He saw the answer on a three-dimensional viewscreen—hundreds, thousands of ships protecting the sleek, swift troop carriers.

"At present rate of speed and course, when will the Russian fleet reach coastal waters?" the President

continued.

"The main force, about six days," an admiral said. "But they're bringing down some considerable force from north of Japan. We estimate consolidation of the two forces about December twenty-eight."

"So he's not going to make it for Christmas?" Hamilton asked.

The admiral shook his head, smiling weakly.

"Gentlemen, ' Hamilton said, rising, "I'm going to make a speech to the nation on December twenty-fourth. In the morning. Say ten o'clock. I want all our forces down there in position. I want you to be ready to hit that fleet with enough force to blow it out of the water. We'll be on red alert."

"It's high time," a four-star general said. The Russian Pacific and Atlantic fleets had been operating in Western Hemisphere waters with impunity. All along there'd been a majority on the joint chiefs who favored making the Russians pay a higher price, in the form of lost ships and dead sailors.

"By God, sir," said the admiral, "it's about time we fought a war to*win."* To date, the South American war had been fought on land, in the jungles, under the odd but firmly established rules of limited warfare.

Hamilton managed to conceal his disgust, his anger. But they'd all lived under the threat of the multimegaton Russian warheads for so long it was, perhaps, easy to forget that if he'd miscalculated, there wouldn't be a Christmas, 2040.

Back in his office, Hamilton summoned the secretary of State to the White House.

"George," Hamilton said, not even bothering to take the secretary down into the Hole, since it didn't seem to matter too much anymore if someone had found a chink in the White House security system, "I want you to go see the Brazilian ambassador, and I want you to tell him that we re going to make some definitive moves in South America. Be as strong as you like with him, so they'll know we are serious. Tell them that were not going to let Brazil sit on the fence any longer. Tell him Brazil is either with us or against us, and if they're with us, we want to see them move*all* their forces against the Communists in Argentina, coordinating their offensive with us in other areas, as well. Tell them if they don't fight with us, we'll use frags and acid fire on all Brazilian border areas that are known to harbor guerrillas, and if they try to stop us, we'll hit them with the power of everything we've got short of nuclear weapons."

"Uh, Mr. President," George said, a pained look on his face.

"No discussion, George. That's it. Period." He leaned forward. "Their deadline, George, is noon, December twenty-fourth, this year, not next year or the year after that."

"Mr. President, I must protest. I've been getting good signals out of Moscow of late—"

"Shut up, George," Hamilton said. Then he realized that poor old George didn't even know about the ship, but Hamilton didn't want to take time to explain it. He showed the years-old hologram projection of Yuri Kolchak's ultimatum. "I'm going to show this to Congress, George, the day after our starship gets out of range of Russian hunter-killers. I don't want the senators and representatives to say that South America is not vital to our interests, or that we should hit the Russians first. And I don't want to listen to their debates until it's too late. There's not much time left, George. Not much at all."

It was Clay Girard Day in Chicago. There was a parade. Clay and Jumper rode in an open car with the mayor, Clay's face pinked by the chill of the Chicago winter. The mayor made a speech about politics and the patriotism displayed by Clay and his contemporaries all over the country. The mayor didn't know why the federal government was making such a big thing about a bunch of young kids gathering up a few

pounds of some rare metal, but she wasn't going to miss out on an opportunity to make a speech.

The mayor had a special communications system hooked up to her microphone to accept and broadcast a prearranged call from the President.

Clay recognized the voice. There was that small hint of the South, the kind tone that he'd heard when his foster parents were watching the news on the screen.

"I just wanted to have a chance to tell you myself, Clay, that you've done a splendid job. You're a great American, and your service to your country is beyond measure."

"Oh, it wasn't too hard," Clay said. "I just took some old junk apart."

"Well, we thank you for doing it," Hamilton said. "And for serving as an inspiration for others. I've got to go now, Clay, but we have a surprise for you if we can get permission from your parents."

It was the President's intention to have Clay and Jumper flown by Airdart to Desert Haven to see why the rhenium was needed. Actually, Hamilton thought, the boy deserved more, deserved at the very least to be on board, deserved his chance at life. But the ship's cargo of colonists had been picked very, very carefully for skills, knowledge, and talent. A small boy and his dog just could not command a berth on a ship that was designed to carry what might be the last hope of the human race.

So it was that in just less than an hour Clay Girard, twelve, and his dog, Jumper, of indeterminate age, stood before the*Spirit of America* and gaped in awe. They were in the care of a National Service Corps officer who liked small boys and figured it didn't matter now if she told Clay all about it.

"Even farther than Mars?" Clay gasped. "Wow!"

"A lot farther," the woman, named Jane, replied. "To a star."

"Boy, I wish me and Jumper could go."

A look came to Jane's dark brown eyes. "I know how you feel," she said.

"You'd like to go, too, huh, Jumper?" Clay whispered to the little dog in his arms.

Some of the uniformed men who sat around the conference table headed by Yuri Kolchak, with the Polish lady marshal at his right, were nearly twice the Premier's age. The urgent meeting of the Russian equivalent of Dexter Hamilton's joint chiefs of staff had been called by the senior marshal of all the services, but everyone at the table knew that Yuri Kolchak actually ran the Red Army, as he controlled all the reins of all power in the Soviet Union.

"Comrade Premier," the aging marshal said, "I call your attention to the concentration of all our Pacific fleet in one vulnerable location. Two medium-sized bombs and*poof.* We have no sea power left in the Pacific."

"Dexter Hamilton will not use nuclear weapons," Kolchak said.

"Pardon, Comrade Premier," said the old marshal, "but how can you be so sure?"

Kolchak winked at Theresita. "Because I know Dexter Hamilton," he said. "Because I talk with him via the hot line regularly, because I know the workings of his mind, and most of all, because I have instilled fear in him—real, screaming, trembling fear."

"I don't understand," the marshal said. "Could you elucidate?"

“He knows, quite simply, that if he endangers our success in South America by attacking our fleet, his entire nation will be quickly eliminated.”

Theresita had been watching the marshal’s face, but now she jerked her head toward Kolchak. He was smiling.

A few of the officers chuckled at his bluff. A few shifted uncomfortably, perhaps imagining the final holocaust. The aging marshal once again tried, in vain, to warn that there were unmistakable signs of an American buildup.

After the meeting, Theresita Pulaski, who had been doing her own investigation of the American buildup, leaned over Kolchak’s shoulders and massaged his neck.

“Comrade,” she said, “you are less concerned than I about the American readiness.”

“Perhaps not,” he said. Kolchak had felt the strain of late. Total blood replacement was a debilitating and painful process. He was tired, so very, very tired, and the pain often began at his toes and fingers and traveled inward and consumed him.

He reached up and caught both of Theresita’s hands. “Pulaski,” he said, “why don’t we take the rest of the day off?”

“Excellent idea,” she said. She could, she thought, use her hands, powerful hands for a woman, to stop the flow of air into his lungs, and then it would be over.

He insisted on undressing her. Then he made love to her in his tender, yet strong, manner.

When he lay beside her, breathing evenly and deeply, she thought he was sleeping.

“Little one,” he whispered.

That always made her smile. She? Little one?

“How would you like to go to the stars with the*Karl Marx?”*

“It would be exciting,” she said.

“You’d leave me?”

She waited for a moment to answer, and he slapped her playfully on the thigh.

“Only if you ordered it, Comrade Premier,” she said, raising herself on one elbow to smile down at him.

He mused. He was thinking about sending her away, thinking of her being vaporized along with him. Both seemed rather sadly romantic.

“I may have underestimated Dexter Hamilton’s backbone,” he said. “The*Karl Marx* should be under way. Damn those engineers.”

“There are some problems,” she said. “The original estimates of the reaction of the rhenium to the catalyst are still in question.”

“So while the chemists play, time is running out,” he said, then fell silent. After a time, “If in a combat situation you faced certain death, one a slow and lingering death, the other in, shall we say, a blaze of glory, which would you choose?”

She sighed. “I am a coward. I would cling to life as long as possible.”

“But to have it over, instead of endless suffering?”

“Perhaps when pain began,” she said. She was weeping.

He opened his eyes and saw the tears, misunderstood them. “Ah, you suspect and weep for me, little one.” He made his decision. “I want you personally to stand over those chemists. Tell them I want that ship moving within two weeks, before the Western Christmas. And, little one, I want you on it.”

Now the tears were flowing more freely. She knew that with her gone aboard the*Karl Marx,* his last incentive to cling to life through the suffering of his disease would be gone with her. In her own mind, her leaving would be tantamount to signing a death warrant for the world.

As ordered, she flew to the laboratory in the Urals where the work was being done with the rhenium fuel for the*Karl Marx.* She arrived just as a few molecules of rhenium were bombarded with a few particles of antimatter. The last remaining secret had been unlocked! Two days’ work aboard the*Karl Marx* would ready the Soviet version of the rhenium drive. She flew back to Moscow in dread, fearful that her heart was going to stop under the strain of her decision.

She delayed her report to Kolchak, having already sent him the news of the success, to stop by the apartment of her sister and brother-in-law.

“Is your visitor at home?” she asked, looking upward toward the light fixture, the usual place for the listening device.

“Yes,” Rudy Virchow said. He smiled. “We were just going to cook our week’s rations of animal flesh. Have a vodka, and we’ll share it.”

He set fat alight in a pan, removed the light shade, and exposed the listening device, let the smoke from the burning fat rise directly into the device. Then he removed a small test meter from a hidden drawer, attached the leads to the listening device.

“The visitor is now out,” he said. “Funny the effect cooking greases have on certain electronics.”

“The plan we spoke of once here,” she said, “may I see the certain items you had?”

Rudy looked up toward the listening device, then went to a hidden place and came back with a box.

He held up a button. “It flashes an invisible beam, and if aimed properly, it permanently stops the heart.”

“There are ultraviolet detectors all over the Kremlin,” she said.

“This ballpoint pen is, in reality, an expansion bomb.”

“Unreliable,” she said. “Blows up in the pocket or hands of the would-be assassin.”

Rudy’s hands began to shake as he gingerly put the pen down.

“This?” she asked.

“A weapon formed of organic material,” he said. “It will pass any screen, any detector. The problem is that when it is detonated, the blast could be just enough to kill one man, or huge enough to level a half block. And the detonator has to be set by hand, with only a few seconds’ delay.”

"Reliable?"

"It was developed by our own people," he said.

"I will take it. Dump the other things into the river. Prepare to move, for you will have transfer orders tomorrow."

Rudy started to protest, but he saw that there had been a change in his sister-in-law. There was a rawness to her emotions, a surface tension that made him very much afraid.

"That might be a good idea," he said.

ELEVEN

Clay Girard had been having the time of his life in Desert Haven. For hours on end he had watched the last, frantic, seemingly chaotic preparations for the launching. He had become great friends with Jane, the National Service Corps lieutenant who had been assigned to be his companion and baby-sitter, and she was often with him as he sat or stood in a place where he would not be in the way of the rumbling vehicles that, all through the night of December twenty-third, disappeared laden into the ports of the*Spirit of America* and came out empty.

It was shortly after midnight when the colonists began to board. As the vehicles passed him, he saw among them a few children younger than he, a couple about his age, but in the main the colonists were in pairs or singles.

"Why aren't you going, Jane?" he asked his new friend.

She sighed. "All the passengers were chosen very carefully," she explained. "People who represent every skill and every field of knowledge so that they can settle a new world and establish a civilization with all the good things we have here without the bad things."

"Boy, I wish I could go," Clay said.

"I know, honey. I know. Don't you think we should go to bed and get some sleep?" she asked as four o'clock in the morning came and the flow of last-minute loadings continued.

Clay shook his head. "No, Jane, please? Let's stay and watch."

"All right, tiger," she said. "But you'll excuse me if I don't have your youthful energy and enthusiasm." She sat down, leaned back against a wall, and closed her eyes.

The humming little vehicles that pulled the cargo trailers continued to pass directly under the ledge upon which Clay and the National Service Corps officer had found a place of vantage. Jumper, the dog, was asleep at Clay's feet. Clay picked him up, cast a sideways look at Jane, whispered, "What do you think, Jumper? Are you scared?"

Theresita Pulaski had a new undergarment. It molded rather softly around her, in the thickness of a light girdle. It included a flexible, organic explosive. If the detection equipment had had scales, they would have shown only that the marshal weighed five pounds more than usual when she came back from the lab in the Urals, after her stop at Rudy and Use Virchow's apartment.

At her first opportunity she removed the explosive girdle, reshaped it slightly, and pressed it into place under the bed she shared with Yuri Kolchak. The detonator was tiny, and she could reach it by letting her arm dangle off the side of the bed, hand reaching under.

And so she was prepared. She hoped desperately that she would not have to twist the detonator to activate the bomb.

Kolchak laughed when, on December twenty-fourth, she presented him with a gaily wrapped package and said, "Father Christmas left this for you."

"Little one," he said, smiling, "if a marshal of the Soviet Union continues to perpetuate those decadent superstitions, how can we expect our people to erase such nonsense from their lives?"

It was a heavy gold and diamond paperweight in the form of the*Karl Marx.*

He seemed pleased. "Come, do your magic on my poor, aching back."

She knelt over him on the bed, fully aware of the deadly explosive underneath it. She pushed and kneaded and rubbed, and he sighed in pleasure. He was getting so thin, in spite of a nourishing diet. He fell asleep under her ministrations, and as he slept, she let her hand dangle down, let her fingers caress the detonator. She could rise, put on a robe, twist the detonator, and leave the apartment. She would have fifteen seconds after twisting it. If the unpredictable explosive operated within specified limits, she'd be far enough down the hall to live. But the explosive was fickle; she might not be far enough away in fifteen seconds.

But, ah, life is so sweet. She would wait. She would make arrangements to change the linens on Yuri's bed herself, so the bomb and detonator would not be discovered by the cleaning staff. If anyone questioned her doing so— But no, no one would challenge anything she did except Yuri, and he would interpret her care as a love gesture.

The President of the United States would be speaking to his nation and the world in a few hours. All through the day, hour after hour, minute after minute, second after second, the world had been turning, moving the sunrise line across Moscow and then outward into the Atlantic, the line taking eight hours to reach Washington.

She woke Yuri, he donned a robe and slippers, and they sat on a love seat that perhaps had once been the proud possession of some czarist princess, and the giant viewscreen came to life.

An American commentator was speaking: "We speculate that the President's speech is prompted by the positioning off the coast of Chile of a vast armada of Russian ships of war."

The commentator signed off, and on the screen was a view of the White House in the newly fallen snow. Yuri Kolchak had already seen to it that all Soviet forces were on red alert.

In Desert Haven, all equipment was being removed from the expansive bay. When the rocket engines were ignited, the entire area would be bathed in smoke and fire.

All around the site at a safe distance, guarded by alert National Service Corps personnel, were units of the media, cameras trained on the sky cranes, crews not quite sure why they were there in the bitterly cold early morning but coming to life with exclamations of awe when, as the immense roof was removed, they could get glimpses of the*Spirit of America.*

At the core of the*Spirit of America,* Captain Duncan Rodrick was too busy to think about the President's widely publicized speech. For over six months now he'd been taking his crew through the final countdown, time after time, until the complicated operations could have been done blindfolded. But this time it was different. This time it was for real. This time the rockets would ignite and build to a roar, and then he'd be lifting so many megatons of ship that it boggled his mind just to think of it. Out there in

the rim, strapped down in their gravity couches, were a thousand-odd people ranging in age from very young to middle-aged, many of whom had never felt the g-forces generated when a pillar of fire' drives you with tremendous velocity against Earth's pull.

Jane had lost Clay and Jumper. She'd had a nap, leaning up against a metal bulkhead, and her neck was stiff and the kid and the dog were nowhere to be found. A loudspeaker was repeating, "All personnel will now clear the launch bay. All personnel will now clear the launch bay."

She'd slept a long time. It was daylight, and the sound of the roof being removed woke her. Only a few men were left in the bay, most of them around the closing hatches and ports of the ship. She climbed on her three-wheeler and made two quick circuits of the bay. There was still a lot of time, but one thing was for sure: Clay and the dog were not in the bay.

"All personnel will clear the bay," the speakers kept repeating, so she drove the three-wheeler through an access door, which hissed closed behind her, and began asking around about Clay and the dog. She was not concerned. There was no way he could get out of the facility. Someone would have seen him wandering around. He and Jumper were probably somewhere right now at a good vantage point behind a viewport waiting for the big event.

Oscar Kost ambled into the Oval Office ten minutes before airtime. He had had a hand in prespeech publicity. Never in history had so much been speculated about with so little knowledge, and Oscar had done nothing to dampen the fires of the media's guessing game. Some reporters were sure that Hamilton was going to declare war on the Soviet Union. Others believed that the Americans and their allies were on the verge of pushing the Communists in southern Chile into the sea and were making great advances elsewhere in that battle-torn continent. Somehow the rank and file, the ill-at-ease millions, had the feeling that the speech would be something more, that there would be, at last, good news.

Now from cameras outside, a view of the White House was flashed upward to satellites, and a band played "The Star-Spangled Banner." The anthem was being fed to the sound monitors in the Oval Office. As it thundered to its conclusion a director said, "Stand by, Mr. President."

The last notes of music died. The director stabbed a finger toward Hamilton. For what seemed to be at least half a minute the President sat immobile, his calm, kind, distinguished face in repose, his eyes looking directly into the cameras.

At last, his drawling voice broke the almost unbearable tension.

"My fellow Americans. Today, December twentyfourth, 2040, this great nation of ours is about to embark upon mankind's greatest adventure.

"At this very moment, even as I speak, while hundreds of thousands of our servicemen and women are massed in South America because of that age-old curse of mankind—war—other brave men and women are preparing to leave behind family and loved ones, their homes, their native country, even the planet of their birth.

"Today, one thousand Americans will leave Earth to open a new frontier.

"We, the descendants of the pioneers, are not surprised that an American ship, with American citizens, will show us the way to the stars and open a new and exciting frontier.

"We Americans have a history of facing and overcoming the unknown. Our forefathers dared a great ocean and overcame great obstacles to establish this nation under God, and in freedom. They came to face the fury of savage peoples and the fierceness of the elements in a raw, vast land, and they stayed to

establish a nation that is unique in the history of man, a nation wherein the most humble individual has all the rights afforded to the highest and most mighty.

"Today our freedom faces its gravest test. The forces of our avowed enemies are everywhere around us. Even now, in South America, they threaten to overwhelm us, and the largest battle fleet ever to be assembled is massing off the western coast of the South American continent.

"I cannot tell you, my fellow citizens, what tomorrow will bring. But I can tell you this: The spirit of America will not die. Whatever happens on this grand, tired, misused planet, the force and the dream that made this country great will live in the form of those brave pioneers who today will leave Earth to venture into the unknown.

"Let it be noted that America offers hope, not only to the people of our own overcrowded, often despairing nation but to the teeming billions of the world. For the great ship that will journey to the far stars can, with international cooperation, bring the blessing of plenty back to our wasted world.

"American science, American genius, and the American dream have opened up to us a vast new empire, which cannot help but provide us with badly needed living space, a safety valve for our overpopulation, a source of rich, new raw materials to quiet our hunger and restore to us and to the world the standard of living we once knew.

"Right now we are engaged in a new westering, and the distances are great and often unknown. We are faced with hostile space, which has no respect for human life, where all elements necessary to life must be carried by the men who dare to enter this void. And just as did the pioneers who pushed onward, onward, to the far reaches, toward the golden lands of Oregon and California, our space pioneers will push on to the far stars and to new, rich, verdant planets.

"We are not alone in our efforts, but there is no cooperation among the great nations, as there should be. We now have the means to cross the almost unimaginable vastness of the space between the stars. By scientific estimates, there are a billion stars in our galaxy alone, and a good percentage of them will, we are sure, be found to have a family of planets. There may be millions of planets suitable for man. In the face of such plenty, of such challenge, how can we continue useless, childish, senseless confrontation here on this small and insignificant planet?

"As President of the United States and as your spokesman, my fellow Americans, I extend the hand of cooperation and friendship to our enemies. Here is my hand. Take it. The destiny of humankind cannot be continued in bitter warfare until there is nothing left but ashes and cinders. No, we have a higher destiny. Our destiny lies out there, in the stars."

Silence.

Hamilton's face was seemingly at peace, his eagles eyes looking straight into the camera.

"And now, my fellow Americans, let us experience this great moment together."

The first view was from a distance. Desert. Low mounds in the background and then, from a hovering helicopter, the first view of the ship. She looked like some fantastic toy buried in a round hole in the ground. Only when the airborne camera pulled back to a long shot and it was possible to see vehicles, antlike men, the temporary town, was it possible to gain an idea of her vast size.

From the top she looked like a huge wheel. She had been painted red, white, and blue. On a blank expanse of metal near the core were the words*UNITED STATES.* And on the outer wheel, proudly, in huge letters that gleamed in gold against white, the*Spirit of America.*

She came to life slowly. First a billowing rush of smoke pouring up from the circular pit around her sides, obscuring her, and then tongues of flame.

Was it merely illusion or did that impossibly huge mass move?

Smoke. Flames. Rocketry had reached its zenith.

Fuels of high mass-to-bulk ratio had been developed during the space-station-building epoch. Combustion times had been extended. But never before had such a mass been lifted from Earth's gravitational well. Never before had so much fuel been expended in so short a time.

Yes, she moved. She crawled upward, and the flames decreased, and she emerged from them, huge, round, lifting slowly, slowly, and that sound familiar to all Americans was rumbling and roaring, the awesome power sound of bellowing rockets as it had never been heard in such intensity. And now she was accelerating slowly, slowly, a toy in midair, too fantastic to be anything but process photography, and yet she was real.

She bellowed straight up for long minutes, and then, as the cameramen began to switch to their long lenses, she seemed to tilt slowly and angle off toward the east. She was so big that the longest lenses could follow her into orbit. True, she was but a bright speck of reflected sunlight when, after the rockets had ceased firing, she swam through the darkness of near space, a bright star to be seen with the naked eye, but she was there, and after the long tension of watching the takeoff, a billion Americans cheered.

It was a long day for many in the Kremlin, but Kolchak seemed to be still invigorated when at last, late at night on December twenty-fifth, he retired to his suite with Theresita. Just under her was the detonator.

"Our probes will be back soon," Yuri said, "and the*Karl Marx* will be ready. Hamilton will not be the one to appear in the history books of a stellar civilization. It will be the*Karl Marx."*

Do it now, she told herself.*Do it now. Tell him* you have forgotten some small detail that must be attended to. Dress. Drop something beside the bed, lean to pick it up, and make one small motion with your fingers. You will have time. You can take a shuttle up to the Karl Marx*and be out of it.*

But there was still time. Still hope that he would be forced by some set of circumstances to come to his senses. Perhaps she should go to the members of the politburo and tell them the situation. For a moment that seemed to be a feasible idea. But no, she decided, they would not believe her. And even if some did, the endless indecision, the committee discussions, would alert him, and then she would not even be close to him to set the timer on the explosive under his bed.

There would be time enough. If he decided to use nuclear weapons against the Americans in the battle for South America,*then* she would hesitate no longer, for she knew, as well as she knew that she was alive and wanted to stay that way as long as possible, that it would be just a matter of time, of hours or days after the use of one nuclear weapon, before the big, antique ground-based missiles rose and the swifter, deadlier orbiting weapons started their brief journey downward to the surface of the planet.

SPACE

TWELVE

At a distance of a mere twenty miles, the space station*President Healy* (named after the assassinated forty-fourth President of the United States) was visible by naked eye from the*Spirit of America.* Built in space, never having been subjected to the structural strains of a gravitational field, she was a prickly looking oval ball of pods and extensions. Hundreds of sleek and deadly missiles were needlelike spines

attached to her hull.

The*Spirit of Americas* orbital position had been chosen to place her in proximity to the*Healy*. If hunter-killers came at the ship from below or from one of the Russian space stations, the*Healy's* entire arsenal would be expended, along with the ship's own missiles, to explode the warheads harmlessly in space.

Duncan Rodrick was glad to have the*Healy* for company. The last time he'd seen Dexter Hamilton, the President had warned him that the brief period during which the ship lay in orbit and the initial phase of the outward blast would be a critical, vulnerable time. The*Spirit* was the biggest thing in space, a fat, juicy, heavy sitting duck. The crew had been on battle alert since lift-off.

The last of the rocket fuel and water was being loaded. All systems were functioning smoothly. The control-room crew had worked beautifully as a unit, in spite of some reservations Rodrick had felt when he was notified that his first officer was to be Commander Rocky Miller. Rodrick knew Miller. The space service was a small, elite corps, and everyone knew everyone else or soon came to know them after a new crop graduated from the space academy.

A lot of senior captains would have given their left arms to be included in the*Spirit's* crew—as cabin boy, let alone first officer—and Rodrick hadn't been the only one who was surprised by the selection of a man who was quite young, just past the midpoint of his thirties, and who had a reputation for being rather charmingly wild and rebellious toward authority. Dune knew it was a left-handed compliment to have Rocky as his second; someone was confident he could handle the guy.

There was an old phrase for a man like Rocky Miller: "hot dog." A hot dog got a bang out of risking his own life and a very expensive piece of hardware doing things the hardware had not been designed to do.

But after Rodrick had met Rocky Miller's wife he began to hope there'd been a change in Miller, even if he didn't understand why a woman like Dr. Amanda Miller had married a hot dog who thrived on risk, danger, and excitement.

Amanda ("Call me Mandy, Captain") Miller just didn't seem to be Rocky's type of woman. Duncan Rodrick was loath to admit it to himself, but Amanda was*his* type of woman. Small-boned, delicately built, her hair short and dark, her makeup dramatic, her movements graceful, she didn't seem to be the type to be the world's leading exponent of a scientific discipline that combined the skills of medicine, biochemistry, biology, physiology, and all the other -ologies that had anything to do with life from one-celled organisms to the most complex example of a life structure, Homo sapiens.

Perhaps, Rodrick thought, being married to a woman who was extraordinarily talented, very intelligent, rather delicately beautiful,*and* sensuous had mellowed Rocky the hot dog.

Since Rodrick alternated watches with Rocky, he hadn't had much time to talk with the man after lift-off, but down there on the ground, during all the training, the first officer had been pleasingly efficient, coolheaded, cooperative. Time would tell if Mandy had indeed been a good influence on him.

The*Spirit's* command bridge was not a large area. She was, of course, totally computerized, but the captain, at his discretion, could switch her to a human-command mode. Even then the more delicate operations were commanded by computer, since mans slow reaction time did not come close to keeping up with the lightning-fast changes demanded by an operation so complicated as, for example, synchronizing all of the ship's rocket engines and her defense mechanisms.

When the ship was in operational mode, Rodrick would be strapped into his command chair and could override the controls at his fingertips. Directly in front of him, seated at a console with a multiplicity of

dials, meters, lights, switches, computer screens, were the Japanese-American computer experts Emi and Ito Zuki;

Emi with her dark, alert eyes darting over the computer readouts, and Ito, the astronavigator, keeping a second-by-second computer check on the ship's position relative to other objects in space. The three of them, Rodrick and the Zukis, could fly the ship.

To the Zukis' right, at a separate console, was the ship's communicator, a bright young space-service lieutenant named Jacqueline Garvey. And Rodrick had made one other crew member a permanent part of operational procedure: In an anti-g couch just behind the command chair was the robot called the admiral, an electrical lead running from a hidden plug under his left armpit to the main computer input in front of Emi Zuki. In the quite unlikely event that all the humans on the bridge became incapacitated, the admiral could do it all.

Fifty minutes from departure time, Rodrick dialed up viewscreens in the engine room and saw an untidy display of gray-flecked black hair: the back of Max Rosen's head. Then the chief engineer turned and growled, "Sir."

Max Rosen, an engineering genius, was the only crew member who had not been in space service prior to joining the*Spirit of America.* He had worked with Harry Shaw in the development and building of the Shaw Drive and handled the development and testing of space power plants for defense contractors. Rodrick had come to know him as a cantankerous, chess-playing, aging, often untidy man who, when solving a challenging problem, twisted his dark, lined face into a look of intense suffering.

"Rocket status report, Chief," Rodrick said.

Rosen's lips twisted. "Status is okay," he said.

"Very well," Rodrick said. "Stand by for a unison test of all igniters, Chief."

"Captain, we just ran one six hours ago."

"We will now run another one," Rodrick said. When things were a little less hectic, he was going to have to spend some time with Rosen and teach him a few service manners.

"While you're here, Captain," Rosen said, looking pained.

"Yes, Chief?"

"You've got to keep that woman and her damned toys out of my engine room."

Rodrick had to struggle to keep a straight face. "Chief, do you know that when word got out that*that* woman was leaving Transworld Robotics, its stock fell almost a hundred points?"

Rosen growled.

"Rodrick out," the captain said, then he grinned. He had asked Grace Monroe to work with Max Rosen in feeding all available data about the ship into the admiral's seemingly unlimited memory banks. At that time, he had been unaware that he would be stepping on Rosen's ego; Rosen had all the data in his own head and didn't see why he should have to help to program a pompous walking computer.

The unison test of the rocket igniters went off without a hitch. At departure minus forty, Emi and Ito were strapped into place, Emi's fingers flying over the computer input, checking, always checking. The admiral stood with great, grave dignity watching her. He had magnets in his feet and had developed a confident

nulgrav—no gravity—stride that maintained his dignity. On a screen in front of Ito was a scan of immediate space, showing the location of all nearby objects. Jacqueline Garvey, the ship's communicator, was having a last-minute cup of coffee.

"Status report, Admiral," Rodrick said.

"All systems optimum," the admiral said confidently.

"Igniters?"

"Preheated. Optimum."

"Rocket-fuel mass distribution?"

"Optimum, sir."

"Navigation?"

"Programmed and ready, sir," Ito Zuki said.

"Communications open?"

"Aye, aye, sir," said Lieutenant Garvey.

She was, Rodrick thought, one of the most striking women he'd ever seen. It was his policy to know everything there was to know about any officer under his command, and what he knew about Jackie Garvey was all to her credit. She was a quick study as far as communications systems were concerned and was a cool customer in nerve-rattling situations. Jackie Garvey had thick auburn hair that cleared her shoulders only when she was at attention, green eyes, and long, lush lashes.

Easy, Dune, we're about to go sizzle, boom, and bye-bye and here you're thinking about Jackie.

"Computer control status?" Rodrick asked.

"Optimum," Emi said, turning her ebony eyes toward the captain.

"Well, folks," Rodrick said. "We seem to be all set. May we have a Happy New Year out in the wild black yonder."

"I'll drink to that," Jackie said, drinking the last drop of coffee out of the cup. Again he was struck by her beauty.

Well, what the hell, he was thinking. The passengers had come aboard either in pairs like old Noah's animals or in carefully matched numbers of singles. For every man there's a woman, and vice versa, and the few singles would have to match themselves up to get into the act.

Maybe Jacqueline Garvey, he thought. *Maybe.*

Jackie's service folder knew all and told all to the captain, and there was a phrase in Jackie's folder that kept coming back to Rodrick's mind as a computerized voice took over the countdown, chanting off minutes, at D-minus ten.

"Feminist activist involved with grass-roots politics, successfully managed campaign for Massachusetts Congresswoman MacIntyre." Well, with two long years to reach Pluto's orbit—*"Departure-minus nine and counting"*—he'd have time to learn all about it. Might be interesting.

“Radio, Captain,” said Lieutenant Garvey.

He clicked in and said, “Captain Rodrick.”

“I just wanted to wish you luck,” said President Dexter Hamilton’s mild voice with its slight drawl.

“Thank you, sir.”

“The hearts of all of us are with you, Captain.”

“D-minus eight and counting.”

“We’ll do our best, sir.”

“God bless you, then. Good-bye.”

“Good-bye, sir.”

“D-minus seven and counting.”

The admiral was still standing behind Emi Zuki. He turned suddenly. “Switching optical scanner to long range, sir,” he said crisply.

The captain looked at one of the screens over the control console, and his heart sank. Tiny aircraft darted at supersonic speeds, loosing swift, smoking, straight-running missiles. The war in the Pacific had begun in earnest.

Suddenly the alarm rang out throughout the working areas of the ship.*Battle stations.*

“Check space,’ Rodrick snapped.

“Clear,” the admiral said.

“Defense status?” Rodrick said.

“On alert. Missile ports open,” Emi Zuki said.

“D-minus six and counting.”

“Admiral, let me know the minute anything nuclear goes off down there.”

“Aye, sir.”

Now there was the great risk the war would turn nuclear and the Soviet Premier would send missiles after the starship.

“Alert space station*Healy,”* Rodrick said.

“In contact,” Jackie Garvey said. “All systems at ready.”

“D-minus five and counting.”

“Report long-range detection systems.”

“Clear,” the admiral said.

Well, at least they hadn’t started shooting at them. Not yet.

"What from Norad?" Rodrick said.

"No alarms," Jackie said.

"D-minus four and counting."

"Engine-room status?"

"Go," Jackie said.

Oh, damn, it would be just too much for it all to end here.

"D-minus three and counting."

"Watch those missiles, watch those missiles," Rodrick said.

Down in the South Pacific the deadly little bees had left burning, sinking hulks. And now the ships that hadn't been destroyed were firing. It could mean the end of the world, the end of the*Spirit of America.*

"Surface to air only, sir," the admiral said.

"D-minus two and counting."

"Immediate space all clear," the admiral said.

"Stand by all," Rodrick said.

*"President Healy*to the*Spirit of America,"* a voice said.

Oh, God. Not now, not at the last minute.

*"Spirit.*Go,*Healy."*

"Have a nice trip."

Jeeeeeese. "Thank you."

"We'll keep it clean here on your tail."

"Good show,*Healy."*

"D-minus one and counting. Fifty-nine—"

Men were dying down there, planes disappearing in smoke and flames, ships shuddering and detonating as heavy missiles contacted.

"Vandenberg Control to the*Spirit of America,"* another voice said.

Now what? "Go, Vandenberg."

"*—forty-five, forty-four—*"

"Good luck,*Spirit."*

Before Rodrick could acknowledge, the ship's computer began to sing,*"Alert, alert, alert."*

"Admiral?" Rodrick said.

“We have fired a missile, sir,” the admiral said.

“Who—“

“Just a glitch in the system, sir,” the admiral said calmly. And then, into the communications system, the admiral said, “The*Spirit of America* to space station*President Healy.* You are endangered by an accidental firing from tube seventy-two of an HK-22 missile.”

“Nuke?” Rodrick asked.

“No, sir,” the admiral said.

“Do not fire nuclear-defense missile,*President Healy.* I repeat, no nukes,” Rodrick said into the communications system.

“No problem,*Spirit.* Watch some fancy shooting.”

That was all he needed, to have his own nuclear-missile killer go off in that too small area of space between him and the*President Healy* and mess up every bit of electronics on board.

“On screen four,” the admiral said.

He saw the small HK-22 missile still under power, going away, streaking burned fuel into space.

“*—twenty-nine, twenty-eight—*“

“Just about now,*Spirit.”*

Five hundred pounds of expand material—the guts of the highly effective expansion bomb—went up in a vacuum, spreading a Fourth of July fireworks scene that grew and expanded, seeming to come within a few hundred yards of the ship.

“Good shooting,*Healy,”* Rodrick sent.

“*—fifteen, fourteen—*“

“Just some fireworks to send you on your way,” said the voice of the*President Healy.*

“—ten, nine—“

Rodrick glanced at the screen to see the fading fire from the HK-22 and the antikiller from the space station. Then he glanced at the battle in the South Pacific.*Let’s get the hell out of here before they start throwing the big stuff around.* And a moment of eye-stinging, exquisite pain as he realized “*—four, three—*“ that he was thinking about the death of a world, his world, and wanting to be safely away before it happened. But then that was his assignment. The*Spirit of America* was a lifeboat.

“*—two, one. Ignition.”*

On the screens he could see the flames jet out suddenly from the rocket engines, felt a slight shudder of movement, then for a moment a smooth, gentle tug that became a push, and then the g-forces pushed him back into the padded couch, and he could feel the ripples of gravity strain on his face.

He had to force himself to speak against the great strain, thinking,*We’re so vulnerable now.* “Space?”

“All clear, sir,” the admiral said calmly from his own couch.

Fuel mass was being incinerated at the rate of tons per second. The fuel-storage areas were being emptied at a fierce rate.

"Status check," he grunted under the crushing force of acceleration.

"Optimum," said the admiral. "Survey of passenger areas shows all is well, sir."

She'd have to gain all the speed she was going to have for the next two years and more in the next thirty minutes. By surface standards they were moving fast. And still accelerating. Be tough for even the most powerful Russian killer-rocket to catch them now. Breathe easy. Relax. Ride with it. She's doing her job.

After twenty-five minutes the engines began to cut off in oppositely balanced pairs, then groupings. The weight on Rodrick's chest began to diminish. He could raise his head.

And then the floating, delicious relief of free fall. And Earth and her moon behind them, a beautiful blue ball in space with belts of pure white clouds and hints of the gold of sunlight reflecting off land masses. The admiral was already on his feet.

"Systems check, all," Rodrick ordered, and the next five minutes were consumed in hearing the ship, the admiral, and the central computer saying, "Optimum, optimum, optimum."

Then Rodrick called, "Vandenberg Control, Van-denberg Control. The*Spirit of America."*

They were already far enough away for there to be a tiny delay between transmission time and receiving time.

*"Spirit,*this is Vandenberg Control. Do you read, over?"

"Read you loud and clear, Vandenberg. Situation optimal, all systems go.*Your* situation?"

*"Spirit,*were still here. Try us again in two hours."

"Roger, Vandenberg.*Spirit* out."

Emi Zuki was looking at him, her ebony eyes wide. "They sounded—"

"Grim," Jackie said.

"Could we tell, from here?" Emi asked, looking up at the screen that showed good, blue Earth. The planet was in three-quarters phase.

"I don't know," Rodrick said.

"We would see the flashes of nuclear detonation on the nightside," the admiral said, with all the detachment of a machine.

There was a silence.

"Let's give the passengers some gravity," Rodrick said.

It was a simple matter of firing some little steering rockets in phased patterns to set the giant wheel spinning. Within an hour the centrifugal force was simulating one-half Earth gravity in the outer rim. A complicated system of air bearings allowed the central hub to remain stationary in relationship to the spinning wheel.

“Good job, ladies and gentlemen,” he said, taking off his straps. “I believe Mr. Miller has duty. “

“Right,” Rocky Miller said, coming into the control room, pushing himself away from the hatch to float skillfully to a halt against the arm of the command chair.

“When it’s time to contact Vandenberg Control, page me,” Rodrick said. “I’ll be in Recreation-A. I’m going to personally supervise filling the swimming pool.

“Aye, aye,” Rocky said.

“Care for company, sir?” Jackie Garvey asked, with a smile that he could not, in all of his life, have refused.

“What color is your swimsuit?” Rodrick asked.

“What color do you like, sir?” Jackie asked.

THIRTEEN

As evening neared, a young Russian pilot guided his half-spaceship/half-airplane over the Pacific Ocean battle zone, cameras activated. Although he was soaring in the inner fringe of space, his surveillance instruments were powerful enough to spot debris in the water, a life raft with several men aboard, blood mixing with seawa-ter in the bottom of the raft. His report, delivered in an emotionless voice, was scrambled, bounced off a satellite, unscrambled in the Kremlin, and a recording fed into the communicator in Yuri Kolchak’s office.

“I regret to report that the Soviet Pacific fleet has ceased to exist.”

Yuri Kolchak’s hands trembled. His face was a study in rage and frustration. Theresita Pulaski wanted to scream, for in that moment she felt that she’d waited too long. When he reached for the communicator, she leaned forward. His illness had taken a toll. He was

becoming weaker and weaker, and she, strong, healthy, could use her large, powerful hands to cut off the flow of air to his lungs.

“We will remain on red alert,” Kolchak told his chief of staff by communicator. “I will be in my quarters for a while.”

When he looked at her there was something in his eyes that moved her as she’d never been moved before. She saw love. And she saw something else: regret, resignation, sadness.

“Little one,” he said, “I am in need of a bottle of the finest champagne.”

He had been forced to give up all alcohol. It gave him terrible headaches.

“And I think you will look best in that little red thing from Paris.”

The little red thing from Paris was an old-fashioned teddy. He liked to see her in filmy, lacy things. And with the world burning, with an entire fleet dead, he was thinking of champagne and sex and—

She obeyed.

He poured two glasses, ran his finger over the taut, smooth skin of her upper thigh.

“Yuri, call President Hamilton on the hot line,” she said. “It is not too late.”

He finished the wine and smiled at her, his eyes sad. "I would feel belittled."

A world was convulsing and he thought only of his pride.

In that moment of sudden revulsion she made her decision. If his intention was to "Eat, drink, and make love, for tomorrow I am going to kill you and everyone else in the world," she would let him take her, and, knowing her own body, she would feel pleasure. But when he was asleep . . .

He went into the bedroom before her, sighed wearily as he eased himself gingerly down onto the bed on his stomach. She knelt beside him, began to rub his back and legs gently. He moaned, in either pain or contentment. She straddled his legs and put part of her weight into the massaging of his back.

Usually the massage was the prelude. Her resolve was firm. She would give to him. She was sure that he intended to take full measure from his last night.She was shocked when she realized that he was asleep. She felt almost cheated. She sat on the side of the bed, listening to his labored breathing. He would awake in the morning, dress in his finest uniform, and then order the launching of thousands of multimegaton warheads.

"He has no right," she whispered.

She had only her sister, and she had seen to it that Use and Rudy had been transferred to Poland. That would be of little help to them if Yuri was allowed to extract his price for the defeat in the Pacific. Thinking of Use's death made it more immediate.

She whispered softly to herself, "Well, Theresita, this is no time to sit here thinking. You have to take action."

She put on her uniform and went into the other room, spoke softly into a communicator. "The Premier wants a status report on the readiness of the*Karl Marx,"* she said. She waited.

"Comrade Marshal, the captain of the*Karl Marx* reports a state of total readiness. He awaits only orders from the Premier."

"And have the probes reported back yet?" she asked.

"No, Comrade Marshal, but we are expecting the first report within a few days."

She sat in thoughtful silence for a long time. Then she moved to a desk, inserted a sheet of the Premier's personal stationery into a machine, typed swiftly and surely. Finished, she checked for errors and forged Yuri Kolchak's signature, as she'd done so many times in the past years.

There was one further thing to do, and that took more time. His handwriting had become erratic of late. She labored over the brief, handwritten note. It stated that Yuri Kolchak, Premier of the Soviet Union, had made a free-will decision not to endure the agony of the final stages of his disease. As his last wish he, having considered the situation carefully, advised his successors to make peace with the United States before it was too late.

When that was done she went back to the bedroom, the two sheets of paper in her hand. He was sleeping, moaning only occasionally. She risked waking him by leaning down, kissing the back of his head. And then she squatted beside the bed, twisted the detonator with her fingers, rose, took one last look, tears forming in her eyes, and hurried from the room. The bomb was unpredictable. It might utilize all the potential de-structiveness of the mass, and the explosion would catch up with her as she walked swiftly down the corridor toward the war room, manned by the military.

She walked as fast as she could without running. The seconds were ticking off. She had made no effort to count, but she sensed that the time was near. Then her pace faltered and she paused because it had been a long, long time, and she was sure that more than fifteen seconds had elapsed and there was still silence. She turned, waited.

The blast was muffled. The floor and walls of the old corridor shook. Dust sprinkled down from the ceiling. Hot, scorched air ruffled her hair. The halogen fire-extinguishing system would now be in operation, preventing a spread of any blaze that had resulted from the explosion.

She hurried back to his room, the room they had shared. She had to make certain he was dead. The door was off its hinges, leaning against the wall across the corridor. Yuri's bed had been blown apart, and . . . Theresita backed out of the room, horrified, tasting bile. There was no doubt her lover was dead.

She turned and walked woodenly as alarms began to ring through the building. At the war-room entrance guards looked at her with questioning faces. "Open," she ordered.

The war room was well insulated. They had felt only a jolt, had not heard the explosion. Almost all of the important brass were there, for the Americans were following up on their victory at sea by mounting vast offensive operations in South America.

"Gentlemen," she said, "the Premier is dead."

They stood in stunned silence. With a trembling hand she passed the handwritten note to the senior marshal present. He read, then passed the note on. She stood at ease, waiting. What happened now depended on how well she'd forged Yuri's tortured handwriting.

She decided to push the momentary advantage of surprise. "Please take note, gentlemen, of the Premier's last wish. I suggest that you decide quickly who will take temporary command so he may contact President Dexter Hamilton immediately and seek a mutual pledge not to use nuclear weapons."

"You sound as if you are not to be included in this, ah, selection," said the old, almost senile marshal, a glow of ambition coming quickly to his eyes.

"I, too, have my duty," she said. "I will obey the Premier's last wish for me." She handed them the order that she'd typed, the order she forged with Yuri's signature.

"I have arranged for a shuttle to take me to the*Karl Marx,"* she said. "I am informed that departure is imminent."

"Very well," the aging marshal said, acting as if he already had been chosen as Yuri's successor.

"This is a great shock," said one of the generals.

"He wants us to seek peace? To surrender?" the aging marshal said as she closed the door behind her. The generals and the marshals and the admirals would talk and talk, and the situation would drift as they tried to reach a consensus. Whatever they decided, she had done her best to prevent nuclear war.

Theresita hurried back to her suite to pack essentials for her journey. She would grieve later for Yuri, when she was safely aboard the*Karl Marx.* Now she drew comfort from knowing she had done all she could to prevent Earth's destruction.

A member of the household staff appeared at the door to tell the marshal her transport to the shuttle was ready. Theresita drove home the latch on her suitcase and, without a last look around, strode out of the

Kremlin forever. Now it was up to the military, and they'd call in the politburo, and there'd be the usual maneuvering and struggle for power that followed the death of a Premier, and the world might be given a little more time.

FOURTEEN

Patrick Renfro liked Grace Monroe. Pat—young, virile, muscular, with just a trace of a Southern accent—liked all women, but there was something special about the neat, always immaculate woman who, although older than he, let him know with her eyes that she was aware of his approving appraisal of her as a woman. Pat knew, however, that his friendship with Grace would never be more than mutual admiration and, perhaps, some light, flirtatious banter. He knew his women, and Grace Monroe was the kind who was fully involved with her work and had little time for pursuing relationships.

Fortunately, Pat thought, others were not as controlled in their emotions as Grace Monroe. He had made several friends and found himself a lover during the construction phase while he and his crew of scouts were checking out the sweet little ships housed in the exterior pods. He attached himself to his lover at every opportunity—and at some risk—because his lover's husband, Jack Purdy, was a fighting machine disguised as an ordinary human being. Pat had fought his attraction to Jack Purdy's beautiful wife for weeks before he had finally sent Jack off on a training flight of several hours' duration and had walked into Dr. Dinah Purdy's bedroom for the first time.

Well, such is life. There is a stronger chemistry between some individuals than between others, and the chemistry was so strong between Dinah and him that neither of them could fight it. Not that he tried*too* hard, but she did.

The first time Pat saw Dinah it was at a get-acquainted party back at Desert Haven. He danced with her and they both felt that jolt of electricity. "You know what's going to happen, don't you?" he had asked.

"I know what I want to happen," she had whispered, "but it won't, because I won't let it."

But it had happened, three weeks before lift-off. He'd never encountered a woman with whom he wanted to spend the rest of his life. He wasn't cut out to be a one-woman man. But Dinah. Ah, Dinah. The intensity of his desire for her was so strong that it was almost debilitating. If he lived to be a hundred and fifty, he would remember how, after an unequaled explosion of fiery passion, she'd wept, clung to him, her sobs sincere, her regret painful.

"I couldn't help it," she had wailed. "Oh, God, I didn't want to, but I couldn't help it."

Risky. The ship was big, but it was packed with people. And yet, with Jack on duty, he'd found her soon after burnout, and they'd clung to each other in a storage area. They giggled and experimented with making love without the stabilizing effect of the pull of Earth's gravity, and then she'd gone back, smiling that sad but endearing smile, to her work with Mandy Miller's life-science section.

Thus having time on his hands and a need to be distracted from the burn in his gut to just be near her, he went to Grace Monroe's section.

Grace had a lab in the outer wheel, one of the few working areas in that part of the ship that offered the security of artificial gravity. Pat pretended to be a little boy, asking if his friend could come out and play. Grace smiled. "Sure. Come on in. Have a cup of coffee."

The admiral was seated in a hard, straight chair. Mopro was a hulk in his own little alcove, his eye band glowing softly, indicating a semideactivated mode. The member of Grace's "family" to which Pat had become almost foolishly attached was lying across the admiral's knees. From under one of the admiral's

arms an electrical lead hung, to connect to the underside of Cat's elongated body.

Upon hearing Pat's voice the small thing in the admiral's lap raised its head, and its entire body underwent a color change. Blue was Cat's happy color. Cat always turned blue when Pat was around.

"Want to go for a walk, Cat?" Pat asked.

The answer was a blur of motion that ended with Cat in Pat's arms. Cat liked to be touched, and it especially liked to be touched by Pat Renfro.

"Just keep Cat away from Chief Rosen," Grace warned.

When Grace had first brought Cat, then known only as XVR-1—the "X" meaning experimental—to the construction site, it had been nothing much more than an elongated, grayish, very flexible thing, much like a flat snake. But packed into the body of the XVR-1, which was composed of the new elasticized material, was a brain equal in storage capacity to the admiral's.

Cat, like the other robots, was a tool. It had been Grace's plan to fashion a robot that would be used as an extension of a technician's hands to reach into inaccessible places. The properties of the material that formed Cat's body were such that it could be stretched, compressed, and molded into any form while still maintaining a surprising tensile strength.

Cat wasn't supposed to like being touched. Cat wasn't supposed to show emotions. But Cat did a lot of other things it wasn't supposed to do, and that was one of the things Pat liked about it.

When Cat discovered cats and became, most of the time, a caricature of a domestic pussycat, Pat discovered its liking for being touched and rubbed and got a kick out of making Cat turn blue with pleasure.

As blue as Earth's sky on a spring day, Cat demonstrated in Pat's arms another of the things it was not supposed to do. It purred.

*"How*do you do that, damn you?" Grace Monroe asked in exasperation. Cat had no vocal chords.

"I will explain that to you, Grace," the admiral said patiently. "You see, the VR-1 merely detaches molecules of the dielastic prototelline, forms two flaps, and rubs them together, thus exciting vibrations that are translated—"

"Oh, shut up," Grace said. Then, to Pat, she said, "You kids have fun and be in before dark."

Pat never tired of exploring the ship. He knew her well, and it was part of his duty as a member of Adam Hook's security crew to come to know her even better, to know every hidden nook and cranny, to keep constant check on all the areas in his patrol zone.

In the corridor, Cat turned green for go and launched itself onto the ceiling, formed suction cups on its extremities, and stalked along the ceiling over Pat's head until they had passed through enough hatches and locks to be in one of the low-gravity spokes leading to the central section. Gliding wings formed on Cat's body, and it launched itself, using the air to brake and turn before crashing into a bulkhead.

"You're not so smart," Pat said, releasing the handrail and launching himself to float slowly toward a far bulkhead, but he couldn't fly as Cat could, so Cat just circled him, forming a smile on its flexible face.

An hour later, they reached the access hatch to the outer-rim areas that contained the rocket engines.

“Open the door, Cat,” Pat said.

Cat leaped first into Pat’s arms, curled around Pat’s right hand. Then, with a flash of black, indicating effort, it leaped to the hatch, placed an identical match for Pat’s palm print on the sensor, and rode the hatch as it hissed open.

They were in engineering country. Pat’s destination was his own pod ship. Man, he loved that little ship. He’d never flown anything like it. Swift, powerful, space-capable, packed with so many electronic gadgets that it was incredible it could hold them ... it was his first love. He looked forward avidly to planetfall and a chance to put the ship through her paces under operational conditions.

Pat’s ship was housed in bay six. He and Cat had entered the outer area at bay two, so they had a walk ahead of them, though neither minded. Cat was exploring, sometimes moving so swiftly that it was just a green blur. Pat liked the solitude, with just temperamental old Cat for company. He began to whistle, the happy little sound echoing back from the stark, bare metal outer hull. He checked the condition panels of each pod ship as he walked past, and everything was fine until Cat coiled, reared, turned a mottled gray and purple, and was motionless. Cat was in front of the entrance hatch to bay six.

“What’s up, son?” Pat asked. Cat turned a vivid pink, alert, leaped to the hatch handle, used Pat’s palm imprint to open the hatch, and then streaked into the bay. Pat followed. The condition panel of bay six showed no abnormality, but he’d learned a healthy respect for the abilities of Grace’s creations.

The scout ship was tucked into the bay with little room to spare. The pilot’s entry hatch was open, and he heard a sound that he should not be hearing, the barking of a very excited dog.

He ran to the hatch and leaped inside. Cat had transformed itself into a cobra, reared to maximum height, tiny eyes burning like rubies, an audible hiss coming from the evil-looking head. And a small black dog was leaping in and out, threatening, frightened, hair raised on its back, while a small, frightened boy cowered in the pilot’s g-couch.

“Easy, Cat!” Pat said. “It’s all right!”

Cat retreated toward Pat. The boy found his voice and said, “Jumper, hush. Come here.” He looked at Pat with a mixture of fear and doubt and hope, which moved Pat tremendously.

“It’s all right, son,” he said.

Cat was flowing back to feline form. The boy’s eyes were wide. He was not in ship’s uniform. His civilian clothes were wrinkled. The little black dog had leaped into his lap and was watching Cat dubiously.

Pat noted that the boy had found the survival kit and had been helping himself to the rations in it. All the empty wrappers were stuffed into one empty container, and there was a foil pan of water on the deck for the dog.

“What do we have here?” Pat asked.

“Please don’t send me back,” Clay Girard said.

Pat laughed. He punched up the scout’s viewscreen and tuned it to the ship’s optics, and there was Earth, small, her moon just a tiny, glowing dot.

“Wow,” Clay said.

"Not much chance of sending you back," Pat said. He looked around. Everything looked normal. "You haven't been playing with any of the equipment or controls?"

"Oh, no, sir," Clay said. "All we did was find the food and learn how to work the John."

"Good boy." He'd have to have a tech crew go over number six, empty the toilet, replace the survival kit. "Well, son, let's you and I and these two animals take a little walk. What's your name?"

Clay told him.

"Ah, the kid who came to visit because he'd salvaged so much rhenium? Well, Clay, I guess you'd better meet Cat. Cat, come here and shake Clay's hand."

Cat came, lifted a paw tentatively. Clay took it. Jumper extended his nose, and Cat, very animallike, exchanged sniffs with Jumper.

"Give it a rub," Pat said.

Cat was doubtful, but it turned almost blue before it pulled away from Clay's hand.

Pat realized that the boy was in for a serious trauma: There were absolutely no animals allowed on board ship. All the useful animals of Earth would be test-tube bred from carefully selected samples in the sperm and ovum banks, but there were no pets alive on board.

Pat stopped at a communications post just before leaving the outer-engine compartment. He dialed up the ship's sergeant at arms. "Mr. Hook, what would you say if I told you we had a stowaway on board?"

"I'd say you're kidding me," Adam Hook said.

"There are two, Adam. One small and hairy. One small and all boy."

"And you're thinking what I'm thinking," Hook said. "If there's one—"

"All ship's search?" Pat asked.

"Makes one think, doesn't it?" Hook asked.

"I'll join you as soon as I take Mr. Clay Girard to meet the captain."

Clay went pale. He followed Pat, feeling more and more frightened. But his eyes were wide, awed, and he didn't let his fright keep him from taking in all the wonder around him as they made their way through the passenger areas into a spoke and people looked at him in question. Then they were in nulgrav, and Cat went soaring.

"Take it easy," Pat said. "Hang on to the handrail."

Clay had experienced the short period of no gravity after burnout, and he'd loved it, although there'd been little space inside the scout ship to practice floating. He let go of the rail and pushed off and bounced rather painfully off the ceiling. Pat laughed and demonstrated the proper technique. Clay held his little dog under one arm whenever they were weightless.

When Pat requested permission to enter the bridge to see the captain, Clay looked up at him, his eyes wide. "What do you think hell do?"

Pat mused for a moment, rubbing his chin. "In the old days, stowaways walked the plank." He grinned. "But we don't have a plank or water outside, do we?"

When the communicator said, "Permission to enter," Pat snapped his fingers to Cat. "Up," he said. "Just so the natives won't get restless." Cat leaped to his shoulder and nestled down.

First Officer Rocky Miller was on duty. He opened his mouth as if to speak to Pat, then saw Clay Girard, and the look on his face made Clay reach up and grab Pat's arm.

"What's this?" Miller asked.

"Sir, our crew has been increased by one," Pat said. "This is Clay Girard. I don't think we should be too rough on him, because he salvaged a lot of rhenium for us."

The first officer was glaring at the dog in Clay's arms. "We'll have to dispose of the animal," he said.

Clay felt his chest tighten. He held Jumper closer.

"Sir, let's not be hasty," Pat said. He looked down at Clay. Tears were forming.

"You're not going to kill Jumper," Clay said defiantly.

"Just hold on, son," Pat said.

Cat was acting oddly. It had leapt to the floor and gone into a coiled, tense crouch, then a rapid flurry of color changes made it seem to glow. A color formed that Pat had not seen before, a glaring, iridescent orange like living fire.

Rocky Miller's eyes had followed Pat's stare. "Commander," he said harshly, "get this menagerie off the bridge."

Pat reached for Cat, which had begun to flatten and lengthen. He and a life-systems tech made a grab at the same time, but the last glowing tail of the flattened Cat had disappeared as Cat propelled itself up into a tiny ventilation slit.

"Renfro, get that*thing* out of there," Miller ordered. Then he realized that he'd given an impossible order. "Get the panel off quickly," he told the tech.

The panel into which Cat had disappeared was removed. Behind it was the tangle of circuitry. Cat was visible as an orange glow behind the tangle.

Clay didn't know what was happening, and he didn't care. All he could think about was that they were going to kill Jumper. He looked around, thinking that he would run and hide, but the main entry to the bridge was sealed. He had no place to go.

"Don't you worry, Jumper," he whispered. "I won't let them hurt you."

Pat moved forward. "Let me talk to him," he said. He pushed aside a tech, tried to see inside the panel. "Hey, Cat, what's up?"

He heard a sound that set the hair tingling on the back of his neck, a sound from the zoos of Earth, a dry, deadly rattling. "Sir," he said to the first officer, "something is very wrong. I'd suggest that you send for the captain and get Dr. Monroe up here."

The warning sound of a rattlesnake intensified. Pat could see Cat frantically forming itself into odd

shapes, restricted by the circuit boards and wiring and other gadgets that Pat could not identify.

"Sir," said one of the techs, "that thing is going crazy."

Indeed, Cat was ripping, twisting, frantic in an effort to dislodge a cylindrical component from the tangle of electronics.

Rocky Miller moved swiftly, jerking a fire extinguisher from its rack, cracking the seal. Its inert gas would not harm the electrical components inside the panel.

"Sir," Pat said, "that won't affect it."

Cat had succeeded in cutting wiring and was now wrenching at the cylindrical component, and the rattling sound had increased in intensity. A cold chill of dread swept through Pat Renfro as he realized there was something very strange about that cylindrical component, and that was what was arousing Cat. "Get me a multitector," he ordered.

One of the techs, sensing Pat's sudden intensity, ran to the hatch leading to the little room that housed the communications circuitry and equipment. The tech came out, leaving the communications-room hatch open, with an instrument in hand. Pat jerked the multitector out of the tech's hand and sent the scanner beam toward the cylindrical component that was still attached to the wiring by an electrical lead. The multitector began to run a series, gave negative on radiation and flamma-bles, then beeped a shrill warning as its small screen glowed red and digital letters began to appear.

Pat didn't wait. He tossed the multitector to the tech, dived into the panel, ripping and tearing at the complicated, delicate systems, got a hand on the cylindrical component and ripped it free, bringing Cat out with it, clinging, then dropping free, still shrilling the warning rattle.

"What in hell?" Rocky Miller was saying.

"This thing indicates expand material," the tech who had caught the multitector said. "Four-point-five ounces. Chemical detonator. Heat reading. That cylinder's an explosive device!"

Pat could feel the heat on his bare hand, knew that the reaction was already under way inside the cylinder, a slow heating action that would, in seconds, bring the expand explosive to detonation point. He looked around frantically.

There was only one possibility, for suddenly the heat of the cylinder increased. He took three running steps, threw the cylinder into the empty communications room, and slammed the hatch with a bang, which was followed in a split second by a dull boom as the expand detonated.

The communications-room hatch held. The explosion was contained.

"That was a stupid thing to do, Renfro," Rocky Miller said. "We're now completely out of communication with Earth."

Pat looked at the first officer unbelievingly. Had the expand gone up under the control console, the ship would now be dead in space, along with all those on the bridge. The bridge control console was the heart of the ship's multiple systems, containing access routes to the main computer, controls for all the major systems—life support, the Drive, rocket engines, navigation.

The first officer shook his head, smiled. "Sorry, Pat. Guess I was in shock. Actually, that was very quick thinking." He ran his hand through his hair. "Call the captain, please."

The communications tech began to push buttons. Trouble lights appeared on her panel. "All ship's communications are out, sir."

"Damn," Miller said. "Well, go find him or use the portable transceivers, then get engineering up here. We need to vent the fumes and see how much damage there is."

Duncan Rodrick arrived on the run a few minutes later. The fumes from the explosion had been evacuated from the control room and filtered through the ship's air purification system. The first officer gave Rodrick a quick summary of the incident. One look into the communications room was enough to convince Rodrick that the damage was total.

The problem now was that the backup components had been, in the interest of storage limitations, housed in the shattered control room, so that duplicate units had been destroyed along with the main radio. There simply were not enough spare parts aboard the*Spirit of America* to rebuild the long-range radios. It would probably take weeks merely to rig up a system to keep the various parts of the ship in communication. As for talking to or hearing from the Earth, there was no way. Whatever happened back on Earth, the*Spirit of America* could not know until, at some hoped-for time in the future, the ship would rise from the surface of the new planet, her fuel supply having been replenished by mining and refining rhenium, her rocket engines filled with rocket fuel manufactured on the new planet, and make the long trip back.

Once on that new planet, communications would be needed only with exploring scout ships, equipped with line-of-sight-transmission equipment and transmitters for the shorter radio waves, which would bounce off the atmospheric layers and "carve" around the contours of a world. When the need for a worldwide communications arose, the resources of the people aboard the ship would be used to establish microwave relays, or, as the electronics capacity of the new settlement grew, to place communications satellites into orbit by using the scout ships as launching vehicles.

The chief engineer was called into the bridge, and as Rodrick stood watching Max Rosen and his technicians assess the damage, he seemed to hear Dexter Hamilton's soft-spoken, friendly voice:

"You bear a heavy burden, Captain. It is not an overstatement to say that the fate of America, of all humankind, is in your hands. With you go all the centuries of aspiration of the race, the hope and prayer and struggle for a better life, for freedom, for respect for the individual. It is all in your hands, Dune. Do your job; do it well. Make the spirit of America live out there among the stars."

Now the dream was under attack. Max Rosen, his face contorted into the familiar expression of agony, said, "The explosive device was installed during construction. Whoever did it knew what he was doing. He replaced the coolant gel in the component with expand. The expand had just enough cooling potential to pass tests of the system. Since it was mounted in a backup system, it was never in operation long enough for the expand to get too hot."

"Well, Chief, you know what to do,' Rodrick said.

Rosen nodded. "We'll have to check every inch, every component. If they could put one here, right in the control center, they could have put others somewhere else."

"You organize it, Chief. I'll put every member of the crew at your disposal, and any of the colonists who have the background to be of any help."

"Sir," Pat said, "Dr. Monroe's robots will be of great help." Pat had been standing out of the way, his hand on Clay's shoulder. Cat, blue with pleasure, was draped around his neck.

Rosen glared at Cat. “I don’t want that thing crawling around in my hardware.”

Rodrick didn’t mince words. “Chief,” he said, “being

eccentric is one thing. Being stupid is something else. Dr. Monroe’s creations have proven themselves.” He turned to Pat. “Mr. Renfro, since you’re familiar with Dr. Monroe’s boys, you and she will coordinate how best to utilize their abilities.”

“Yes, sir,” Pat said. “Sir, there’s another thing—“

Rodrick had started to turn away. He looked back at Pat.

“Our small stowaway,” Pat said.

“Yes, yes,” Rodrick said. “Find a place for him, maybe with one of the families.” He started to turn again.

“Sir?” Pat said.

Rodrick had the safety of his ship on his mind. He didn’t speak this time when he turned. He merely glared.

“There’s another matter,” Pat said. “A small, hairy one?”

“I gave orders to have the animal destroyed,” Rocky Miller said.

“No!” Clay yelled, his arms tightening around Jumper and his fists clenching.

Duncan Rodrick’s face was stern. He’d almost lost his ship. Behind them, an entire planet faced death. He did not want to add to the casualty list. “I think, Mr. Renfro, that this ship is big enough to accommodate one small dog, don’t you?”

“Yes, sir!” Pat said, grinning.

“Gee, thanks, sir,” Clay said, hugging Jumper.

“He’ll be your responsibility, Mr. Girard. I’d suggest that you keep him out of nulgrav areas. Any mess is yours to clean up. If he annoys anyone, then we’ll have to reconsider the situation, do you understand?”

“He’ll be good, sir,” Clay said.

Pat decided it was time to leave while they were ahead. Things were a bit sticky on the bridge, what with the chief engineer just having taken a reprimand and the first officer’s order having been countermanded. They were gone when Rodrick turned to Chief Rosen with a wry smile. “I was a little harsh there, Chief. Sorry.”

Later, after Rosen’s men had repaired the backup system and had gone to work to restore on-board communications, Rodrick walked alone. He sought a favorite spot, botanist Amando Kwait’s gardens. He walked among splendid, healthy, green samplings of Earth’s useful vegetation, mused appreciatively over huge date and coconut palms, sampled a ripe peach from a fruit tree, tossed the pit into an organic-material reclamation bin.

He sat down on a comfortable bench in parklike surroundings, the smell of growing things, of rich soil, in his awareness, but his mind at a distance, back on Earth. With communications disrupted, he would have no way of knowing if the final war had begun. Perhaps that was for the best. If he knew, knew that all the teeming billions of Earth had died, he might feel less urgently the need to concentrate, once on the new

planet, on getting the ship ready to make the return trip.

He had been given a mission. He was to settle a life-zone planet, develop it, build the plants to manufacture rocket fuel and to refine rhenium, then to take the*Spirit of America* home to show those on Earth that there was hope, that there were plentiful resources, unlimited living room, among the stars. He would accomplish that mission.

His imagination got the best of him. In his mind he saw the flames and the tall, obscene mushroom clouds and the death of cities, countries, continents. He went back to his quarters and poured a drink, but that didn't help. He wanted to talk, to share his pain, to have someone tell him, "Hey, they won't be that stupid."

But there was no one. Oh, there was Lieutenant Garvey, and he liked thinking of her, but there was, somehow, an ingredient missing. There was a comfort in her, a gladness in being with her, but there was no closeness.

It was then that he envied his first officer. The man was damned lucky to have a woman like Mandy.

The process of organizing a thorough search of the ship was complicated by the lack of communications. Key personnel in Adam Hook's security force were issued transceivers, however, and the teams began the laborious check of all areas and systems aboard ship.

Rodrick was pleased by the colonists' reaction to the near disaster. The search teams reported that the people were puzzled and a bit angry—puzzled by the lack of security that had allowed a bomb to be planted; angry because, in a stable personality, anger is the normal response to threat. Fear comes later, and Rodrick was determined to prevent any hint of mass paranoia aboard ship.

The fact that the expand bomb had passed all inspections without detection opened possibilities of other unpleasant surprises; it seemed highly possible that the screening procedures used during crew and passenger selection might also have been flawed.

And if there should be an enemy of the ship aboard? Merely imagining what one determined man or woman could do was enough to cause Rodrick to walk swiftly back toward the bridge. As well constructed as she was, the ship was a complicated, interrelating mechanism with so many vulnerable points that it would be impossible to protect them all over the long, long period of her voyage.

He told Emi Zuki to put the central computer to work checking the recorded data on each individual aboard ship.

"What you need, sir," Emi said, "is a way of looking into the brain of everyone on board, and unfortunately, computer science hasn't advanced that far."

She'd given him the seed of an idea. If anyone on board knew more about the human brain than Dr. Monroe, he had never demonstrated it.

Grace listened to Rodrick's outlining. "I agree with Emi," she said, "that you won't be able to root out a potential saboteur by checking the personal data by computer."

"There are a lot of ways one person could kill us all, Dr. Monroe. A chemist in one of the labs could make a relatively small amount of poison and introduce it into the nutrient supply for the gardens. Without the contribution of the vegetation to the oxygen supply, the air wouldn't last two years. I could think of dozens of other ways."

"One thing we could do," she said, "that wouldn't infringe on the rights of the individual too much would

be to use my equipment to record electroencephalograms of everyone on board. We would feed the data into a computer—" She paused. "Ah, Mopro. He has plenty of unused capacity. He'd have the advantage of being mobile."

She fell silent again, and Rodrick, having had some experience with scientists, recognized in her faraway stare the indications of intense mental activity.

"Yes," she said suddenly. "I can build in a remote encephalogramic sensor. He wouldn't be able to keep constant check on everyone, but we could keep him moving around. You could make it known that he's a roving, tireless guard. He is, after all, our number-one security element. He will be able to identify everyone positively by the beta-state cycles and could detect unusual agitation. He'd have to be very close to a person to receive the minute brain patterns, but it'll be something, won't it?"

"Go to work on it," Rodrick said.

As the days passed, and section after section of the huge ship was checked, rechecked, and cleared, as Grace Monroe's program got under way and dozens of people had their brain waves recorded, it became evident that the loss of communications with Earth had produced one positive effect. The ship, truly, was a small world of its own. It was alone in deep space, cut off from all that was familiar. Each individual aboard knew that he would, in all probability, never see Earth again. The passengers had developed the feeling that the future depended on themselves and their interactions with their fellow space travelers.

There were, of course, the usual personality conflicts that arise within a closed society, but healthy pride produced a willingness for cooperation, and there was little complaint about the extra hours demanded by the thorough security check of the ship.

It took Max Rosen a full week to restore partial communications within the ship. Duncan Rodrick breathed easier. The week of trying to keep up with activities over such a wide area through the use of the small number of transceivers and the addition of human runners had been a strain. He had envisioned an emergency in some remote cranny of the vessel, unsignaled by the detectors due to lack of communications. But now the ship was alive again, all areas monitored. Only the entertainment channels were still nonoperational, and Rosen's men were working on them.

As*soon as the door hissed shut behind him, he vented his anger by throwing his notebook across the small room. It hit the wall and fell to the deck, pages fluttering.*

They didn't trust him!

Fools! Why did government service seem to attract only unthinking fools! Of all the materials to use, they'd used expand. A trained dog could sniff out an expand bomb. Modern instruments could detect expand from a hundred feet away. His only consolation for the incredible blunder of using an expand bomb on the bridge was that the Americans had been even more foolish, by not using available instruments to discover the bomb before the Spirit of America *had left the ground.*

His anger dissipated quickly, and he mused silently for a long time, then shrugged. Possibly it would make his job more difficult, for Captain Rodrick would be on guard. But otherwise, nothing had changed. The clumsy planting of the expand bomb merely reinforced his low opinion of governmental officials and their hirelings. When the time came, he would do his job and do it well.

He walked to his desk and sat down, and suddenly he froze. If they had the men in place during construction to plant one bomb, what else had they done? What if some more effective method of sabotage went into effect? What if the ship were suddenly destroyed?

He leaped to his feet and began to pace. They weretrying to rob him of his satisfaction! They had not trusted him! He had planned to take his time, to savor the knowledge that he had the fate of the ship, the lives of a thousand people, in his hands. Now they were trying to deprive him of that, but he'd waited too long to be denied. He had made his plans carefully and well and had devised the means to implement those plans without so much as one single moment of risk.

It was his right. He had earned it. He and he alone would be the one, and that meant that he would have to move quickly.

But it was too soon, too soon. He had not yet put real fear into them, had not let them know that aU their security, dreams, and hopeful planning had been for nothing.

Merely to kill them all was not enough. They had to suffer, as he had suffered.

No, he would not end it now. He would take the risk of waiting, of moving slowly, of enjoying his victory. But it was time to begin, to make them begin to look over their shoulders, to be suspicious of everyone, to fear and wonder who was going to die next.

FIFTEEN

When Clay Girard had first been delivered into the keeping of Stoner and Betsy McRae by his newfound friend, Pat Renfro, he had been in awe of Stoner. The mining engineer was a mountain of a man. He stood over six-feet-seven, and in the years since he'd been a defensive tackle for the San Diego Chargers, he'd added thirty pounds to his playing weight of two hundred fifty pounds. The first time Stoner picked up his wife, Betsy, and his daughter, Cindy, one in each arm, to prance around the small living quarters and dance playfully, Clay was impressed. Cindy, three months younger than Clay, was slim and light, but Betsy McRae was a full-bodied, tall woman, and Stoner carried her in one arm as if she weighed no more than Cindy.

Betsy McRae was one of the teachers aboard ship. To Clay's dismay she had him in the ship's classroom the morning after Pat Renfro delivered him to the McRae family, and she showed no favorites. "Well, Mr. Clay Girard," she said after giving him a few tests to see where he stood in the three R's, "it's the midnight oil for you."

Clay had a tiny room adjoining the McRaes' family quarters. There he and Jumper slept, though the boy and dog were welcome at any time in the McRaes' quarters, one medium-sized compartment, combining living room, kitchen, and bedrooms. Clay took his meals with the family, and he was responsible for feeding Jumper and walking him in the ship's garden area.

He certainly didn't miss his foster parents. He'd been more the servant than the son of George and Agnes Womble, and he felt closer to Stoner and Betsy McRae within days than he'd ever felt to his foster parents.

And Cindy? Well, girls, he found, were not too bad after all. She showed no signs of wanting that silly kissy-kissy stuff. She could beat him at handball down in the gym and could soar as far and as fast as he without getting bumps on her head when they went into nulgrav sections at the center of the ship.

Stoner took Clay aside after Clay had been living with the family for a week. He welcomed the attention from Stoner until he discovered the subject of Stoner's conversation.

"You're going to be spending a lot of time with Cindy, boy," Stoner said in his big, bass voice. "And I guess you've discovered that girls and boys are not built alike, haven't you?"

"Yes, sir," Clay said.

"There's a definite reason for that," Stoner said solemnly. "Girls have babies. Maybe someday you and Cindy will get married:—"

Clay gulped.

"—but in the meantime let's understand each other, I don't know how you've been raised, boy. I think you're made of good stuff, but I don't know anything about those people who took you in. I do know how we've raised Cindy. We don't treat sex like a toy or a piece of candy to be eaten anytime you get hungry. You hear me?"

"Yes, sir," Clay said. He was feeling quite uncomfortable.

"There are not too many kids your and Cindy's age on board, so I hope you two become good friends. A safe thing for you to do is start thinking of Cindy as your sister, and remember that you never, never mess around with family. You know what I mean?"

"I sure do," Clay said.

Stoner put both his hamlike hands on Clay's shoulders. "You'd better. I ever hear or catch you playing games with Cindy, I'll just break every bone in your body."

"You don't have to worry, sir."

When Clay returned to the family's apartment, Cindy was in the living room, working on homework. She looked up at Clay and without introduction said, "My mom says I should think of you as a brother."

"That would be nice," Clay said.

"But I've never had a brother."

"Me neither. I mean I've never had a sister."

"We could just be friends," Cindy said.

"I'd like that."

"We could swear an oath that we'll always be best friends and never do any of that stuff—" She paused, blushing.

Betsy McRae, who had overheard their conversation from the kitchen, was oddly touched by the seriousness with which the children considered their friendship. It had been she who pointed out to Stoner that although Clay and Cindy were only twelve, they'd be over fourteen by the time the ship reached the lightstep point, perhaps nearing sixteen by the time they landed on a planet. When she looked at Clay and Cindy, she saw the future in them. They were compatible and went everywhere together in the short time that Clay had been with her family. And although she had felt the growing closeness of the participants in the great adventure, the growing sense of community, it pleased her to know that if something happened to her and Stoner, Clay would be there for Cindy.

On New Year's Eve, Pat Renfro enlisted the aid of Clay and Cindy in cutting printout paper into long ribbons and dying it festive colors. Suspended from the ceiling in the captain's mess, blowing this way and that in the currents of the air ducts, it added holiday spirit. Civilians wore their most elegant clothing, and the space-service personnel were in their dress whites. Clay was now one of them, Pat having had a

neat cadet's uniform made to Clay's size in the automated tailor shop.

Stoner McRae wasn't quite sure why an ordinary mining engineer and his family had been invited to sit at Duncan Rodrick's captain's table, but Betsy said the captain was probably inviting everyone on a rotation system and it was their turn. In actuality, they were invited because of Clay.

Rodrick had made it a point to keep tabs on Clay, who was always in the company of the sunny, pretty girl and the little dog that proved constantly that he was an expert in human relations by the simple expedient of lolling his tongue in a foolish grin and wagging his tail. Jumper simply liked everyone and showed it. And the passengers were happy to have a real, live dog along for the ride.

It seemed to Duncan Rodrick that the ship had been under way for months instead of just days. Things had settled into a smooth routine after a thorough and ongoing check of the ship turned up no more nasty surprises like the expand bomb in the bridge control console. There was a residual undercurrent of fear, but that, like the Earth, grew smaller behind them hour by hour.

Pat had another of Grace's boys on hand for the evening. Called Juke, it was a mobile entertainment center with an endless stream of jokes and extensive music library. As people gathered, they were invited to dance to Juke's music in the small area that had been reserved as a dance floor.

All officers were on hand. The captain himself was still on the bridge, where he was to be relieved at midnight by the first officer, but with shipboard communications restored and the*Spirit of America* humming along through space without so much as a single glitch in any system, it would not be necessary for either of them to leave the party unless paged from the bridge.

Seated at the long head table were the MacRaes, plus department heads such as Dr. Grace Monroe; Adam Hook, the ex-New York detective who was the ship's one policeman; Amando Kwait, food-growing expert in charge of the ship's stock of growing vegetation; leading scientists from among the colonists; and, of course, Max Rosen, who showed a surprising side to his character by bowing low to Grace Monroe and then leading her in a quite respectably performed waltz.

Rodrick entered almost unnoticed. He looked around, saw Clay and Cindy trying to get the hang of dancing together, nodded to Pat Renfro, pointed to the gay decorations, and grinned in approval. Then his eyes fell on the face he had been looking for—Mandy Miller's. He caught her eye and nodded with a tight-lipped smile, and she smiled back. Her husband immediately took her arm and propelled her toward his commanding officer, smiling.

"Great party," Rocky Miller said. Rocky had the physique of a military man—tall, lean, and hard. He was dark, as was his wife, and handsome in a rough-hewn way.

"The men did a good job," Rodrick said, feeling slightly uncomfortable that he was so attracted to Miller's wife. "How are you, Dr. Miller?"

Mandy was, to him, heart high, a small, state-of-the-art woman. "I feel great," she said.

"I've been wanting to thank you for the cooperation of your unit in helping Dr. Monroe with the brain-scan recording," Rodrick said.

"Good training," Mandy said. "And since everyone is so disgustingly healthy, we have little else to do."

"Captain, perhaps you'd be kind enough to dance with my wife while I run up to check on things," Rocky said.

Rodrick had been going to tell the first officer that it was unnecessary for him to go check, since he

himself had just left the bridge, but he stopped himself. “The pleasure is mine, Commander. If *you* would be kind enough, Dr. Miller ...”

“Of course, ‘ she said, smiling. “Captain, we’ve got to knock off this Dr. Miller stuff,” Mandy said as they edged onto the small dance floor, other couples shifting aside to give them room. “Every time you call me that, I look around to see if there’s someone tall, gray, and distinguished around who has my surname. Call me Mandy.”

The music was slow and dreamy, and Rodrick was feeling storm warnings. She fitted so snugly into his arms, molding to him as if they’d known each other for years. And yet there was no invitation in her eyes, no coy seductiveness in her voice.

He had a feeling that even in normal gravity and not in the half gravity of the ship, she’d still be light on her feet. He forced himself to be rigidly polite, and he forced himself to escort her back to the captain’s table, there to turn her over to Pat Renfro, while he performed his captainly duties of visiting the other tables. When the meal was served, Rocky Miller was still on the bridge. The first officer was seated to Rodrick’s right, leaving an empty chair between Mandy and him. “Mandy, since Commander Miller is away performing his duties, would you please sit beside me?” he asked.

As she took her chair and pulled it forward she looked up into his face with a smile that sent the storm-warning flags flying again. According to service protocol, Lieutenant Jackie Garvey was seated far down the table. Rodrick’s eyes sought her out. He smiled. He told himself to count his blessings and stay in his own fields. The ship’s complement was family oriented. In those cases such as his own, where his skills had offset his single status, a single woman offset him. Jackie was not the only single female on board, of course, but since he was expected to be a part of this balanced-breeding unit that was the ship’s complement, she wasn’t a bad choice. And yet thinking of living with Jackie the rest of his life, of rearing their children with her, left a coldness in his heart. There was time to try to love her; the trip had barely begun.

He stood when the meal was over, raised his glass. “Ladies and gentlemen, “ he said, “the time is near. There’s just time for a toast to the success of this mission, to the*Spirit of America,* to those on Earth who made her and our presence here possible.”

It was almost midnight. On a cue from Pat Renfro, Juke, the entertainment robot, flashed an old, traditional scene on a viewscreen. Heads turned. People moved chairs to get a better view.

Times Square. It was an old film—you could tell by close-ups of the people who braved a winter’s night to crowd the square. Some of the men had beards, long since out of style. The music was sweet, full, nostalgic. It had been the first of the countdowns, that falling of the huge neon ball in Times Square. When the custom first began, it was not recognized as a harbinger of the space age, which lived with countdowns.

The officers, scientists, and crew all joined in the count as the ball came down, its fall carefully synchronized to ship’s time by Juke. And then the happy cries, the kisses.

“Happy New Year! Happy New Year!”

Grace Monroe rose from her chair and came to lean over the captain’s shoulder. “Happy New Year, Captain,” she said, and her lips were moist and warm on his, a quick, friendly kiss. And then others. And then Mandy. She smelled so damned sweet, and as her lips touched his after her whispered “Happy New Year,” he felt a jolt that he hadn’t experienced since he was a cadet at the academy. His eyes narrowed to see that her closed eyes jerked open with a start. She ended the kiss quickly, sat down, fussed with her skirt, not looking at him until someone started chanting, “Speech, speech.”

As he stood, Grace leaned over and, winking, wiped lipstick off his face with her hankie.

"Here we are, in deep space, surrounded by miracles of science, and our chemists have not yet been able to create a smear-proof lipstick," he said.

There was a good feeling in the room. He looked around, winked at Clay and Cindy.

"Well," he said, "the New Year's kiss is traditional, and who am I to fight tradition? I think it's important for us to remember and observe all traditions in the coming years, to remember who we are and where we came from, and why we were sent out from Earth. So by all means, lets remember the New Year's kiss, and all the customs and beliefs that make us Americans, and human beings.

"And we must never forget our sacred mission to visit home, to assure that this ship is just the first of many, bringing back relief and the bounty of space, offering new challenges, adventure, and new frontiers to our people.

"I ask you all to participate in fulfilling those responsibilities. We are the hope not only of our country but of mankind. Here, aboard this ship, we are entrusted with the hopes, dreams, and aspirations of our countrymen.

"We are, truly, the spirit of America."

There was a moment of silence, and then the applause began, and continued for what was, to Rodrick, an embarrassingly long time. He nodded, smiled, then finally he lifted his glass, and the applause stopped.

"Okay, everybody, it's New Year's Day, the year 2041. Some of us had to fight pretty hard to overrule service regulations against booze, and you can't believe the shenanigans we had to go through to put distilling and brewing facilities on board. But we won; and in celebration of that victory, I think it is the duty of everyone off duty to have himself a ball."

He sat down. Mandy Miller took his hand between hers and looked at him. "That wa^s beautiful, ' she said.

Woman, woman, he thought, *do you have any idea what you're doing to me?*

Pat Renfro was seated next to Dinah Purdy, with Jack Purdy on the other side of her. Her leg continued to rub against Pat's under the table. Jack was soon to go on duty. Jack wasn't drinking. At one o'clock, after a couple of dances with his wife, he had to leave.

"So soon?" Dinah asked, popping a little kiss onto his lips.

"You stay, honey," Jack said. "Have a good time. I'll see you later."

Pat knew that Jack's area of duty was in passenger country, and he knew that between rounds Jack would be drinking coffee in a lounge with other members of Adam Hook's security force.

Pat felt self-revulsion to see Dinah kiss Jack that way in public. It was almost as if he somehow had forced her into being a hypocrite, putting on an act as a dutiful and loving wife while she knew as well as Pat that within a half hour or so they'd be together out there in one of the spokes, where there was just a hint of artificial gravity, and that the kisses she'd be giving Pat would not be mere pecks.

Pat didn't make things obvious. He danced with Grace Monroe and enjoyed it, carrying on an animated conversation about the abilities that might yet develop in Cat. He danced with Betsy McRae and with Cindy, and then he saw Dinah saying good night to the people at her table and leaving the room.

He waited a full fifteen minutes, although all of him was yelling, "Now! Now! Go to her now!" Then he said his good nights.

She was there ahead of him. It was their favorite little storage area. He'd smuggled in an air mattress and some blankets, and there was a stock of the synthetic champagne that was run off at astounding speeds in the ship's boozery, as Pat called it. She met him with warm arms and sweet, open lips, and it was a grand and glorious night.

Later, they lay side by side. Pat was dozing, but Dinah lay with her head in the crook of his arm, her eyes open. There was only the glow of the tiny security light in the storage room. She had drawn a blanket up to cover her breasts.

Dinah had grown up in New York City, the daughter of a successful surgeon. Coming from a family that valued learning and were patrons of the arts, and yet marrying what some people called a "space stud," Dinah felt that something had gone wrong somewhere, but most of the time, as at the New Year's Eve party, she was pleased with her life. Perhaps being the only child of an affluent family had taught her to be self-indulgent—at the party she'd stood unselfconsciously during the singing of "Auld Lang Syne," with one hand on Pat's arm, the other on Jack's arm, and she caught herself thinking smugly,*How lucky I am to have two of them*.

She'd met Jack Purdy when, against her father's wishes, she'd gone to a ball at the space academy, and she'd married Jack over her father's objections—he wanted her to be a doctor—because Jack was the most exciting man she'd ever met, with a certain elan, a zest for life that for years left her breathless. The rather spartan life-style of a space lieutenant's wife was compensated for by fantastic nights.

Then when Jack drew service on the stations, leaving her alone for weeks at a time, Dinah resumed her interrupted med school studies, worked hard enough, resisting the temptation to allow her body to be drawn to one or more of the attractive fellow students, to earn the right to be called Dr. Purdy. Her specialty was in virology, the study of viruses. She was good at her work, but she knew that she was on board the*Spirit of America* not because of her abilities, but because she was married to a hot space jock who was needed to fly the scout ships stored in the outer pods.

Now, in the dim, dim light of the storage room, her lover's warmth beside her, she had doubts about what she was doing, being caught in that age-old situation—the sweet, dangerous, stimulating trap of being in love with two men at one time. It was unfair that she could not have each of them when she wanted him. It was unfair that she had to sneak off to a storage room to meet Pat. What she did with Pat had nothing at all to do with Jack. What she gave Pat was hers, and what she received in gladness from him was hers, and her love for Pat did not diminish her love for her husband in the slightest. If she had married into the same social stratum in which she'd grown up, that concept would have been understood by many. Men were so possessive, and the space stud, because of his heroic dimensions in the eyes of the public, was even more so. Space studs and their associates would not understand it was their problem, not hers.

It was sad for her to think that when they reached the new planet she'd have to give Pat up, for when she and Jack reached their destination, she would allow her body to become fertile, and there could be no question about whether Jack was the parent.

She pulled Pat's tunic toward her, checked his watch, saw that it was getting late. She woke him with kisses, then slid from beneath her blanket and knelt astride Pat's body, helping him enter her.

Thus she was well exposed, head back, trim breasts thrust forward, eyes closed in pleasure when the door to the storage room opened and what had been a dimly lit, amorous, erotic scene was exposed to

the glare of the overhead lights that came on automatically when the hatch opened.

SIXTEEN

Amando Kwait discovered the dead woman shortly after one o'clock on the morning of New Year's Day. He had left the captain's party shortly after Rodrick's speech, a bit troubled because he was one of the few non-Americans aboard ship and the captain's words made him wonder if he had made the right decision when, as the foremost expert on experimental agriculture in the world, he was offered a berth on the*Spirit of America*.

There were others of African ancestry aboard, but Amando was the only genuine African. He'd been forced to leave his native land to avoid certain execution by the victorious Communist forces that had eventually swept through all of the continent with the exception of the fiercely independent South Africa.

Amando Kwait saw food as the means of freeing all of Africa from centuries of hunger and dependence on outside sources, and after getting his education at Texas A & M and discovering that he had a flair for original thinking when it came to new and better ways of growing food plants, he went back to Africa to research and experiment in ways of growing edible vegetable matter in the varied and often arid conditions of the famine areas.

When he was first approached by Duncan Rodrick, the Communists seemed intent on solving Africa's overpopulation problem by allowing disease and famine to continue unchecked. As a result, Amando's answer to Rodrick was no; he felt that his duty was to his people.

In the end, after a long conversation with Duncan, Amando decided that in the long run he could best serve his people, and the world, by signing on with the*Spirit of America.* There were times when he regretted the decision, when he felt like a deserter. But as he walked through the spaceship's garden, which was his work and his responsibility, the concentrated, dense growing things sent out their warm, comfortable smells, and he could be excited about the future, about the opportunity to find and catalog and classify and cook entirely new varieties of alien vegetation. Somewhere out there on that new planet that was their destination, there just might be the one plant that would solve all of Earth's food problems.

The selection of the plant species to be carried to the stars by the*Spirit of America* had been left largely up to Amando. In carefully weather-controlled vaults he had stored seeds of thousands of vegetables, flowers, trees, shrubs, and even weeds, for Amando subscribed to the old adage that a weed is merely a flower whose use has not yet been discovered. The living vegetation had a double purpose: their ability to produce food items, and their ability to perform that miracle of chemistry, absorb carbon dioxide and release rich, pure oxygen. Amando's jungle, as some called it, had a definite and important place in the ship's life-support system.

Amando found a bench in front of a bed of massed tomatoes, where he could find peace. He was never totally at ease without the rich smell of growing things around him. He should have relaxed immediately, but a feeling of distress would not go away. He thought at first that it was his pain from hearing the captain's proud, inspiring words about country, and his own realization that he had no country—that the dark tyranny of Communism stood between him and the land he loved.

He stood up and looked around in the dim, red light. He took a deep breath. The scent was wrong. He should have realized it sooner. Something had disturbed the tomato vines, which, when touched, intensify the emission of their tangy aroma.

He walked to the back of the growing square, where the scent was stronger. In the dim, red light it looked as if plants had been bent down near the middle. He walked to a switch panel, manually overrode the timer, turned on the lights directly over the tomatoes.

He saw a shoeless foot, obviously female. And some of his precious tomato vines were crushed, bent, folded down to partially conceal the body. He picked his way carefully among the plants.

Her face was looking upward. There was a look of agony in the rigid, dead features. Her eyes were glazed. She had been dumped under the plants, and whoever had thrown her there had to be strong, for she was a large woman.

There was no blood. She had been killed cleanly, efficiently, with a single stroke across the throat, extending carefully from one ear to the other.

Adam Hook sat across a small, round table from Jack Purdy in a lounge almost directly across the diameter of the ship from Amando Kwait's gardens. Purdy, slim and neat in his uniform, his blond hair only slightly mussed, was listening in fascination as Hook detailed an interesting murder investigation he'd conducted in New York City just before joining the crew of the*Spirit of America.*

Hook was a bulldog of a man, with erect posture. His mouse-colored hair was slicked down but heavy, and his face widened at the bottom into a strong, wide chin and a mouth that, when he smiled, gave him a friendly, pleasing look.

Both Purdy and Hook were grateful that there d been no rowdiness at all among the celebrating colonists. Hook was thinking of calling it a night. He'd expected to be back in his room and asleep in an hour or so when he set out to make one more check of the patrol areas in passenger country. When his transceiver*ping'd* he put down his coffee cup without haste and fingered the small switch of the button-mounted mike.

"Hook," he said. His voice was mild, unaccented.

"This is Dr. Amando Kwait."

Purdy heard too. He had met and talked with Dr. Kwait several times.

"Yes, Dr. Kwait?" Hook said.

"There is trouble in the gardens," Kwait said. "You will please come?"

"I'll send the man in your sector right now," Hook said.

"No," Kwait said, his voice as calm as Hook's. "I think, sir, that this trouble will require your personal attention."

"What's the nature of the trouble, Dr. Kwait?" Hook asked.

"You will please come. Quickly," Kwait said, and now there was a hint of urgency in his voice that galvanized Hook.

"Quiet here," Jack Purdy said. "Mind if I come along?"

"Glad to have you," Hook said.

Since people confined in relatively small spaces needed all the exercise they could get, walking was the usual mode of transportation aboard ship. However, in the outer shell of the ship there was a system of monorails designed to move cargo and equipment over the considerable distances along the outer wheel. Only a few people were keyed to open the access hatch to the monorail, but Hook's palm prints were recorded on every lock aboard ship.

Once in the monorail capsule, Hook punched destination numbers into the control panel, and the car accelerated swiftly, hummed quietly, then braked rapidly. The lights were on in the gardens, and within a few seconds, guided by Amando Kwait, Hook was looking down on something that was just too damned familiar to him. When the selection process of applicants for sergeant at arms aboard ship had placed him in the final ten candidates, he'd prayed to be chosen, because he was tired of seeing just what he was looking at in Amando Kwait's tomato patch. He had thought that aboard ship with a select group of very high-achieving people he would have seen the last of violent homocide.

Hook obeyed Dr. Kwait's urgings to be careful of the plants. He brushed aside the thick vines and leaned to examine the body. The woman was in her nightgown, a heavy sweatshirt type. Someone had used a source of intense heat, a focused, precision-cutting source of intense heat, to slice her throat from ear to ear. The burns oozed clear serum and small amounts of blood through cauterized veins and capillaries.

Jack Purdy made his way through the plants to stand to look over Hook's shoulder. "My God," he whispered.

Hook's bulldog face was grim, his lips downturned. "Jack, I'm going to call Dr. Miller in here. You'd better go tell the captain, then alert some guards. I don't think a search will do much good, but we'll make one anyhow."

Captain Rodrick had already left the dwindling party in the dining commons. Jack located him on the bridge, then, following Hook's orders, called his own immediate superior, Pat Renfro. Renfro's bachelor quarters were empty.

All scouts were assigned to Adam Hook's security force during the voyage and had been briefed on Dr. Monroe's project to implant the brain-wave patterns of everyone aboard into the storage areas of the TR-5A robot, Mopro. The project was not finished, but almost half of those aboard had sat underneath Dr. Monroe's machines. Whoever had murdered a woman with a focused-heat weapon—probably, Jack thought, a molecular-bonding welding torch—would have*some* brain waves. If he had been recorded, Mopro just might be able to put his new talents to use to spot the indications of what had to be insanity in the murderer.

Dr. Monroe was already in bed, but she met Purdy at her lab and turned Mopro over to him. Jack used the monorail to get back to the area of the gardens, where he and Mopro began to patrol, moving gradually away from gravity conditions through the nearby area of passengers' quarters. Mopro, rolling on silent wheels, his banded eye glowing, used an ultrasensitive receiver to read the brain waves of people behind the closed doors of their quarters. Most readings were those of people in sleep.

In the gardens, Mandy Miller, fighting her horror, examined the dead woman. Adam Hook recorded all the details of the scene before he allowed the body to be removed from the tomato patch. When the body was at last concealed in a body sack resting on a wheeled stretcher, Hook put his hand on Mandy's shoulder.

"Sorry," he said. "I know forensics is not your field, Dr. Miller."

"It's all right," she said, putting her hand on his arm. "Just tell me exactly what you'd like me to look for—"

"We'll want to analyze all foreign matter you find on the body. Determine whether or not she was sexually assaulted. And if the cause of death was something other than the obvious. The killer might have sliced her throat to throw us off track."

“Do you know who she is?” Mandy asked.

“Yes. We ran her palm print. Her name was Ruth Middleton, a nuclear technician. The captain has gone to tell her husband. He’s on duty at the generating plant.”

“Poor man,” Mandy said. She looked toward the shrouded body. “I’ll get started right away.”

Hook nodded grimly. “This ship is a small world.

When the word gets out that we’ve got a killer on board ...”

Jack Purdy and Mopro had entered an area that was off-limits to unauthorized personnel. They went up and down corridors in a maze of storage areas. All areas were well lighted. The fusion generator provided more than enough power to burn every light on the ship twenty-four hours a day, had it been desirable. There was no question of waste. The efficient, clean hydrogen-fusion plant had the capacity even to power a young, growing city once the ship was on the new planet.

Jack, like Adam Hook, felt that a search was useless, but after seeing what someone had done to the woman back in the gardens, he had to be doing something. It was getting on toward morning, and his duty tour ended at eight A.M., ship’s time.

He let Mopro glide along silently in front of him. The big fellow, he decided, was a comforting presence. He’d been all over the*Spirit of America* many times, and he’d never felt the slightest threat—not until he’d seen the dead woman. With a demented killer around, he’d just as soon be following old Mopro’s heels. Mopro had plenty in his arsenal to take care of a mad killer.

The search was getting to be monotonous. Up one corridor, down the other. It was not necessary to search every storage area. Mopro’s various detectors, and that newly installed brain-wave detector, took care of that. Mopro just rolled along, sweeping the areas within range of his sensors, and there was not one iota of doubt that an area once swept by Mopro was clean.

Jack was looking at his button-watch, thinking how nice it was going to be to go back to quarters and crawl in beside his lovely wife, Dinah. He chuckled as he thought of Pat Renfro coming out of whatever perfumed quarters he was currently favoring to find that all hell had broken loose and he was going to have to pull an eight-hour tour. Jack almost bumped into the back of Mopro, who had come to a halt as silently as he rolled. The big fellow swiveled toward a door, and letters rolled quickly across his banded eye.

SILENCE, the letters read.

Jack’s hand went to his holstered weapon. He looked at the door, then at Mopro.

TWO, read the letters that rolled around his banded eye.

Jack whispered, holding up fingers. “Two people?”

ONE MALE. ONE FEMALE.

Jack relaxed. He grinned. Someone was going to be in for one hell of a surprise in just a few seconds. Why would TWO:*ONE MALE, ONE FEMALE* be hiding out in a storage room in a restricted area? Obvious, wasn’t it? Never satisfied, the human animal had to seek sexual gratification outside the bond of marriage.

Jack Purdy pressed his palm on the lock of the storage room from behind the protection of the metallic

bulk of the robot. The door hissed open on silicone-smooth tracks.

Thus it was that as the lights went on, Dinah Purdy, sitting astride a supine, well-built, athletic man in a very compromising position, saw first the rather fearsome semihuman form of Mopro.

Dinah was so shocked that it took a few milliseconds for it to register that the lights were glaring and that a sinister-looking*thing* was standing in the door. She sent the messages to her throat and larynx to scream, and then her full, sensuous lips to open, she saw the questioning human face peering around the thing's shoulder.

Her first numbed reaction was relief. First the bulk of a monster had intruded with a sudden glare of bright lights, and then there was the familiar face of her husband. She realized that she'd said the wrong thing as soon as the words left her lips:

"Jack," she said, "thank goodness!"

SEVENTEEN

While Dr. Mandy Miller began her autopsy on the late Ruth Middleton, Adam Hook drew a shoulder roast from frozen stores, thawed it to body temperature in a microwave oven, and stood watching intently as a surly, disheveled, scowling, pained chief engineer used a molecular-bonding welding torch on a piece of perfectly good animal protein.

It was found that by using various settings, the deeply cut burns on Ruth Middleton's body could be duplicated. With the smell of burning meat in his nostrils, Rosen placed the welder back in its rack and turned to let his knitted, pained gaze rest on the bulldog face of the sergeant at arms.

"Chief, I'll need a report from you on the location and availability of every welder on board," Hook said.

"Okay," Rosen said. "Step in here, and we'll take it right off my records."

It took only a few seconds for the computer to flash up welding-equipment inventory and storage, minutes for Hook to study each location.

"All storage areas are open to crew members," Hook said.

"Right," Rosen growled. *"And* to your security guards." Meaning that it was not just service people who could press a palm to a lock and enter a storage area to steal a welder.

"Point taken," Hook said. "How long to get me an eyeball on inventory of all welders?"

Rosen shrugged. "An hour. Maybe an hour and a half." Damned shame when a man couldn't do a little dancing and drinking on New Year's Eve. "I'll get on it." Because it was more than a damned shame to have people getting killed.

Hook went back to the gardens, deserted now except for Amando Kwait. Kwait was trying to salvage some of his broken tomato vines.

"Hope there's not too much damage," Hook said.

"Lost five vines," Kwait said. "The others will live." He was carefully using a nontoxic plastic to mend a broken stem. The fresh tomatoes, he knew, would be worth their weight in rhenium when they ripened. Nothing lifted morale like fresh vegetables as a treat after weeks of eating synthetics.

Hook walked through the lighted gardens, out the exit nearest passenger territory. There were no signs of

a struggle in the garden. The tomato vines had been damaged by the murderer disposing of the body, not by the act of murder itself. Hook wanted to know where Ruth Middleton had been murdered.

The corridor led both ways into passenger territory. He thumbed his transceiver, got the bridge, had a duty officer give him the quarters number of Drew and Ruth Middleton. When he reached the proper door he pushed the buzzer and waited. Drew Middleton, the husband, was, he suspected, still with the captain. He opened the door. No signs of forced entry, but he knew immediately where the woman had been killed.

The easy chairs in the chamber had already been made up into beds. The sheets were disheveled, and a book lay abandoned on the floor. A lamp, knocked from a side table, dangled from its cord in front of the drawers. Hook walked carefully to the bathroom. No signs of anything amiss.

His pager*ping A* as he stood examining the bath. It was Rosen. A welder was missing from a storage area in a sector near Ruth Middleton's quarters. As Hook listened, he walked back into the main room. His first examination of the room had been concentrated on the bed. Now he let his eyes search.

"I think I've found your welder, Chief," he said.

He knelt, putting one knee carefully onto the carpet. The door to one of the storage compartments was open, and an electrical lead was hanging out. On the other end of the lead was the welder.

Hook wished for a squad of well-trained forensics people. Everything in the quarters would have to be treated, tested, checked for prints. He sighed. The whole thing pained him. The*Spirit of America* was no place for such things. Maybe the crime would be solved quickly. If it weren't, he'd have a thousand paranoid, terrified people on board. . . . More than enough to cause the undoing of the*Spirit of America.*

For long moments Jack Purdy seemed to be two people. One of those men felt an urge to kill, to rip, tear, exact revenge. The other was too stunned to move, too shocked to comprehend her words. What had she said? "Jack! Thank goodness?"

The big robot had pointed one of his finger guns at the pair. When that fact registered on Jack, he put his hand on Mopro's metallic hand and said, "Please continue your patrol." He was surprised to hear his own voice, not trembling, as he was inside, but calm, businesslike. "Contact me on the security channel if I'm needed."

Mopro moved smoothly backward and disappeared into the corridor. Jack was still standing just inside the door.

"Damn," Pat Renfro had said, when the lights glared and Mopro burst into the room. Then he saw Jack's startled face. And Dinah was still*there,* a silly little smile on her face.

Jack moved swiftly; Dinah seemed to be paralyzed. He put his hand on her shoulder, then she let out a startled cry as he flung her off and aside.

Pat rolled, avoiding Jack's boot, which had been aimed at his head with serious intent. He rolled to his feet, crouched, definitely at a disadvantage. A man without his clothes, facing a fully dressed man, is already beaten.

Jack advanced slowly.

Pat was trying to think of something to say. "Jack, take it easy now," Pat said. Jack was the best hand fighter in the service, a champion. To him a black belt was kid's stuff.

Dinah had picked herself up from the floor. Her knowledge that Jack was a deadly adversary took priority over her nakedness. She thought not of herself, or of Pat, particularly. She felt total panic—fear that filled her throat, fear that Jack would use all of his deadly skills. Pat, she knew, was no match for Jack.

"Jack, don't," she begged, as he stalked the retreating Pat. "Jack, stop it."

He seemed not to hear. Seeing them together had hurt, and he wanted to hurt them back.

"Jack, listen," Pat said, backing away. "You've got a right. But no karate, okay?"

"You're a dead man," Jack said.

Pat shrugged mentally. He might as well take what he deserved and get it over. He stopped retreating. The first blow came and he parried it automatically, but caught Jack's other fist in his stomach. The breath went out of him in an explosive grunt. Jacks punches were coming so hard and fast that he didn't have time to think of anything but protecting himself. When a right landed on his chin, creating a cosmos of lights in his skull, he began to fight back.

As Dinah watched and heard the dull thuds of the blows, the panting and grunting, she was filled with anger that two sensible men would reduce themselves to the level of heaving, sweating, violent animals. But there was bitterness—this emotion directed toward herself—for had she been strong enough to resist that initial attraction to Pat, this horror wouldn't be happening. But sheer anguish became her most powerful emotion, for she was helpless to stop the men battering each other, grunting, panting, slipping on the deck, falling against each other as the dull, leaden blows continued.

"Stop it! Stop it!" she screamed, her voice strained, hoarse.

Pat's arms were getting weak. And then he felt a dull, explosive concussion, another, and for some reason, a blow on his rear end, not even realizing that he was down with Jack standing over him, eyes wild, panting.

Jack watched as Pat sank slowly to lie on his side. Then he turned slowly. Dinah was standing with her hands at her side, face full, almost in shock.

"Get dressed," he said, spitting blood from a split**lip.**

"Jack, I—"

"Just get your goddamned clothes on," he said roughly, reaching down for her underwear, tossing it into her face.

She pulled on her clothes, her hands shaking.*What now?* she was thinking. She had never taken the time to imagine such a scene, had no advance preparation to handle Jack's obvious rage. But she was saved from facing it at that moment by Jack's transceiver. Adam Hook's voice was calling for Commander Pat Renfro and for Jack.

"I will see*you* in quarters later," Jack said to her, as he turned to go. He did not look back to see Pat Renfro struggle to his feet and, still dazed, make two stabs before he could pick up his uniform.

On the data sheet for each individual aboard the*Spirit of America* there was a specific notation indicating the individual's answer to a question that had originally been asked during the selection process: "In the event of death during the passage, would you prefer: 1) To be buried in space after the appropriate ceremony; or 2) to be assimilated into the organic decomposer?"

It had been interesting to those who had access to the individual data sheets to note that an overwhelming majority, perhaps picturing burial in space as some romantic form of burial at sea, chose burial in space.

Ruth Middleton, however, had chosen the latter and was to become a part of the nutrient soup that nourished Amando Kwait's gardens—to become, perhaps, a part of the flowers that Kwait grew to add color and natural beauty to the sometimes cold and impersonal metallic world of which they were all a part.

The decision was not made public. The body, wrapped in a cotton shroud, was delivered to the decomposer. The fate of the murder victim was not included in the ship's newstat, but the*Spirit of America* was a small world. News spread rapidly via the shipboard grapevine, and as is always the case in such situations, the event became distorted, enlarged. The death in itself was a shock to the orderly society of the ship. Rumors grew and ran rampant that Adam Hook had a suspect, or suspects, and the identities of the alleged killer were circulated. The feeling among the colonists was that the murderer should be taken into custody quickly, that his punishment should be swift and total. Being shot out of an airlock into space to have his blood boil from explosive decompression was one of the more humane punishments suggested by concerned people.

Mopro rolled silently along the ship's corridors twenty-four hours a day, sometimes accompanied by one of the patrolling scouts. Grace Monroe's recordings of the passengers' brain waves were completed, with the-help of a medical robot called Doc. Emi Zuki had completed her second computer examination of all data for each individual aboard, had consulted with Dr. Monroe and psychologists on Dr. Miller's team. Adam Hook had contributed his knowledge of the psychopathic personality gleaned from his years as a police detective.

"Never saw such a bunch of overly normal people," Hook said after going over Emi's data.

Mopro, with instructions to be on the lookout for unusual beta patterns indicating abnormal activity, witnessed family quarrels, a few cases of extreme homesickness, guilt, a lot of fear. He could not identify each emotion, although anger had its own pattern of brain waves, but he could sense disturbance and compare it with a growing file of "normal" reactions.

Adam Hook didn't expect Mopro suddenly to chance upon an individual in a high state of subnormal agitation, because the bastard who had killed Ruth Middle-ton was one cool son of a bitch. He had to be: First, the killer entered a crew-only security area, took a welder, carried it down a corridor in passenger country where, at any time, a door could open so that someone would see him with a piece of equipment not usually seen in a corridor in the living quarters. Then he had to gain access, peacefully, to Ruth and Drew Middleton's suite, either leaving the welder lying outside the door or carrying it in with him. After killing her, he'd had to carry her body almost one hundred yards to the gardens, again through passenger-quarter areas where, even late at night, there was always a chance of someone seeing him.

But no one had seen anything like a man carrying a welder or a body—even if it were wrapped in a blanket. There were no prints in the Middleton suite other than those of the two occupants.

Hook had only one thing going for him: the fact that the welder had been in crew-only security. Only crew members and members of Hook's own security team had their palm prints stored in the locks of such areas.

Hook repeated this one lead to Max Rosen, who looked thoughtful and was silent for a few moments. Then he abruptly got up from the chair across the table from Hook in the engine-room lounge, went out the door, and came back with a small electronic gadget in the palm of his hand.

"Watch," he said, walking to a locked storage cabinet in the lounge. He held the electronic gadget a half

inch from the lock, made adjustments with his other hand until there was a click, and the lock opened, leaving the door ajar.

"Damn!" Hook said. "What is it and how many people would have access to it?"

"We have five on board," Rosen said. "Anything electronic is going to go haywire sooner or later. When a print lock stops functioning, this gadget puts out a signal to trip the release. They're common back on Earth. Fancy hotels that provide individual print locks keep them as master keys. A good third-year electronics student could make one."

"Your five all accounted for?"

"Just checked. All there."

"Could someone have brought one on board in his personal stuff?"

Rosen mused. "If it were made up to look like a clock, detection equipment wouldn't have caught it. On the other hand, it could have been made on board."

So the possible suspect list was no longer restricted to crew and security. After two weeks, Hook was no nearer the killer than he had been on the first night. He concentrated on those who had anything to do with electronics. That limited his list to just over three hundred people. And all he could do was double his security patrols.

Dr. Mandy Miller's autopsy had revealed no sign of sexual activity or assault. Nonetheless, Hook lived daily with a fear made very real by his past experience: The genuine crazies were usually repeaters.

Hook kept his thoughts to himself, but he was not the only one aboard who was familiar with the long history of psychopathic crime. It was urgent to catch the killer. A conversation he overheard in a lounge area convinced him to chat with Captain Rodrick.

"Captain," he said, "there's a lot of rumor and speculation about the way this woman was killed. I'd like to suggest that you ask section heads to keep speculation and scare talk at a minimum."

"Think that would do any good?" Rodrick asked.

"I don't know," Hook said, "but I overheard one of our psychiatrists, who should have known better, say, in a voice full of great wisdom, that the cruelty of the murder method indicated a psychopathic personality. One who'd kill again."

"All right, Adam," Rodrick said. "I'll pass the word to section heads."

Hook nodded. Rodrick watched the detective walk away. He stood there for a few seconds, a thoughtful look on his face. It was natural for the people to be concerned. But loose talk and morbid speculation or dire forecasts of a repeat of the killing could destroy the smooth operation of the ship. He went to his quarters and began to draft a memorandum to section heads, but in the end he threw the paper into the waster for salvage. It would show section heads that he was concerned and, in all probability, cause further talk, more speculation. Best to let things ride, give Hook a bit more time to find the killer.

Duncan Rodrick spent his free time learning as much as he could about his ship and Shaw Drive. He often sat alone in the observatory, studying or just trying to sort out problems—like the passengers' reactions to the Middleton murder. The observatory was one of the few places he could be alone and quiet, and the huge screen's optics had a calming, serene effect on him.

Today Mars was in the proper position of orbit to be an object of great interest to him, one of the few men to explore the red planet. He was able to locate familiar landscape features. There, just below the rising slope of the huge volcanic cone, his second Mars expedition had landed.

He was musing, eyes tracing out the course of a Martian ravine that he'd probed in an unsuccessful search for subsurface water, when Mandy Miller came into the observatory.

"Oh, sorry," she said.

"Come in, come in."

"I just thought I'd take one last look at Mars," she said. "I can come back."

"No, please," he said, rising. "Have a seat."

She smiled and sat in a chair beside him. She was so small, so beautiful.

"That's the Olympus Mons area," he said.

"Yes," she said. "You were there, weren't you? I wanted to go to Mars," she said, leaning forward to make adjustments so that Mars was now a globe filling the screen. "How beautiful," she continued, "but sad. Lifeless. Not nearly as beautiful as Earth." She leaned back. He felt so comfortable with her.

"Captain," she said, "there was something serious going on on Earth when we left, wasn't there?"

He took a second or so before answering. "Yes," he said, and told her about the possibility of a nuclear holocaust. She was stiffly silent, then she leaned forward once again and made adjustments. Earth replaced Mars on the screen, much smaller, and magnification merely blurred the image.

"They could all be dead, even now."

"Let us pray not," he said.

She was weeping silently. Her tears were little streaks of light reflected from the screen as they coursed down her cheeks.

"Family?" he asked.

"A sister. My mother."

"Must have been tough to decide to leave."

"Very," she said, her voice husky with emotion.

"The tough thing is, we won't know," he said. "No chance of getting the radios going before we reach lightstep, and after that the time of transmission becomes impossible. Max says he might be able to build us a new radio in two, three years."

She sobbed, hiccuped, looked up with wet eyes. "Damn them. Damn all the politicians. Damn all the industrialists who urged the politicians on to fight for economic empire. The only consolation is that they'd be just as d-d-dead—" She couldn't go on.

He rose, her tears, her emotion, causing an actual pain in his chest. He put his hands on her shoulders and said, "Hey, hey."

She turned and looked up, face wet. She rose, threw her arms around him, and he felt her compact body shake with it, heard the sniffling, sobbing, damp sounds of grief.

He had it all, right there in his arms. He would not have traded that moment for all the highlights of his life—academy graduation, first assignment, first shuttle solo, the Mars landing. For the first time in his life he knew exactly what he wanted. He wanted to spend the rest of his life with Mandy Miller as near him as was physically possible.

She pushed away. He let his arms leave her. "Sorry for the waterworks," she said, voice constricted. He gave her his handkerchief. She blew noisily. "I'll wash it," she said.

"That's all right. I envy you the ability to let it flow like that. Sometimes I wish I could."

She looked up. Her cheeks were stained pink and her nose was red. He had to fight his impulse to reach out, seize her, draw her to him to say, "Don't cry, darling. Don't ever cry again. I won't ever let anything make you cry, ever again."

"Well, thanks for the shoulder," she said, using a corner of his handkerchief to dab at her smudged eye makeup.

"One last look at Mars?" He was afraid she was going to leave.

"I'd like that," she said, sitting down.

He told her about the Martian expedition, the feeling of being alone on the airless sands, the sense of alienness and a sadness because aeons ago, Mars may have possessed an atmosphere, water, perhaps even forms of life. She listened with rapt attention.

When she rose and said she'd better get back to work, he said, "I've enjoyed this. I guess I've run my mouth more than usual. As an excuse, let me say that"—he made a mouth—"command is lonely."

She understood, reached out and touched his hand. "I've enjoyed the talk too," she said.

"Well, if you ever find yourself in need of a shoulder—"

She smiled. "And if you're ever in need of a noncommand-division set of ears—" Her smile faded. "No, no, that won't do, will it?"

"Why not?" he asked, caught off guard by her sudden change of mood.

"You know damned well why," she said. "And so do I."

Then she was gone, leaving him with the realization that she felt the attraction too.

Well, she was wiser than he. She'd put it right up front, telling him, "No dice, buddy. Forget it. I don't play those little games."

He, of course, would respect that, for there was already one situation that had almost gotten out of hand and which, he feared, would require his attention sooner or later. He had not accepted, not for one minute, the glib explanations of a black eye, a split lip, a swollen nose, and other assorted bruises that had occurred to the two scouts, Jack Purdy and Pat Renfro, on the night of the murder.

Pat Renfro had done the explaining, with Purdy moodily silent. Pat had said there'd been a collision on the handball court. Rodrick had not questioned either of them. He'd have to keep his eyes on the situation, but for the moment it looked as if the two officers had worked it out.

Rodrick suspected, of course, that the "handball court collision" had something to do with Jack's wife. That made it touchy. The passengers had been selected, in part, for their commitment to family and marital fidelity. He could not let the courting dances of two over-age juveniles damage the moral code that was so vital to the success of the colony.

If there'd been an extramarital affair between Pat Renfro and Dinah, he could certainly understand. But he, Captain Duncan Rodrick, with a mission assigned by Dexter Hamilton himself, would never, never be allowed the irresponsible joy of giving in to that urge. He could never again even allow himself to dream of obeying the strong attraction he had for Mandy Miller.

Rodrick had no way of knowing how narrowly a much more serious crisis had been avoided, for the scene that had played, like a scene from a rather bad daytime viewscreen series, in the quarters of Jack and Dinah Purdy remained the private knowledge of the two participants.

When she had obeyed his orders and had gone to their quarters, Dinah was sure Jack was going to beat her. She threw herself on the bed and tried to weep, but couldn't. At times she wanted to laugh but she couldn't do that either. Instead, she examined the situation and concluded that there was only one thing to do.

Jack came in very late, his face purpled and swollen. She had her things packed. He looked first at her packed bags, then at her. "You were my wife," he said, the words coming painfully.

She noted the past tense.

"I'm sorry, Jack," she said. "If you'll ask whoever handles such things to find me quarters—"

"That's what you want?" he asked, his voice rising. "You screw my best friend and then you want to leave me?"

"I thought that would be best, considering the way you feel."

"How in the hell do*you* know how I feel?" he yelled and advanced. That was when she feared he was going to beat her, as he'd beaten Pat, and she lifted her chin and waited for it.

Instead, he let his shoulders slump. "Why?" he asked.

She thought for a moment. "Jack, anything I say will sound silly."

"I just want to know why!"

It was bigger than both of us? I guess I just lost myhead?

"It wasn't because I don't love you," she whispered.

"Jesus Christ,' he said. "What does that mean?"

"Jack, I loved him. I wanted him." Well, there . . . it was out.

"You love him?" He looked as if he'd just taken a strong right to the gut.

"Yes."

"But you're my wife."

"I love you," she said. "I love you more. I don't*want* to leave you."

He shook his head. He seemed like a hurt little boy. That's what they all were, she realized, just little boys dressed up in men's uniforms and given million-dollar toys in the form of scout ships and big guns.

"Jack, I won't ask you to understand, or even forgive," she said, "but if you can forget—"

"Forget?"

"I'll do whatever you want. Ill leave if you want me to leave."

He took off his weapon belt and threw it onto the bed. "You do just that," he said.

She picked up two duffels and went to the door, set one down, opened the door. She was halfway out when he said, "No, don't leave, damn it."

She came back into the room, put the bags down.

"But you'll stay away from him." It was not a question, it was an order, delivered with a manly jut of his chin. She felt a tenderness for him, a melting. Of course she'd been wrong.

"All right," she said. Because, after all, she'd entered into a contract of marriage with him. Because she did love him. Did she love him more than she loved Pat? In many ways, yes. But there was a painful void in her as she knew that she would keep her word, that there would be no more joyful moments in some secluded nook deep in the ship.

"I'll get the first aid kit and tend to those cuts," she said.

EIGHTEEN

The ship had been traveling for a few days over one year, going a little over a billion and a half miles, and a new year was coming. The trip to the lightstep point out beyond the orbit of Pluto was less than half over. During this time Clay celebrated his thirteenth birthday, and ten babies were bom.

On New Year's Eve, 2041, Clay, Cindy, and Dinah Purdy cut and dyed strips of printout paper, once again to decorate the captain's mess. During the evening Rodrick danced with no one more than once, and saved his one dance with Mandy for just before midnight so that he could carry the memory of her in his arms to his quarters with him.

He retired to his quarters soon after the beginning of the New Year, 2042. He was sleeping dreamlessly when a call from Adam Hook roused him.

Apparently, a family of three—man, wife, teenage daughter—had drowned mysteriously while taking a postmidnight swim. Another man, Angus McCloud, a scout, was also dead in the pool.

Jack Purdy, meanwhile, on his regular patrol, found the bodies. His first impulse was to dive in, just in case one or more of the people who lay limply at the bottom could be revived. Then he saw the fourth body, drawn by the force of the suction filter to the side of the pool, face turned upward.

Drowning, he had always heard, was a peaceful way to die, but the face of Angus McCloud looked anything but peaceful.

He sent an all-security-force alert, asking for help, then got down on his knees and peered into the clear, bluish water. He could see nothing wrong, but he felt, nevertheless, a dread. He had played water polo with Angus McCloud, knew he was a strong swimmer.

When other members of the security force arrived before Adam Hook, Jack held them back.

"Something's very wrong," he said. "Don't touch them."

Hook took a long, sour-faced look after he arrived, and agreed. "That's not the look of a drowning victim," he grumbled. It was then that he called the captain and also Clive Baxter, perhaps the most brilliant chemist of the free world. Rodrick and Clive arrived on the scene, the chemist nattily dressed, a New Year's Eve party hat still in place on his head. By this time the guards had used a life-saving hook to turn the other bodies face-upward.

"I want a check on the water," Hook told Baxter. He collected a sample, being sure that the water did not touch his skin.

Fifteen minutes later, he called from the lab. "Mr. Hook, you'd better stop the water circulators, quickly."

"I did that over ten minutes ago," Hook said.

"I just hope to hell it wasn't too late," Baxter said. "The poison in the pool is one of the nastiest I've ever encountered. The swimmers must have gotten the water into their mouths and died instantly."

"Captain," Hook said, "we'd better tell everyone to stay away from all water until we know how far that stuff was recirculated into the system."

Rodrick gave orders, and within seconds the ship's communicator was broadcasting a warning not to use any water. Hook sent Jack Purdy off to roust out all available men for a door-to-door check on all quarters. Clive Baxter had himself rousted out a few men, and a hastily organized team went to work, using the automatic analyzers. He was back on the communicator with Hook and the captain before Mopro and the admiral had finished fishing the bodies out of the swimming pool. Being nonhuman, they were immune to poison.

"Captain," Baxter reported, "we're still trying to nail down the exact components of this stuff, but I can tell you what we know so far."

"Shoot," Rodrick said.

"It's a semistable synthetic formed by molecular manipulation. It's a nerve-tissue specific. Death is probably instantaneous. It could have been formulated only in a very well-equipped lab."

Samples were taken and analyzed at various points in the water system. The swimming pool was the single largest storage area for the ship's water. From the pool the water went to a purifier plant and then fed on demand from the purification tanks into the complex plumbing that sent running water to all areas of the ship. As the word came in, Rodrick's face grew more and more grim. The poison had been dumped into the pool at the potentially most disastrous time, just as New Year's Eve parties were ending and people were preparing for sleep. The consequent running of taps, flushing of toilets, the usual bedtime demand for water had pulled the contaminated water into the entire plumbing system.

"So what you're saying," Rodrick said to Baxter, "is that we have no usable water."

"Not in the main system, at any rate." "How long will it take to clean it up?" There was a long pause. "I'd like a little time before I give you an estimate."

The results of the poison began to come in. Jack Purdy himself discovered the first of the dead found in the door-to-door check. A husband and wife lay side by side on the bathroom floor, toothpaste foam in their mouths, wet toothbrushes nearby. They were the first of five. The other three had either drunk water or splashed it into their mouths while washing.

For one solid year Adam Hook had been trying to track down a killer, and he, like Duncan Rodrick, had slowly come to the conclusion that the murder of Ruth Middleton, on that first New Year's Eve aboard ship, had perhaps been an isolated aberration based on some unknown love relationship between the dead woman and the killer. Now he was reassessing his position. It was no coincidence that the new deaths had come exactly one year later, on New Year's Eve.

Rodrick pulled Hook aside and voiced his belief that the man who had put the poison in the swimming pool was the same man who had killed Ruth Middleton. Hook nodded. "I've been assuming that the bomb in the bridge control console was not related to the murder," Hook said. "Now there is a possibility that the killer knew about the bomb. This lunatic is ready to die with the rest of us. Unless he formulated this poison in the ship's labs and set aside his own water supply."

"If he came aboard knowing about the bomb, knowing he was going to die, he's a cool son of a bitch," Rodrick said.

"The terrorist mentality," Hook said. "Glorious death for a noble cause."

He was thinking of all the ways a terrorist could do serious damage to the*Spirit of America.* All security forces would have to be strengthened, guards put on all vital areas, such as the rocket-fuel storage bins in the outer wheel. An explosion there could possibly cause catastrophic air and pressure loss.

"Why the brutal murder of one woman, and then nothing for a year?" Rodrick asked.

"Off the top of my head I can think of one reason," Hook answered. "If the man knew about the bomb, he might have been relieved when we confined the damage. The murder could have been one of two things: One, he's a twisted bastard and it was for nothing more than his own pleasure. Two, maybe he enjoys toying with us. Knowing that he's going to die when the ship is destroyed, maybe he wants to have a little fun first, prove his superiority to all the rest of us."

The conversation was interrupted by a call from Clive Baxter. "Captain, I'm afraid the situation is very serious. The poison is a small, unbalanced molecule. When mixed with water it balances itself by bonding tightly to a molecule of water. In distillation, it simply stays in bond while the water is in steam form and is right there when we cool it to a liquid again."

"No quick and easy solution, I gather," Rodrick said.

"I've put all available talent to work," Baxter said. "We'll find some way."

Rodrick began to take an inventory. His first thought was of the limited supply of canned and bottled soft drinks and alcoholic beverages in the ship's boozery. That supply would have been diminished sharply by consumption at the New Year's Eve parties. He sent a man to total up what was left. Everyone aboard faced death by dehydration if the scientists could not find a way quickly to purify the water. Then a chilling thought hit him, and he reached for his communicator. The gardens. Man could live longer without water than without air. The gardens were a vital part of the atmospheric life-support system. What effect would the poison have on the life-giving, oxygen-producing greenery in Amando Kwait's gardens?

Before he could thumb the switch and call Kwait, Jack Purdy came hurrying in, obviously agitated. A crewman in his early twenties had been found dead in a remote storage area.

The crewman had been an unexpected bonus. It had not appeared that way at first. When he encountered the crewman he had the vial of poison in his pocket and had almost panicked. He was not, after all, accustomed to murder, although the urge to avenge the great wrongs was a constant force inside him.

The poison had not been his idea. But they had insisted. Then he had refused to risk getting the vial aboard and had thought the matter settled until just hours before blast-off. Then, in a risky contact that hadboth frightened and angered him, he'd been told that the vial of poison had already been secreted aboard the ship.He had not really intended to use it. But the Americans were so smug, all so sure that they were going to lead happy and adventurous lives—not frightened or aware of their mortality, as he was.He had an opportunity, before the bodies were removed from the swimming pool, to see some fear, to feel some vengeance.Now, perhaps, the others would know fear.

Amando Kwait was awakened by the communicator in his quarters. The voice of Lieutenant Jackie Gar-vey, the ship's communicator, was repeating over and over a stern warning not to use any water for any purpose. Kwait's first thought was for his gardens. He checked his watch, pulled on a pair of pants, grabbed his tunic, and ran barefooted through the corridor to the gardens. He arrived in time to override the automatic system that was just about to replenish the water in the nutrient tanks. He collected samples from the nutrient tanks and placed the samples in a basic analyzer, turned the machine on, and was relieved to learn that there were no foreign substances in his feeder tanks. He sealed the gardens, locking all entries from the inside. There would be no replenishing the gardens' water supply until the contaminant was removed from the main supply, and he would have to conserve what water he had. He lowered the output of the humidifiers, then used the computer to reinforce what he already knew—that without additional water, the various vegetation would exhaust all water in the nutrient tanks within two days. After that, loss would begin, the more fragile, water-loving plants dying first.

He made a chart, using the computer, and when it was done he shifted water into tanks for the more fragile plants. He also had on his chart a system that planned controlled loss in the event that the water shortage lasted past four days.

Everything in the gardens could be regrown from seeds in his storage areas, and the passengers could live without the produce of his gardens. His primary consideration was to preserve the principal oxygen producers; the conversion of carbon dioxide to oxygen that took place in the massed greenery was vital to the air supply of the*Spirit of America.*

He had his plans made when his communicator beeped and he heard Captain Rodrick's voice. Rodrick was at an entrance. Kwait let him in, and his respect for Rodrick grew when the captain said, "I'm sure you're way ahead of me, Dr. Kwait. May I see your figures on the length of time you can preserve the oxygenation?"

Rodrick read, nodded grimly.

"There is one series of tests I should begin," Kwait said. "In the event of a long delay in purifying the water, it might be possible to keep the oxygenating plants alive by using the contaminated water. I will have to test the effect of this particular poison on vegetation."

Rodrick nodded. He'd made a quick survey of the ship. Aside from the relatively insignificant amounts of spirits stored in the boozery, there were a couple of hundred gallons of uncontaminated water in the kitchen reservoirs, and he had crew members checking the water closets in all quarters. If the water closets had not leaked even one small drop of the poisoned water into their tanks, there might be a supply of usable water there.

"Is it possible to make any estimate at this time?" Kwait asked.

"Not yet," Rodrick said. "We're working on it." He already knew that during normal operation the garden's feeder tanks would run out of water in just under forty-eight hours. "Thirsty little beggars, aren't

they?" he asked.

"I have already slowed down the water supply to the real water guzzlers such as the larger trees," Kwait said. "That should allow us a few more days' worth of water for the fragile plants."

"Well, Doctor, it looks as if you have it all under control. I'll let you know as soon as I hear something definite. Meantime, I think it would be a good idea to prepare for the worst."

Mandy Miller, clad in a full isolation suit, even her hands guarded against accidental absorption of the poison, began to examine the bodies. She confirmed that the toxin attacked nerve tissue. Death had been almost instantaneous. She warned that the bodies should not be committed to the organic reclamation unit lest the minute amounts of poison in them contaminate the organic raw material supply.

Commander Rocky Miller was in charge of the survey in which a careful analysis was made of each individual sample taken from the different water closets in the quarters. This showed the full seriousness of the situation. All the pure water left aboard ship was now held in the reservoirs of the kitchens under armed guard. A quick estimate showed that by severe rationing there was enough water to keep the thousand-plus people aboard alive for five days in some degree of health. After that the effects of dehydration would begin to take a death toll.

Rodrick, finding the scientists still discussing possible ways of removing the poison, began to crack the whip, appointing team leaders, giving orders to stop talking and begin working.

Adam Hook, feeling very angry and quite helpless, was reviewing again and again the profiles of those individuals he'd selected from the list of people aboard. He wanted to begin questioning chemists, but he soon realized that it would be best not to interfere with the frantic experiments going on in the various labs. He found himself near Grace Monroe's lab, and he knocked and was admitted. Grace had obtained water samples by the simple expedient of turning on a tap. Her equipment was not designed for chemical analysis, but she could jury-rig a few things with the help of the admiral. It was not her field, but she had some vague ideas about gamma bombardment she wanted to test.

"I don't want to bother you if you're working," Hook said.

"No bother. Come in, Adam."

Hook's happy bulldog grin was notably absent. His downturned mouth made him look more like a frog.

"This poison is very complicated," Grace said. "I don't think it could have been produced here on the ship. All lab work is carefully monitored, and there are more scientists than lab space. I know. Every time I want to use a piece of equipment there's someone looking over my shoulder, waiting for me to finish."

"So someone brought it aboard?"

"Yes. It, like the bomb, might have been put in place during construction."

"Has anyone arrived at an estimated amount? The size of the package?"

"Probably no more than a pint of liquid. A little bit of this stuff goes a long way," she said. "I'm going to run a few tests with electron bombardment. If that does the trick, it will be a long, time-consuming process."

Hook looked around, saw Mopro's empty niche. "Where's Mopro?"

"On patrol. Admiral, can you tell Mr. Hook if there's any news from Mopro?"

The admiral snapped to attention. "Sir, reports from the TR-5A entity show no positive results."

"Would you care to elaborate on that?" Hook asked. He had never overcome a slight feeling of discomfort at conversing with a machine.

"Sir," the admiral said, "the TR-5A's search for abnormal brain waves is being complicated by general concern among the colonists. There is much unrest. We are recording readings that indicate severe agitation and fear, emotions approaching paranoia among many people."

"The guy's a crazy," Hook said. "He should show much stronger abnormalities than people who are just scared."

"Perhaps Mopro hasn't encountered him at all, or not at the proper time."

"I've been thinking that," Hook said. "Can you program Mopro to start keeping track of those he reads?"

"Sure," Grace said. "Will you take care of that, Admiral?"

"Yes, Grace," the admiral said. He went to the computer console and plugged himself in. "The order has been given. The TR-5A will begin a systematic rereading of all aboard."

"Anything else I can do for you, Adam?" Grace asked, turning to busy herself with a complicated array of equipment.

He had intended to ask her help in doing some computer work, running a cross-check on a list of psychopathic indicators he'd made with all individual data in the bank, but he decided that Emi Zuki, who would not be involved in the important work of trying to find a way to clean up the water, would do just as well.

He left the lab and went to the bridge. Emi was glad to help. The computer began to kick out individual names. All were already on Hook's list. However, the match with his psychopathic indicators eliminated most. And a few crew members remained on the list, probably, he and Emi decided, because of some space jocks' tendency to be loners. And a few scientists, including, surprisingly enough, the famous chemist Clive Baxter. And Emi and Hook had to laugh when the computer kicked out Max Rosen's name.

"Max just pretends to hate people," Emi said. "His misanthropy is just a pose to cover up the fact that he's a little shy."

Hook grinned. The man didn't act too shy when he was around Grace Monroe. In fact, Max had hogged most of the dances with Grace at the New Year's Eve party.

The determined search of the ship by the security forces produced nothing. The scientific teams attacked the contaminated water from several angles with equally unsatisfactory results. Grace Monroe's first attempts at particle bombardment were fruitless. In Amando Kwait's gardens plants began to show signs of water deprivation. Leaves showed the first signs of wilting, hastened by low humidity. Kwait found quickly that the poison was fatal to plant life. The large molecules formed by the bonding of the poison and water clogged the tiny capillaries of the plants. This report sent Adam Hook back to Emi Zuki and her computer. The poison, they discovered, was American-made. It had been developed in the 1990s during the resurgency of the eternal chemical warfare scare, both sides of the endless war of ideologies stacking up huge stockpiles of various deadly agents.

Emi ran a computer check on the poison, which supplied the scientists with the exact chemical formula.

That was the good news. The bad news was that all stocks of the compound had been contained and buried in 2015 because the poison was simply too deadly. The report of military scientists who had worked on the compound stated that while it was possible to inflict megakill on an enemy population, the long-term results would be tantamount to suicide: Once released into the waters of any country, the poison would be impossible to counter, since its bonding action would carry it through evaporation and rain, eventually into the total supply of water on Earth.

Duncan Rodrick took time to officiate at the burial in space of the nine people who had died by poison. The event was attended by family and friends; All corpses were placed in sacks and buried.

On the third day Adam Hook received a request from Amando Kwait to meet him in the gardens. The African looked tired. Hook, too, was feeling the strain of not enough water to satisfy the needs of his body, of the long hours he was putting in.

"What can I do for you, Dr. Kwait?" Hook asked as his sad eyes examined the wilting gardens.

"Perhaps I have called you to hear what is nothing more than gossip," Kwait said. "It has to do with surfactants, which are a form of detergent. Certain surfactants are used in agriculture, to weaken the forces of surface tension and reduce the tendency of water to form into drops. Often they're called wetting agents. The end result is to spread a film of water evenly over a surface, such as a fruit or a leaf. When applying insecticides, that spreads the killing agent evenly. In irrigation, especially in nonporous soils, the surfactant aids soil penetration."

"Very interesting," Hook said, still just as ignorant as before except that he knew a couple of facts about surfactants. He licked his dry lips. It was like rubbing a piece of sandpaper over a file.

"I use certain surfactants here. We have no need for insecticides aboard ship, of course, but by adding the wetting agents to my nutrient feed, I get a more even distribution of the nutrient substance around the roots."

"I see," Hook said.

"I had never been satisfied with the hydrophilic-lipophilic balance of the surfactant I was using," Kwait went on. "Having a bit of trouble with my balance. So I asked for aid. The man who knew most about agricultural surfactants was Gerald Moore. He is an organic chemist. Do you know him?"

Hook knew the name, remembered a few bits from Moore's personal data sheets, but he could not associate a face. He shook his head.

"I hesitate to even mention this—" Kwait ran a hand over his tightly curled hair. "I have had many interesting conversations with Dr. Moore. One I have just remembered only this morning. We were discussing the difficulty of balancing a surfactant. Dr. Moore, during this discussion, told me something interesting. At one time he had been working on a secret government project, but it had been halted because of the danger it represented to the total environment, for if a relatively small quantity of the substance with which they were working had been released into the world's water supply, the result would have been disastrous. For example, this supersurfactant with which he was working would have so lowered surface tension that inestimable quantities of water would have soaked through formerly impervious rock to be lost in the earth's crust."

"I think I'm beginning to understand, Doctor," Hook said.

"The supersurfactant that Dr. Moore mentioned bound itself permanently to individual molecules of water," Kwait said. He frowned. "Perhaps this means nothing." He looked around, and Hook could

almost feel his hurt with the growing, now dying things in the garden. “I thought, however, it was my duty—“

“I appreciate it, Dr. Kwait. And I’ll be very discreet.”

“Thank you. Dr. Moore did not strike me as being a madman, but—“

“Yes, I know.”

Dr. Gerald Moore had been employed by the Department of Defense from 2005 to 2021. He was now fifty-six years old, a widower. The security mug shots, front and profile, showed him to be trim, wiry, with a pale face and faded white hair. He had passed all physical tests easily. The psychological tests revealed nothing out of the ordinary. Most scientists were of above-average intelligence, and many, including Gerald Moore, preferred their own company or that of other scientists.

Hook found Dr. Moore working in the main lab, acting as Clive Baxter’s assistant. He had a smooth, athletic way of moving. Hook suspected that in his wiry frame there was considerable strength.

Hook found an out-of-the-way corner and made it a point to observe everyone, not just Gerald Moore. The man didn’t look odd, but Hook had found that appearances were often deceiving.

As he looked now and then at Moore he mentally reviewed the facts from Moore’s records. He decided that a certain look of tiredness, or sadness, around Moore’s eyes could either be the result of the current hard work or a residue of the mental trauma the man must have felt when his family—wife and two children— died in an explosion during a laboratory test.

During a break Clive Baxter hailed Hook from across the room. Hook walked over, shook hands with Baxter, then was introduced to Dr. Moore, whose handshake was firm and dry.

“Anything special on your mind, Adam?” Baxter asked.

“No. Just hoping you would have found a way to squeeze water out of the scattered molecules of space matter.”

Baxter grinned, but not too widely. Like most, he had parched and cracked lips. “Dr. Moore has put us on an interesting line of investigation,” he said. He looked at Moore as if giving him a cue.

“I worked with a substance very much like this one a few years back when I was in government service. It was an offshoot of a chemical-warfare agent, and the Department of Defense was interested in its surfactant qualities. Thought it might be used to make mud muddier and slime slimier, thereby bogging down an advancing mechanized army.”

“Good to know a man with some experience is working on it,” Adam said.

“Well, I’m having the same experience I had then,” Moore said. “We can’t get the stuff to turn loose.”

“I love that scientific terminology,” Baxter said.

“At least I understand what he’s saying,” Hook said, looking Moore in the eye. Moore smiled.

“Well, gentlemen, I know you want to get back to work,” Hook said. “I’m sure I don’t have to remind you that it’s getting thirsty out.”

“Tell me about it,” Baxter said, licking his cracked, dry lips.

On day four Duncan Rodrick ordered minimal activity for all who were not directly involved in the lab work or running the ship. Inactivity would conserve body fluids. By day five certain sacrificed vegetation in the gardens was fed into the organic-disposal chutes, and the reclaimer was immediately programmed to squeeze all fluids out of the dying vegetable matter. The amount of water was small, but it added just a few more hours of life to the oxygenating portions of the gardens.

Mandy Miller did not obey the captain's order to be as inactive as possible. She was a physician, and there was suffering everywhere. She couldn't do much about it. She spent most of the days circulating among the families in the passenger areas and saw little of her husband for the first four days. He was in charge of water rationing and was taking his duty seriously. Mandy had been pleased with the way Rocky had settled into the first officer's spot on board the*Spirit of America.* He seemed to like Duncan Rodrick and for once in his life seemed to be willing to accept the fact that he did, after all, have superiors. There had been times during their often stormy marriage when Mandy wondered why Rocky had chosen the space service as a career.

She had met Rocky when he was a senior lieutenant, just five years before she'd been asked to be life scientist in charge aboard the*Spirit of America.* She'd been called to special duty by the service to run fitness and psychological tests on candidates for a research flight of long duration, a flight that never took place but created a lot of excitement while it was in the planning stage. Rocky had been among the most excited, and his excitement had been contagious, leading her to break a strict rule of nonassociation with patients, especially male patients, especially space-jock patients. She was in her early thirties, and she'd spent years in classrooms and training hospitals. She had been content with her life, thinking that perhaps she might take some time out from her career to get married when she was, oh, thirty-five. Thirty-five, considering the state of modern medicine and the ever-lengthening life expectancy, was not too late to start a family.

Rocky's winning smile, his boyish charm, his adoration of her, changed her plans, and for a few years it was, as Rocky was fond of putting it, a blast. She was actually a virgin when she was married. This fact blew Rocky's mind and seemed to enhance his adoration of her. But for a while she rather enjoyed being treated as something very, very special. For a long time she tended to side with Rocky when he voiced his complaints about his current commanding officer, about jealousy among the other officers, about what came to be known in her mind as "the combined-officer's-corps' plot" against Rocky Miller.

She loved him and would not admit even to herself, not for a long, long time, that her husband,*still* Senior Lieutenant Rocky Miller, long since passed by several other members of his class, was still in many ways a very little boy. She told herself that he needed her support to counterbalance what he firmly believed to be an opposition world, and since she did love him and took pleasure from him, she could do no less than that.

Duncan Rodrick himself had sought her out at the Los Angeles Advanced Center for Experimental Medicine to offer her the berth aboard the*Spirit of America.* She remembered the day well. She'd seen her share of space jocks, so it had not been his trim uniform, erect bearing, that wholesome handsomeness they all seemed to have in one degree or the other that made her look at him closely while he told her of the opportunity. She had never been untrue to Rocky and had never felt the temptation to be untrue. She did not feel the temptation with Rodrick. She just happened to think that he was, perhaps, the all-around best-looking man she'd ever seen. She found herself that day comparing him to Rocky, and she felt guilty. She told herself that Rocky put on a good front, too, in his dress whites, on his best behavior.

"The computers say you're the best qualified for the job," Duncan Rodrick had told her. "I hope you'll think it over and decide to join us."

"It's tempting," she'd said, "but quite impossible."

"Mind telling me why?"

"Yes. I do mind." For she could not say that she was not willing to leave her husband, and that with his record there'd be no chance of his being a part of the crew.

"Your husband will be very disappointed," Duncan Rodrick had said.

"My husband?" She'd heard nothing on the subject from Rocky.

"He's been offered the post of ship's communicator."

"Yes, I know," she faltered, hoping that she was not blushing with the anger she felt.

That night she'd said, "Rocky, what's this about your being offered a berth on a big, long-duration flight?"

He had shrugged and tried to brush off the question, but she'd persisted. "Hell, it's nothing," he had said. "Offered me a flunky job usually given to some rookie fresh out of the academy."

"Did you know that they were going to offer me a post too?"

"They said something about it. I knew you wouldn't want to leave your work here."

Wouldn't want to leave her work? Wouldn't want to be included on a historic flight? For a moment her anger had flared, and then she had reasoned it out. His ego.*His* ego. She didn't know the details of the flight at that time, did not know that it was to be a one-way trip to a far star, but the more she thought about it, the more she wanted it. Duncan Rodrick had said that it would be a history-making venture. She wouldn't mind a bit being a part of history, and she'd been working in the field of space medicine of late, finding it to be fascinating and challenging.

When Oscar Kost called and asked her to reconsider, she had hesitated for only a moment. She had decided to find out just how badly they wanted her.

"Dr. Kost," she'd said, "I would be honored to be a part of the expedition. But I feel that my husband deserves a better post than one usually given to a person fresh from the academy."

Kost had pulled his brows together. One of the factors in Dr. Miller's selection was the fact that she was married to a service officer. "Let me check it out," he'd said.

Kost had run a very thorough check on Rocky Miller, then took the matter all the way to the President, who studied Rocky's repeated reprimands from almost every commanding officer and said, "Well, Oscar, I was a bit of a rebel myself. How badly do you want this Miller woman?"

"She's the best in her field," Oscar had said. "Duncan Rodrick is forceful enough to handle insubordination. If you want the doctor badly enough, do what you have to do."

So it was that Rocky, with the brass of a lieutenant commander freshly pinned to his white tunic, waltzed in and said, "How about you and me going on a long trip together, baby?"

She had not, of course, ever told him why he'd been selected to be first officer.

Mandy shouldn't be thinking about the past now, after almost five days of thirst. The lacteal flow of the new mothers was drying up. Baby formula and dried milk required water for mixing. She would be

recording the first deaths soon, most probably among the newborn.

First-officer's quarters was a suite of three rooms, which by ship's standards were roomy, almost luxurious. She had gone to the quarters after a frustrating round of examining the new babies on the evening of the fifth day. Rocky was there taking a short break, looking well, almost normal. The thirst didn't seem to be bothering him much.

"How are you holding up, kid?" he asked.

"Don't ask," she said. Then, "Oh, Rocky, the poor little babies. There's just no milk left in their mothers' breasts."

"Hang in," Rocky said. "The eggheads are trying a new approach. They've been putting their heads together with a couple of petroleum engineers."

"Do you really think—" She could not even voice the hope.

"Sure," he said. "Listen, there's enough brain power on board this tub to solve any problem."

"I pray before it's too late," she said, thinking of the babies. She lay beside him, and her mind began to picture the snows of the Cascade Mountains, blue-white, pure, deliriously cold, feeding water, water, gallons, barrels, tons of water into a clear, cold stream, and she would lie on her stomach on mossy stones and—

"Well, once more into the breach," Rocky said, rising.

"Rocky, we've got to have additional water for the infants and the nursing mothers," she said.

"The captain ordered equal shares for everyone. The smaller size of the babies was supposed to make that plenty for them." He pulled on his tunic, went into what was called "Rocky's Room." Like many space pilots, he was a private person. She respected that, for there were occasions when she needed some time for herself. So he had his own room, which she entered, by tacit agreement, only upon invitation. It wasn't much as a room went. It looked like any number of rooms in any number of service installations, with comfortable chair and couch, desk, bookcases filled with a mixture of service manuals and the antique, printed adventure books that were Rocky's one hobby.

He came out, looked at her, winked. He looked so fresh. "Listen," he said, "when it's time to drink your ration, take half of mine." "No," she said.

"Hey, I'm doing fine. Great shape. You look as if you could use it, honey."

Actually, she thought she was dying. She'd given half of her last ration to the mother of the youngest newborn. "All right, if you're sure," she said.

"It's all right. Drink it. Why don't you drink it now?" He went into the all-purpose room, opened the small refrigerator, measured out his evening ration of water carefully, and brought it to her.

"I owe you my life," she said. She made it last, tasting, sipping, savoring. But she was, it seemed, even more desperately thirsty when it was gone.

She slept for a while and woke in discomfort, dreaming of the snowfields of the Cascades. She could not get back to sleep. She got up, took off her uniform, threw on a light robe, went into Rocky's sanctuary, thinking to dull her mind with one of his adventure tales. The room smelled of old books, a not unpleasant smell. She walked to the bookcase and started scanning titles, finally removed one that happened to be

just at face level in front of her. And behind the books she saw the liquid beauty of—water. Water in flat, half-liter plastic containers. Two of them. One almost empty, the other full. Her reaction was sheer greed. She started clawing at the books, throwing them onto the floor, stood with the cap off the almost empty container, lifted it, smelled the delicious wetness, cried out, "Oh, Rocky! Oh, Rocky!"

The impact of it was the most severe emotional trauma she'd suffered in her life. Even the death of her father had not been nearly as cutting as the realization that swept through her, caused her to put the cap back on the container.

Perhaps, she thought desperately, it was contaminated water. He wouldn't hoard it for himself. He wouldn't. He just wouldn't be that selfish. Not when she was dying. Not when everyone else was dying, not when tiny newborn babies were dying. Not even he, not even the child-man Rocky Miller could do that.

She sipped. She allowed herself one sip and almost hoped that it was contaminated so that she'd die and would not have to live with the knowledge of what he had done. She lived.

That night, in secret, swearing the grateful, weeping mothers to secrecy, she gave life to all the infants below the age of one year aboard ship, at least life for one more day, perhaps two or three.

She was awake when Rocky came in from his duty. He looked tired, but otherwise did not seem to be suffering from the severe water rationing. She pretended to be asleep. She watched through a slitted eye, in the dim glow of the night-light, as he undressed, wiped himself with a towel—no washing, of course—and went on tiptoe to his room. He came out quickly. She had not even bothered to pick up the books she'd thrown onto the floor in her frenzy to get to the water.

"Have you been here all night?"

"No," she said. "I took the water to the babies."

He was silent for a long time, then he sat down on the bed, put his hand on her hip. She wanted to flinch away, but did not.

"I know what you must think."

"Do you?" she asked.

"Honey, we're down to the last ration. One more sip come morning and that's it. After that things are going to get hairy. Someone has to be in physical condition to control the panic."

"And you elected Rocky Miller."

"Listen, I was going to share with you. You must know that. It's just that women have a higher tolerance for being without water than men. Besides, I know you, Mandy. If I'd told you about it, you would have done just what you did, turn the water in."

She could feel only sadness.

"Do you have more hidden away somewhere?" she asked.

"No."

"Would you tell me if you had?"

"No. Not after what you've done. Who have you told?"

"No one. I wouldn't do that to you."

"What we should have done," he said, "was to conserve the water for essential personnel. We could have held out until the eggheads got the problem licked then, I didn't poison the water, you know."

"Rocky?"

"Yes?"

"Do me a favor."

"What?"

"Sleep on the couch in your room," she said.

His voice went harsh. "That's the way it's going to be, huh?"

"At least for tonight," she said with great calmness.

She found that there was enough moisture left in her body for a few tears. She licked them eagerly, tasted salt, but a sweet wetness. Then she slept. He was aboard because of her. His pride would not have let him serve as a ship's communicator, so because of her he'd been given a chance, the chance he'd always felt he'd been denied. And then—

Damn it, Mandy, he can't help himself.

It's time he learned.

He really believed he was performing a service, keeping himself strong. He wouldn't have let you die. He would have shared it with you.

Would he have?

And the tragedy of it was that all he had had to do was suffer like the rest for five and a half days. The water started flowing from a catalytic-cracking plant jury-rigged by the scientists and the petroleum engineers in the middle of the afternoon on the sixth day. The first containers were delivered swiftly to those most in need, to the young mothers. And the rest waited while a pump sent life to Amando K wait's plants. Then, ah, then. Nothing could have ever been sweeter. Mandy, sipping slowly herself, helped her staff and the crew distribute the water, cautioning everyone to drink slowly, slowly.

The gardens greened; fresh, new shoots soon began to grow in the areas that had been sacrificed by Kwait. Jumper went for a swim, after much hesitation, by leaping into the now safe swimming pool after Clay and Cindy.

Adam Hook spent most of his days in the computer room. Emi Zuki had taught him basic techniques, enough for him to draw any information from the files that he desired. Mopro was nearing completion of a close-up, one-on-one reading of all persons aboard. Gerald Moore's brain waves were disgustingly normal.

It took some people several days to get over the effects of dehydration, but with the help of Mandy's staff, there were no deaths as a result of the water crisis.

Rocky Miller came back to their bed the night after Mandy had taken his secreted water, all apologies, tender, considerate. A week later she sighed, rolled into his arms, took pleasure from him, but it was not the same.

When looking ahead, the human mind almost invariably thinks of over two years as being a long time. Looking back it seemed only yesterday that they'd heard the ship shudder and tremble as the powerful rockets lifted her from the high desert.

Mighty Saturn of the lordly rings and spirals was a splendid sight through the ship's optics. The optics, which had lost partial power through damage to wiring in the communications room when the bomb discovered by Cat exploded, had been restored to full power.

The fact that there was a madman on board, someone who had killed, someone who had made a serious effort also to kill everyone aboard, had altered the earlier mood of excitement and optimism. Not a day passed now without Adam Hook receiving unsolicited information—sometimes face to face with a nervous passenger, sometimes in the form of anonymous notes— regarding the possible identity of the killer. It seemed that many, remembering the cold fear of dying of thirst, had appointed themselves watchmen over their neighbors.

Hook had been exposed to the results of fear before. He knew that time would heal all, that gradually the ship would return to normal—unless the killer struck again.

Mandy Miller had never really gotten over an initial feeling of awe and wonder about space. She had watched when they passed Mars and Jupiter, and she went to the observatory late one evening to get a view of the ringed planet, whose tremendous gravitational pull had been taken into account in the calculations for the ship's trajectory and speed. Mandy had waited until it was late, hoping that she'd have the observatory to herself. When she saw the familiar shoulders and the back of Duncan's hatless head she paused, then an unbidden smile came to her lips.

"Hi," she said. "Mind having a fellow stargazer?"

He rose quickly. "I'm pleased. There's an excellent view of the rings tonight."

He stood until she had taken the chair beside him. For a long time they were both silent. Then she said, "It's so beautiful. I've seen pictures, of course, and I know that I'm not really seeing it with my own eyes but through optics, but still I'm*here."*

"I know what you mean."

She found herself talking easily. They talked of home in low voices. She told him her childhood memories; he talked about how he'd always dreamed of flying. She was shocked when she looked at her watch and saw that it was almost midnight.

"I have a pleasant little indulgence that I allow myself, " he said. "I have one light drink before going to bed. If you'll join me, I'll bring them here."

"Sounds good," she said. Then surprising herself she added, "But I'll go with you."

His quarters contained the same service-issue furniture as hers and Rocky's. She took a chair, and he soon had prepared ship's vodka and tonic, with a wedge of fresh lime from Amando's gardens.

"Here's," he said, lifting his glass.

"To," she said.

As a beautiful woman, she recognized the look in his eyes. But there was more there than just desire. She knew that she had understood his feelings for her that last time in the observatory when he'd told her of Earth's true danger and she'd cried on his shoulder. And now, by her very presence here, she knew that

he knew that something had changed. She did not really know what she would do or say if he tried to take advantage of the changed situation.

The air seemed to be charged with her awareness of him. He smiled. When he spoke, it was as if he had sensed her unrest. "You once offered me a pair of ears, very pretty ears, and then you took back the offer. If you've reconsidered, I'd like to accept."

She could think of nothing to say. She just smiled, but that was enough. Duncan talked, and Mandy listened. In a low voice he detailed his concerns and shared the triumphs of the voyage. They enjoyed a quiet intimacy in this chat, which never touched specifically on their relationship or her marriage.

She didn't rush her drink. When it was finished she rose, and he made no attempt to stop her. "You spend a lot of time in the observatory, don't you?" she asked.

"I find it very pleasant," he said. "It was especially pleasant tonight."

"Yes," she said. "It was."

When the door closed behind her he sat down, finished his drink with a bemused expression on his face. He allowed himself a few minutes of what was an impossible dream, then he shook himself as if to dispel the dream and went to bed. He had no idea why she'd changed her mind, why she hadn't run immediately when she found him alone in the observatory. That she had changed in some way was unquestionable. He had sensed that she might even have stayed in his quarters had he asked, but of that he was not sure. Of one thing he was sure. He would never push. If she came to him, offered herself, he would do nothing to hurt her. He was also positive that even if she came to him, gave herself willingly, she would suffer afterward. Amanda Miller was that kind of woman.

THE STARS

NINETEEN

It was quiet on the bridge, the only sound that of Emi Zuki's clicking computer keyboard as she fed in her husbands checked and rechecked figures. Four months ago, the*Spirit of America* had crossed the orbit of Pluto, the outermost planet, and lightstep would soon catapult the ship and its passengers into a zone that had no time, no distance.

Mandy had found a place behind Duncan Rodrick's command chair. Rocky Miller stood to Rodrick's right, the admiral to his left. Lieutenant Garvey was in her usual place as ship's communicator.

Rodrick had opened all channels, so that everyone aboard would hear and be a part of lightstep. But only a few knew how critical the next few minutes would be. Ito's usually calm face showed signs of strain. Beads of perspiration were on his forehead, even though it was comfortably cool on the bridge. But Ito*knew*. He knew that the ship was not just going next door. The*Spiritof America* had been traveling for twenty-eight months, and the distance it had covered was a tiny fraction of the distance that would be consumed in one gulp—if all went well—when Rodrick gave the order. The ship would leap a distance of 65.28 trillion miles in a millisecond, and an error of .0000001 percent in his calculations, or in Emi's programming of the computer, would bring the ship back into normal space over six billion miles from its destination, adding years to the journey.

A similarly tiny error could rematerialize the ship inside the gravitational area of the solar system of 61 Cygni A with the possibility of unleashing a rhenium explosion. Should that happen, astronomers back on Earth, 11.2 years from the moment the ship emerged into normal space, would record a new nova in the area of 61 Cygni.

“Coordinates entered and locked, Captain,” Emi Zuki said.

Grace Monroe had accepted Rosen’s invitation to join him in the engine room for the big event. She could feel the tension and kept her eyes on Max’s agonized expression.

“Main-drive power on,” Max said, his voice calm as he pushed a button with more force than necessary.

“Catalyst heater on. Catalyst temperature optimum,” said another engineer.

“Manual overrides off,” a third reported.

“Stand by, engineering,” Duncan Rodrick said.

The main screen showed the black of space. It was set to medium magnification for a panoramic view, optics pointed toward 61 Cygni.

Mandy looked at the calm face of Duncan Rodrick, shifted her eyes to her husband. He was standing tall, academy style, hands at his sides. Ito Zuki was chewing at a thumbnail, his eyes on Rodrick’s face. Emi’s head was bowed toward the computer console, her hands poised.

Rodrick glanced toward the admiral. The admiral merely nodded.

“Stand by, Emi,” Rodrick said. “Admiral?”

The admiral started the countdown, his eyes on the red second hand of the main chronometer over the console, the leads he had connected to the main computer, making for more precision.

“Ten, nine—“

Jackie Garvey crossed her fingers and raised them over her head, her eyes on the clock. Mandy felt her breath take a hitch, moved forward a bit.

“—six, five—“

Rodrick turned his head, winked at Mandy, but he did not feel light. If the worst happened, that would be his last glimpse of her face.

“—three, two—“

Rocky Miller took his eyes off the clock, shifted them to the main screen.

“—one.”

Lightstep on. Lightstep off.

“Jesus Christ!” Rocky Miller said softly. They had done it.

“Screen to low magnification,” the admiral said as he gave the computer the order himself, for the screen was on fire, a glaring, roiling field of yellow fire.

“Hull temperature rising,” Ito Zuki said. “Hard radiation!”

“Position please, Emi,” Rodrick said, but his eyes were on the screen as the optics pulled back, and he knew their position even while Emi and Ito were causing the computer to whirr with their calculations, for there was 61 Cygni A, a swollen, huge sun, the nuclear furnace at its core sending up roiling, boiling fire. Even as he looked a flare began to rise, as if in slow motion, extending outward and away from the huge

globe.

“Hull temperature, Mr. Zuki?” Rodrick asked.

“Rising. Noncritical.”

“Radiation?”

“Severe, but within the safety zone.”

“Chief?”

“Yes, sir,” Rosen said, with more animation than Rodrick had ever heard in his voice. Rosen, too, was looking at a viewscreen. His crew was taking readings.

“I believe we shaved it a little close, Chief,” Rodrick said. “I’d suggest you stand by on the rocket controls.”

“Standing by,” Rosen said. He didn’t like the looks of the hull-temperature recorders or the swollen, giant furnace out there.

“Ito, give me a rocket-firing vector to angle us away from that thing,” Rodrick said.

“Working on it, sir,” Ito said, his fingers flying. He didn’t have to be told to figure the best way to alter the ship’s course away from the sun with fuel economy in mind. “Captain,” he said, “we need twenty-percent power on the main rocket sequence for deceleration.”

Rodrick frowned. He’d hoped that they could use steering rockets, with maybe just a nudge or two from a few main engines to alter the ship’s course. She had not lost any of her angular momentum coming out of that eerie subspace that had not even seemed to exist during the millisecond when the Shaw Drive had engaged.

“Chief Engineer.”

“Aye, sir.”

“Twenty-percent power main rocket sequence—“

“Duration fifteen seconds,” Ito said.

“Duration fifteen seconds. Fire when you’re ready.”

“Aye,” Rosen said, moving swiftly, punching keys, nodding as Grace Monroe moved to stand beside him. “Check me, Grace,” he said. “Can’t afford to goof this one.”

He finished the programming of the main rockets, glanced up. “Right,” Grace said.

“Captain?”

“Right, Chief.”

“Firing. Five, four, three, two, one.”

Rodrick braced for the expected shudder of rocket firing. Ito Zuki jerked his head to look at Rodrick when nothing happened.

"Chief?"

"Wait one," Rosen said. Sweat was breaking out on his forehead. He was checking his programming, Grace leaning over, her face showing the strain too.

"Firing," Rosen said, cutting in two backup systems. "Five, four, three, two, one."

The main firing system and two emergency backup systems had failed to ignite a single rocket.

"That is just damned impossible," Rosen growled.

"The malfunction has to be in the control panel," Grace said.

"Chief?" Rodrick's voice demanded.

"Uh, Captain," Rosen said. "We seem to have a little problem here."

"Go backup," Rodrick ordered.

"That's the problem," Rosen said. "All systems inoperative. We're starting a check." He began punching the computer keyboard furiously.

"Get back to me," Rodrick said. Then, "Situation report."

"Hull temperature stabilized below critical level," Ito said. "The radiation shields in the outer hull are holding."

"Projections?" Rodrick snapped.

"Were less than twenty million miles out," Ito said. Rodrick felt a shiver of dread. That meant they were closer to that swollen, roiling sun than the planet Mercury was to Old Sol, dangerously close. True, they had come out of lightstep all right, without the terrible destruction that threatened to result if they emerged from lightstep in the 61 Cygni solar system. But what was going to happen now?

"Our speed is increasing at a rate of twenty feet per second," Ito said.

Mandy could not remain silent any longer. "How bad is it?" she asked.

Rodrick didn't look at her, his eyes on the screen. "Not too bad yet. We're well inside the sun's gravity well. That's why our speed is increasing, but we have plenty of time. Ito, stay on top of it. Keep your figures current so we can fire and get the hell out of here the minute the chief is ready."

Not too bad. Just falling into a sun, that's all—a powerless ship caught in the primary gravity of a full-fledged star, and long before the ship got even as close as the tip of that gigantic flare that had blown outward from the globular fire, everyone on board would be dead and the metals of the ship would be melted and a molten blob would be drawn down into those roiling nuclear fires to become a part of it, everything smashed into basic atoms. Hell no, it was not *bad.*

"Take the bridge, Mr. Miller," he said. "I'll be in engineering."

"I'll go with you," Mandy said quickly, not looking at Rocky. She had to trot to keep up with him.

Grace Monroe had summoned an RD-77 repair robot, called Makeitdo. He plugged a lead into the computer and was in communication with the admiral, together acting as a mobile computer that Grace was using as Rosen worked with the terminal to the main computer.

"All I can tell you right now is that it's impossible," Rosen snarled as Rodrick and Mandy entered.

"Ito estimates that we have six hours," Rodrick said. "After that the radiation will begin leaking past the shields and hull temperature will be in the danger zone."

"Grace, watch that damned*thing,"* Rosen growled, as Cat coiled, colored, prowled up and down in front of the control banks.

"Cat!" Grace said sharply. Cat retreated, formed a lead, plugged into Makeitdo. Makeitdo was mumbling to himself.

"It's in—" Rosen said.

"It's in—" Grace said at the same time.

"—the main wiring trunk," Rosen said.

"Good," Rodrick said. "How long?"

Rosen closed one eye, grimaced. "Nothing ever goes wrong in the main wiring trunk, " he said.

"The admiral has just rechecked," Grace said. "There is a definite break in the primary systems and both backup systems in the main wiring trunk."

"Nothing*can* go wrong in the main trunk," Rosen muttered. He looked up suddenly. "Unless it's sabotage." He leaped up, ran to a viewer, punched buttons, muttering until he had a complicated wiring diagram on the screen. "Look," he said.

Rodrick followed the chiefs finger. "Here's where the breaks show." Rodrick saw a line of considerable thickness amid the complicated circuits shown on the diagram.

"How long to get to them?" Rodrick asked.

"That's it," Rosen said. "You don't."

Rodrick waited.

"The wiring from this entire area feeds into that trunk," Rosen said. "It's all accessible to here." He pointed to the beginning of the heavy line into which hundreds of other lines converged. "Once in the trunk the wires are bundled and set in an insulating gel. It's a permanent thing. No burnouts, no breaks possible once that gel is pumped into the trunk line."

"Are you telling me you can't get to the spot where the trouble is?"

Rosen gnawed on his lower lip. "We'd have to disconnect everything in this bank of equipment here," he said. "Then move the bank. Cut an access through the deck."

"Any problem doing that?"

"Just time," Rosen said.

"Then what?"

"Cut into the main trunk line, liquify the gel, pump it out."

"How long?" Rodrick asked.

“We’ll have to bypass a lot of monitoring circuits in the equipment bank, straight-wire the systems.”

“What systems are monitored in that particular bank?”

“Just about everything vital.” Rosen sighed. “The water-system pumping controls, weather control, hull-temperature sensors, the optical system.”

“Well, Chief, do you see any alternative?” Rodrick asked.

Rosen straightened, began to give orders. He sent Grace Monroe to commandeer help from the security forces, told her to gather together any of the scientists who had worked in the electronics field. His own crew had already begun to remove access panels. An electronics service technician looked at the complex inner works and shook his head. The admiral chose that moment to walk regally into the area. He approached the chief and saluted. “Perhaps I can be of help,” he said.

Rosen snorted, then ran his hand through his disheveled hair, reconsidering his first impulse to tell the admiral to get the hell out of the way. “Matter of fact, you can,” he said. “You got all the schematics for this monitoring bank on file?”

“Yes, sir,” the admiral said.

“All right. We’ll start with the water-system pumping controls first. It won’t hurt if we stop water flow for a while, except to the cooling system for the reactor.”

“We shall isolate that first,” the admiral said, “and be sure that the flow is not interrupted. “ He moved to stand behind the technicians, began in a calm voice to direct the disconnections. In a few minutes he called a halt, came back to Rosen, and stood at attention.

“Yeah?” Rosen growled.

“If I may suggest, sir, that I be allowed to have the RD-77 repair robot work with me. I believe we can be more time efficient.”

Rosen nodded sourly. Makeitdo rolled to the work scene and began, with no oral orders given, to attack the circuitry with a speed that made Rosen doubt his own good sense. Cat prowled, its color going from green to red and back again. Now and then it would alter its forequarters a bit and slide a slender appendage into a hidden nook.

Rosen got on the communicator. Only thirty minutes had passed. The ship’s acceleration was constant under the influence of the gravity of the blazing sun. Hull temperature was rising at the rate of three degrees per hour. Radiation flow, the solar wind thrown out by the star, was constant. It didn’t figure to get much worse until they were quite near the sun’s surface, and by that time they would not have to worry about it; they’d already be dead, burned as the ships metals melted.

Rodrick stopped by Mandy Miller’s medical suite on his way back to the bridge. He wanted her to alert her teams to keep an eye open for distress and panic among the colonists. He was pleased to find that she’d anticipated him.

He waited for her to finish giving instructions by communicator to some of her people.

“There are some deep psychic wounds, Captain. First, the passengers are isolated in an unnatural environment, with no means of escape from the threat. They’ve seen people killed and have faced death from lack of water. They don’t understand what’s happening. They’re basically stable people—had to be to be selected—but a long period of strain, such as we’ve had, can affect even the most stable

personality. Right now we've got nothing more serious than some minor hysterics among a few, general nervousness among the others. I have my crews standing by with prepared doses of an effective tranquilizer. I will, of course, consult you before using it."

"Keep me posted," Rodrick said.

Rodrick arrived on the bridge in time to take a call from Max.

"Captain," Max said, "we're getting ready to disconnect the hull-temperature monitors. You'll be without readings for a few minutes, and then as we bypass the monitors you'll regain most of the sensors. But no way to be assured of their accuracy."

"Whatever it takes, Chief, ' Rodrick said.

Ito Zuki made quick note of hull temperatures and then saw the dials go dead. "Captain, I've been running it through again," he said. "I told you we had six hours. Now I'm not so sure. We're already on the high side of the cooling system. I believe that we will begin to experience dangerous temperatures in the outer hull in less than four hours."

"Very well," Rodrick said. Then, into the communicator, "Chief?"

"Yeah," Rosen snarled.

"I'm going to isolate all areas of the ship from air circulation except the center core and the outer rim, the object being to concentrate all air refrigeration as near the outer hull as possible."

"Getting that hot out there?" Rosen asked.

"At the moment it's precautionary," Rodrick said.

Rosen muttered dire curses, but only after he'd closed the communicator switch. Then he looked at Grace. "Four hours," he said. "We must be accelerating rapidly."

"Anything else I can do?" Grace asked.

Rosen shrugged. "Ride herd on those mechanical monkeys of yours." He grinned sheepishly. "And maybe stay with me. If I'm going to be cooked, I can't think of anyone I'd rather be in the soup with."

Grace smiled. "Watch it, Max, or you'll go romantic on me."

Rosen was still grinning. When he smiled, at least when he smiled at Grace, his face lost its pained look. "If we get out of this, I'm going to give that some serious thought," he said.

"Well," she said, "there's just one thing to do, then. Let's get it done and get on with it."

On the bridge, Ito said, "We've got the hull-temperature monitors back."

"Change?"

"Minute. I still calculate the same rate of increase."

Rodrick told Lieutenant Garvey to put him on the communicator, shipwide. "This is the captain," he said. "As you may have assumed, we have successfully completed the lightstep operation and are now in the 61 Cygni system. The sun you see on your screens is 61 Cygni, and as you may have guessed, we're just a little too close to it for comfort. It has been necessary to divert all air conditioning to cool the outer hull,

so you're going to get a little warm. Let me assure you that there is no cause for alarm and the increased temperature in your area of the ship is simply a result of cutting off the coolers in your section. We expect to have rocket retrofiring within a half hour or so to correct our course and start the last leg of our journey toward 61 Cygni's third planet. We will keep you informed."

"You sounded like a passenger-liner captain, Skipper," Rocky Miller said. Rodrick gave him a wry grin. Miller was holding up well, no sign of anything but good, dependable, service calm. "Take the bridge, Commander. I'm going down to engineering."

They had begun to move the control bank section by section after Makeitdo loosened the bolts connecting it to the deck. A service technician was standing by with a cutting torch. Cat emerged from behind a piece of equipment.

"How are we doing on time?" Rosen asked.

"It's getting hot out there, Chief. We need to start to brake in an hour and fifty-four minutes."

The technician with the torch watched the admiral draw a perfect circle on the deck with a red marker. The torch flared. It was slow. The deck was good metal. But slowly the cut lengthened, following the mark. The process was slowed because there were bundles of wiring under the deck. If the torch penetrated too far it could do severe damage.

Makeitdo magnetized himself as the cut rounded the circle. He leaned over, flattened his hands on the middle of the circle. When the torch hissed through the last link of metal he lifted the cutout away, placed it in a clear area away from the work site.

Rodrick looked down into the belowdecks jumble and whistled. Between the workers and the trunk line were bundled wires, circuit boards, condensers. He thumbed his transceiver.

"Hull temperature, Mr. Zuki?"

"Another half hour and we'll have to restring the radiotelescope," Ito said. "But the main hull won't reach a critical temperature for about forty-five minutes."

"Hear that, Chief?" Rodrick asked.

"I heard," Rosen said. It was going to be close. They couldn't just go plowing through. It wouldn't do much good to do that, fix the breaks in the main trunk line, and then have to come back and rewire a lot of damage on this side of the breaks.

The problem was there was just no room to work.

The belowdecks space was packed, and enough space had to be made to allow a man with a torch and a tool kit to get down there and sit straddling the main trunk line. To figure out each circuit and disconnect it would take weeks, not minutes.

There was a long period of silence, broken only by the grunts of the men as they tried to use gentle force to push aside and reposition the large bundles of wiring that lay between them and the trouble spot.

Rosen looked at the clock. He had a sick feeling. They were not going to make it. He could read hull temperatures too. The red, white, and blue outside decoration of the*Spirit of America* would be gone by now, the paint burned, curled, blistered away. Areas facing the sun were glowing a dark pink in the view-screens as he checked visual hull monitors. They were not going to make it. Before they could even reach the trunk line, much less make the repairs, fire the rockets, swing slowly away from that nuclear

furnace, a seam would give and the inner pressure would blow a rent big enough to cause explosive decompression. Then another seam would go, and then holes would begin blowing through the melting hull itself.

His face was calm. When he looked at Grace she saw that odd calmness, and she went to him quickly. "What is it?" she asked.

He looked away, and his silence told her.

"You're not going to give up," she whispered, taking his hand and squeezing it.

"Hell, no," he said. But what could he do? He had as many men working as there was room to work. He had Grace's robots working. The admiral could, he suspected, *feel* the heat on the hull. And they were all equally helpless, man and machine They were helpless because once a trunk line was sealed with gel, *nothing* could go wrong, so there'd been no need to provide access to it. They were helpless because they couldn't make a passage big enough for a man, and it would take a man to do the job. Not even Grace's wonder machines could get through. It was too far to the trunk line for Makeitdo to stretch one of his appendages. Cat might be able to stretch out and slither down, but Cat wasn't a Makeitdo or an admiral. Cat had its purposes, but it didn't have too much intelligence.

But Cat *could* get down there. Maybe.

Suddenly the calm look was gone, replaced by the more familiar expression of sheer agony. He leaped to a tool-storage area, rumbled around inside, came out with a compact tool. "Cat can follow basic instructions from the admiral?" he asked Grace.

"Yes, of course," she said.

He was in action, cutting a length of wire, clipping magnetic splicers to each end. "All right, everyone, knock it off and get out of the way," he said. And when the workers didn't move fast enough, he roared at them, grabbed the admiral's arm, spoke to him in a soft voice. The admiral nodded, sent a radioed order to Makeitdo, who began to extrude a long lead. Cat seemed excited. It turned red, then green, and leaped up to allow Makeitdo to plug the lead into one of its receptors.

Cat grasped a tiny tool to its body, then elongated and flowed through a small opening. Rosen stood at the edge of the hole, a long pry bar in his hand, using the bar to push aside a bundle of wiring, being careful but getting the job done. Damaged wiring would cook them as surely as the sun's heat if they didn't get the rocket firing systems repaired. Cat, wrapped around the small drill that had been designed for outside hull work in nulgrav conditions, finally disappeared.

It was getting hot, even there in the engineering spaces where the coolers were working full time. Hull monitors showed a rosy glow over the entire surface of the *Spirit of America* that was exposed to the heat of the sun.

"Cat has reached the trunk line," the admiral announced.

Rosen had put a cutaway cross section of the trunk line on the viewer nearest the work area. "Have Cat drill holes here and here," he said. No time. No time. It would have been surer to cut into the trunk line, but there was no way to get a torch down there, and if it had been there, Cat wouldn't have been able to handle it. Cat could position the drill. In position, Cat could flip a switch that sent current to an electromagnet that clamped the drill in place and put the necessary pressure on the drill, pressure Cat could not have applied itself.

Rosen heard the drill whirr. He had given an exact angle for the drill to the admiral.

"The drill is through the outer casing," the admiral said.

Rosen held his breath. He hadn't taken time to figure out what other wires ran through that main trunk line. "Can Cat feel the difference as it drills through the wires?"

"It has not damaged any other wiring," the admiral said.

Rosen held his breath again. He was watching a little meter he'd connected to the primary rocket-firing system. "Cat's hit it," he said. "Now tell Cat to get the splicer down there."

Five minutes went by. "What the hell's happening?" Rodrick asked.

"Sir," said the admiral, "because of the configuration of the splicer, Cat is having a problem getting it to hold."

"Captain," said the voice of Ito Zuki. "We are only minutes away from forming a film of molten metal on the outer hull."

"Max," Grace whispered, "Cat is made mostly of a conductive material. It's insulated only by an outer skin of nonconductive material."

He nodded. "Think it'll work?"

"We can try," she said. She gave instructions to the admiral. Within a few seconds the whirr of the drill was heard from below. The meter told Rosen that Cat had made contact with the proper wire on the far side of the break. Rosen tried to imagine what was going on down there. Somehow Cat was making a wirelike protrusion on each end of itself, thrusting the wirelike extensions down into the drilled holes.

"Cat now has contact," the admiral said.

"Tell Cat to grip hard and hold on," Max said. He went to the control console and began to punch buttons. "Five, four, and like that," he said.

The ship shuddered. All rocket engines were firing.

"Very good," said the calm voice of Ito Zuki. "Please increase to thirty-percent power for an additional ten seconds, Chief Rosen."

Rosen nodded. And from the bridge Ito rotated the ship, vectoring the rocket thrust to begin a long curve away from the sun.

"You may cut your engines, Chief Rosen," Ito said.

"Hull temperature?" Rodrick asked.

"Hotter'n hell," Rosen said. "But it should start cooling soon. I think we've made it."

Just as he spoke, an alarm bell clanged. It was a sound he had hoped he would never hear. That particular alarm denoted a breach in the hull's integrity. He leaped toward the hull monitors. A red light was flashing, denoting an air loss in an outer compartment. Other lights flashed on.

Rodrick had jumped to stand by Rosen's side. "Rocket-fuel storage area," Rosen said. "It's sealed off. We'll be fine if the inner hatch holds."

It would hold. It would have to hold. Rodrick reached for his transceiver, punched in Pat Renfro's number. When Pat answered he said, "Prepare a pod ship, Mr. Renfro. Outer hull repair."

With each second the ship was moving away. Now the question in Rodrick's mind was how much rocket fuel had they used and how much would there be left to maneuver toward the planet and land. He was in for a very pleasant surprise.

"Captain," Ito Zuki said, his voice on the speakers sounding to Rodrick as if he were smiling widely, "you're not going to believe this."

"I'm really not in the mood for any more surprises, Mr. Zuki," Rodrick said.

"This one you're going to like. Take a look at the viewscreen on channel ten."

Rodrick flipped the screen to the proper channel. The scale in the lower corner showed that the optics were at peak magnification.

It looked just like Earth.

It was a definite disk, and it had those beautiful hints of blue and gold.

"We won't have to change course by over ten degrees," Ito Zuki said. "She's less than an astronomical unit away. And when we turned away from the sun we headed right toward the spot where she'll be in less than two months, and that's counting deceleration time. We're only seventy-five million miles from planetfall, Skipper."

"Good work," Rodrick said, a bit stunned.

"Blind luck, Skipper," Ito said.

"We were due some," Rodrick said. He turned to the admiral. "How's Cat?"

"In splendid condition, sir."

"Can Cat hold its position until we make some minor course corrections?"

"Yes, sir."

"Mr. Zuki, do your fine-tuning now, please. Then we'll be without rockets for a while again," Rodrick said.

It didn't take much. Three ten-second firings of the main rockets added speed, pushed the ship onto a course that would bring it into conjunction with the planet in an amazingly short period of time.

Cat came up from the belowdecks space, bringing the drill with it. Max Rosen picked Cat up and rubbed its slowly normalizing body. "I apologize. You're a fine, ah, well, you're a fine cat."

Cat began to turn blue with pleasure.

Rodrick was still trying to take it all in. There were a lot of unanswered questions. "Chief," he said, "we came out of lightstep into normal space right next door to a pretty good-sized star. According to Harry Shaw's best guess, we were supposed to blow to hell and gone and take the star with us."

Rosen's thinking expression appeared. Things had happened so fast that he hadn't had time to think. "That's the way it figured," he said.

“We came out not only inside a solar system—we’re inside the orbit of three planets—but right in the primary gravity of a star,” Rodrick said.

Rosen grinned. He was too tired to worry about anything. “Aren’t you glad Harry Shaw was wrong?”

“Very glad,” Rodrick said. “Well, you have some cleaning up to do, Chief. I’m going up to announce the good news to everyone.”

Grace put a hand on Rosen’s shoulder. “Good work,” she said.

“Lady,” Max said, a look of beatific calm on his face, “as soon as I finish here, you and I are going to have to have a little talk.”

She smiled. She found herself feeling fonder of the chief engineer than she had felt about anyone—man, woman, or robot—in a long, long time. “Why, Max,” she said in a teasingly innocent voice, “whatever about?”

Cat went back down to the main trunk line with a small, flexible probe. Rosen wanted to know why all three firing systems had failed at the same time. He soon knew. The three wires, one for each of the firing systems, were eaten in two. The acid vials, Rosen told Captain Rodrick, had to have been installed during construction of the ship.

It was obvious to Duncan Rodrick that the two attempts to destroy the ship by sabotage had their seeds back on Earth. The explosive that had been planted in the electronic works on the bridge and the acid in the main wiring trunk line could have been put in place only during the ship’s construction. It was frustrating to think that Earth security had been so lax, but it was even more frustrating to know that in spite of all efforts there was a murderer on board, someone who had slipped past the most elaborate screening process ever used, someone who had killed twice and who had come very close to ending the mission.

The knowledge that a madman determined to destroy the ship was still in circulation was a constant and nagging worry to Rodrick. He himself avoided talking about it, but others did not. The colonists had fallen into the habit of staying together in large and small groups. No one walked the corridors of the ship alone. And with the goal so near now, with so much behind them, it seemed that many were becoming more fearful. Even in groups, people tended to glance constantly over their shoulders. Tempers were frayed, and the slightest incident could cause a shouting match.

With the planet of destination growing larger each day on the viewscreens, which were once again very popular with the passengers, Rodrick put the security forces and the crew on a permanent state of alert. They were too close now to allow anything else to happen.

TWENTY

Twice now he had been near death, a death not of his own choosing, at a time not of his own choosing.

It angered him.

He had accepted his assignment with relief. The years, the months, the weeks, the days, all had been too much with him for too long, too long. He would have taken his own life long ago had it not been for his burning desire to strike back.

But had he killed himself, he would have done so in his own way, at his own time.

They had not told him that the ship had been sabotaged, had not told him of the bomb on the bridge, or of the sabotage of the rocket-firing systems. They apparently had not trusted him. They had not had enough faith in his ingenuity to believe that he, and he alone, could at any time of his choosing leave the Spirit of America *a dying hulk in empty space.*

He still had time. The blind luck that had allowed the ship to survive its near encounter with 61 Cygni had, true, cut down on his time, but there was still more time. He had planned all along, after he'd worked as hard as anyone to purify the water system —that had been a terrible idea, no way for a man to die, by thirst and dehydration—to wait until the last minute, to allow them to believe that they had arrived safely.

He had only a few regrets. He regretted that no one in the United States government, not one of those bastards who had given the orders that had ruined his life, would know that their precious ship would not bring home the bounty of new planets. And he regretted that he would not ever be able to strike a blow at those in Moscow who had had so little faith in him, who had tried twice to kill him *in unpleasant ways.*

How he would like to be able to tell them, all of them, how he hated the country that, in the hypocritical name of freedom, had killed everything he loved. How he would like to have some way to strike at them, and those in Moscow.

He dreamed dreams. He imagined taking over the ship, taking it back. The ship had an impressive array of weapons. He would use those weapons on the space stations, blasting both countries' installations at random until, like a snake with a broken back, they started striking out at each other. He dreamed of the entire planet engulfed in fire, as his Jean, and his son and daughter, had been devoured by fire.

"Jean, Jean," he whispered, alone in his quarters, "they have begun to pay, and not just an eye for an eye. They will pay in multiples. And not even the death of a thousand will pay the debt fully."

A beginning. That was all it was, just a beginning. The Middleton woman had died screaming, and he'd had the time to tell her why, to tell her that she had to die because they *had killed his wife and his children. He had not had time to explain it to the crewman, but that death, too, was entered into the balance, as were the four who had died in the swimming pool.*

His warnings had not been lost on the people of the ship. As he circulated among them, he heard the whispers, saw the fear, rejoiced at the anger. Soon, now, he would let them know why they were all going to die. He would give them some time to think about it. His only regret was that his revenge would not last longer, so they would squirm and pray and beg in terror, and suffer as he'd suffered for all the long, weary years. He would never forget what they'd done to him, even as he, the last man alive aboard ship, died. And he'd die laughing, because at last they would know who and why.

The captain had said, with smug reassurance in his voice, that all danger was past and that by lucky accident the expected two-plus-years' journey to the new planet had been reduced to less than two months.

Well, they were not past all danger.

And he had time to express his hate at least once more.

He had selected the object long ago. They loved their children so, these hypocritical countrymen

of his, loved all children, doted on them. That ragamuffin from Chicago, for example, who had become almost a hero by stowing away. But most of all they treasured their darling little girls.

His*little girl had not been allowed to live to be the age of the object on which he would next vent his hate, and she would have been so much more beautiful than that hateful, smart-mouthed Cindy McRae.*

* * *

It was sweet to be at the controls of the*Li'l Darlin* again. Pat Renfro eased her out of her pod slick, without so much as dinging the paint, gave her a tiny juice of power, and then countered it to halt her a hundred feet from the outer hull.

Jack Purdy, in space gear, had his own set of coolers inside the suit, and the coolers in*Li'l Darlin* were working full time because 61 Cygni A was still closer than a sun should be. She was a swollen, bloated, massive presence in the void, seeming to hang directly overhead.

Pat and Jack were awed into silence by the look of the*Spirit of America.* "Captain, she looks as if she's made a flight through a blast furnace," Pat reported.

She was seared and blackened. But she'd held, with the exception of that one seam that had set off the alarm.

Max Rosen, in communication with the*Li'l Darlin ,* talked the scout into position, and Pat put*Li'l Darlin* in hull contact with a barely felt thud, held her there with the engines while Jack crawled into the air lock, decompressed it, pushed himself to float down until his magnetized boots contacted the ship's seared hull. When he was clear, Pat moved*Li'l Darlin* back a few feet and parked her, rolling her so that he was able to watch Jack clump in slow motion toward the split seam. Then there was the bright flare of a molecular bonder, and the job was done in less than half an hour. They stood by while Rosen put pressure back into the compartment, then Jack checked for leaks and he was back aboard.

While they were out they made a close-up inspection of several more points under Rosens directions.

They confirmed Rosen's guess that the hull, in those areas that had faced the direct fury of 61 Cygni A, would lose a thin film of metal at the surface when it was possible to remove the charred paint and repaint her.

"Chief," Pat radioed to Rosen, "when we get back home we can tell Harry Shaw that he builds a fine ship."

On board the*Spirit of America* the computers were humming. Rodrick wanted to know why the ship's drive didn't explode, as it should have according to Harry Shaw's work and theories, when she came out into normal space within the primary gravitation field of a star. And why was there such an error in Ito Zuki's carefully checked and rechecked calculations?

Max shook his head. "You got me. Only thing I can figure is we're dealing with an almost infinitely small period of time here. I'd have to guess that the rhenium reaction ends a millisecond before we come back into normal space, or at the exact instant we come back, and doesn't exist in the same time frame with a nearby mass."

"I love these scientific methods," Rodrick said, but he was feeling better. There was a lot of activity going on aboard. They had expected to have as much as two years to prepare for planetfall. That time had been cut to less than two months, and although the organizational planning was in place, the entire ship's

company had to be prepared for an imminent landing, had to rehearse and go over their roles, check the locations and conditions of equipment, readjust their thinking to*now* instead of*when*.

The first officer sought out Captain Rodrick a few days after the lightstep. He had, Rodrick could see, something on his mind. He didn't seem to know how to approach the subject, so Rodrick made it easy for him.

"Commander, I've found that the best way to broach a touchy subject is to go at it head-on," he said with a smile.

"Thank you, sir," Miller said. "I'll do that. I would like to suggest, sir, that you replace Ito Zuki."

"On what grounds?"

Miller had a full head of steam now. "I've always questioned the selection of non-Americans for such vital posts, sir. After all, he did almost put us into the sun."

Rodrick nodded calmly. To him, Emi and Ito were just as American as anyone else. He had not even imagined that his first officer had basic racial prejudices. "Well, Commander, it might be difficult to replace Ito. His combination of skills is hard to come by."

"There are at least two other astronomers aboard."

"With Ito's computer skills?"

"A combination. An astronomer and a computer expert."

"I have taken note of your suggestion," Rodrick said.

"But you don't think it's viable?" Miller insisted.

Rodrick hesitated. "No, Commander, I don't. I think that Ito Zuki is the best-qualified man for the job of astronavigator. Furthermore, I am a bit surprised that you'd let his race interfere with your assessment of his abilities. I don't like unthinking prejudice in my junior officers, Commander."

"Yes, sir," Miller said, his neck going red, but his face calm. "Thank you, sir."

Mandy found her husband in quarters. He was in his own room, but the door was open. He had a bottle of ship's brandy on the desk in front of him, a glass in hand, and when she looked at him she saw something on his face, an expression she had not seen in a long time. She didn't have to ask.

"Why, tell me why, do they always select men to promote to command position who don't have enough sense to recognize their own incompetency and the incompetency of others?"

She felt something go dull inside her. She had always said something to the effect of, "There, there, we both know you're a good officer," but she could not find such words now.

"It's not what you know," Rocky said. "It's who you know. He had his nose in the seat of Oscar Kost's pants. Practically fawned when he was with the President."

She felt a hot flush of anger, but stopped her angry words before they were formed. "I'm going to eat early tonight. Is that all right with you?"

"Yeah, sure," he said, and looked up at her. She knew he was going to continue his attack on Duncan Rodrick, and she had no stomach for it. She turned quickly and went to the dining commons. He looked

after her, a bit puzzled.

She was more surprised than he. She had been on the verge of defending Duncan against her husband.

Adam Hook sat hunched over a computer terminal. During his years with the New York City Police Department, he had never before known*true* frustration. Here he was, in a closed environment, with a limited number of people, and he couldn't isolate a psychopath.

He had a mere half-dozen folders on the table beside the terminal, representing six people who showed certain personality traits that just could indicate psychopathic tendencies.

He picked up one folder at random, read the name on the cover, and threw it aside in disgust. The name was Commander Rocky Miller. Miller had been born with a degree of uncontrollable independence, pathological ego. The man had a record of getting into trouble with*every* commanding officer he'd ever served under.

Amando Kwait. An exile from Communism. Hook liked him, respected him, but Kwait, if he were the man, wouldn't be the first man who came to a free-world country with good credentials and a good story of having to run for his life.

Gerald Moore. He'd worked with a substance much like the poison that had been put into the water supply. He had known real tragedy in his life.

Dr. Murray Klein. Physicist. A loner. He'd spent time in a mental clinic suffering from stress.

Renato Cruz. Most of the time called Apache Two. When he was drinking he told anyone willing to listen that the white man had treated American Indians shamefully. The moody, often silent Cruz had earned a lot of Hook's attention.

Dr. Donald Szell. His folder was on the desk for a pretty circumstantial reason, or for two reasons. He'd been born in Hungary but entered the United States at the age of two, hardly time to be trained as a KGB sleeper. But he was sent to Moscow for the Olympics in the twenties, when he won a gold medal in gymnastics.

So that was it. Repeated close encounters by Mopro, repeated surreptitious recordings and analyses of the brain waves of all six had shown nothing out of the ordinary.

Hook put his head in his hands and moped.

He had had to depend on others to secrete the half-pint of poison on board during construction. That they had succeeded should have told him that the ship itself would have been sabotaged. He was still angry about that. They should have trusted him. He'd waited for almost fifteen years for an opportunity to hurt in multiples of the way he'd been hurt, and they hadn't trusted his hate enough to let him do the job, had almost killed him twice. Either of his two alternatives would have done the job. The poison would have done it had he not suggested the key to purifying the water.

*He had brought his second weapon aboard himself with surprising ease. If a search had been made of all quarters on a*thorough*basis, as* he*would have made the search had it been his responsibility, the searchers would have seen only a few tubes of a special ointment that he required for his skin, still sensitive after fifteen years. If they had opened* all*the tubes, each of which had the seal of approval given every personal item carried aboard after a careful examination, the searchers would have died first. Even if they had discovered the one tube that*

mattered and opened it, his job would have been done. Once released into the ship's atmosphere, the liquified gas would expand, be swept throughout the ship by the life-support system.

When the ship escaped the pull of 61 Cygni, he entertained thoughts of somehow surviving. The idea of being one man alone on a virgin planet intrigued him. If he could somehow wait until the ship had landed, then be the first one to exit the ship—But that, he knew, was beyond his capacity to plan and execute. The scouts would be out first. He was simply a member of the colonists.

So he would choose a strategic moment, a moment when they would suffer the most frustration, even if that frustration was only momentary.

He'd wait to see what sort of planet had been reached. He hoped it would be a beautiful planet, as it appeared to be on the ship's screens, full of promise. They'd be very excited, full of plans and dreams, and just as he released the nerve gas into the ship's air system, he'd let them know they were about to die.

Meanwhile, he would give them one more example of what hate can mean.

Cindy McRae had shown great promise in Donald Szell's gymnastics classes. She had a natural grace, and although she was past her prime to begin a study of gymnastics, Szell told her just to do it for her own enjoyment and to help keep the beauty of gymnastics alive in the new society.

Szell's regular class met at ten in the morning, and Cindy was always there. Occasionally, she and Clay would meet Szell at odd times for Cindy to receive more personalized instruction.

Szell was a compactly built man, small, and he hadn't added more than five pounds since he'd won his gold medal, although he was now pushing forty. He'd become a welcome guest in the McRae quarters. Today he came by, had a cup of coffee with them, and said he was going down to the gym for a workout and why didn't Cindy and Clay come with him. Cindy was willing.

"You go on down, Cindy," Clay told her. "I want to go over and see what Pat and Cat are up to."

He said he would join her later in the gym. She went off with Szell, dressed in a leotard, a sweatsuit over it.

To Clay's disappointment, Pat was sleeping. He went down to the engine room, where Dr. Monroe was sometimes to be found, Cat nearby unless it was with Pat, and only the watch personnel were there, so he had nothing to do but join Cindy in the gym. He took a detour through the longest way, in order to do some corridor flying, Jumper tucked safely under his arm.

It was early evening by the clock. They were getting so near the new planet that individual land features could be distinguished on the viewscreens, and everyone was really excited, because it looked a lot like old Earth, with big oceans and storms, and white, fleecy clouds, and land areas in both hemispheres, which, they said, must surely have vegetation. With most people staying near their screens, the corridors were deserted, and there wouldn't be many people in the gym.

He was back in the half gravity of the outer wheel, and Jumper was scouting the territory ahead, guarding him, his tail a happy flag. Jumper knew where they were going now, and he ran ahead and was waiting at the gym door when Clay got there.

The gym was empty.

Well, Clay thought, they'd done some work and called it a night. But when he looked at his watch he saw that only forty-five minutes had passed since Cindy and Szell left. Well, maybe they stopped off

somewhere to talk. He went into the gym and pulled off his shoes and shirt and leaped up to catch the lower uneven bar. He did a couple of turns, and a few giants made easy by the low gravity, and then went spinning off in a single somersault dismount, which carried him a full ten feet away from the bars, landing perfectly and lightly.

Jumper was barking. Clay heard it while he was exercising on the bars and hadn't paid much attention. It was Jumper's "Hey, there's something over here" bark, but Clay had heard that song before. Jumper was always saying, "Hey, there's something over here," and it would turn out to be a discarded food wrapper or something silly. He put on his shoes and shrugged into his shirt and sauntered over, across the mats, across the exercise floor, to see what Jumper had found behind a pile of surplus mats near the opposite wall.

Hey, there*was* something there.

Donald Szell lay crumpled in the narrow area between the mats and the wall. His head was bloody, and there was a pool of dark blood underneath him. Clay fell to his knees and grabbed Szell's wrist. He felt a faint but steady pulse. He ran to the office. The door was not locked. He hit the communicator buttons for security, and when a voice answered he yelled, "Get down to the gym, quick. "

He didn't wait. There was something else on his mind. Cindy. He punched up the McRae quarters, heard Betsy's voice.

"Did Cindy come home?"

"No, Clay. Why?"

"Tell Stoner to get down to the gym, quick," he said.

He didn't give her time to ask why. He ran back outside. Jumper was sniffing and licking Donald Szell's hand.

"Jumper, where's Cindy?" Clay asked, and there was a quality of urgency in his voice that got the dog's attention. Jumper looked around, barked once.

"Find Cindy, Jumper. Find Cindy."

Jumper began to run around, circling, his nose to the floor. Clay knew the scents would be pretty well mixed up in the gym. There were two doors. He ran to the one he'd entered, Jumper sniffing and casting around as they went. He told Jumper, in the corridor, "Find Cindy."

He could tell by the dog's frantic searching that he wasn't getting Cindy's scent. He led Jumper around the corridors to the other door, and Jumper immediately gave two sharp yips and began to run along, nose to the floor. He liked the game. It was a favorite of his.

Clay had to run to keep up. Jumper led him down a corridor, past the entrance to the swimming pool, past the gardens, and then they were going out of the recreation areas toward the outer hull and toward crew-only security areas. Once or twice Clay yelled, "Cindy! Cindy!" but then he used his breath for keeping up "with the dog.

He was getting awfully worried. Someone had struck Donald Szell a terrible blow. And Cindy wasn't one to go wandering off by herself into crew-only areas.

Up ahead—Jumper had disappeared around a corner—he heard a frustrated bark. When he skidded around the corner he saw Jumper leaping up at a closed hatch. The hatch was secured with a print lock.

Clay pulled at it, just to be sure it was locked, then looked around helplessly.

"Are you sure, Jumper? Sure she went that way?"

Jumper barked and leaped up on the door. Clay saw a communications post down the corridor, ran to it, punched up security. "Get me a man up here fast," he said, giving the area numbers for his position, panting from his run.

"Clay, is that you?" Jacob West, a scout known as Apache One, had the duty. He'd taken the call from Clay from the gym. Men were already there, and they'd reported back and called for a medical team. "What's going on?"

"Someone's got Cindy," Clay yelled. "He hurt Dr. Szell in the gym."

"Stay right where you are. Lieutenant Purdy will be right with you," West said.

It was almost five minutes before Jack Purdy came pounding down the corridor at a dead run.

"Open the lock, ' Clay said. "She's in there somewhere."

"How do you know?" Jack asked.

"Jumper tracked her."

"All right, Clay. We'll see." Purdy opened the lock. Jumper scampered through and started casting around, found the trail. Clay led the way behind him as Jumper weaved his way ever outward. They circled a pod, and Jumper was barking at a hatch leading to one of the rocket-fuel storage areas.

"Hurry up. She's in here," Clay said.

Jack was breathing hard. He reached out to put his palm on the print lock, pulled it back. A man had been attacked. No one had to be reminded that there was a murderer running loose on the*Spirit of America.*

"All right, Clay," Jack said, reaching for his weapon, "I want you to hold Jumper and stand back over there." He pointed to a place where Clay would be sheltered when the hatch was opened. Clay obeyed, somewhat reluctantly.

Purdy thumbed his transceiver and spoke into it in a low voice, giving his location, telling them the situation as best he understood it. Then he put his palm on the print lock, standing to one side. He heard the lock click, and then he pulled hard.

The door was still solidly locked. The lock release had not opened it. Jack took a few seconds to think. A man who knew what he was doing could disable the opening mechanism of a print lock from the inside. Whoever was in there, probably with Cindy, knew enough to open the repair cover and disconnect the opening mechanism of the print lock.

Pat Renfro arrived on the run. A couple of minutes behind him came Adam Hook, puffing from his haste. Jack explained the situation in a low voice.

"How long to burn through the hatch?" Hook asked.

"It's bunkered durosteel, doubly reinforced. If the rocket fuel exploded, the door would still be there and there'd be a hole in the hull. It's designed that way to confine damage to one storage bay," Pat said.

“Communicators in there?’ Hook asked.

“Yes,” Pat said.

“Can he hear us through the door?”

“Not a chance.”

“Well, we need to let him know we know he’s in there,” Hook said. He had a sense of elation. The no-good bastard had goofed. Then he sobered. There was one hell of a nice little girl in there with that bastard.

“You’re patched through central communications,” Pat said, after doing some talking on his communicator. “Use channel seven.”

Hook punched the buttons, thought a few seconds, and said, “This is Adam Hook, sergeant at arms. We know that you are in”—he read the numbers of the plate over the door—“rocket-fuel storage bunker. We know that you have a young girl with you. If you will open the door now, we will see to it that you get proper medical care and fair treatment.”

There was no immediate answer. He repeated himself, word for word, carefully. Again there was nothing. He turned to Renfro. “Get on the communicator. I want you to determine the whereabouts of the following people.” He gave Renfro six names. Pat grinned and whistled when he heard the name of the ship’s first officer included. The smile turned to a frown when Hook gave him the last name, his friend, Scout Renato Cruz.

Pat moved to one side. The first one was easy. Rocky Miller answered his call from the bridge. The rest of them? Amando Kwait was in his office in the gardens. Donald Szell was undergoing medical treatment for a badly dented skull. That left Murray Klein, Gerald Moore, Apache Two.

Renato Cruz was accounted for quickly. He’d heard the excitement on the communications channel for security and was now at security headquarters with Jacob West. Pat tried to locate the other two, Klein and Moore.

Hook was having a communicator conference with Max Rosen. There was a viewscreen inside the fuel bunker but, it being in an area where there was little demand for its use, it had not yet been put back into operation after the explosion in the communications room. Rosen promised to have it connected within fifteen minutes. Meanwhile, Hook would just have to wait to find out if he’d been anywhere near the mark, or if the man inside the locked bunker was someone he hadn’t even suspected.

When the opportunity presented itself, he took it. He had just happened to walk by the exercise gym, and there she was, with only Donald Szell with her. It was very easy. He had used a small dumbbell to render Szell unconscious, and she hadn’t even noticed, for she was intent on doing a floor exercise to the strain of thunderous music on the speakers. He had time to wait, to watch. She was quite graceful.

Finished, breathing hard from exertion, glowing with perspiration, she smiled at him brightly.

“Hi,” she said. “Think I’m getting any better?”

“Oh, very much so,” he said. Then, before she could ask, “I bear two messages. One, Dr. Szell said to tell you that he was sorry, but that he had forgotten something at the lab and had to run. Two, your young friend asked me to tell you to meet him in area twenty-three-A right away.” So trusting. “I’m going that way,” he added. “I’ll keep you company.”

It had gotten a bit sticky at the first crew-only print lock.

"How did Clay get in there?" she asked.

"He's with your scout friend, Pat Renfro."

"What's that you're using to open the door?"

He had hoped she wouldn't notice that he was using an electronic lock release. "Oh, they issue them to a few of us to keep from having to go to the trouble of putting our palm prints on all the locks."

She had not started to get really suspicious until, after he'd led her through the narrow aisles among stored equipment, around a pod ship bay, he halted in front of the hatch to the rocket-fuel bunker.

"Why are Clay and Pat in there?" she asked.

He tapped her lightly with the hardened edge of his hand. He'd had a lot of time in the past fifteen yearsto work at the martial arts. He had done it in secret, and it wasn't difficult, because no one really cared what he did when he was not working.

He wanted to have a long, long time with her. It seemed fitting, since they'd killed his children, to send them his last message of hate in the form of a dead child. He wanted her to know why it was happening to her. Her pain would go just a bit further toward canceling out the pain he still felt, the pain Jean and his son and daughter had felt.

It took her a long time to regain consciousness. She tried to sit up, moaning. Thinking of his message of hate had caused tumescence, although he felt no sexual desire.

"I imagine you're wondering why I have brought you here, Cindy," he said softly as her eyes sought to focus. "Can you hear me?"

"Yes."

"I*want to explain it to you very carefully, so that you won't think that I'm just being cruel to you for my own desires," he said.*

*Cindy swallowed. She was very, very frightened. And she was so surprised to find that*he*was the one .She knew that she was in a deadly situation. Her only hope was that someone would miss her, start looking for her.* Clay, oh, Clay, don't stay with Pat too long.

*"You see, Cindy, just over fifteen years ago I had a daughter, a very pretty little daughter, much like you. And a son. And my wife. She was*so*beautiful. And you might not understand it, looking at me now, but she loved me. She loved me very much and I loved her very much, as I loved my children. Then something happened." He fell silent, and the calm expression of his face altered into something that frightened her.*

"What happened?" she managed to ask, thinking that if she kept him talking, someone would come.

"Are you really interested?"

"Yes."

"Not many are. They said, 'Oh, well, it was just an unfortunate accident.' They said, 'You mustn't look back. That's over and done with.' But, you see, I heard them screaming, all three of them. They were in the bedroom wing of the quarters at the testing facility, and there was only one way out, you see. I tried to get to them." He paused again, and his face showed pain.

"Your family was killed in a fire?" she asked.

"Not just a fire," he said. "Because chemists *caused it. I told them and I told them that what we were being asked to do was very dangerous, and they wouldn't listen. I begged them, before the last test, at least to evacuate the facility of nonessential personnel, families. But it was all so secret, you see. They wouldn't let anyone leave. It was just like the way they were so secret about the construction of this ship, you know."*

She nodded. He had always been quite friendly, gentle, almost shy. It was hard for her to believe, hearing him talk so calmly, that he was threatening her.

"We were there for the duration of the experiments. I told them that the reaction would be in multiples of what the chief chemist calculated, but he was the bigman. *When they started the last test I left the lab. The explosion demolished everything except the outer ring of quarters, and they burned, and I heard them inside, screaming. Jean called my name and I went in —"*

"What happened?" she said after a long pause.

He held out his arm, raised his sleeve. "They did a very good job. I was given skin transplants. It's still quite sensitive, even now."

"I'm sorry," Cindy said.

"The last test was performed on orders from Washington. From the top. The chief chemist said, and I quote, 'It has been decided that the risks you cite are greatly exaggerated, and that the promised benefits overshadow the risks.' Benefits, from developing a new explosive? I heard my family screaming, crying out for me. I felt the pain of the fires, and I knew the pain they were feeling."

He drew back his hand, about to strike Cindy, to unleash some of the great hurt he was feeling from the memories.

"Dr. Moore," a voice said.

His hand froze in midstrike.

"Dr. Moore," the voice said. He realized it was coming from the communicator. "This is Adam Hook again. We know who you are, and we know where you are. I'm asking you one last time to come out peacefully."

His eyes darted around the bunker area. There was just the one hatch. He knew it was strong, strong enough to keep them out for a long, long time, long enough for him to vent his hatred once more.

"Dr. Gerald Moore," Hook said, keeping his voice calm, patient. "We want you to come out immediately. Otherwise we will be forced to take measures."

"Adam," Pat Renfro whispered into his ear. "The screen is working now."

Hook jerked his head toward the screen beside the door. Clay caught his breath. Dr. Gerald Moore was frozen in the act of striking a cowering Cindy. As he looked, Cindy recovered and backed to a bulkhead. Moore's hand lowered, went to his tunic pocket.

"What is that he's holding?" Hook asked.

"Can't tell," Pat said.

"Dr. Moore," Hook said into the communicator. "The communicator is open on your side too. You can talk to us if you'd like."

Moore looked undecided. He looked at the object in his hand.

"It looks like a tube of medication or something," Jack Purdy whispered.

Pat punched Hook on the shoulder. "The captain," he said. "He's plugged into this channel. He wants to know if you think it would do any good for him to speak to Moore."

"Not just yet," Hook said.

"Perhaps it is time to speak," Moore said. "I was going to give you all a few more days of life, but you seem to be forcing the issue."

"Nuts?" Pat asked Jack.

"He's fond of that tube he's holding. See the way he keeps his eye on it?"

"Too small to be explosive, if he really expects to get us all," Pat said. "Molecular acid, maybe?"

"We could stop that before it did too much damage," Jack said.

"I have here," Moore said, "the means of destroying all life on board. Please don't doubt me. If I hadn't given Dr. Baxter the proper clues, you would have died from thirst. Do you remember?"

"We remember, Doctor," Adam Hook said, quite evenly. "We don't doubt your ability. Perhaps you'd like to explain why."

Max Rosen, closely followed by Grace Monroe and her team—the admiral, Mopro, Makeitdo, and Cat— joined the group around the hatch.

"We're listening, Dr. Moore," Hook said.

Moore went into much the same incoherent explanation he'd given to Cindy.

"Chief," Hook said, "any suggestions on how we can get in there?"

Rosen had his pained thinking look. "The big fellow here could blast it, or burn it with his laser cannon. Either way would be dangerous. It wouldn't disable the ship in spite of the fuel in there as long as the hatch is in place. If we blast it or burn it, he could set the fuel off. Also the force of the explosion would funnel into this area."

"Cindy's in there," Clay said. "We're not going to do any blasting or burning."

Moore was still talking. He held the medication tube in one hand, the fingers of his other hand playing with the cap. He was tempted to tell them about his last weapon, but he did not, because he had seen

that the fuel bunker was vented in one place, up near the top. The vent that allowed recirculated fresh air was slatted, obviously with a pressure-triggered closing mechanism. In the event of an explosion inside the bunker, the slats would slam shut. There was probably a way for them to close the air return, too, and if they could, then they might very well confine the nerve gas to the bunker. He felt that he should break the seal*now*. Catch them unaware. But, at last, he was telling them. At last they would know what it was going to cost them, how they were going to pay for that stupid order from Washington that killed his family.

"Maybe it's a bacteriological agent," Pat Renfro was guessing. "Some of those bacteria manipulations they did are so potent, a teaspoonful could kill everyone on Earth."

"Gas," Jack said. "He worked on Department of Defense projects. Nerve gas."

"Have to have two containers," Pat said.

"Or two compartments inside that one tube."

The admiral was studying cross-section drawings through his radio connection to the computer. "Chief Rosen, sir," he said, "the air vents are large enough for Cat."

"Don't know what Cat could do," Grace said.

"How about for a small boy?" Clay asked.

"No," Rosen said quickly.

"Tight fit, but yes," said the admiral.

"That's got to be either nerve gas or a bacteriological agent," Pat Renfro said. "I think we'd better close off the air vent and return."

"Watch him very closely," Hook said. "If he starts to open the tube, or makes any sudden movement, *then* close them, and fast."

"You can't ask a fourteen-year-old boy to—" Max Rosen was saying.

"That's*Cindy* in there," Clay protested.

"Is it possible, Chief? Vents large enough?" Pat asked. "I know this boy. I've given him some coaching on the firing range."

"It's possible," Rosen said, "but—" He looked toward Grace for help. She was silent, her face grim.

"Now, gentlemen," Moore was saying, "you know why. You know why you all must die. And for your entertainment while you are waiting—"

He put the tube into his mouth. Rosen had his fingers on the switch that would close off the air vent and return. But Moore was moving toward Cindy, who tried to escape.

"Let's go, Pat," Clay said.

Rosen showed them a vent, and Pat unhooked a fire ladder, climbed up, soon had the cover off. Then Clay was being boosted in. Gerald Moore had seized Cindy's shoulder with one hand; in the other he held a wicked-looking knife. Then Clay was struggling, snake-fashion, deeper and deeper into a square tunnel. There wasn't room to get on his knees and crawl. The joints of the air vent were rough on the

inside. He soon had several painful scratches and abrasions, but he kept squirming along, the weapon that Pat had given him held in both hands. He had only about thirty feet to go. He could see the light coming in through the heavy slats up ahead, slithered faster, almost cried out as a sharp protrusion cut into his knee, kept going.

Moore was holding the tube in his teeth. He wasn't quite sure he could bite through the metal and puncture both compartments of gas, but he would hear them if they started to do anything desperate and have plenty of time to take off the cap, which activated both compartments equally. The girl was putting up a fight. He chopped her once, and she went limp, and then she was on the floor and he was bending over her, quite eager now to give them a demonstration of what real hate was.

Clay lay on his side, his right eye peeping in through a slat.

"If you can, Clay, get him in the chest, heart high. It's on full charge. That'll take him out before he can do anything," Pat had told him.

The old nut was going to cut Cindy. He was positioning her so that he could put the knife at her throat. Clay felt pure hate.

Moore opened his mouth to scream in surprise as the laser bolt burned a three-inch circle through his shirt, skin, flesh, heart. The tube fell and landed on Cindy's stomach, lay there.

Clay swallowed bile. Moore had been knocked backward. He fell. There was no movement. The huge, cauterized wound bled only a little.

"Cindy!" he yelled. "Hey, Cindy, wake up!"

It took a while. When she began to move he started talking to her. "It's all right, Cindy. You're all right. It's me, Clay. I'm up here in the air vent."

She turned to look up, saw only the white blur of Clay's face through the grill.

"You're all right, Cindy," Clay said. "Just don't look behind you. Go over to the door and do what I tell you."

Of course she had to look. She saw Moore's body, and she screamed. But then she was running to the door, and Max, through the communicator, was telling her how to reconnect the lock.

Clay took his time going back through the vent, moaning as he was gouged again by the sharp joints, let himself down, finally, into Pat Renfro's waiting arms. It was only when he was standing on the deck that his limbs got weak and he started shaking. The laser gun fell from his hand to clatter on the metal decking.

Jack Purdy had run into the room to seize the tube that had fallen off Cindy's stomach when she stood up. He used a portable scanner. It was not explosive. It was nerve gas. Enough to kill them all. The tube was shot out into space on a jet of compressed air. It exploded in the vacuum of space.

TWENTY-ONE

The view was best in the observatory, which, due to the tremendous demand, was restricted to officers, department heads with a legitimate reason for study of the planetary surface, and, late that first night, to one particular guest of the captain's.

Ito Zuki's navigation had put the*Spirit of America* into a circular orbit at an angle to the planet's

equator, so that the planet's rotation brought different surface features directly under her.

The captain had called Mandy in her quarters. She was already in bed, but she rose, dressed quickly, and met him in the observatory. It was the first time he'd made any overt attempt to be alone with her.

"I just wanted you to see it," he said when she came in, and her eyes went immediately to the big screen, the biggest on the ship and the one with the finest resolution.

"My God," Mandy said. "It's beautiful."

She'd known that; as department head for life sciences, she'd had access to the observatory. All over the ship, scientists were busy assessing whatever data was available. Everyone was pleased with the information. The planet's weather was much like that of Earth's. It had the same rotation-induced air currents, jet streams that would, in all probability, wander about a bit, giving them work to do, rains and snows and everything that was familiar.

Geologists with infrared equipment had spotted the heat of volcanic activity, just as it could be detected on Earth. Amando Kwait was fascinated by the huge areas of green that, at maximum magnification, proved to be a variety of vegetation perhaps as rich as that of Earth, if a bit alien in form now and then.

The*Spirit of America* was so near the surface in her shallow orbit just outside the fringes of atmosphere that her collectors could gather up a few scattered molecules of that atmosphere that had been tossed up, or drawn up, by the vacuum of space. There was oxygen, nitrogen, carbon dioxide, hydrogen, the same stuff as old Earth's air, minus the centuries-old accumulation of pollutants.

Just to look at it was a joy that made Mandy's tear ducts sting. And when Duncan played with magnification, picking out close-up views of vast, virgin plains deep in rippling grass, virgin forests with tree trunks the size of the main room in her quarters, wind-rippled lakes and seas, she had to sit down.

"That's the way Earth must have looked before we started building cities, roads, before we started cutting down the forests and draining the swamps," Rodrick said.

"Yes." She sighed. "With one exception."

"I know," he said.

She said it anyhow. "No life. There should be swarming herds grazing on those plains. Or perhaps giant reptiles in the marshy areas."

"Well, we'll soon know," Rodrick said. "We're sending Pat tomorrow."

"We've installed our equipment in his*Li'l Darliri,"* she said. "Smaller life, maybe. Or forest creatures."

It seemed so odd. The optics were strong enough to see an animal as small as a rat. Odd that hours of observation had seen not one animate thing.

"I understand that you've selected Dinah Purdy to go with Pat," Rodrick said.

"As you said about Pat, she's the best." She was silent for a moment. "Do you think it's a bad idea?" There had been some gossip around the ship after Pat and Jack appeared with bruised and cut faces. And no one could have failed to notice that the friendship between the two scouts had cooled.

"No," he said. "If you think she can handle the job better than someone else, she's the one."

They both knew that they were skirting the real issue, but to admit that there'd been anything between a

married woman and another man would open up a subject that each wanted, most of all, to avoid.

He could see that even his one question had made her uncomfortable. She knew that she was blushing. In her most bitter moments—remembering how Rocky had hoarded water during the crisis or his juvenile behavior on countless other occasions—or when she was tired and her thoughts unguarded, she often thought of Duncan Rodrick in ways no decent, married lady should think of a man. She was thankful that the lights of the observatory were on the red mode.

She changed the subject, indicating the viewscreen, where the planet was pictured in blues, greens, gold. "The Garden of Eden would have looked like that."

"Let's hope there are no serpents lurking in that deep grass," Rodrick said.

"Odd that it's the third planet from the star, like Earth."

"Not too," he said. "Not if you subscribe to the life-zone theory."

Idle chatter. Stating the obvious. But neither of them wanted it to end.

"We'll find out someday if the theory is correct," Mandy said. "It's my guess that Harry Shaw is building another ship right now. Someday we'll have established trade routes among the stars, and we'll have visited thousands of solar systems."

He was touched. Not since he'd told her that life on Earth could very well have ended during their trip out had she so much as mentioned the danger back home. He guessed that that thought was too terrible for her to face, that she refused to believe it, that she had to talk as if everything was fine back home.

What he had not mentioned was that there'd been two other starships under construction when they left— the*Karl Marx* and the*Estrela do Brasil.* Once they were on the surface of their new planet he'd set the ship's optics on automatic, to give the alarm if*anything* appeared in the skies. He'd promised Dexter Hamilton that he'd make this beautiful, virgin planet an American planet, a free planet. If he had to introduce the scourge of war early in its history to achieve that, he would.

She stood. "You're going to have a lot of work to do tomorrow," he said.

"I know. Dune, thanks for calling me. I did so want to have a chance to just ogle all that beauty in good company, without someone elbowing me or looking over my shoulder."

"My pleasure," he said.

"Come down to the lab when the readings start coming up tomorrow," she said.

"Just try to keep me away."

"Man," Clay said, "I want to live on that beach right there."

There was a close-up view of an island on the screen in the McRae[v]quarters. "Bet we could learn to surf, Cindy."

"Sure," she said.

For days she'd been quiet, moody, unwilling to leave the quarters, to get too far away from her mother. But she'd been coming around slowly. The excitement of the new planet on the screens seemed to have speeded her recovery.

"I'm afraid the captain will pick one of the larger land masses," Stoner said. "But probably near the ocean."

"Great," Clay said. "Hey, Cindy, let's go over and see if Pat's all ready for tomorrow. He's taking the *Li'l Darlin'* down into the atmosphere, and maybe even for a landing."

Cindy looked uneasy for a moment, then brightened. Betsy started to speak as they ran out of the room. "Let her go," Stoner said. "She's got to get back to normal sooner or later."

"Yes," Betsy said.

"They'll celebrate their fifteenth birthdays down there," Stoner said.

Clay and Cindy found Pat in the lounge most favored by the scouts and their wives. He was at the bar, alone and just a little bit drunk. Jack and Dinah Purdy were at a table toward the rear of the lounge. Dinah was one of Cindy's favorite people.

"Hi, kids," Pat crowed, throwing his arm over Clay's shoulder. "I was just telling the fellows about the time—" He went back to a flying story, using his hands to demonstrate some complicated maneuver. Jacob West and Renato Cruz, Apache One and Apache Two, were a rather uninterested audience. Cat, perched on his shoulder, watched every move of his hands until it noticed Jumper, then leaped down to sniff noses with the little black dog before starting a rollicking game of tag among the feet of the seated and standing scouts and wives.

"Hey, Pat," Clay said, "any chance of stowing away in*Li'l Darlin* again?"

"Love to have you, buddy boy," Pat said, "but I've got a full crew."

"Who gets to go?" Cindy asked.

The lounge had quieted when Cindy and Clay entered, so that their voices could be heard all the way back to the table where Jack and Dinah were seated alone.

"Well," Pat said, "the number one scientific passenger is Dinah Purdy."

Jack Purdy's face went white, then red. He glared at Dinah. "You didn't tell me," he said.

"I didn't want you to worry," she said. And that was true, in a way. But what she didn't want him to worry about was the fact that the pilot was Pat. She'd hoped that the crisis in their lives engendered by her affair with Pat was over. It was seldom mentioned; he'd been very good about doing his best to forget, if not to forgive. She hoped that once they were in their own home, down on the planet, and she could start a family, the episode would be a closed chapter.

"Who's going besides you and Dinah?" Clay asked, back at the bar.

"Me," said a nice-looking young man sitting on the other side of the two silent Apaches.

Dick Stanton was a member of Dr. Miller's life-sciences staff. He was in his middle thirties, had been selected as a single because of his work in, of all things, geriatrics. The other life-sciences staff members called Dick the young genius.

"You're lucky," Clay said. "I sure wish I could go."

"You'll have your share of adventure, buddy," Pat said. "There'll be lots of new planets in your future. Let us old-timers take our turn first, huh?"

Pat reached for another drink just as Jack Purdy came walking up to the bar. Jack put a hand on Pat's arm. Pat's eyes narrowed.

"Slow down," Jack said. "You're carrying precious cargo tomorrow."

"You let me worry about that," Pat said, jerking his arm away.

"I gotta say one thing about my laundryman," the entertainment robot Juke said. "He's never lost a single button. Buttons, no. Zippers,*yes."*

"How's it going, Juke?" Clay said.

"If you build a better mousetrap, you know what will happen?" Juke asked.

"No, what will happen?" Clay said, feeding him the straight line to get it over with. If he hadn't, Juke would have repeated the question.

"Better mice will beat a path to your doorstep," Juke said.

Ship's time: 0800. Eight a.m. Some of the parties were still going on. Pat Renfro had gone to bed at midnight, and he felt like a billion dollars. He'd put on his best flight suit. He picked up Dick Stanton and Dinah at the life-sciences offices. She took Pat's arm on one side, Dick Stanton's on the other, and walked through cluttered, dim areas to the pod ships. In the scout's lounge, the two Apaches and the other scouts made a place for Clay and Cindy in front of a screen turned to channel six.

"They're just out of the pod," Jacob West said.

Pat ran through his checklist, then said, "Elevator going down," and the*Li'l Darliri* dropped away, getting smaller and smaller, until someone on control turned up magnification.

"We'll all be going down soon," Jacob West said, his eyes looking far and away.

"Never thought I'd get*hungry* for solid ground under my feet,' Renato Cruz said.

"Hush," someone said.

Dinah was reading a list of figures. When she finished, she said, "For all you spectators, that means the air is sweet and pure up here in the fringe of the atmosphere. Tune in in a few minutes for the next chapter in this thriller."

"One hundred thousand feet," Pat said. "Going down, Skipper."

"I roger that," came Duncan Rodrick's voice. Rodrick was in the life-sciences lab. Mandy, looking efficient in a white smock, not only was receiving Dinah's oral reports but was monitoring the telemetered instrument readings aboard the scout ship as well.

"Seventy thousand. She's as pretty from down here as from up there. Fifty thousand. Leveling."

Dinah's voice gave numbers then. "Still as sweet as a baby's breath, kiddies," Dinah said. "No acids, no glop, no coal smoke. Our poor old dirtied-up earthly lungs will get drunk just breathing this stuff."

"Looks good, Skipper," Pat said. "Permission to go on down."

"That's a roger," Rodrick said. "But hold it to a close surface scan."

“For those of you who can’t see us,” Pat said, “we’re in the middle of that eastern hemisphere land mass, over the big, grassy plain. Two thousand feet, Skipper. Infrared scanner on. Air speed twenty knots.”

Control flipped up a picture, close, and there was*Li’l Darlin* just puttering along, almost hovering, over a huge, greenish-brown sea of grass. You could see the numbers on her wings.

“Life scan negative so far,” Dinah said. “If there’s anything alive down there, we’re not within ten miles of it.”

In the lab, Rodrick looked at Mandy. She made a “beats-me” gesture with her shoulders.

“Here comes the first of the airborne bacteria test readings from Dick Stanton’s analyzer,” Mandy said. Rodrick raised his eyebrows in anticipation. “Negative.”

“Curiouser and curiouser,” Duncan said.

The readings continued to come, and they continued to show that surprising lack of any life other than plant life.

“Permission to land for soil samples,” Pat said,

“Go get the dirt, Pat,” Rodrick said.

The little ship seemed lost in the vast sea of grass. The grass was incredibly tall. Dinah operated external robotic arms to pick up small amounts of vegetation and soil. When the samples were safely stowed in external holding areas, the ship rose.

“We are airborne at fifteen hundred,” Pat reported. “Scout control, please note handling characteristics here no different from those on Earth.”

“I copy,” Jack Purdy said from scout control.

*Li’l Darlin*spent an hour hovering over the forested area, heat seekers searching for sources of moving heat, animal life. Negative. A quick burst of speed, up and out of the atmosphere on a ballistic trajectory, took the ship to the western continent, where three hours of searching showed negative readings for animal life of any form.

Dick Stanton had had time to extend a probe down into the soil samples. He reported microscopic life.

“Well, at least we know that the grass is not a supernatural phenomenon,” Rodrick said. “There had to be some kind of bugs in the soil.”

“We’re going off to sea,” Pat said. “And then back home in time for supper.”

“Roger,” Rodrick said.

“And there has to be life in the ocean,” Rodrick muttered. “At least plankton. Otherwise we’ve got a supernatural oxygen-rich atmosphere that would be difficult to explain.”

*Li’l Darlin’*hovered over an ocean of some size, and the external arm sipped up surface-water samples.

“Okay,*Spirit,”* Pat said. “We’ve cleared the chore board. Coming home.”

He took her up slowly, giving himself time to run a checklist. He was a carefree pilot but a live pilot, and that meant he was a careful pilot.

“Skipper,” he said as his eyes began to read a host of meters and instruments in a prescribed order, “I’m almost in the mood to ask permission to open the hatch and take a real sniff of this air.”

“I believe, with some concentration, you can stifle that urge,” Rodrick said.

“Ah, roger,” Pat said. “Okay. Fuel tanks forty-five percent. Rocket heaters on. Cabin pressure normal. All systems go. Be home in a few minutes, Skipper.”

“Roger, recovery team is standing by.*Li’l Darlin* cleared for isolation bay W twenty-one,” Jack Purdy said.

Just a few more items on the checklist. Only the last one—hull temperature—showed red.

“What the hell?” Pat said.

“What’s up?” Jack Purdy asked quickly.

“Nothing,” Pat said. “Obvious malfunction in hull-temperature sensors.”

“What is your reading?” Jack asked.

“According to the sensors, we’re melting. Almost out of the red. “

“Eyeball check?”

“Normal. We’re loafing along here at seventy thousand feet, climbing at two thousand per minute. It’s the sensors, Jack. Couldn’t be anything else.”

“Is there discoloration on the wing surfaces?” Duncan Rodrick asked.

“Red, white, and true blue,” Pat said. “Negative to any discoloration.”

“Okay, Pat, probably the sensors,” Jack said.

“Hold one, Pat,” Rodrick said. “Level off at about eighty angles and hold.”

“That’s a roger,” Pat said. He looked at Dinah and winked. “They’ll hold dinner.”

“Pat,” Rodrick said, “have Dr. Stanton extend a probe and take a scraping of an outside surface.”

“Roger,” Pat said into the communicator. Then to Dinah, “What’s he thinking?”

“Got me,” Dinah said.

Dick Stanton used an external robotic arm, scraped a large area of the wing. “Pat,” he said, his voice tense, “take a look at this.”

“Christ,” Pat said, “how much pressure you use?”

“Minimal.”

Where the scraper had passed there was a gouge in the wing surface that had removed paint and, if their eyes were not deceiving them, a thin layer of heat-resistant alloy.

“What do you think?” Pat asked.

“Don’t know,” Stanton said. “Let me get it into the analyzer.”

“What report?” Jack Purdy asked.

“Hold one,” Pat said.

Aboard the*Spirit of America* it began to get tense as they waited. Mandy had stopped checking the readings of the telemetering equipment and stood looking at the screen.*Li’l Darliri* looked normal.

“What’s the story?” Pat asked as Dick Stanton bent over his analyzer.

“I am not believing this,” Stanton said.

“I have a low tolerance for fright,” Pat said. “Tell me, tell me.”

“It’s mush. I scraped mush. There’s paint and metal, and it’s all mush.”

“I have a larger tolerance for fright than Pat,” Dinah said. “Give me a glob of that stuff on the microscope.”

Stanton began to maneuver the arm.

“What do I tell them upstairs?” Pat asked, but he didn’t wait for an answer. “Uh,*Spirit,”* he said.

In scout control on the bridge Jack Purdy’s heart bumped. That was space-jock talk coming up now, the overly calm, cool, casual tone a man affected when he had his ass in a sling.

*“Spirit,”*Jack said. “Go ahead,*Li’l Darlin’.”*

“Uh, yes,*Spirit,”* Pat said ever so slowly, ever so calmly, “we got us a little challenge down here. Seems that the surface of our wings is turning to mush.”

Silence.

“You want to repeat that, Pat?” Jack Purdy asked. “Maybe translate it into English?”

“Okay, boy,” Pat said. “When we scraped a wing surface, paint and metal came away. Our resident scientists here describe the scraped material as mush. Now you know as much as I know, Jack.”

“Analyzed?” Mandy Miller asked sharply, leaning over Rodrick’s shoulder to use the communicator in the lab.

“Affirmative,” said Dick Stanton. “There’ve been molecular changes, obviously, although we don’t have the equipment to tell exactly how. Dinah has a sample on the microscope now.”

“Dinah?” Mandy asked.

“Hold one,” Dinah said. “I’m focusing.”

“Bridge. “ It was Rocky Miller’s voice. “I suggest that*Li’l Darlin’* blast up and stand by for pickup.”

“I’ll roger*that,”* Pat said. “Skipper?”

Mandy saw the look that crossed Rodrick’s face when her husband intruded, and she was ashamed, not of Rocky, but for him.

Rodrick said, "Yes, come on up, Pat, but take it easy and keep a close eye on the wings until you fold them." He flipped off the communicator. "How can there have been enough heat to melt paint and metal?"

Mandy shook her head.

"Something to simulate the effect of heat?"

"I don't know," Mandy said.

"Dr. Miller, this is Dr. Purdy, do you read?"

"I read, Dinah," Mandy said.

"I have on my scope about five jillion living things. I can best describe them as being similar to certain cancer virus. Over."

Mandy's face went white. Before she spoke into the communicator she yelled over her shoulder, "Get Dr. Rankin quickly." Rankin was the chief virologist on the team. He was in an adjoining lab, standing by. He was running into the room when Mandy bent to the communicator and said, "Are you sure, Dinah?"

"Seeing is believing," Dinah said.

"Hold one," Mandy said. She turned to Rankin, a tall, fleshy man with a balding head. "She says there's an organism, somewhat similar to certain cancer viruses, attacking the metal of the aircraft."

"Hmmm," Rankin said. "They have a full sanitation pack aboard, don't they?"

"Right," Mandy said.

"May I speak with Dr. Purdy?" Rankin asked politely.

Rodrick rose. "Just sit here, Doctor, and speak toward the grill."

"Uh, Dr. Purdy," Rankin said. "Can you hear me?"

"Loud and clear," Dinah said. She pushed the silencer and said to the others, "We've got Randy Rankin on the horn. If he can keep his mind off Mandy's legs, he'll tell us how to kill this little bugger."

"Dr. Purdy, in your sanitation pack you have a range of virucides with the following numbers—"

"Yes, one through thirty-four," Dinah said impatiently.

"Very good," Rankin said. "You will begin testing with number fourteen, and continue through number twenty. That should take you, ah, twenty minutes—"

"Dr. Rankin, we're not in a lab here," Dinah said. "We have to manipulate all materials with robotic arms. But we'll get cracking. Out."

"I'm coming up," Pat said. "We'll see what the vacuum of space does to these one-eyed monsters."

"Roger on that, Pat," Rodrick said. "Keep your channel open and give us a blow by blow."

"Roger," Pat said. "Arming one through four. All systems go. If any of those buggers are on the nozzles, they'll get a warm surprise. Firing—now. Up we go. Ninety thousand. Firing normal. Got you on visual, *Spirit.* Looking good. One hundred, one-oh-three. Acceleration max. Rocket burnout. Up and over and

here we are."

"Virucides fourteen, fifteen, and sixteen inoperative," Dinah said. "They seemed to thrive on it."

"My God," Rankin said, "she was operating during rocket firing, with those g-forces?"

"Wouldn't you, if it were you down there?" Mandy asked.

"Here they are," Rodrick said.

*Li'l Darliri*was motionless, about two hundred yards off the*Spirit of America's* port bow.

"Yep," Pat said, "you're looking very good,*Spirit.* Shall we come aboard?"

"Hold, Pat," Rodrick said. He looked at Mandy. "Your decision, Doctor," he said. He didn't like putting that load on her, but it was her field, not his.

"Captain Rodrick," Rocky Miller said from the bridge, "we have the isolation bay ready. Permission to bring them aboard."

"Mandy?" Rodrick said gently.

She strode to the communicator. "Dinah, progress?"

"Virucides through number seventeen have no effect. Hold one. Number eighteen seems to be exciting them."

Mandy smiled, misunderstandings.

"Damned excited," Dinah said in a harsh voice. "Number eighteen stimulated instant division in a few thousand and now they're having a feast or something."

Rankin's face went pale. "She's got to be misobserv-ing. Number eighteen is a shotgun virucide. It will kill instantly on contact any virus known to man."

"This one hasn't been introduced yet," Dinah said, because she'd heard, the communicator still being open.

"Bridge to captain," Rocky Miller said. "Permission to bring*Li'l Darliri* aboard."

Rodrick's face went stern. "No, wait," Mandy said, putting her hand atop his as he reached for the communicator switch. She flipped the switch to a bridge-only channel. "Commander Miller, this is Dr. Mandy Miller. Your request to bring the*Li'l Darlin* aboard is denied. Please stay off the working channel. '

Rodrick had to hide a grin.

"Okay, Dr. Rankin, " Dinah said when Mandy punched the communicator back to the*Li'l Darlin'* channel. "We're down to eight through thirteen. They're slow acting. Stand by."

"Skipper," Pat said, "we've just done a scrape job on the hull. From the looks of it, these things eat metal or something, or they exude some fluid that mushes the toughest alloys known to man. The scraper went a bit deeper than it did when we scraped the wing. I think you'd better get us aboard before we have a blowout. This can't help but weaken the hull."

Rodrick took a long time to answer. When he did, his voice was soft. "Pat, you've got a metal-destructing virus all over your ship. That virus has survived the most effective virucides we have. Keep checking the hull. When you think it's necessary, go on helmet oxygen in case of blowout. Do you roger that?"

"Got you, Skipper. You're right. Wasn't thinking. We wouldn't want this stuff loose on the*Spirit."*

"We've got everyone working on it. We've got some ideas," Mandy said over Rodrick's shoulder. "Dinah, try everything you've got on board. Start with germicides, work down through things as innocuous as detergents."

"Got you," Dinah said. "At least we don't have trouble getting cultures."

"We have some ideas?" Rodrick asked when the communicator was closed. Mandy looked pained.

"They have aboard, in the sanitation pack, just about every killing agent we have on the ship," she said.

On the*Li'l Darlin,* Pat had nothing to do. He tried to help Dinah, but got in her way. He dialed up the ship's computer and had Juke plugged into a side band, and got a joke before the music started.

"It's easy to tell when a space jock is over the hill; he asks for a slower spaceship."

"Juke," Pat said, "that makes no sense at all. Just play 'Spaceboogiebaby.' '

"That hurts," Dick Stanton said when the music started. He'd been making a new scrape for samples. He was rubbing his arm.

"Too loud?" Pat asked.

"My arm," Dick said. "Like fire."

Dinah stopped working and looked at Dick in concern. "Did you strain your arm or something?"

"I hurt all over," Dick said.

The brass blasted in on "Spaceboogiebaby."

"Symptoms?" Dinah asked. She was seeing panic form in the young doctor's eyes.

"Like nothing I've ever felt," Stanton said. "Like all my veins are on fire." He was sweating profusely. He began to move, to writhe, gritting his teeth. Dinah dived for a piston syringe, injected a sedative into Stan-ton's arm. He began to ease off.

The brass chorus ended, and voices sang about a space baby who boogied on the moon.

"I'm not liking this," Pat said.

"They're inside," Dinah said. "His couch is directly over the sample bins. Metal fairly thin there?"

"Not hull thickness."

"Let's get into our gear."

They closed helmets, closed gloves. It made Dinah's work more difficult, but she'd been running through all possible killing agents swiftly.

"Guess I'd better tell*Spirit,"* Pat said.

"Not yet. Give me ten more minutes."

She was down to her last hopes. But maybe some innocuous substance or combination of substances that would not make an Earth virus burp would raise havoc with alien life.

"Right now I'm washing the little bastards with plain bath soap."

"And she rocket boogied all the way home."

"About nuclear submarines," Juke said, "they have to face three major problems—enemy action, atomic radiation, and the mating season for whales."

"Thank you, Juke," Pat said, turning the channel

Dick Stanton screamed. He began to thrash around on his g-couch. Dinah injected him with a strong painkiller.

"Well, we'd better tell them," Pat said. Dinah nodded. But he got a grim look on his face and said, "Jack, I'm going to ease up about a hundred feet off the steering rocket just aft of the isolation bay. When I say go, have the chief give me a ten-second firing."

"That's crazy," Jack said.

*"Li'l Darliri*will take it. I want to see if we can burn these suckers off."

"Skipper?" Purdy asked.

"Chief, are you monitoring?" Rodrick said.

"Right here," Rosen said.

"Will the scout withstand that heat?"

"Hold one, Grace is running it through." Pause. "Tell him to make it one hundred twenty feet, tip of his bow to nozzle."

It took a few minutes. During that time Dick Stanton began to scream, and Dinah's strongest painkiller had no effect. Then, as*Li'l Darlin* was in position, he stopped moving.

"They don't waste*no* time, do they?" Pat said grimly.

"Pat, what you're doing. Is—"

"Not yet, honey," he said.

"But they're inside now," she told him.

"Yeah, I know, but if this works we'll know that they can kill these damned things with heat."

The rocket fired. A tongue of flame engulfed*Li'l Darlin.* When it was over the paint was blackened, and then when the scraper picked up blackened gunk and Dinah did a quick scan under the scope, the virus were dead. But when she took a sample from Dick Stanton's blood there they were, by the millions.

Stanton was dead.

"Honey, I feel a little funny," Pat said.

"Pain?"

"Slight burn in my feet and hands."

"Pat?" Rodrick was asking.

"Yeah, Skipper. Look, if you can flame the little bastards it kills them."

"Good," Rodrick said. "Take a few samples from the hull. We might have to give you a couple of more blasts."

"Well, that won't be necessary, Skipper," Pat said. "You see, we have this little challenge out here. We got those little bugs*inside* the ship."

"Oh, no," Mandy said. She leaned over. "Dinah? How do you know they're inside the ship?"

"Dick's dead, Mandy," Dinah said. "He died in just about twenty minutes from the time he started feeling pain, a burning pain in his arm. I think they got to him first because his couch is right over the sample bin. They must have come through the thin layer of deck there. I've tried everything in the kit, and the following combinations." She listed twenty-some combinations of chemicals and drugs.

"Are you and Pat all right?" Mandy asked.

Dinah didn't answer. She switched off the communicator. Through the helmet visor she could see that Pat's face was grim. He was grinding his teeth.

"Bad?" she asked.

"Pretty bad," he said.

"My fingers feel as if they're burning from the inside," she said.

Rodrick was pacing. "We could take them into the isolation bay, fill it with fire."

"Dinah," Mandy demanded, "are you and Pat showing symptoms?"

"Tell her," Pat said.

"I'm afraid so, love," Dinah said.

"If we bring them in, can you do anything?" Rodrick asked Mandy.

She swallowed. "Burn them?"

"Damn," he said.

"Hey, Skipper," Pat said. His voice sounded strange, strained.

"Yes, Pat."

"Listen, I think you'd better head on out. I don't think we're welcome here."

"We'll stick around for a while, Pat," Rodrick said. He'd been thinking, too, that there was no way to kill a virus that infected a whole planet, thinking that he probably knew now why there was no animal life

there. And it didn't matter whether they'd picked up the virus in the soil samples, the vegetation samples, or the water samples. It was there, and it had thrived on the best they could throw at it.

"Well, that won't really be necessary, Skipper," Pat said.

Pat took off his helmet. After a moment, Dinah followed suit. "I don't want to go like Dick did, darling. " The term of endearment came without thinking. She had loved him, loved him so much, and she had loved her husband, but it was with Pat that she was to die. Funny, all she felt was a deep, deep sadness. No panic. No fear.

"Neither do I. How do you feel?" he asked.

"It's spreading up my arms and legs." She squirmed, winced. "Stomach now."

"Me, too."

She wanted to be held. She had to admit that if she had been given a choice, she would have had Jack's arms around her, and she wished that she'd had the chance to tell Jack so, but she could not, for her whole world was listening, all those aboard the*Spirit of America.* Still, she wanted reassuring arms around her, and she would not even be able to have that because of the contours of their couches. She leaned toward him.

"Hey, big boy, you want to give me a kiss?'

"What, and catch something?"

He leaned to kiss her.

"I want to say good-bye to Jack," she said. She flipped the button. "Hey, big boy," she said.

"I'm here, doll," Jack Purdy said from the bridge.

"I'm going to miss the hell out of you."

"You don't know the half of it, doll," Jack said.

Jackie Garvey was crying.

"Skipper," Pat said.

"Here, Pat."

"Listen, when you find a planet with better manners than this one, name a river or something after us."

"That's a definite roger," Rodrick said.

*"Li'l Darlir*iover arid out, and I mean*way* out," Pat said.

That was the last they heard on board the*Spirit of America.*

"Want to go for a wild ride, baby?" Pat asked, having to gasp in pain between words.

"What do you have in mind?"

"Where do you think we picked up our passengers, water or land?"

"I don't know. Land, probably."

"Good."

He began to push buttons, did a little extra program on the ship's computer. He moaned, then bit his lips. Dinah was weeping with her efforts to keep from screaming with the flames of pain all over her body.

The*Li'l Darliri* tilted, and then all rockets fired. She went down like a falling star.

"The idea being, honey, to take a few of the little bastards with us," Pat grunted.

"I'm with you," Dinah said.

"Gimme hand," Pat gasped.

She extended her hand. The ship plunged down, down under full power. He was squeezing her hand hard, hard. And, with the last of his strength, he punched "Bridge Only" on the communicator.

"Hey, Jack?"

"I'm here, buddy."

"Want to give us your hands? One each?"

"You got them, buddy. Feel them?"

"I feel," Dinah said, and her voice was so full of pain that Jack felt the tears rush to his eyes.

"Hold tight, Jack," Dinah said.

"Tight as I can," Jack said.

The*Li'l Darliri* did not impact. She blew, fuel, armaments, total self-destruct mode, a few feet before she would have plunged into the summer-dried grass of the vast plain from which she had lifted the soil samples.

The prairie fire could be seen quite clearly from the*Spirit of America.* It swept across hundreds of square miles while the ship was being readied for the long, long haul out of the 61 Cygni A system under rocket power. The two inner planets were, respectively, a barren, heat-seared chunk of rock and heavy metals, and a poison atmosphere planet, much like Venus. The outer two of the five were gas giants.

"This is top secret," Juke said. "The Australian aborigines are working on their own atom bomb. It's a blow dart you dip in uranium."

"Just soft music, please, Juke," Duncan Rodrick said.

It was the first captain's mess dinner since the*Spirit of America* had hauled out of orbit and headed out of the 61 Cygni A system. There had been a ship-wide memorial service for Pat Renfro, Dinah Purdy, and Dick Stan ton. There'd been days when the whole ship seemed to be steeped in gloom and mourning.

Not everyone had been in on the conversations between*Li'l Darlin* and the mother ship, but they'd all seen the flame of her destruction, and they'd been informed of the meaning of the huge prairie fire on the planet below. In stunned silence they'd accepted the news that the beautiful, virginal, blue, 61 Cygni A planet was totally uninhabitable for human beings.

Commander Rocky Miller was on the bridge. He had not yet forgiven his wife for embarrassing him on the communications system. He had complained bitterly, to anyone who would listen, that the brave people aboard*Li'l Darlin'* might have been saved had the captain given permission to bring the scout ship aboard. He had tried that tack with Mandy, but only once. They lived in the same quarters during the days following departure, but it was in icy silence.

Clay and Cindy had had a good cry together.

"I'm going to grow up to be just like him," Clay told Cindy, speaking of Pat.

"And I'm going to be just like Dinah," Cindy said.

* * *

That night Mandy sat next to the captain. She had discovered that the captain was extremely human, that even he had his favorites. The small gathering consisted of herself; Jack Purdy, who looked stunned and as if he'd been drinking; Max Rosen and Grace Monroe, who looked at each other as if they'd rather have something other than dinner; Cindy and Clay; Cindy's parents, Stoner and Betsy; and Amando Kwait.

They were in a mood to talk of home that night, and Rodrick and Mandy listened and commented, and he felt, or imagined he could feel, her body heat in the chair next to him.

Clay was the first to begin to tell Pat Renfro stories, and at first Jack Purdy looked uncomfortable. Then he joined in his own story about the time he and Pat lifted a wrecked Airdart to the top of the commanding officer's quarters and left it there.

A time for healing, Rodrick was thinking. Good men. Good men all. And he thought about those on Earth, those good men and women: Dexter Hamilton, a great man, a great President; his wife, Jennie, whose love and devotion were no doubt two of the things that made Hamilton great; Oscar Kost, the crusty old scientist-professor, another great man, just like Harry Shaw, one of the most dedicated, intelligent, professional men he, Rodrick, had ever met. All of these people, and the millions and millions of other good people on Earth . . . Duncan wanted somehow to reach out and touch them all, wanted to know they were safe and well.

After everyone fell silent, Rodrick stood. "I'm pleased that you're here," he said. "I wanted you with me to give me courage while I make a little speech."

He picked up a portable transceiver, punched up the bridge, ordered Lieutenant Garvey to patch him in ship-wide.

"This is the captain speaking," he said. "I waited to talk with you until we could all absorb recent events. We've been through some dangerous, trying, and bitterly disappointing times together, but we've not given up. We are just beginning.

"I for one have high hopes and bright expectations. We are not intended to wander endlessly in space. I *know* that there is a place for us. And I pledge this to you. We will find that place and make another new beginning.

"We are faced with interstellar of travel to take the*Spirit of America* out of the gravitational attraction of the 61 Cygni A system, then lightstep to 61 Cygni's companion star, 61 Cygni B. That star has been shown to have a family of planets, although the probe was not near enough to determine if any of those planets hold promise.

“We have survived those who wished to destroy us. We have crossed the vastness of interstellar space, and we lost good friends doing it. That part of our trial is ended; those who were our enemies have failed, and now we have only to rely on our own considerable resources and keep our dreams alive. “

He sat down. Mandy reached for his hand, squeezed it. “Did I lie to them?” he asked.

“No,” she said.

But he felt that he had, that he had lied by omission. He had not told them that there was rhenium fuel for only one more lightstep, the relatively short step to the companion star. He had not told them that there was just enough rocket fuel left for minor course corrections, and for the final landing. He had not told them that should the*Spirit of America* fail to find a habitable planet in the system of the one star within her reach, she would have just two options: One, she could go into orbit around a planet and wait and pray that back on Earth they had not committed suicide, that Harry Shaw was building another ship, and that one day a ship would come to find them or their descendants, aboard the*Spirit of America,* still in orbit around a nonhabitable planet. Two, she could keep her angular momentum and fly eternally through space.

Those at the table, with the possible exception of Clay and Cindy, knew that.

“You did the right thing,” Mandy whispered.

“Good speech, Skipper,” Max Rosen said.

“I’ve enjoyed having you,” Rodrick said, standing again. “Feel free to stay and have an after-dinner drink if you like.”

She had a feeling that he was heading for the observatory. That was his quiet place.

She waited ten minutes, rose, said, “Good night, everybody.”

The observatory was lit by only the dimmest of red light. The huge screen was dark. For a moment she thought she’d been wrong, then her eyes began to adjust to the dim red light, and she saw him slumped down in a chair in front of the screen.

“Mind having the company of a fellow stargazer?” she asked.

ARRIVAL

TWENTY-TWO

Within seconds after the ship materialized in normal space after that timeless interval, void of sensation, during which she had lightstepped a few trillion miles, Rodrick felt that something was wrong.

“Systems check,” he ordered, an unusual urgency in his voice.

One by one, the systems chiefs reported optimum conditions.

“We’ve got just over six pounds of rhenium left in the Drive,” Max Rosen added.

“That’s cutting it close, Chief,” Rodrick said.

“Planetary search under way,” Ito Zuki said, and still Rodrick felt uneasy.

Lightstep had been made quickly following Dinah’s, Pat’s, and Dick’s deaths, intersystem cruising no

longer necessary, for they'd learned that the drive could be engaged in a gravitational field without the predicted disastrous explosion. However, a large margin of safety had been calculated at the materialization point. Now the*Spirit of America* was a tiny mote in the vast emptiness, her position being just under four billion miles from 61 Cygni A's companion star, 61 Cygni B.

Emi Zuki helped her husband process the flood of data being recorded by the ship's instruments. Emi had mental fingers crossed, and, just in case it helped, she was praying a bit. There had to be planets circling the companion star; there just*had* to be.

"Coming up on screen seven," Ito said, leaning back, forcing himself to breathe.

The B star was the center of the model emerging on the screen. She glowed more orange than Earth's sun, but was dim from four billion miles, having less visual luminescence than old Sol.

"Four planets, Captain!" Ito said, unnecessarily, since everyone on the bridge could see. "Distance scale, sir."

The first planet was close enough to the star to be Mercury-like—a charred, barren sphere of stone. Far out, too far away from the sun, too big, were two larger dots. Giant planets, on a Jovian scale, in distant orbits that would require many Earth years to circle the sun.

"The number-one planet is forty million miles from the sun," Ito said. "Number two. Hold on a minute—"

Rodrick wasn't listening. He was watching the figures form on the screen. He hissed through his teeth, almost a whistle. The second planet was 101 million miles from the sun. Earth was at a distance of 93 million miles from a hotter sun, a sun that released more life-giving energy. With a less luminous star and the greater distance, the second planet of 61 Cygni B just might prove to be a ball of ice.

Rodrick stifled an impatient reaction. He could see that the planet was on the far side of the sun from the ship's position. "Mr. Zuki," he said, "please give me a conjunction course."

"By applying full rocket power for fourteen minutes thirty-three seconds, we can come into conjunction in just over twenty-three months," Ito said.

"Thank you, Mr. Zuki," Rodrick said. "Chief?"

During operational periods all key posts on the ship were connected by the command communications system.

"Fourteen-plus minutes, all engines, would leave a surplus of about two hundred pounds per engine after a normal landing at Earth-standard gravity."

Rodrick didn't have to think long before deciding against that. He wanted to have more of a reserve than two hundred pounds per engine. The landing of the ship in gravity would be a ticklish operation, and the engines could burn over two hundred pounds in a simple course correction.

"Next best course, Mr. Zuki?" Rodrick said.

Ito was ready. "The orbital year of the planet is approximately fifteen months. She'll be at her closest position to us in about eight months, not enough time for us to meet her there. Next time around we could be there by firing for fourteen-plus minutes. Next best after that would be after another of her years."

Rodrick did not let his face change, but he saw a look of dismay come over Jackie Garvey.

"Commander Miller," Rodrick said, "please take the bridge."

He felt an impatience that was almost anger. To be aboard ship for thirty-eight months, three years and two months, before going into orbit around the planet . . . Of course that would give them time to gather more solid information about the conditions on the planet, but that wasn't much consolation.

Still, he had a choice. He could risk cutting it very close on rocket fuel for a landing—if a landing proved desirable or possible—and cut the time to just under two years. There was no hurry about making that decision. He needed some time to think. He walked swiftly to his favorite place aboard ship, the observatory.

The star, on maximum magnification, took up a quarter of the viewscreen. Rodrick altered focus, and the outer planets, the gas giants, were small discs. One of them had four visible moons speeding around it, The other had only two, one large, almost Mars size. The larger moon gleamed with a brilliance that indicated frozen surfaces.

The second planet was too far away to be seen as anything other than a tiny disk. It glowed, starlike, a tiny dot almost swallowed by the glow of the sun.

He felt an almost overwhelming urge to call the bridge, tell Ito Zuki to program for immediate rocket firing. But it would be a good planet or a bad planet. Nothing he could do would change circumstances determined aeons ago. Getting there quicker would not change the planet from good or bad.

His transceiver*ping'd.* It was Ito Zuki. "We have preliminary spectrographic readings, Captain. There's some oxygen in the atmosphere, and vague indications of free water vapor."

Rodrick's attitude soared. For a moment he envisioned great oceans, wide rivers, calm lakes, and fertile, beautiful land.

Once again there was the delicate but highly audible*ping* of his transceiver. "Captain," Ito Zuki said, "the astrophysicists won't go out on a limb and state it

definitely as yet, but there are strong indications that that planet is a king-sized one, about twice the size of the Earth."

"Thank you, Mr. Zuki," Rodrick said. That settled the issue; if the planet were twice the size of the Earth, it would have a higher gravity. More gravity meant more rocket fuel expended in landing.

He punched the communicator for a private channel to Max Rosen.

"Chief," he said, "the stargazers won't state it definitely, but it looks as if the number-two planet is twice Earth's size."

Max whistled and looked at Grace Monroe. He had grown accustomed to having her around. She had free run of the engineering sections, and she used engineering's computers for many of her own calculations.

"Well, let's not panic," Max said. "Not for another five minutes or so. Give us a chance to do some calculations."

"Meanwhile, Chief, work with Mr. Zuki. Get us aimed in the right direction for conjunction in thirty-eight months."

"Aye, aye,' Max said.

Max gave Ito Zuki firing times and sequences for six steering rockets, small thrusts that would adjust angular motion toward the distant conjunction point with a minimum expenditure of fuel. The possibility of having to take the ship down into a gravity well twice Earth strength hung over Max like a pall of doom. And that wasn't even taking into consideration the difficulties of developing a technology in two g's. Well, he'd worry about that later.

Grace had been working hard, hunched over a terminal.

"Checking me?" Max asked.

"Just doodling, really," Grace said.

He liked looking at her. In profile, her face was unlined, classic. He watched her for five minutes before she ripped off a printout and turned to him. "Max, take a look, will you? I think we need to run this through again. I could have missed something, and I'll admit to some rather broad suppositions."

He went to look over her shoulder. *"Hummm,"* he said. His face took on a look of pain. "Punch up the index on the Drive unit," Max growled, all business. "Section G, subsection fuel consumption."

Together they watched the figures slide by. Max sighed. "Well, let's run it, the whole thing, going back to Harry Shaw's original equations."

Time passed. She began to admire, more than ever, the genius of Harry Shaw.

She stopped, sighed. "Here's where the uncertainty factor first shows up."

"That's the part he kept secret," Max said.

"Do you blame him? Would you want to be known as the person who created the biggest bomb ever?"

"If these equations had been right," Max said, "we'd have blown, taking a good part of the galaxy with us. "

"Maybe we did blow," Grace said, "and now we're all composed of antimatter. Remember what Emilio Segre said? 'When God made the universe is there any reason to believe He preferred matter to antimatter?'

"So?"

"Bear with me," she said. "We know Shaw was wrong in thinking that we'd explode if we activated the Drive in a field of gravitation. We're working with a totally new reaction about which we have so little data."

"I see where you're headed," Max said. He was in his element. He had a problem to solve, and a fine mind to work with in Grace. Together, they tied up a good portion of the ship's computer capacity. They created worst-scenario models for the computer to chew on, charging ahead at times, backing up and checking repeatedly at other times.

They'd been at it for six hours. When they were sure, Max keyed Duncan Rodrick's private call signal.

"Did I wake you?" Max growled.

"Just lying here waiting for you to call," Rodrick said, his voice sleepy. "What's happening?"

"If you can come down here, it might make up for being waked up," Max said.

Within ten minutes Rodrick was there, looking as if he'd been alert and awake for hours. Max handed him a mug of coffee. He let Grace do the talking. After all, it had been her idea.

"Okay," Rodrick said, after listening for fifteen minutes. "Here's the way I understand it. Not only was Harry Shaw wrong about the explosive potential of the Drive in gravity, he overlooked some other vital calculations."

"We're not trying to lessen Dr. Shaw's achievement," Grace said. "He's the inventor, the genius who made star travel possible, but he was working under pressure, and he had to deal with a tremendous number of random factors. He had to make one set of choices without time to explore the others. We just happen to have stumbled onto another set of choices."

It was time for Max to take over, to add his credibility to the daring proposition. "Shaw didn't realize that the reaction takes place so quickly that there just isn't time for an explosion before the ship disappears out of normal space and all the old rules fly out the window. We feel, also, that he underestimated the potential of the energy produced. That's the key. We feel that the energy released is proportional to the number of antimatter particles used in the bombardment, not to the size of the rhenium mass."

"You're saying that we could have made lightsteps with smaller amounts of rhenium consumed?" Rodrick asked.

"A fraction," Max said glumly. "We can lightstep to within a few thousand miles of the second planet with the six pounds or so of fuel we have left."

For a moment, Rodrick lost himself in useless regret. So much precious fuel wasted, enough to explore a large number of stars and still have enough to go home on. But it was done and over. He brightened. If they were right, they could jump to the neighborhood of the planet and be in a stable orbit within days, rather than over three years.

"Run it by me, one more time," he said.

Max gulped coffee before speaking. "If we're dead wrong, we blow up. If we're right, we go into planetary orbit with all the rocket fuel aboard, and we'll need it if we've got two times Earth gravity. In the middle, maybe nothing at all will happen."

"Or maybe there'll be just enough energy created to shove us out of normal space and leave us stranded," Rodrick said.

"I don't think so," Grace said quickly. "Coming back is automatic. Once the energy is expended in the lightstep action, the ship falls back into normal space for lack of energy to continue the abnormal state."

"I'll sleep on it," Rodrick said. "Meanwhile, just as a double check, have Emi and Ito go over your computer work."

"When do*we* get to sleep on it?" Max asked.

Rodrick laughed. "Hang in there, Chief. No one ever died from lack of sleep."

Ten hours later Max pushed a button. Antimatter particles poured in a steady stream into the reaction chamber of the Shaw Drive.

Duncan Rodrick's first reaction was sheer elation. There on the viewscreens swam a blue world, an air-and-water world, a good, blue world that was so beautiful it took his breath away. A hint of gold and green showed through white clouds. There were oceans and land masses down there. Jackie Garvey

started the cheer, which was joined even by Rocky Miller.

She was a good planet, Rodrick was thinking. He knew it, could feel it. There were no more of those eerie crawling feelings at the nape of his neck. Max and Grace had devised an engineering breakthrough that had saved them over three years of slow cruising. And there was something else, something very important: Instead of tons of rhenium to be found, mined, refined, they'd need no more than thirty or forty pounds. The*Spirit of America* might be going home sooner than anyone had dared hope.

For once, Rodrick's caution deserted him. He felt too damned good, and the planet was too beautiful to keep the wonderful news secret any longer. He told Jackie Garvey to give him an all-ship's hookup.

"Well, gang," he said, relaxed, cool, "we've done it. If you'll check your screens, you'll see a pretty decent-looking water world off the bow, dead on, as big as about a hundred full moons and twice as pretty.

We've got everyone working, and we'll have the facts for you very—" "Captain!"

Rodrick paused. That feeling of impending doom was suddenly back with him as he looked at Ito Zuki's tense face.

Duncan Rodrick was not a man who never goofed, but he was a man who goofed very seldom. He'd spent his life working in the totally hostile environment of space, where a serious goof was lights out, baby. The goof he made when he saw the frightened look on Ito Zuki's face was not serious. He simply forgot to order Jackie Garvey to close the all-ship's circuit, so that Ito's voice was transmitted to every screen aboard the*Spirit of America.*

"Captain, ' Ito Zuki said, "she's four times the size of Earth."

Rodrick felt his facial muscles freeze in the smile he'd been wearing. Jackie Garvey impulsively closed the all-ship's circuit.

"Repeat, Mr. Ito," Rodrick said.

"Diameter at the equator is approximately thirty-two thousand miles," Ito said. "Full scan under way, sir." Ito had calmed, but all over the ship they had heard.

But four times Earth gravity?

A 120 pound woman would be carrying around the equivalent of 480 pounds.

"Very good, Mr. Ito," Rodrick said, with that feeling of doom now justified, now quite real.

So this is it, Rodrick was thinking, the end of the line. They had no other place to go. Even if he was damned fool enough to land the ship on a planet with four g's, he didn't have the rocket fuel for it. He'd use a small amount of the fuel putting the ship into orbit around the monster planet, and there she'd stay until—

Until what? Until everyone aboard died, and a new generation had been reared, trained to keep the life-support systems going? Until a starship from Earth came out to see what had happened to the first colonization attempt? Until the well-functioning machinery and life supports of the ship fail of extreme old age?

He'd grow old while the*Spirit of America* swam in her stable orbit a few thousand miles above the beautiful surface of a beautiful planet that was just about as deadly to human life as had been the virus

planet back at 61 Cygni A. And there'd be not one damned thing he could do, because human bones were not made to carry around four times body weight. Oh, they could send down a scout ship or two and maybe even transfer a few sturdy men, like Stoner McRae, down to surface-side for some minimal work, but those men would never be able to perform in four g's to mine rhenium, to build the complex factories to manufacture rocket fuel.

There was a grim silence on the bridge. Rodrick found himself looking at Mandy. In his mind he could see the dull, fruitless years passing, see her face lose its beauty and become old, and she'd still be married to Rocky Miller.

The impact of Ito's revelation was, perhaps, most immediate on the bridge. Jackie Garvey made no attempt to stop her tears. Emi Zuki reached for her husband's hand and clung to it fiercely. They had been talking, just the previous night, of how they'd start a family now that the journey was ended. First Officer Rocky Miller's eyes went first to Rodrick, and it was fortunate that Rodrick did not see the look of disgust on Miller's face. But Mandy did.

Thus it was that Mandy received the dreadful news that the new planet would, in all probability, be uninhabitable, with mixed reaction. Her face flushed with quick resentment when she saw the look of open contempt for Duncan Rodrick, and then her heart went out to Rodrick, for she could imagine how he felt. He would assume total responsibility for the failure of the mission. It was only after long seconds that she began to think of what the development meant to her personally.

As head of life sciences, her responsibilities included looking after the health of over one thousand people. With nothing to anticipate but endless decades of waiting, of living in the confinement of the ship, she was sure there d be some adverse reactions. There would be the shock the passengers would feel to be faced with breathing recycled air, eating recycled food, drinking recycled water forever, in a completely sealed environment. She made a mental note to check with the BioMed techs on her staff, to be sure the pharmacy was well stocked with sleeping pills and tranquilizers.

Many of the colonists were gathered in the community rooms, where the viewscreens were larger. They, too, had cheered when the big, beautiful blue planet filled the screens. They sobered when Ito Zuki's excited voice gave them the chilling news. There was not a person on board who did not, almost immediately, connect the planet's size with her gravity and realize that it would be just as impossible to settle on that planet as it had been on the planet of 61 Cygni A.

They were stable people, adaptive, well educated, but still women and men wept, faces paled, or clamped teeth together, jaw muscles tightening.

The McRaes were in the family quarters with Clay. Betsy realized the implications of Ito's words immediately, and her first thought was for her husband. Big Stoner had always been an outdoorsman. Before Cindy's birth, Betsy had accompanied him on trips to some of the wilder spots on Earth, and he thrived on open air, mountains, areas of barren rock and sun-heated sand.

"Oh, Stoner," she whispered.

Stoner reached for her hand, but his eyes were on Cindy. She'd never again know the feel of new spring grass underfoot, never swim in an ocean. And unless a rescue ship came out from Earth, it would be kids like Cindy and Clay who would have to be trained to keep the ship's systems functioning, kids like Cindy and Clay who would consign the bodies of the adults to space or to the ship's organic materials reclamation system.

Stoner was almost never depressed, but he felt the deep, purple miseries begin to eat his liver. Somewhere in the universe there'd be dozens of planets, all with good air and water and sensible gravity,

with large fields of high-grade ores to be mined. But he'd never, never set foot on good ground again, would never chip virgin rock with his hammer again, never have the gut-thrill of searching the good earth for its hidden treasures of heavy metals.

It took Clay to bring him out of it. Clay looked first at Cindy. He punched her lightly on the shoulder and said, "Hey, don't worry. It'll turn out all right. Maybe they're wrong."

"I don't think so, Clay," Stoner said.

"Well," Clay said, "I'll bet they're already building another ship back on Earth. At the most we'll have to wait a couple of years. Heck, before the chief figured out how to make the last lightstep, we were facing over three years on board."

Stoner grinned. Ah, the eternal optimism of youth. But what the heck. It was better to be optimistic than to give up. "You're probably right," he said.

Then he considered what it all meant to Betsy. He grinned at her. "Well, at least we're all together."

A small black dog leaped up onto Stoner's lap, got in one quick, loving lick on Stoner's face before Stoner, laughing now, caught the dog's head and rubbed it fondly.

"See," Clay said, "even Jumper is telling you it's going to work out."

TWENTY-THREE

The*Spirit of America* was the sum total of all man's technical knowledge. The nation of which she was the peak technological achievement had pioneered in the microelectronics that made her possible, and, even when bitter and total disappointment momentarily overcame the men and women aboard her, she continued to function automatically, dependably, untiringly. The advanced computer instruments sorted and correlated and spewed out thousands of words and symbols.

At first only one intelligence noticed. And, the admiral decided, it was not up to him to remind the humans on the bridge that the second planet of the star 61 Cygni B was not following the rules. He had taken over control of Emi's console, given the computer an order, and interesting figures had begun to flash on Emi's screen and on the main screen.

"What's happening, Admiral?" Emi asked, for she had not programmed any printout. Then it began to register through her gloom. "Captain!" she called.

Duncan Rodrick had been deep in his own thoughts. He looked at Emi, then at the screen.

"Hey," Ito Zuki shouted. "What's this?"

*This*was instrument readings. The planet was*still* roughly four times the size of Earth, but the mean density figures were*very* interesting, much less than the 5.52 grams per cubic centimeter of Earth standard.

"Woo-hah,' Ito yelped, losing his calm. "Gravity figures, Captain! Look at this!"

Nope, the big planet wasn't following the rules at all. Four times larger than Earth, almost three times less in mean density, she was a freak, a puzzle. Gravity showed at just a few points less than Earth normal. It didn't make sense, but there it was on the screen.

"Hey,' Jackie Garvey said. "We can*live* down there."

"Fresh air and sunlight," Emi said. "Oh, Lord."

"Lieutenant Garvey," Rodrick said, "all-ship's circuit, please. ' And then, for all to hear, "I have some good news for you. It seems that our first assumption that the planet would have a gravitational force in proportion to her size was premature. We're still checking, but preliminary readings indicate that as far as gravity is concerned, the planet will be quite livable."

Rodrick smiled at Mandy, winked. There was, he felt, no need to wait to learn more about the planet. "Chief of Scouts, Lieutenant Garvey," he requested, and when Jack Purdy answered, Rodrick said, "Jack, it's time one of your boys went on a little ride."

"Yes,*sirl"* Jack responded. "We're ready and eager."

"Whom did you pick?" Rodrick asked.

There was a moment of silence, then, "I thought I'd take the first look myself, sir."

Although he'd expected that reaction from Purdy, Rodrick mused for a moment. Pat Renfro had been Chief of Scouts when he took his ship down into the atmosphere of the killer planet of the A star. Purdy, who had lost his best friend and his wife, could be expected to do no less. "Okay, Jack. Saddle up and move out. Call when you're detecting the upper fringe of atmosphere."

"Aye, sir," Purdy said.

"Jim Mathison wants to talk with you," Jackie Garvey said.

"Put him on the line."

"Captain?" Mathison's voice was tinged with a New England accent in an age when accents were almost a thing of the past. He was Chief of the Astronomical and Geophysical Section.

"Yes, Jim."

"We're going bonkers down here."

"So what else is new?" Rodrick asked.

"The density of that thing out there is not to be believed," the geophysicist said. "Or, to state it more accurately, the lack of density."

"Conclusions?' Rodrick asked.

"No heavy metals," Mathison said. "Lots of silicons, maybe some light metals. Our best guess is the core is molten silicon."

Rodrick had not heard past the first statement.*No heavy metals.* That meant no rhenium.

"Thought you'd want to know," Mathison said into the silence.

"Yes, thanks, Jim."

No heavy metals. No gold, no lead, no iron, no rhenium. If the ship landed, she'd never leave again—not unless a ship from Earth came with a supply of rhenium.

Jack Purdy, encased in space armor, wriggled his way into the acceleration couch aboard his scout ship,

Dinahmite. It took a few minutes to close her up and check her out. She'd been sitting idle for over three years now, but she'd come through—with regular maintenance, of course—like the champ she was. He felt no change in pressure inside the ship's stout hull and his armor when the outer door of the pod chamber opened, after having been bled of its air.

He saw a glare of sunlight. Automatics edged the scout forward on rails. It was almost as if the mother ship spit the small craft out into the sun's glare, and as the scout cleared, Purdy expertly applied a tiny blast of power and the scout eased away into space.

He oriented the ship with thruster jets, checked instruments, set the ship's computer, then pushed a button and felt the immediate g-forces of rocket firing, accelerating toward the rapidly growing globe of the planet until it seemed to fill all space. One of the planet's two moons was off to his left, a globe about twice the size of Earth's moon, and as barren. 61 Cygni B was a bright, orangish fire in the right half of his visibility.

Instruments ticked and purred in the silence of the scout's cabin. Purdy's eyes were now on them, now on the growing bulk of the huge planet. The sunrise line was moving toward him from his left; on the day side, over a huge, blue ocean, a cyclonic storm made a pin wheel pattern. A large land mass was already showing color, the green of vast forests.

At the preestablished distance, determined by the planet's size and an educated guess as to the height of the most wispy tendrils of atmosphere, Jack leveled the ship, reported his position to the*Spirit of America.* Rodrick himself was on the communicator.

"Going down, Captain," Purdy said.

Jack would not be able to complete thorough analyses of the samples because he was not a scientist. But after the mishap with Dinah, Pat, and Dick, Duncan Rodrick was not about to risk the lives of three valuable scientists. Jack would collect samples, and further study would be completed on board the *Spirit.*

Jack killed forward speed. He could see the larger moon and, far off, the reflected pinpoint of light that was the*Spirit of America.* The scout, sitting on her rocket tubes, continued to drop until a telltale beep sounded, indicating that the air scoops had found something.

Automatic analyzers' verdict: scattered molecules of oxygen, hydrogen, nitrogen.

"Looking good, " Purdy said, "and going down."

At first he feared that the atmosphere would be too thin, too sparse in oxygen, because it did not begin to thicken when the scientists had figured it would.

He was down to sixty thousand feet before more than scattered molecules could be collected, and he held there while the analyzers did a more thorough job of virus and germ detection . . . like those that had killed Dinah, Dick, and Pat.

"All clear on the bad guys," Jack sent. "Going down."

He let the ship tilt, fall; he fed power, was now supported by lift on the unfolding wings. Lots of land down there—trees, big ones. One helluva big muddy river, coming out of the jungle, made the Amazon look like a creek.

"Hey, gang," he said, speaking up to the mother ship. "We got life signals!"

“Please relay, Commander Purdy,” a voice said, and he recognized the soft voice of Mandy Miller. He pushed buttons. Signals from the scout’s sensors were automatically relayed upstairs.

“Are you photographing, Commander Purdy?” Mandy asked.

“That’s a roger,” he said. “Life signals coming from deep jungle, Doctor. Big ones.” “Yes, I see,” Mandy said.

“Air pure,” Purdy said. “Like Earth air without the smog.”

But they’d heard that before, back on the planet that had proved deadly. “Permission to make a low run?” Purdy asked.

“To five thousand feet,” Rodrick said. “Find yourself an area without life signals.”

Jack juiced the scout, rose to get a better view, then arrowed south of the equatorial jungles from which the strong, impressive life signals had come. There was a continent down there, as if to balance the northern continent, a huge range of snowcapped mountains on the western shore, blocking the ocean air from the interior and making for a fair-sized desert. He went down, drifting at five thousand feet, his senses alert, his eyes on the bug detectors. Nothing but pure air, but then the medics had concluded that Pat, Dick, and Dinah had picked up the virus from the water or the earth while taking samples.

“Very, very pure,” he said. “Going down, Captain.” “Not yet, Jack,” Rodrick said. “Let’s hold off.”

“Aye, sir,” Jack said.

“Go up to one hundred thousand feet and do an orange peel,” Rodrick said.

That meant circumnavigating the globe at top speeds, altering the orbit so that the route covered all areas of the globe below. It took time and consumed fuel, but it allowed the ship’s cameras to photograph every inch of the planet’s surface.

Then it was time to go home. He brought the scout in close, subjected it to a close-on scan of the ship’s detectors, and then, even though no foreign body was detected, he, on captain’s orders, flew the scout through a quick firing of one of the ship’s rockets, purifying it with fire. Another check in the pod, which was sealed off from the rest of the ship. When he finally got out of the scout and his armor, he was tired and hungry.

It took two days for the ship’s computers to enhance the photographs and build a model of the planet. Photo maps were made during the process. Finished, the model of the planet could be projected holographi-cally. The globe seemed to hang in midair in the observatory. Other, smaller, models were projected elsewhere in the ship for study by the various groups of scientists.

A scout landed on the larger moon to find it a sterile, airless world, of the same mean density as the planet. That meant no metals on the big moon. The smaller moon, half Earth moon size, was the same.

TWENTY-FOUR

Jack Purdy took his ship slowly away from the*Spirit of America* and blasted down toward the big planet. He’d been chafing to get down there again. The two-day delay while the holographic models and area maps were being made had threatened to make his blood pressure rise.

He leveled off at an angle down into the thickening atmosphere. The heat shielding began ta glow before he slowed at fifty thousand feet.

"Uh,*Spirit,"* he said into the communicator, "I'm holding."

"Holding what?" Jacob West asked. Jacob had been advanced to second in command of the scout group after the death of Pat Renfro.

"That's what I like,' Jack said. "Strict military procedure." But he was grinning. Jacob West was a good man. "Systems check, connect me with the Doc."

"Dr. Miller," Mandy Miller said. "We show all analyzers functioning, Jack."

"Control, permission to go down for a drink," Jack said.

"That's a roger," Duncan Rodrick said.

He had orders to stay strictly away from the jungle areas where he'd picked up some surprisingly intense life signals, maybe elephant-sized. He stood the scout on her nose and went down, pulling out at less than a thousand feet over the western ocean.

Overhead, 61 Cygni B was a bloated, orangish blob, which became an orb when he looked at it through a filter. She was classified as a K7 star, big, in scale with the planet she had spawned, twice Sol's size, but cooler burning, dimmer. The shift toward orange made the clear, clean waters of the sea beneath him seem darker, richer, and the white clouds on the western horizon had a softness to them, which, had he not known where he was, would have told him that he was not on Earth.

"Going down," he said, easing the ship lower, flipping the jets to hover, forward speed cut to zero.

"Well, kiddies," he said, without activating the command communicator, "here we go." He was seeing them, their faces, laughing, old Pat and Dinah. And they seemed to say, in his head, "Nothing to it but to do it, buddy." Back there on the other planet they had done the same maneuver.

Not much seawater was needed for a sample. The little ship's computer began to click while Jack held his breath and thought of Dinah. She'd always be with him. She'd had so much love in her, too much, considering the fact that she'd shared that love with his best friend and commanding officer.

"Doc," Jack said into the communicator, "we got here some plain old seawater. Seawater got salt. Seawater ain't got bugs. Cept some little plankton things. What do you see?"

"It looks very good, Jack. Stand by," Mandy said.

He knew that all of*Spirit's* resources were being used to back up the automatic analyzer on board his ship, and he was whistling into his space helmet while he waited. But he let his eyes stray, now and then, to the newly installed instruments that kept close tabs on the metal hull and wing surfaces of the ship.

Aboard the*Spirit of America* Duncan Rodrick took his portable transceiver into the life sciences lab. Mandy and her assistants already had enlarged images of the minute sea creature on screen.

"If I remember from my two required courses in biology," Rodrick said, "those things look very much like plankton."

"Amazingly so," Mandy said. "They could have come right out of the middle of the Atlantic."

"Anything else?" Rodrick asked.

"Commander Purdy's analyzer is going into the last microphase now," she said. "Coming up."

He watched the screen.

Jack Purdy checked the hull analyzers. On Pat's ship the surface had gone mushy; his ship was still very, very solid. He heard a buzz of power and knew that the water analyzer had used maximum magnification, held his breath for a moment as the results began to appear on his small screen.

"Negative on the bugs," he said. "Negative on viruses."

"Very clean water, Jack," Mandy said to him.

Mandy had been very worried. Virus had an infinite capacity for variation. When she thought of the multiple miracles of the varied forms of life on Earth, she had difficulty believing that the same set of conditions, the same actions of the elements, could, ever again, any place in the universe, lead to the same sort of life that existed on Earth. It was much more logical for the conditions and elements to achieve only a low life form, a virus, as had happened on the planet of the A star.

To find plant and animal life in the ocean of the big planet gave her an eerie feeling. There was animal life in Jack's sample of water, the same general types of animal life—minute, capable, perhaps, of growing into larger animals—that one found in Earth's oceans.

She was reminded of a talk she'd had with one of the astrophysicists during the trip out. "When scientists first began to delve into the secrets of the universe," he'd said, "they ran up against fundamentalist Christianity. When a man dared say that the fossiled bones in the living rock of the Earth were older than the four thousand plus creation date assigned by preachers, he was hounded. Darwin, of course, is a prime example. In a way, it was science against superstition, and it was quite natural that scientists became embittered and turned against the fundamentalist teachings of the church. Quite obviously, God did not create man at 9:00 a.m. on an October morning in 4004 B.C. and then take out a rib and make woman. For a long, long time it seemed to be the thing to do, if one were a scientist, to say that God was dead. Then we picked up the lingering echoes of the big bang. All of a sudden we had proof that this universe of ours had not existed forever, but, at a measurable time in the past, had exploded from *something,* sending all the building blocks that became suns and stars and planets and all the matter of our universe expanding ever outward. And, faced with a pure act of creation—well, creation demands a creator, and with not one scientist able to guess or explain what was there*before* the big bang ..."

*Faced with a pure act of creation.*Life. Life that had followed a parallel development to life on Earth. Even if other findings revealed life of a totally different form, however bizarre, the living plankton, plant and animal, in the ocean on a planet some trillions of miles from Earth gave one something to think about. The odds against life developing spontaneously, under the most improbable of conditions, were just too high to account for two identical accidents.

Duncan Rodrick, in consultation with key members of the scientific community aboard ship, had chosen the area where Jack Purdy would collect soil samples. There were eight different groups of major land masses on the planet: Two medium-sized polar continents stretched from icy waters to tundra and forest. One of the polar continents was narrowly separated from an elongated land mass by three mountain ranges. The elongated continent extended through the northern temperate zone past the equator, and it was there, in the equatorial jungles, that Jack Purdy had picked up the strongest emanations of living things.

Rodrick had watched with interest the progress of the geographers, and he never tired of sitting in the observatory watching the slow rotation of the large model of the planet. Lord, she was big. You could take all of Earths land masses and squeeze them together—as if returning them to the primordial continent of Pangaea before continental drift separated them—and fit them neatly within the confines of that one big

mother of a continent that spanned the northern temperate zone down past the equator into the southern ocean. Big. That's how he'd started thinking of the planet, with a capital B. If Columbus had faced that expanse of ocean from the western shore of the largest continent, instead of the comparatively small Atlantic, the mutiny of his sailors would have been assured, and his supplies would have been gone long before he sighted land.

The geographers would have to decide how many oceans, how many seas. Hell, there was an inland lake almost as big as the Mediterranean on the big land mass. And they didn't even know, yet, whether the water there was fresh or salt. There was a lot they didn't know about the planet. It would take too long to explore it, even with modern technology. Low-level searches by the scouts would consume weeks. Meantime, Jack Purdy was down there, rarin' to go.

"Spirit, this is Purdy. "

"Go ahead, Jack," Rodrick said, standing beside Mandy Miller's lab table, watching images of tiny animals swimming animatedly, the images having been reduced to electronic pulses and transmitted up from the scout.

"I've got me a real urge to test my green thumb, Captain, to go diggin' in the dirt."

"Contact when you're in position, Commander," Rodrick said.

Rodrick had discussed it with that group of people who had become his unofficial board of advisors. Stoner McRae voted for a landing as soon as possible. Others were more cautious. Mandy Miller, for one, suggested that a thorough survey of life forms be made before even one man was risked on the surface. But even Mandy knew that they had no choice. Due to the fuel situation, it was this planet or none. Rodrick was sure that if a general vote had been taken, the overwhelming majority would have voted to land instead of spending months in orbit checking things out.

Jack Purdy had stated bluntly, "If there are things down there that will not tolerate human life, I want to know now." It was Jack's way of saying that he didn't care to spend the rest of his life aboard ship, regardless. He'd like to be the one to find out and get it over with.

Rodrick had tentatively made up his mind on a landing site, but he had not as yet made his opinion known. He admitted to himself that a certain amount of sentimentality went into his preference. It was still impossible for anyone to state just where primitive man evolved first on the Earth, although there were many who opted for Africa. Rodrick, along with many learned anthropologists, was of the opinion that similar processes of evolution were occurring simultaneously in the ancient world. There was, however, solid archeo-logical proof that civilization began in one specific area of the world, an area that had some particular geographical features.

Civilization, Rodrick reasoned, did not come about in the tropical or semitropical paradises of Earth, where there was plentiful drinking water and rich food for the plucking. Civilization had come as a result of man having to work against a sometimes harsh environment, where he had to labor in order to produce food, where cooperation among people was necessary to overcome often adverse conditions.

Ancient Egypt had had to learn to contend with alternate drought and flood. The Sumerians had been forced to learn how to utilize the floods, too, and to develop intricate irrigation systems. At the time of the rise of the first ancient civilizations, man was omnipresent on all land masses of Earth, but writing, architecture, mathematics, the scientific observation of nature, all developed under conditions more harsh than those faced by men who lived in a climate of plenty.

Paradise, Rodrick knew from his history, tended to make men lazy and content, but challenges brought

out the best in them. French colonists in Polynesia watched the swaying of firm, native female hips and plucked fruit from the trees; American settlers faced a fearful wilderness, wild animals, a hostile native population, and built a country that crowned man's governmental achievements.

He would not set the ship down in the midst of a fearful wilderness, nor in the middle of a desert. But he had his eye on a certain place that had certain things in common with a couple of the seats of ancient civilizations on Earth.

On the western shore of the largest continent, cut off from the vast interior by a range of rugged, arid mountains, lay an area of gentle, rolling hills, dry upland plains, and lush narrow river valleys. Along the northern coastal area of the secluded plateau, a range of low mountains showed a few snowcapped peaks and rather gentle slopes covered with tall trees, which, in computer-enhanced photographs, looked very much like Earth conifers. Farther north, past the forested coastal mountains, a huge river made its way to the sea, having originated in distant, inland mountains and highlands, through a desolate region much like the Sahara.

Offshore, even farther north, well into the cooler part of the northern temperate zone, were four islands.

While it was true that the colony would not need to build seagoing ships, man was a water-oriented creature. The sea and its shores attracted him. Amando Kwait would have his fertile river valleys and his plains— although those plains might require irrigation. Kids would be able to run barefoot through sandy beaches, searching for the shells of sea creatures, and basking in the sun.

The inland mountains and the northern desert would provide, as the Sahara did for Egypt, natural defense barriers; those strong life signals from the tropical jungles had gotten Rodrick's attention, and where there was one form of life, there'd probably be others—perhaps even intelligent life. He knew from the ship's instruments that there wasn't an industrial civilization down there. Technology produces waste by-products, and there was no hint of that in air and water samples. But on those vast land masses, hidden among forests, perhaps, there could be almost anything in the way of preindustrial development.

Like everyone else on board, Duncan Rodrick wanted to get the ship down, to walk solid ground again, to breathe pure air, but mostly, just to get started, to*do* something. Like Jack Purdy, he was in a state of mind that said, "Let's do it and get it over with. '

Jack Purdy flew a precise grid pattern over the selected area of the coastal plateau on the western edge of the largest continent. East and west were, of course, determined by the rising and setting of the sun, but in order to be able to speak of western or eastern land masses, a prime meridian had to be established. The geographers were waiting for Rodrick's decision about a landing site before assigning the 0° meridian.

Jack Purdy suspected that the captain's mind was already made up. He thought of the offshore islands to the north as being just inside the western hemisphere of the planet, the huge continental land mass**behind** the coastal plateau over which he flew slow, ca grids to be the beginning of the eastern hemisphere.

Navigation handled by the computer was rather boring work, the only release being to use his own eyes, and the ship's limited optical instruments. He liked what he saw.

He picked up the first indications of life on the dry, grassy plains on the inland side of the river valley. He slowed, used his optics, went lower, and saw a small herd of antelopelike animals. His excitement was shared by the life sciences people on the*Spirit of America,* who shared the scene as it was broadcast upward with everyone aboard. The animals were about the size of a goat. The males had beautifully curved horns, which gleamed with a silver radiance. All had smooth, short-haired hides of orangish tan. They were undisturbed by the scout ship, hovering quietly two hundred feet above them.

Mandy asked Jack to do a saturation search of the plain in the area where the grass eaters were congregated.

"What we're looking for," she said, "are predators. Where there is meat, there should be meat eaters."

It took a while, but he spotted the family of lithe, absolutely beautiful, catlike animals lying in the shade of a thin grove of umbrellalike trees. He hovered, cameras and optics trained. The animals were the color of the parched grasses of the plain, greenish tan, and they were sleek, so graceful in movement that all who observed them were fascinated.

"Lions and antelope," Jack said.

"Lions the size of a cocker spaniel," Mandy said. "There should also be scavengers, Jack." But he had already spotted something else, birdlike creatures perched atop a dead tree at some distance from the cat family. Closeup pictures showed them to be leathery, featherless; slick-skinned, with teeth.

"Until I saw those," Mandy said, "I felt just as if we hadn't left Earth." The scavenger birds were indeed alien creatures.

Jack let the scout drift down a pretty little river, which started from pure, clean springs high in the coastal mountains and flowed through a verdant, narrow valley the length of the plateau to emerge into the sea along a low, marshy coast.

He could imagine trout, gleaming, flashing, hungry, in the crystal waters of the rivers; and in areas where the river cut its way through rocks, to fall swiftly, white water gleamed with a yellow-tinted intensity.

"Rodrick to Purdy."

"Go ahead, Captain."

"Nice-looking country you've got down there."

"That it is, sir."

"Go get us a piece of it, Jack."

"Aye, aye."

He let the ship sink slowly into the grassy plain where he'd first seen the antelopelike grass eaters and the tawny, orangish cats. He landed so skillfully that only his instruments told him when the skids touched, cut back power so that only the maintainers were fired, the hissing sound of the jets falling away so that he heard only the mutter of the maintainers, the purr and clicks of instruments. The probe was out automatically, and once again there was a feeling of tension aboard the*Spirit of America*.

Inside the scout ship Jack had made a decision to take a walk outside his ship and without his armor. He removed his helmet, breathing the air contained inside the ship. Then, grunting, twisting, and contorting in the confines of the cockpit, he began to shed the armor until, dressed in his service coverall singlet, he was free to scratch several persistent itches that had been with him since first donning the armor.

Since there was animal life, he reasoned, there could not be anything as deadly as the virus of the A star's planet. Then another thought struck him: Measles had decimated entire tribes of American Indians because they had no immunity. Maybe the animals here had built up immunity to the native bugs of this planet, and maybe a germ that gave them the equivalent of a light cold could kill him, as the virus had killed Dinah, Dick, and Pat. That didn't bother him. He had his hand on the decompressor, ready to

pump the stored ship's air into containers. But then he thought again and remembered that if he had any cold viruses in his system, he himself might cause the planetwide epidemic that would wipe out all animal life.

"Damn!" he muttered, and began to struggle back into armor, snapped the helmet in place, went back on suit air, evacuated the cockpit, filled the vacuum with a severe germicidal and virucidal mist, evacuated that, and only then did he call the ship, his hand on the hatch release.

"I show soil bacteria. No airborne microscopic life, nothing bad," he said.

"That's a roger here," Mandy said.

He had to get outside. He knew that if he asked permission they'd deny it, that they'd want more time to analyze the soil and vegetation samples.

"Commander," Rodrick said, "are there any of the grass eaters near you?"

"I saw a small herd just over the next rise on the way down," Jack said.

"Dr. Miller would like a blood sample."

"You got it," Jack said.

What the hell. The captain hadn't told him*how* to get the blood sample, and he wasn't about to kill one of those beautiful little animals. He opened the hatch, and the cockpit filled with air of the planet. He waited until the analyzers had had a go at it, found the same purity that had been measured before, and then, rather awkwardly, climbed out, edged down the ladder, and, thinking of Dinah as he let feet down into the grass and felt the solidity of terra firma underneath him, said, "A small step for me, babe, but wow!"

Space armor wasn't heavy, but it was bulky and cumbersome. The grass made a dry crackle as he walked. There was a soft west wind blowing, enough to make ripples and waves in the dry grass. He wanted to feel that breeze in his hair, wanted to take a deep, deep breath of that pure air, which had never known the taint of manmade pollution.

First things first. He walked up the slight rise and saw the antelope—he was already applying Earth names to them. He set his range, dialed deep stun, and played the beam of his weapon over a healthy-looking buck with silvery, curving horns, saw the animal fall, stalked down the slope with the other members of the herd moving off, nervous but unafraid. He opened his kit, which was strapped to the upper portion of his left arm, and inserted a needle into a prominent vein on the animal's muzzle and saw red blood fill the barrel of the instrument.

He waited beside the animal until the stun charge wore off. The animal struggled to its feet, looked at him dazedly, and lowered its head belligerently.

"None of that, buddy," he said, slapping the buck on the rump. The sound startled the animal perhaps more than the impact of his gloved palm, and it wobbled off, falling down once, and then ran with greater balance and speed until it had reached a distance of a hundred yards. From there it looked back at him, thrust out its tongue, and complained in a braying blare of sound.

"Don't blame you a bit," Jack said, grinning.

He fed the blood sample into the ship's analyzer.

"Good work," Mandy told him, as she watched the results on her screen. Rodrick was there. "I'm not believing this," she said. "This blood could have come from a dairy cow back in Wisconsin," she said. "Of course, we'll have to have the sample aboard and check it down to the cellular level.

"Little unexpected?" Rodrick asked.

"There's no way I can express just how unexpected. This is an alien world."

"Why does this upset you?" Rodrick asked.

"Upset? I don't know." She looked at him, felt the little melting feeling inside, which, of late, she had begun to experience when she looked into his eyes.

"Ah," he said. "The so-called accident of life is repeated, is that it?"

"There is no way to calculate the odds against parallel evolution on separate planets."

"Unless?"

"You want me to say it?"

"No. I'll say it. I decided a long time ago, Mandy, that God is a pretty powerful, intelligent, versatile dude."

She merely looked at him, a slight smile on her face.

"God isn't limited," Rodrick continued. "If He could do it once, on Earth, why not here?"

"If Jack runs across a naked man and woman in a garden down there, tell him not to let her give him an apple," Mandy said, but she did not feel at all flippant.

"Doc," Jack Purdy radioed, "you see anything in the blood results that I don't see?"

"Good-looking blood, Jack. Very healthy. Total absence of foreign bodies."

"This is a healthy world," Jack said. "I can feel it."

"Just stand by, Commander," Mandy said. "Let the analyzer complete the run."

The sun, coming in the open hatch, was raising the temperature in the cockpit. He heard his suit cooler come on, felt the new coolness. He looked up. The sky was darker than it was at home, deeper, somehow, richer, and the clouds had that soft, silvery look that had intrigued him from the air. The color of the grass was the deepest green he'd ever seen, and on a distant tree, flowers glowed with an iridescent yellow. One of the scavenger birds soared high above, investigating the intruding presence of the scout ship.

"Spirit, permission to move? Thought I'd like to go down to the beach."

"Good idea," Mandy said.

The whoosh of *Dinahmite's* jets spooked the little antelope, sent them bounding and scampering. It was a short flight. He selected a broad strand of gleaming white sand. The landing jets made a cloud, and when it settled he opened the hatch. The surf was a muted roar. The west wind carried spray to accumulate on the scout ship's glass. He could see broken shells being tugged and washed by the dying waves. There was, indeed, life in the sea.

There was an upwelling need in him. He*needed* to be out there, wading in the clear sheet of water that the crashing waves sent ahead of them onto the smooth sand. He*needed* to breathe the air, to smell the sea. When he and Dinah were first married, they'd lived on the Florida coast. She'd loved the beach and the sea, and they'd spent most of their spare time there.

Yeah, a twenty-two-year-old Dinah in a bikini.

His eyes blurred. He put up a hand to wipe them, and it encountered the visor of his helmet. He looked out toward the rolling surf, and he heard her voice in his mind's memory. "Glorious!" she yelled. "The water is just*gloriousl"*

Funny thing, time. So much had happened since she'd said, as the*Li'l Darlin,* disintegrating, with the young technician aboard already dead, with the death pains of the virulent disease already upon them, arrowed down for its final flaming death, "I feel."

Pat had asked for his hands, one for each of them.

"Feel em?" Jack had asked, willing his touch to go out and down, imagining the contact of her ungloved hand, soft and warm in his, and Pat's firm, friendly grasp.

"I feel,' she had said.

"The water is*gloriousl"*

He was going bonkers?

Her voice was so real, so excited, so stimulated by her swim. The sea was a deep, velvet blue out there, not*too* unlike the Atlantic at Vero Beach.

"I'm coming, babe," he whispered, his hands on his helmet. "Wait up."

His heart pounded. He held his breath, then let it out and inhaled, and there was sweet, sweet freshness, moistened by the sea, flavored with the ancient, blood-stirring scent of the sea. Glorious? An understatement.

He left the helmet in the cockpit, draped the suit over a landing strut, peeled out of his coveralls, underwear, shoes, felt the sand warm and fine between his toes, and then he was running, hearing her, until he splashed into the cool, clear film of water pushed ahead of a dying wave, water splattering, cooling him, slowing as he hit the white-roiled portion of the incoming wave, taking long, hopping strides, feeling deliciously reckless and young as he reached knee-deep water and a towering wave with a refreshing coolness all over his naked body, surfaced on the other side with a wild yell, the water in his mouth tasting just like the good old Atlantic.

"Damned glorious!" he yelled, and for the first time he saw the seabirds, purples and yellows, flying overhead. He touched bottom once, then fell forward and swam vigorously into the oncoming wave, looked back to see that he was fifty yards from shore, caught a wave and body-surfed in and stood there, ankle deep, looking at the sea and remembering, and all the salt on his cheeks was not from the sea. He had not yet wept for her.

The humidity was low. His body dried rapidly, his cheeks less rapidly, as he bent and collected a few of the odder-looking shells. There, in the form of shells back on Earth, Dinah had found nature to be at her most creative, her most beautiful, and this planet did not disappoint in that respect. One shell, about the size of his thumb, burned with a fiery red and protruded hard, sharp burrs from its oblong shape.

When he approached the ship, sobered, feeling just a bit lonely now, the land mass he faced extended for thousands of miles before him, the sea behind him for more thousands, and he was alone, alone, the first man, at least from Earth, to set foot there. He heard the captain's voice.

"Rodrick to Purdy," the captain was repeating urgently. "Come in, Jack!"

Rodrick had tried to contact the*Dinahmite* to order Purdy home with his soil, blood, and vegetation samples. For over fifteen minutes there had been no answer. He was just ordering Jacob West to send another scout down when he heard Purdy's voice.

"Sorry, Skipper."

"What happened?" Rodrick asked, letting his breath out in relief.

"Sir, I will submit myself to the proper discipline. I'm afraid I just went for a swim."

Rodrick looked quickly to see Mandy Miller's reaction. She lifted her communicator. "You are out of armor?"

"That is correct, Doctor," Purdy said, quite formal now.

"He's an irresponsible fool," Mandy said, after closing the talk switch.

"Well, it's done now," Rodrick said. "We'll decide just how to discipline Mr. Purdy later. What now?"

"He cannot, of course, come back to the ship immediately. We have to have more samples, more testing. Just because there's not something down there as quick acting as—" She didn't finish. They both knew she meant*the* virus.

"He has survival gear aboard," Rodrick said. "I can send other scouts down for your samples."

Mandy smiled. "I think I know how he felt." She pushed a switch. "Commander, how was the water?"

"Glorious," Jack said. "Just glorious."

"You'll have plenty of time to test it again," shesaid. "You're going to be down there alone for about twenty days."

"I've got some interesting seashells for you," Jack said.

"You might as well give us pictures," Mandy said, "so we can see what's going on."

Purdy laughed. He was still buck naked. "You'll have to give me a minute or two, Doctor."

The minute turned out to be twenty. "Pictures," Purdy said, "coming up."

He had set up his survival tent on the slope of a large dune. He stood beside it at attention, dressed in his wh-te service singlet. Behind him, blowing in the soft west wind, the stars and stripes of the fifty-four states held a place of honor in the center of the screen.

Rodrick felt a chill of pride go up his spine. His shoulders actually shook. "Well," he said, in a low, emotion-filled voice, "it looks as if the Eagle has landed. Again."