

# THE FOREVER WAR

## Joe Haldeman

### PRIVATE MANDELLA—1997-2007 A.D.

#### 1

"Tonight we're going to show you eight silent ways to kill a man." The guy who said that was a sergeant who didn't look five years older than me. So if he'd ever killed a man in combat, silently or otherwise, he'd done it as an infant.

I already knew eighty ways to kill people, but most of them were pretty noisy. I sat up straight in my chair and assumed a look of polite attention and fell asleep with my eyes open. So did most everybody else. We'd learned that they never scheduled anything important for these afterchop classes.

The projector woke me up and I sat through a short tape showing the "eight silent ways." Some of the actors must have been brainwipes, since they were actually killed.

After the tape a girl in the front row raised her hand. The sergeant nodded at her and she rose to parade rest. Not bad looking, but kind of chunky about the neck and shoulders. Everybody gets that way after carrying a heavy pack around for a couple of months.

"Sir"—we had to call sergeants "sir" until graduation—"most of those methods, really, they looked ... kind of silly."

"For instance?"

"Like killing a man with a blow to the kidneys, from an entrenching tool. I mean, when would you actually have only an entrenching tool, and no gun or knife? And why not just bash him over the head with it?"

"He might have a helmet on," he said reasonably.

"Besides, Taurans probably don't even have kidneys!"

He shrugged. "Probably they don't." This was 1997, and nobody had ever seen a Tauran; hadn't even found any pieces of Taurans bigger than a scorched chromosome. "But their body chemistry is similar to ours, and we have to assume they're similarly complex creatures. They must have weaknesses, vulnerable spots. You have to find out where they are.

"That's the important thing." He stabbed a finger at the screen. "Those eight convicts got caulked for your benefit because you've got to find out how to kill Taurans, and be able to do it whether you have a megawatt laser or an emery board."

She sat back down, not looking too convinced.

"Any more questions?" Nobody raised a hand.

"OK. Tench-hut!" We staggered upright and he looked at us expectantly.

"Fuck you, sir", came the familiar tired chorus.

"Louder!"

"FUCK YOU, SIR!" One of the army's less-inspired morale devices.

"That's better. Don't forget, pre-dawn maneuvers tomorrow. Chop at 0330, first formation, 0400. Anybody sacked after 0340 owes one stripe. Dismissed."

I zipped up my coverall and went across the snow to the lounge for a cup of soya and a joint. I'd always been able to get by on five or six hours of sleep, and this was the only time I could be by myself, out of the army for a while. Looked at the newsfax for a few minutes. Another ship got caulked, out by Aldebaran sector. That was four years ago. They were mounting a reprisal fleet, but it'll take four years more for them to get out there. By then, the Taurans would have every portal planet sewed up tight.

Back at the billet, everybody else was sacked and the main lights were out. The whole company, had been dragging ever since we got back from the two-week lunar training. I dumped my clothes in the locker, checked the roster and found out I was in bunk 31. Goddammit, right under the heater.

I slipped through the curtain as quietly as possible so as not to wake up the person next to me. Couldn't see who it was, but I couldn't have cared less. I slipped under the blanket.

"You're late, Mandella," a voice yawned. It was Rogers.

"Sorry I woke you up," I whispered.

"S'allright." She snuggled over and clasped me spoonfashion. She was warm and reasonably soft.

I patted her hip in what I hoped was a brotherly fashion. "Night, Rogers."

"G'night, stallion." She returned the gesture more pointedly.

Why do you always get the tired ones when you're ready and the randy ones when you're tired? I bowed to the inevitable.

## 2

"Awright, let's get some goddamn back inta that! Stringer team! Move it up—move your ass up!"

A warm front had come in about midnight and the snow had turned to sleet. The permaplast stringer weighed five hundred pounds and was a bitch to handle, even when it wasn't covered with ice. There were four of us, two at each end, carrying the plastic girder with frozen fingertips. Rogers was my partner.

"Steel!" the guy behind me yelled, meaning that he was losing his hold. It wasn't steel, but it was heavy enough to break your foot. Everybody let go and hopped away. It splashed slush and mud all over us.

"Goddammit, Petrov", Rogers said, "why didn't you go out for the Red Cross or something? This fucken thing's not that fucken heavy." Most of the girls were a little more circumspect in their speech. Rogers was a little butch.

"Awright, get a fucken move on, stringers—epoxy team! Dog'em! Dog'em!"

Our two epoxy people ran up, swinging their buckets. "Let's go, Mandella. I'm freezin' my balls off."

"Me, too," the girl said with more feeling than logic.

"One-two-heave!" We got the thing up again and staggered toward the bridge. It was about three-quarters completed. Looked as if the second platoon was going to beat us. I wouldn't give a damn, but the platoon that got their bridge built first got to fly home. Four miles of muck for the rest of us, and no rest before chop.

We got the stringer in place, dropped it with a clank, and fitted the static clamps that held it to the rise-beams. The female half of the epoxy team started slopping glue on it before we even had it secured. Her partner was waiting for the stringer on the other side. The floor team was waiting at the foot of the bridge, each one holding a piece of the light, stressed permaplast over his head like an umbrella. They were dry and clean. I wondered aloud what they had done to deserve it, and Rogers suggested a couple of colorful but unlikely, possibilities.

We were going back to stand by the next stringer when the field first (name of Dougelstein, but we called him "Awright") blew a whistle and bellowed, "Awright, soldier boys and girls, ten minutes. Smoke'em if you got 'em." He reached into his pocket and turned on the control that heated our coveralls.

Rogers and I sat down on our end of the stringer and I took out my weed box. I had lots of joints, but we were ordered not to smoke them until after night-chop. The only tobacco I had was a cigarro butt about three inches long. I lit it on the side of the box; it wasn't too bad after the first couple of puffs. Rogers took a puff, just to be sociable, but made a face and gave it back.

"Were you in school when you got drafted?" she asked.

"Yeah. Just got a degree in physics. Was going after a teacher's certificate."

She nodded soberly. "I was in biology ... "

"Figures." I ducked a handful of slush. "How far?"

"Six years, bachelor's and technical." She slid her boot along the ground, turning up a ridge of mud and slush the consistency of freezing ice milk. "Why the fuck did this have to happen?"

I shrugged. It didn't, call for an answer, least of all the answer that the UNEF kept giving us. Intellectual and physical elite of the planet, going out to guard humanity against the Tauran menace. Soyashit. It was all just a big experiment. See whether we could goad the Taurans into ground action.

Awright blew the whistle two minutes early, as expected, but Rogers and I and the other two stringers got to sit for a minute while the epoxy and floor teams finished covering our stringer. It got cold fast, sitting there with our suits turned off, but we remained inactive on principle.

There really wasn't any sense in having us train in the cold. Typical army half-logic. Sure, it was going to be cold where we were going, but not ice-cold or snow-cold. Almost by definition, a portal planet remained within a degree or two of absolute zero all the time—since collapsars don't shine—and the first chill you felt would mean that you were a dead man.

Twelve years before, when I was ten years old, they had discovered the collapsar jump. Just fling an object at a collapsar with sufficient speed, and out it pops in some other part of the galaxy. It didn't take long to figure out the formula that predicted where it would come out: it travels along the same "line" (actually an Einsteinian geodesic) it would have followed if the collapsar hadn't been in the way—until it reaches another collapsar field, whereupon it reappears, repelled with the same speed at which it approached the original collapsar. Travel time between the two collapsars ... exactly zero.

It made a lot of work for mathematical physicists, who had to redefine simultaneity, then tear down general relativity and build it back up again. And it made the politicians very happy, because now they could send a shipload of colonists to Fomalhaut for less than it had once cost to put a brace of men on the moon. There were a lot of people the politicians would love to see on Fomalhaut, implementing a glorious adventure rather than stirring up trouble at home.

The ships were always accompanied by an automated probe that followed a couple of million miles behind. We knew about the portal planets, little bits of flotsam that whirled around the collapsars; the purpose of the drone was to come back and tell us in the event that a ship had smacked into a portal planet at .999 of the speed of light.

That particular catastrophe never happened, but one day a drone limped back alone. Its data were analyzed, and it turned out that the colonists, ship had been pursued by another vessel and destroyed. This happened near Aldebaran, in the constellation Taurus, but since "Aldebaranian" is a little hard to handle, they named the enemy "Tauran."

Colonizing vessels thenceforth went out protected by an armed guard. Often the armed guard went out alone, and finally the Colonization Group got shortened to UNEF,

United Nations Exploratory Force. Emphasis on the "force."

Then some bright lad in the General Assembly decided that we ought to field an army of footsoldiers to guard the portal planets of the nearer collapsars. This led to the Elite Conscription Act of 1996 and the most elitely conscripted army in the history of warfare.

So here we were, fifty men and fifty women, with IQs over 150 and bodies of unusual health and strength, slogging elitely through the mud and slush of central Missouri, reflecting on the usefulness of our skill in building bridges on worlds where the only fluid is an occasional standing pool of liquid helium.

### 3

About a month later, we left for our final training exercise, maneuvers on the planet Charon. Though nearing perihelion, it was still more than twice as far from the sun as Pluto.

The troopship was a converted "cattlewagon" made to carry two hundred colonists and assorted bushes and beasts. Don't think it was roomy, though, just because there were half that many of us. Most of the excess space was taken up with extra reaction mass and ordnance.

The whole trip took three weeks, accelerating at two gees halfway, decelerating the other half. Our top speed, as we roared by the orbit of Pluto, was around one-twentieth of the speed of light—not quite enough for relativity to rear its complicated head.

Three weeks of carrying around twice as much weight as normal it's no picnic. We did some cautious exercises three times a day and remained horizontal as much as possible. Still, we got several broken bones and serious dislocations. The men had to wear special supporters to keep from littering the floor with loose organs. It was almost impossible to sleep; nightmares of choking and being crushed, rolling over periodically to prevent blood pooling and bedsores. One girl got so fatigued that she almost slept through the experience of having a rib push out into the open air.

I'd been in space several times before, so when we finally stopped decelerating and went into free fall, it was nothing but relief. But some people had never been out, except for our training on the moon, and succumbed to the sudden vertigo and disorientation. The rest of us cleaned up after them, floating through the quarters with sponges and inspirators to suck up the globules of partly-digested "Concentrate, High-protein, Low-residue, Beef Flavor (Soya)."

We had a good view of Charon, coming down from orbit. There wasn't much to see, though. It was just a

dim, off white sphere with a few smudges on it. We landed about two hundred meters from the base. A pressurized crawler came out and mated with the ferry, so we didn't have to suit up. We clanked and squeaked up to the main building, a featureless box of grayish plastic.

Inside, the walls were the same drab color. The rest of the company was sitting at desks, chattering away. There was a seat next to Freeland.

"Jeff—feeling better?" He still looked a little pale.

"If the gods had meant for man to survive in free fall, they would have given him a cast iron glottis." He sighed heavily. "A little better. Dying for a smoke."

"Yeah."

"You seemed to take it all right. Went up in school, didn't you?"

"Senior thesis in vacuum welding, yeah. Three weeks in Earth orbit." I sat back and reached for my weed box for the thousandth time. It still wasn't there. The Life Support Unit didn't want to handle nicotine and THC.

"Training was bad enough," Jeff grouched, "but this shit—"

"Tench-hut!" We stood up in a raggedy-ass fashion, by twos and threes. The door opened and a full major came in. I stiffened a little. He was the highest-ranking officer I'd ever seen. He had a row of ribbons stitched into his coveralls, including a purple strip meaning he'd been wounded in combat, fighting in the old American army. Must have been that Indochina thing, but it had fizzled out before I was born. He didn't look that old.

"Sit, sit." He made a patting motion with his hand. Then he put his hands on his hips and scanned the company, a small smile on his face. "Welcome to Charon. You picked a lovely day to land, the temperature outside is a summery eight point one five degrees Absolute. We expect little change for the next two centuries or so." Some of them laughed halfheartedly.

"Best you enjoy the tropical climate here at Miami Base; enjoy it while you can. We're on the center of sunside here, and most of your training will be on darkside. Over there, the temperature stays a chilly two point zero eight.

"You might as well regard all the training you got on Earth and the moon as just an elementary exercise, designed to give you a fair chance of surviving Charon. You'll have to go through your whole repertory here: tools, weapons, maneuvers. And you'll find that, at these temperatures, tools don't work the way they should; weapons don't want to fire. And people move v-e-r-y cautiously."

He studied the clipboard in his hand. "Right now, you have forty-nine women and forty-eight men. Two deaths on Earth, one psychiatric release. Having read an outline of your training program, I'm frankly surprised that so many of you pulled through.

"But you might as well know that I won't be displeased if as few as fifty of you, half, graduate from this final phase. And the only way not to graduate is to die. Here. The only way anybody gets back to Earth—including me—is after a combat tour.

"You will complete your training in one month. From here you go to Stargate collapsar, half a light year away. You will stay at the settlement on Stargate 1, the largest portal planet, until replacements arrive. Hopefully, that will be no more than a month; another group is due here as soon as you leave.

"When you leave Stargate, you will go to some strategically important collapsar, set up a military base there, and fight the enemy, if attacked. Otherwise, you will maintain the base until further orders.

"The last two weeks of your training will consist of constructing exactly that kind of a base, on darkside. There you will be totally isolated from Miami Base: no communication, no medical evacuation, no resupply. Sometime before the two weeks are up, your defense facilities will be evaluated in an attack by guided drones. They will be armed."

They had spent all that money on us just to kill us in training?

"All of the permanent personnel here on Charon are combat veterans. Thus, all of us are forty to fifty years of age. But I think we can keep up with you. Two of us will be with you at all times and will accompany you at least as far as Stargate. They are Captain Sherman Stott, your company commander, and Sergeant Octavio Cortez, your first sergeant. Gentlemen?"

Two men in the front row stood easily and turned to face us. Captain Stott was a little smaller than the major, but cut from the same mold: face hard and smooth as porcelain, cynical half-smile, a precise centimeter of beard framing a large chin, looking thirty at the most. He wore a large, gunpowder-type pistol on his hip.

Sergeant Cortez was another story, a horror story. His head was shaved and the wrong shape, flattened out

on one side, where a large piece of skull had obviously been taken out. His face was very dark and seamed with wrinkles and scars. Half his left ear was missing, and his eyes were as expressive as buttons on a machine. He had a moustache-and-beard combination that looked like a skinny white caterpillar taking a lap around his mouth. On anybody else, his schoolboy smile might look pleasant, but he was about the ugliest, meanest-looking creature I'd ever seen. Still, if you didn't look at his head and considered the lower six feet or so, he could have posed as the "after" advertisement for a body-building spa. Neither Stott nor Cortez wore any ribbons. Cortez had a small pocket-laser suspended in a magnetic rig, sideways, under his left armpit. It had wooden grips that were worn smooth.

"Now, before I turn you over to the tender mercies of these two gentlemen, let me caution you again:

"Two months ago there was not a living soul on this planet, just some leftover equipment from the expedition of 1991. A working force of forty-five men struggled for a month to erect this base. Twenty-four of them, more than half, died in the construction of it. This is the most dangerous planet men have ever tried to live on, but the places you'll be going will be this bad and worse. Your cadre will try to keep you alive for the next month. Listen to them ... and follow their example; all of them have survived here much longer than you'll have to. Captain?" The captain stood up as the major went out the door.

"Tench-hut!" The last syllable was like an explosion and we all jerked to our feet.

"Now I'm only gonna say this once so you better listen," he growled. "We are in a combat situation here, and in a combat situation there is only one penalty for disobedience or insubordination." He jerked the pistol from his hip and held it by the barrel, like a club. "This is an Army model 1911 automatic pistol, caliber .45, and it is a primitive but effective weapon. The Sergeant and I are authorized to use our weapons to kill to enforce discipline. Don't make us do it because we will. We will." He put the pistol back. The holster snap made a loud crack in the dead quiet.

"Sergeant Cortez and I between us have killed more people than are sitting in this room. Both of us fought in Vietnam on the American side and both of us joined the United Nations International Guard more than ten years ago. I took a break in grade from major for the privilege of commanding this company, and First Sergeant Cortez took a break from sub-major, because we are both combat soldiers and this is the first combat situation since 1987.

"Keep in mind what I've said while the First Sergeant instructs you more specifically in what your duties will be under this command. Take over, Sergeant." He turned on his heel and strode out of the room. The expression on his face hadn't changed one millimeter during the whole harangue.

The First Sergeant moved like a heavy machine with lots of ball bearings. When the door hissed shut, he swiveled ponderously to face us and said, "At ease, siddown, " in a surprisingly gentle voice. He sat on a table in the front of the room. It creaked, but held.

"Now the captain talks scary and I look scary, but we both mean well. You'll be working pretty closely with me, so you better get used to this thing I've got hanging in front of my brain. You probably won't see the captain much, except on maneuvers."

He touched the flat part of his head. "And speaking of brains, I still have just about all of mine, in spite of Chinese efforts to the contrary. All of us old vets who mustered into UNEF had to pass the same criteria that got you drafted by the Elite Conscription Act. So I suspect all of you are smart and tough—but just keep in mind that the captain and I are smart and tough and experienced."

He flipped through the roster without really looking at it. "Now, as the captain said, there'll be only one kind of disciplinary action on maneuvers. Capital punishment. But normally we won't have to kill you for disobeying; Charon'll save us the trouble.

"Back in the billeting area, it'll be another story. We don't much care what you do inside. Grab ass all day and fuck all night, makes no difference ... But once you suit up and go outside, you've gotta have discipline that would shame a Centurian. There will be situations where one stupid act could kill us all.

"Anyhow, the first thing we've gotta do is get you fitted to your fighting suits. The armorer's waiting at your billet; he'll take you one at a time. Let's go."

## 4

"Now I know you got lectured back on Earth on what a fighting suit can do." The armorer was a small man, partially bald, with no insignia of rank on his coveralls. Sergeant Cortez had told us to call him "sir," since he was a lieutenant.

"But I'd like to reinforce a couple of points, maybe add some things your instructors Earthside weren't

clear about or couldn't know. Your First Sergeant was kind enough to consent to being my visual aid. Sergeant?"

Cortez slipped out of his coveralls and came up to the little raised platform where a fighting suit was standing, popped open like a man-shaped clam. He backed into it and slipped his arms into the rigid sleeves. There was a click and the thing swung shut with a sigh. It was bright green with CORTEZ stenciled in white letters on the helmet.

"Camouflage, Sergeant." The green faded to white, then dirty gray. "This is good camouflage for Charon and most of your portal planets," said Cortez, as if from a deep well. "But there are several other combinations available." The gray dappled and brightened to a combination of greens and browns: "Jungle." Then smoothed out to a hard light ochre: "Desert." Dark brown, darker, to a deep flat black: "Night or space."

"Very good, Sergeant. To my knowledge, this is the only feature of the suit that was perfected after your training. The control is around your left wrist and is admittedly awkward. But once you find the right combination, it's easy to lock in.

"Now, you didn't get much in-suit training Earthside. We didn't want you to get used to using the thing in a friendly environment. The fighting suit is the deadliest personal weapon ever built, and with no weapon is it easier for the user to kill himself through carelessness. Turn around, Sergeant.

"Case in point." He tapped a large square protuberance between the shoulders. "Exhaust fins. As you know, the suit tries to keep you at a comfortable temperature no matter what the weather's like outside. The material of the suit is as near to a perfect insulator as we could get, consistent with mechanical demands. Therefore, these fins get hot especially hot, compared to darkside temperatures—as they bleed off the body's heat.

"All you have to do is lean up against a boulder of frozen gas; there's lots of it around. The gas will sublime off faster than it can escape from the fins; in escaping, it will push against the surrounding ice, and fracture it ... and in about one-hundredth of a second, you have the equivalent of a hand grenade going off right below your neck. You'll never feel a thing.

"Variations on this theme have killed eleven people in the past two months. And they were just building a bunch of huts.

"I assume you know how easily the waldo capabilities can kill you or your companions. Anybody want to shake hands with the sergeant?" He paused, then stepped over and clasped his glove. "He's had lots of practice. Until you have, be extremely careful. You might scratch an itch and wind up breaking your back. Remember, semi-logarithmic response: two pounds, pressure exerts five pounds, force; three pounds, gives ten; four pounds' twenty-nine; five pounds' forty-seven. Most of you can muster up a grip of well over a hundred pounds. Theoretically, you could rip a steel girder in two with that amplified. Actually, you'd destroy the material of your gloves and, at least on Charon, die very quickly. It'd be a race between decompression and flash-freezing. You'd die no matter which won.

"The leg waldos are also dangerous, even though the amplification is less extreme. Until you're really skilled, don't try to run, or jump. You're likely to trip, and that means you're likely to die."

"Charon's gravity is three-fourths of Earth normal so it's not too bad. But on a really small world, like Luna, you could take a running jump and not come down for twenty minutes, just keep sailing over the horizon. Maybe bash into a mountain at eighty meters per second. On a small asteroid, it'd be no trick at all to run up to escape velocity and be off on an informal tour of intergalactic space. It's a slow way to travel.

"Tomorrow morning, we'll start teaching you how to stay alive inside this infernal machine. The rest of the afternoon and evening, I'll call you one at a time to be fitted. That's all, Sergeant."

Cortez went to the door and turned the stopcock that let air into the airlock. A bank of infrared lamps went on to keep air from freezing inside it. When the pressures were equalized, he shut the stopcock, unclamped the door and stepped in, clamping it shut behind him. A pump hummed for about a minute, evacuating the airlock; then he stepped out and sealed the outside door.

It was pretty much like the ones on Luna.

"First I want Private Omar Almizar. The rest of you can go find your bunks. I'll call you over the squawker."

"Alphabetical order, sir?"

"Yep. About ten minutes apiece. If your name begins with Z, you might as well get sacked."

That was Rogers. She probably was thinking about getting sacked.

The sun was a hard white point directly overhead. It was a lot brighter than I had expected it to be; since we were eighty AUs out, it was only one 6400th as bright as it is on Earth. Still, it was putting out about as much light as a powerful streetlamp.

"This is considerably more light than you'll have on a portal planet." Captain Stott's voice crackled in our collective ear. "Be glad that you'll be able to watch your step."

We were lined up, single-file, on the permaplast sidewalk that connected the billet and the supply hut. We'd practiced walking inside, all morning, and this wasn't any different except for the exotic scenery. Though the light was rather dim, you could see all the way to the horizon quite clearly, with no atmosphere in the way. A black cliff that looked too regular to be natural stretched from one horizon to the other, passing within a kilometer of us. The ground was obsidian-black, mottled with patches of white or bluish ice. Next to the supply hut was a small mountain of snow in a bin marked OXYGEN.

The suit was fairly comfortable, but it gave you the odd feeling of simultaneously being a marionette and a puppeteer. You apply the impulse to move your leg and the suit picks it up and magnifies it and moves your leg for you.

"Today we're only going to walk around the company area, and nobody will leave the company area." The captain wasn't wearing his .45—unless he carried it as a good luck charm, under his suit—but he had a laser-finger like the rest of us. And his was probably hooked up.

Keeping an interval of at least two meters between each person, we stepped off the permaplast and followed the captain over smooth rock. We walked carefully for about an hour, spiraling out, and finally stopped at the far edge of the perimeter.

"Now everybody pay close attention. I'm going out to that blue slab of ice"—it was a big one, about twenty meters away—"and show you something that you'd better know if you want to stay alive."

He walked out in a dozen confident steps. "First I have to heat up a rock—filters down." I squeezed the stud under my armpit and the filter slid into place over my image converter. The captain pointed his finger at a black rock the size of a basketball, and gave it a short burst. The glare rolled a long shadow of the captain over us and beyond. The rock shattered into a pile of hazy splinters.

"It doesn't take long for these to cool down." He stopped and picked up a piece. "This one is probably twenty or twenty-five degrees. Watch." He tossed the "warm" rock onto the ice slab. It skittered around in a crazy pattern and shot off the side. He tossed another one, and it did the same.

"As you know, you are not quite perfectly insulated. These rocks are about the temperature of the soles of your boots. If you try to stand on a slab of hydrogen, the same thing will happen to you. Except that the rock is already dead.

"The reason for this behavior is that the rock makes a slick interface with the ice—a little puddle of liquid hydrogen—and rides a few molecules above the liquid on a cushion of hydrogen vapor. This makes the rock or you a frictionless bearing as far as the ice is concerned, and you can't stand up without any friction under your boots.

"After you have lived in your suit for a month or so you should be able to survive falling down, but right now you just don't know enough. Watch."

The captain flexed and hopped up onto the slab. His feet shot out from under him and he twisted around in midair, landing on hands and knees. He slipped off and stood on the ground.

"The idea is to keep your exhaust fins from making contact with the frozen gas. Compared to the ice they are as hot as a blast furnace, and contact with any weight behind it will result in an explosion."

After that demonstration, we walked around for another hour or so and returned to the billet. Once through the airlock, we had to mill around for a while, letting the suits get up to something like room temperature. Somebody came up and touched helmets with me.

"William?" She had McCoy stenciled above her faceplate.

"Hi, Sean. Anything special?"

"I just wondered if you had anyone to sleep with tonight."

That's right; I'd forgotten. There wasn't any sleeping roster here. Everybody chose his own partner. "Sure, I mean, uh, no ... no, I haven't asked anybody. Sure, if you want to ... "

"Thanks, William. See you later." I watched her walk away and thought that if anybody could make a fighting suit look sexy, it'd be Sean. But even she couldn't.

Cortez decided we were warm enough and led us to the suit room, where we backed the things into place

and hooked them up to the charging plates. (Each suit had a little chunk of plutonium that would power it for several years, but we were supposed to run on fuel cells as much as possible.) After a lot of shuffling around, everybody finally got plugged in and we were allowed to unsuit ninety-seven naked chickens squirming out of bright green eggs. It was cold—the air, the floor and especially the suits—and we made a pretty disorderly exit toward the lockers.

I slipped on tunic, trousers and sandals and was still cold. I took my cup and joined the line for soya. Everybody was jumping up and down to keep warm.

"How c-cold, do you think, it is, M-Mandella?" That was McCoy.

"I don't, even want, to think, about it." I stopped jumping and rubbed myself as briskly, as possible, while holding a cup in one hand. "At least as cold as Missouri was."

"Umm ... wish they'd, get some, fucken, heat in, this place." It always affects the small women more than anybody else. McCoy was the littlest one in the company, a waspwaist doll barely five feet high.

"They've got the airco going. It can't be long now."

"I wish I, was a big, slab of, meat like, you."

I was glad she wasn't.

## 6

We had our first casualty on the third day, learning how to dig holes.

With such large amounts of energy stored in a soldier's weapons, it wouldn't be practical for him to hack out a hole in the frozen ground with the conventional pick and shovel. Still, you can launch grenades all day and get nothing but shallow depressions—so the usual method is to bore a hole in the ground with the hand laser, drop a timed charge in after it's cooled down and, ideally, fill the hole with stuff. Of course, there's not much loose rock on Charon, unless you've already blown a hole nearby.

The only difficult thing about the procedure is in getting away. To be safe, we were told, you've got to either be behind something really solid, or be at least a hundred meters away. You've got about three minutes after setting the charge, but you can't just sprint away. Not safely, not on Charon.

The accident happened when we were making a really deep hole, the kind you want for a large underground bunker. For this, we had to blow a hole, then climb down to the bottom of the crater and repeat the procedure again and again until the hole was deep enough. Inside the crater we used charges with a five-minute delay, but it hardly seemed enough time—you really had to go it slow, picking your way up the crater's edge.

Just about everybody had blown a double hole; everybody but me and three others. I guess we were the only ones paying really close attention when Bovanovitch got into trouble. All of us were a good two hundred meters away. With my image converter turned up to about forty power, I watched her disappear over the rim of the crater. After that, I could only listen in on her conversation with Cortez.

"I'm on the bottom, Sergeant." Normal radio procedure was suspended for maneuvers like this; nobody but the trainee and Cortez was allowed to broadcast.

"Okay, move to the center and clear out the rubble. Take your time. No rush until you pull the pin."

"Sure, Sergeant." We could hear small echoes of rocks clattering, sound conduction through her boots. She didn't say anything for several minutes. "Found bottom." She sounded a little out of breath.

"Ice or rock?"

"Oh, it's rock, Sergeant. The greenish stuff."

"Use a low setting, then. One point two, dispersion four. "

"God darn it, Sergeant, that'll take forever."

"Yeah, but that stuff's got hydrated crystals in it—heat it up too fast and you might make it fracture. And we'd just have to leave you there, girl. Dead and bloody."

"Okay, one point two dee four." The inside edge of the crater flickered red with reflected laser light.

"When you get about half a meter deep, squeeze it up to dee two."

"Roger." It took her exactly seventeen minutes, three of them at dispersion two. I could imagine how tired her shooting arm was.

"Now rest for a few minutes. When the bottom of the hole stops glowing, arm the charge and drop it in. Then walk out, understand? You'll have plenty of time."

"I understand, Sergeant. Walk out." She sounded nervous. Well, you don't often have to tiptoe away from a twenty-microton tachyon bomb. We listened to her breathing for a few minutes.

"Here goes." Faint slithering sound, the bomb sliding down.

"Slow and easy now. You've got five minutes."

"Y-yeah. Five." Her footsteps started out slow and regular. Then, after she started climbing the side, the sounds were less regular, maybe a little frantic. And with four minutes to go.

"Shit!" A loud scraping noise, then clatters and bumps. "Shit-shit."

"What's wrong, private?"

"Oh, shit." Silence. "Shit!"

"Private, you don't wanna get shot, you tell me what's wrong!"

"I ... shit, I'm stuck. Fucken rockslide ... shit ... DO SOMETHING! I can't move, shit I can't move I, I—"

"Shut up! How deep?"

"Can't move my, shit, my fucken legs. HELP ME!"

"Then Goddammit use your arms—push! You can move a ton with each hand." Three minutes.

She stopped cussing and started to mumble, in Russian, I guess, a low monotone. She was panting, and you could hear rocks tumbling away.

"I'm free." Two minutes.

"Go as fast as you can." Cortez's voice was flat, emotionless.

At ninety seconds she appeared, crawling over the rim. "Run, girl ... You better run." She ran five or six steps and fell, skidded a few meters and got back up, running; fell again, got up again

It looked as though she was going pretty fast, but she had only covered about thirty meters when Cortez said, "All right, Bovanovitch, get down on your stomach and lie still." Ten seconds, but she didn't hear or she wanted to get just a little more distance, and she kept running, careless leaping strides, and at the high point of one leap there was a flash and a rumble, and something big hit her below the neck, and her headless body spun off end over end through space, trailing a red-black spiral of flash-frozen blood that settled gracefully to the ground, a path of crystal powder that nobody disturbed while we gathered rocks to cover the juiceless thing at the end of it..

That night Cortez didn't lecture us, didn't even show up for nightchop. We were all very polite to each other and nobody was afraid to talk about it.

I sacked with Rogers—everybody sacked with a good friend—but all she wanted to do was cry, and she cried so long and so hard that she got me doing it, too.

## 7

"Fire team A—move out!" The twelve of us advanced in a ragged line toward the simulated bunker. It was about a kilometer away, across a carefully prepared obstacle course. We could move pretty fast, since all of the ice had been cleared from the field, but even with ten days, experience we weren't ready to do more than an easy jog.

I carried a grenade launcher loaded with tenth-microton practice grenades. Everybody had their laser-fingers set at a point oh eight dee one, not much more than a flashlight. This was a simulated attack—the bunker and its robot defender cost too much to use once and be thrown away.

"Team B, follow. Team leaders, take over."

We approached a clump of boulders at about the halfway mark, and Potter, my team leader, said, "Stop and cover." We clustered behind the rocks and waited for Team B.

Barely visible in their blackened suits, the dozen men and women whispered by us. As soon as they were clear, they jogged left, out of our line of sight.

"Fire!" Red circles of light danced a half-klick downrange, where the bunker was just visible. Five hundred meters was the limit for these practice grenades; but I might luck out, so I lined the launcher up on the image of the bunker, held it at a forty-five degree angle and popped off a salvo of three.

Return fire from the bunker started before my grenades even landed. Its automatic lasers were no more powerful than the ones we were using, but a direct hit would deactivate your image converter, leaving you blind. It was setting down a random field of fire, not even coming close to the boulders we were hiding

behind.

Three magnesium-bright flashes blinked simultaneously about thirty meters short of the bunker. "Mandella! I thought you were supposed to be good with that thing."

"Damn it, Potter—it only throws half a klick. Once we get closer, I'll lay 'em right on top, every time."

"Sure you will." I didn't say anything. She wouldn't be team leader forever. Besides, she hadn't been such a bad girl before the power went to her head.

Since the grenadier is the assistant team leader, I was slaved into Potter's radio and could hear B team talk to her.

"Potter, this is Freeman. Losses?"

"Potter here—no, looks like they were concentrating on you. "

"Yeah, we lost three. Right now we're in a depression about eighty, a hundred meters down from you. We can give cover whenever you're ready."

"Okay, start." Soft click: "A team, follow me." She slid out from behind the rock and turned on the faint pink beacon beneath her powerpack. I turned on mine and moved out to run alongside of her, and the rest of the team fanned out in a trailing wedge. Nobody fired while A team laid down a cover for us.

All I could hear was Potter's breathing and the soft crunch-crunch of my boots. Couldn't see much of anything, so I tongued the image converter up to a log two intensification. That made the image kind of blurry but adequately bright. Looked like the bunker had B team pretty well pinned down; they were getting quite a roasting. All of their return fire was laser. They must have lost their grenadier.

"Potter, this is Mandella. Shouldn't we take some of the heat off B team?"

"Soon as I can find us good enough cover. Is that all right with you? Private?" She'd been promoted to corporal for the duration of the exercise.

We angled to the right and lay down behind a slab of rock. Most of the others found cover nearby, but a few had to hug the ground.

"Freeman, this is Potter."

"Potter, this is Smithy. Freeman's out; Samuels is out. We only have five men left. Give us some cover so we can get—"

"Roger, Smithy." Click. "Open up, A team. The B's are really hurtin'."

I peeked out over the edge of the rock. My rangefinder said that the bunker was about three hundred fifty meters away, still pretty far. I aimed a smidgeon high and popped three, then down a couple of degrees, three more. The first ones overshot by about twenty meters; then the second salvo flared up directly in front of the bunker. I tried to hold on that angle and popped fifteen, the rest of the magazine, in the same direction.

I should have ducked down behind the rock to reload, but I wanted to see where the fifteen would land, so I kept my eyes on the bunker while I reached back to unclip another magazine

When the laser hit my image converter, there was a red glare so intense it seemed to go right through my eyes and bounce off the back of my skull. It must have been only a few milliseconds before the converter overloaded and went blind, but the bright green afterimage hurt my eyes for several minutes.

Since I was officially "dead", my radio automatically cut off, and I had to remain where I was until the mock battle was over. With no sensory input besides the feel of my own skin (and it ached where the image converter had shone on it) and the ringing in my ears, it seemed like an awfully long time. Finally, a helmet clanked against mine.

"You okay, Mandella?" Potter's voice.

"Sorry, I died of boredom twenty minutes ago."

"Stand up and take my hand." I did so and we shuffled back to the billet. It must have taken over an hour. She didn't say anything more, all the way back—it's a pretty awkward way to communicate—but after we'd cycled through the airlock and warmed up, she helped me undo my suit. I got ready for a mild tongue-lashing, but when the suit popped open, before I could even get my eyes adjusted to the light, she grabbed me around the neck and planted a wet kiss on my mouth.

"Nice shooting, Mandella."

"Huh?"

"Didn't you see? Of course not ... The last salvo before you got hit, four direct hits. The bunker decided it was knocked out, and all we had to do was walk the rest of the way."

"Great." I scratched my face under the eyes, and some dry skin flaked off. She giggled.