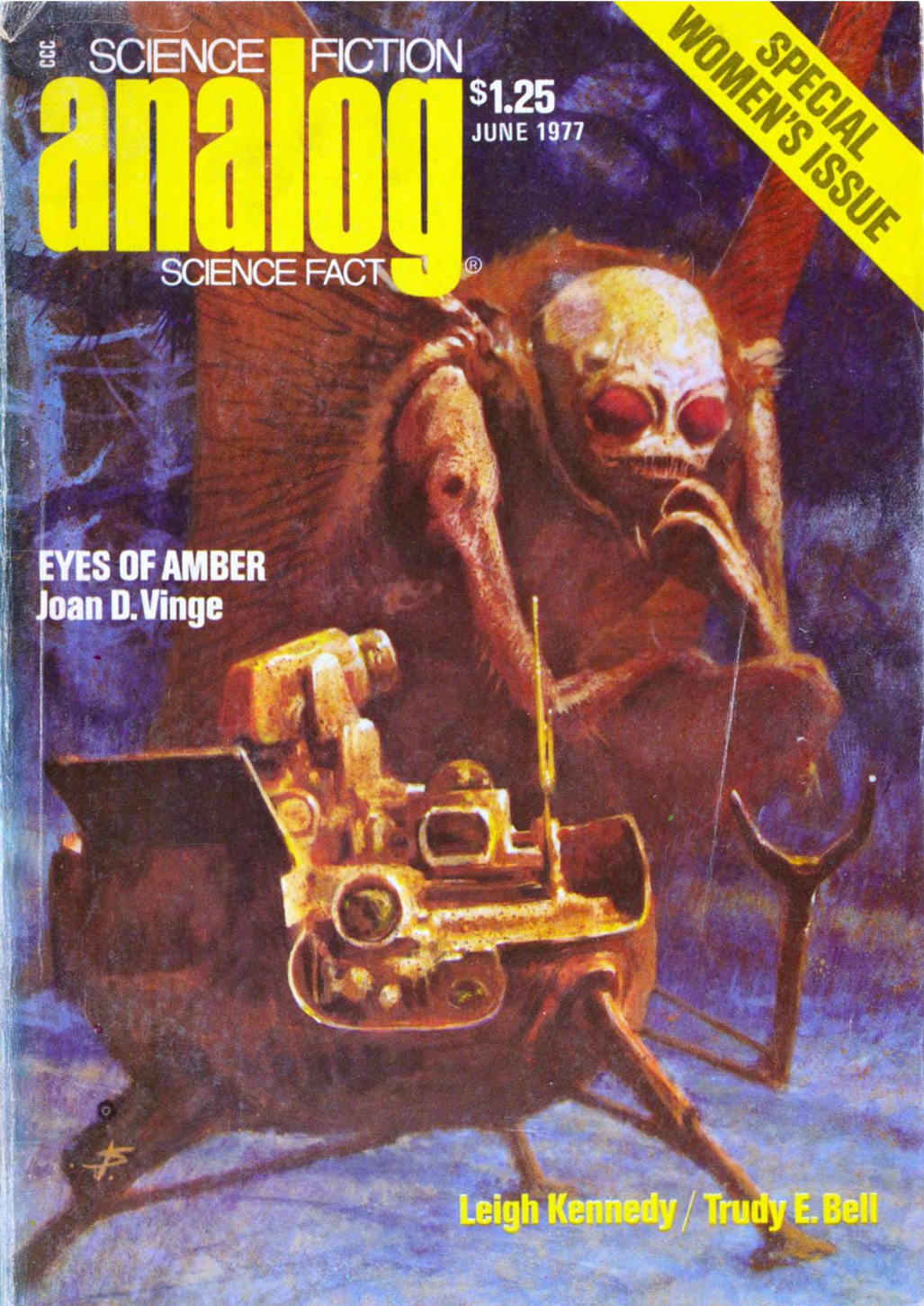
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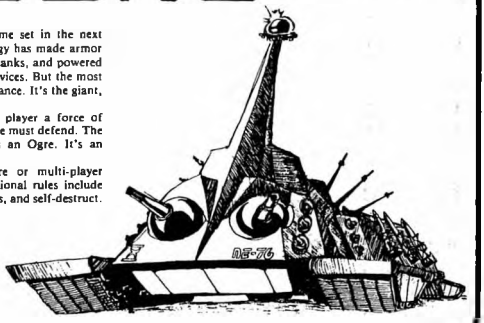

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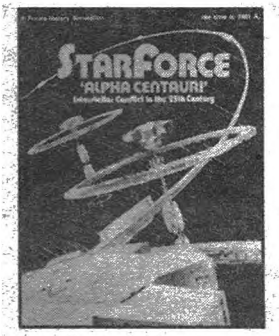

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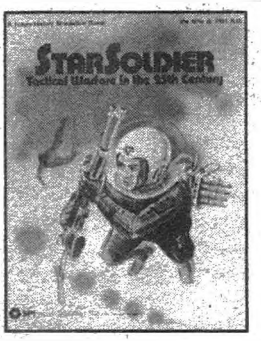

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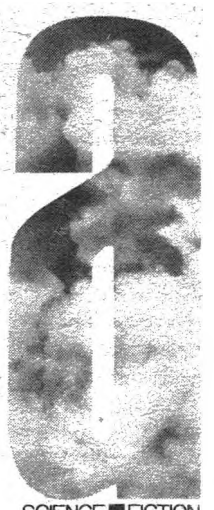

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tunnel visionaries

Editorial by Terri Rapoport

Terri Rapoport is the Campus Programs Coordinator for the Institute of Man and Science at Rensselaerville, NY.

The Institute on Man and Science is an independent, nonprofit research and educational center whose programs focus on social issues in which science and technology affect the quality of human life. Each year, it sponsors a program featuring Isaac Asimov which is open to the public and attended by some 70 people. These participants come from all walks of life, but their common denominator is a love of science fiction. This year's program was held on July 11-15, and, as an extra added attraction, Ben Bova joined the faculty. As campus programs coordinator, I planned this year's program.

The Institute is heavily involved in community development—helping people in small towns and urban neighborhoods to shape their communities—and this related very well to Dr. Asimov's suggested topic for the public program. He wanted to consider some of the implications of Gerard K. O'Neill's concepts for establishing a permanent space colony at L-5—an orbital point equidistant from the Earth and the Moon.

While preparing for the program, we noted an imbalance in the research on space colonization: the emphasis lay on the side of the technological feasibility of the project, and little was being done to determine how people were going to live with each other

once they arrived at the constructed colony. With this in mind, the program focused on the question, *What kind of community would develop in such an environment?* Titled, "A Community in Space," the program's theme revolved around the social, political, and economic issues—that is, the human side—of living in space, leaving the technology to the experts. The program was composed of a series of talks and small-group workshops and, in spite of its success (ask anyone who was there!), we did encounter a problem when the participants addressed themselves to the issues at hand:

Science fiction readers are constantly being exposed to futures which are different from the present. They are more attuned, one might presume, to accepting, or at least expecting, change in times to come. But, during our program, this assumption was seriously challenged.

G. Harry Stine, in "Science Fiction Is Too Conservative" (Analog, May 1961) said, "Most laymen are content to predict the future in terms of a trend curve that levels off from the present ever onward." In other words, most people see the future as being exactly the same as the present. This view may appear to set apart science fiction readers as those who *can* perceive the future as changing, yet there is every reason to believe that Stine's comment refers to them, too, if this program was any measure of the futuristic thinking of science fiction buffs.

The general problem we encountered at the program stemmed from the myopia of the participants. The reason for their shortsightedness was that they were more interested in the technological possibilities of a community in space than they were in the impacts of that technology on the people who would be inhabiting the community—that is, the social political and economic aspects of living in space. This inability to deal with the human condition is astounding when you consider that much of the best work in science fiction focuses on social futures—in space and on Earth.

Good science fiction has always dealt with human questions and issues under unusual circumstances, considering how the quality of life would be affected if we were to extrapolate from present situations, creating new ones. For example, *The Caves of Steel*, by Isaac Asimov, deals with the impact of the introduction of robot labor—a new technology—into an overpopulated Earth where jobs are at a premium. " 'Repent, Harlequin,' Said the Ticktockman," by Harlan Ellison, describes a highly authoritarian government—derived from an extensive technology—and its impact on individual liberties. These two works aren't so much about automation as they are about what that automation does to people. In these works, as in others, speculation on technological advances is secondary to speculation on the effects of those advances on the quality of life. And this is what we

were asking the participants to do: to assess the impact of a technological advance—space colonization—on society.

But, unlike science fiction writers, our participants, who were well-versed in the literature, perceived the technological advances as the most important issues. Let me cite two examples.

First, on the last night of the program, Ben Bova gave an eloquent talk about the future of space colonization. His main point was that the space colonies would flourish only when they realized that an open society was the only viable alternative to failure. During the discussion which followed, participants didn't ask Mr. Bova how this open society could be achieved—they asked him about the latest developments of the Dean Drive!

Second example: One of the groups was assigned the task of describing the physical environment of a space community, and to decide whether or not the environment should be as Earthlike as possible or as different from the Earth as possible. Part of that response was supposed to include a definition of their criteria for "beauty." The group's response was that, "because man has always lived on Earth, the space environment should be as Earthlike as possible. Period." The rest of the group's report was devoted to the structure of the shell of the colony, mentioning the various shapes devised by O'Neill—the torus, cylinder, sphere—and describing the shape invented by one of the members of the group: a helix. Measurements were given for the diameter, suggestions were made for construction of additional sections, the environment was described as having trees, lakes, etc., but there was no discussion about "beauty," about how their conception of the environment—an environment created by technology—would affect the people living in it.

By assigning primary importance to technology, the participants were severely hampered in their discussions of political structure, social issues, the future of society in space. They talked about access to computers, instead of access to justice, to moral values. This produced an "engineering approach" to human systems. They tended to oversimplify the complex nature of humanity, subjugating individual needs and ideals to the technology of the space colony.

We asked one task group to devise a political structure for the community. Their system of governance involved a cell system which would replace the legislative branch of our own democratic system. Proposals for new laws would be codified by computer and circulated to interested cells—by computer—reprocessed for modifications—by computer—and circulated to the electorate—again, by computer—for passage or veto. The executive branch of this system would have two functions: public relations and assumption of leadership during times of crisis. The judicial branch was described as similar to our own. The problem with this system is that there

are no checks and balances. The executive branch has no veto power over legislative proposals, and there is no provision for return of power to the electorate once a crisis has passed. The group was more concerned with the computer's role of data processing and dissemination of information than it was with how feasible the system was for the society. Consider the underlying theme of this system: Add technology to solve the problems and inequities of governance. Only one member of that group noted that the system was fatally flawed; the others were enthusiastic about this new approach to government. But this is obviously not an improvement over our own constitutional system; all that is needed is one "crisis" and the colony would be saddled with martial law forever.

This engineering approach to human beings manifested itself most acutely when many of the participants described the various rules and regulations for the colony, which sacrificed the integrity of the individual.

In paraphrasing Asimov's Three Laws of Robotics, one of the groups stated:

1. A person may not do anything to harm the colony, or, through inaction, allow the colony to come to harm.

2. A person may preserve his life provided that this does not conflict with the First Law.

3. A person must obey the laws set down by the colony provided that this does not conflict with the First or Second Laws as stated above.

Where Asimov's Laws value the individual above all else, these new laws place the colony above the individual. In another instance, one group described the punishment for dangerous or excessively deviant behavior as "space-lock justice": the offender would quite literally be ejected from the colony.

The most notable case of this lowering of the value of the sanctity of individual liberties occurred in a charter devised by still another group. The charter read, in part: "Success of the community is primary; the individuals shall identify their goals with the success of the community. The consequences of unacceptable behavior will be swift and sure, unlike Earth. Mor-

als are based on the work ethic; any behavior which lowers work standards will be controlled by peer pressure. Safety and survival come first." Compare this with the preamble to the U.S. Constitution, which lists, as most important, "to establish justice, insure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessing of liberty to ourselves and our posterity." The ideals of the colony charter would appear to regress democracy more than two hundred years!

This regression demonstrates the conservative thinking of many of the participants at the program. Their preoccupation with technology, rather than with the consequences of that technology, produced a dim view of human nature on their part. Human goals were subjugated under collective ones. Collective goals are not necessarily bad, when those goals are socially oriented—such as "promoting the general welfare"—but, in the case of the charter for the community in space, its goals are economy- and survival-oriented: the colony first, people second.

This conservative tendency to see the community in space as no different from communities on Earth—Ben Bova called the participants' responses "very provincial, very Main Street, U.S.A."—this lack of perception of the future as changed, is a violation of Asimov's Three Laws of Futurics: "1. What has happened will continue to happen; 2. Consider the obvious seriously, for few will see it; 3. Consider the consequences." (See "O Keen-eyed Peerer into the Future," *Of Matters Great and Small.*) What Asimov is saying is that we should examine the way things are today, consider the trends which are occurring (of which few people are aware) and consider their impact on society by extrapolating those trends to their logical conclusion. This is how science fiction writers create their stories; Asimov didn't invent the three laws, he merely articulated an axiom well-known to all science fiction writers, which he perceived through years of experience. But it would seem that science fiction *readers* stop short of that third law, and this is what produced the participants' inability to deal with the social issues we presented to them.

For instance, as I mentioned earlier, we commented in our worksheets, that "Gerard O'Neill has said that the space habitat 'must be as earthlike as possible, rich in green-growing plants, animals, birds, and the other desirable features of attractive regions on Earth.' One argument for this assumption is that the residents of the space habitat will be facing so many unique situations that a little piece of home will help them to adjust to their new environment. Another equally valid argument against this assumption is that, since we have had so little success on Earth in community living, we should avoid earthbound stimuli to avoid earthbound responses. Why not make a clean break and start all over again?"

One of the participants answered by saying: "Who says we have done so poorly here on Earth? People have been living in communities for thousands of years and will continue to do so." He was defining "community" in its most narrow sense: as a geographic area. But doesn't it have something to do with the people who live there? And, if it does, can we say that community living is so successful when we have such examples as the racial turmoil in communities like South Boston? Have we done so well on Earth that we want to take everything with us to space—including poverty, prejudice, inequality? Most of the participants did not consider how the new technologies of space colonization—living in a closed ecosystem, with limited resources yet, paradoxically, on the frontier of the Universe—would affect the lives of the people in that colony. Most of them never addressed the basic question of the program: What kind of community would develop in such an environment?

We did see some influence of the participants' science fiction background, but in notably small ways. They mentioned the gadgetry which is standard fare of the genre, such as large viewscreens, computer-controlled library systems, and the like, but no effort was made to relate these gadgets to the people using them.

The participants were responding to the technology from their science fiction orientation, but they were responding to the impacts of that technology on society from their day-to-day experiences. Stine said (in the same article) that "A layman can't really predict the future at all; he has no understanding of the forces that are in motion because of accumulated knowledge." And this is true of most science fiction readers as well. They cannot predict the future because they cannot perceive the "larger picture." Everything around them is translated by their daily experiences, and they are hampered by this cultural baggage. Thus, new technologies are related to present-day happenings but their influence on those happenings goes unnoticed.

But we can see the impacts of technology all around us, if we would only look. It's not the automobile, but the mobile society. Not the telephone or television, or computers, but the shrinking world. Not the bomb, but the tensions. Not the space shuttle or the space station, but the chance to create a whole new society whether in space or here. If we would only look.

TERRI RAPOPORT

Ed. Note: A report on the "Community In Space" symposium is available from the Institute on Man and Science. The report summarizes the background of the five-day program, and gives digests of the talks given by the various faculty members (including Asimov and Bova), as well as summaries of the various task-group reports produced by the participants. Write to Ms. Terri Rapoport, Institute on Man and Science, Rensselaerville NY 12147

The beggar woman shuffled up the silent evening street to the rear of Lord Chwiul's townhouse. She hesitated, peering up at the softly glowing towers, then clawed at the watchman's arm, "A word with you, master—"

"Don't touch me, hag!" The guard raised his spearbutt in disgust.

A deft foot kicked free of the rags and snagged him off balance. He found himself sprawled on his back in the spring melt, the speartip dropping toward his belly, guided by a new set of hands. He gaped, speechless. The beggar tossed an amulet onto his chest.

"Look at it, fool! I have business with your lord." The beggar woman stepped back, the speartip tapped him impatiently.

The guard squirmed in the filth and wet, holding the amulet up close to his face in the poor light. "You . . . you are the one? You may pass—"

"Indeed!" Muffled laughter. "Indeed I may pass—for many things, in many places. The Wheel of Change carries us all." She lifted the spear. "Get up, fool . . . and no need to escort me, I'm expected."

The guard climbed to his feet, dripping and sullen, and stood back while she freed her wing membranes from the folds of cloth. He watched them glisten and spread as she gathered herself to leap effortlessly to the tower's entrance, twice his height above. He waited until she had vanished inside before he even dared to curse her.

"Lord Chwiul?"

"T'uupieh, I presume." Lord Chwiul leaned forward on the couch of fragrant mosses, peering into the shadows of the hall.

"*Lady* T'uupieh." T'uupieh strode forward into light, letting the ragged hood slide back from her face. She took a fierce pleasure in making no show of obeisance, in coming forward directly as nobility to nobility. The

eyes of AMBER

As Heisenberg pointed out,
you cannot observe something
without affecting
the thing you observe.

JOAN D. VINGE


John Schoenherr

sensuous ripple of a hundred tiny *miih* hides underfoot made her calloused feet tingle. *After so long, it comes back too easily . . .*

She chose the couch across the low, waterstone table from him, stretching languidly in her beggar's rags. She extended a finger claw and picked a juicy *kelet* berry from the bowl in the table's scroll-carven surface; let it slide into her mouth and down her throat, as she had done so often, so long ago. And then, at last, she glanced up, to measure his outrage.

"You dare to come to me in this manner—"

Satisfactory. *Yes, very . . .* "*I* did not come to you. You came to me . . . you sought my services." Her eyes wandered the room with affected casualness, taking in the elaborate frescoes that surfaced the waterstone walls even in this small, private room . . . particularly in this room? she wondered. How many midnight meetings, for what varied intrigues, were held in this room? Chwiul was not the wealthiest of his family or clan; and appearances of wealth and power counted in this city, in this world—for wealth and power were everything.

"I sought the services of T'uupieh the Assassin. I'm surprised to find that the Lady T'uupieh dared to accompany her here." Chwiul had regained his composure; she watched his breath frost, and her own, as he spoke.

"Where one goes, the other follows. We are inseparable. You should know that better than most, my lord." She watched his long, pale arm extend to spear several berries at once. Even though the nights were chill he wore only a body-wrapping tunic, which let him display the intricate scaling of jewels that danced and spiraled over his wing surfaces.

He smiled; she saw the sharp fangs protrude slightly. "Because my brother made the one into the other, when he seized your lands? I'm surprised you would come at all—how did you know you could trust me?" His movements were ungraceful; she remembered how the jewels dragged down fragile, translucent wing membranes and slender arms, until flight was impossible. Like every noble, Chwiul was normally surrounded by servants who answered his every whim. Incompetence, feigned or real, was one more trapping of power, one more indulgence that only the rich could afford. She was pleased that the jewels were not of high quality.

"I don't trust you," she said. "I trust only myself. But I have friends, who told me you were sincere enough—in this case. And of course, I did not come alone."

"Your outlaws?" Disbelief. "That would be no protection."

Calmly she separated the folds of cloth that held her secret companion at her side.

"It is true." Chwiul trilled softly. "They call you Demon's Consort!"

She turned the amber lens of the demon's precious eye so that it could see the room, as she had seen it, and then settled its gaze on Chwiul. He drew back slightly, fingering moss. " 'A demon has a thousand eyes, and a thousand thousand torments for those who offend it.' " She quoted from the Book of Ngoss, whose rituals she had used to bind the demon to her.

Chwiul stretched nervously, as if he wanted to fly away. But he only said,

"Then I think we understand each other. And I think I have made a good choice: I know how well you have served the Overlord, and other court members . . . I want you to kill someone for me."

"Obviously."

"I want you to kill Klovhiri."

T'uupieh started, very slightly. "You surprise me in return, Lord Chwiul. Your own brother?" *And the usurper of my lands. How I have ached to kill him, slowly, so slowly, with my own hands. . . . But always he is too well guarded.*

"And your sister too—my lady." Faint overtones of mockery. "I want his whole family eliminated; his mate, his children . . ."

Klovhiri . . . and Ahtseet. Ahtseet, her own younger sister, who had been her closest companion since childhood, her only family since their parents had died. Ahtseet, whom she had cherished and protected; dear, conniving, traitorous little Ahtseet—who could forsake pride and decency and family honor to mate willingly with the man who had robbed them of everything. . . . Anything to keep the family lands, Ahtseet had shrilled; anything to keep her position. But that was not the way! Not by surrendering; but by striking back— T'uupieh became aware that Chwiul was watching her reaction with unpleasant interest. She fingered the dagger at her belt.

"Why?" She laughed, wanting to ask, "*How*?"

"That should be obvious. I'm tired of coming second. I want what he has—your lands, and all the rest. I want him out of my way, and I don't want anyone else left with a better claim to his inheritance than I have."

"Why not do it yourself? Poison them, perhaps . . . it's been done before."

"No. Klovhiri has too many friends, too many loyal clansmen, too much influence with the Overlord. It has to be an 'accidental' murder. And no one would be better suited than you, my lady, to do it for me."

T'uupieh nodded vaguely, assessing. No one could be better chosen for a desire to succeed than she . . . and also, for a position from which to strike. All she had lacked until now was the opportunity. From the time she had been dispossessed, through the fading days of autumn and the endless winter—for nearly a third of her life, now—she had haunted the wild swamp and fenland of her estate. She had gathered a few faithful servants, a few malcontents, a few cutthroats, to harry and murder Klovhiri's retainers, ruin his phib nets, steal from his snares and poach her own game. And for survival, she had taken to robbing whatever travelers took the roads that passed through her lands.

Because she was still nobility, the Overlord had at first tolerated, and then secretly encouraged her banditry: Many wealthy foreigners traveled the routes that crossed her estate, and for a certain commission, he allowed her to attack them with impunity. It was a sop, she knew, thrown to her because he had let his favorite, Klovhiri, have her lands. But she used it to curry what favor she could, and after a time the Overlord had begun to bring her more discreet and profitable business—the elimination of certain enemies. And so she had become an

assassin as well—and found that the calling was not so very different from that of noble: both required nerve, and cunning, and an utter lack of compunction. And because she was T'uupieh, she had succeeded admirably. But because of her vendetta, the rewards had been small . . . until now.

"You do not answer," Chwiul was saying. "Does that mean your nerve fails you, in kith-murder, where mine does not?"

She laughed sharply. "That you say it proves twice that your judgment is poorer than mine. . . . No, my nerve does not fail me. Indeed, my blood burns with desire! But I hadn't thought to lay Klovhiri under the ice, just to give my lands to his brother. Why should I do that favor for you?"

"Because obviously you cannot do it alone. Klovhiri hasn't managed to have you killed, in all the time you've plagued him; which is a testament to your skill. But you've made him too wary—you can't get near him, when he keeps himself so well protected. You need the cooperation of someone who has his trust—someone like myself. I can make him yours."

"And what will be my reward, if I accept? Revenge is sweet; but revenge is not enough."

"I will pay what you ask."

"My estate." She smiled.

"Even you are not so naive—"

"No." She stretched a wing toward nothing in the air. "I am not so naive. I know its value . . ." The memory of a golden-clouded summer's day caught her—of soaring, soaring, on the warm updrafts above the streaming lake . . . seeing the fragile rosered of the manor towers spearing light far off above the windswept tide of the trees . . . the saffron and crimson and aquamarine of ammonia pools bright with dissolved metals, that lay in the gleaming melt-surface of her family's land, the land that stretched forever, like the summer . . ."I know its value." Her voice hardened. "And that Klovhiri is still the Overlord's pet. As you say, Klovhiri has many powerful friends, and they will become your friends when he dies. I need more strength, more wealth, before I can buy enough influence to hold what is mine again. The odds are not in my favor—now."

"You are carved from ice, T'uupieh. I like that." Chwiul leaned forward. His amorphous red eyes moved along her outstretched body; trying to guess what lay concealed beneath the rags in the shadowy foxfire-light of the room. His eyes came back to her face.

She showed him neither annoyance nor amusement. "I like no man who likes that in me."

"Not even if it meant regaining your estate?"

"As a mate of yours?" Her voice snapped like a frozen branch. "My lord—I have just about decided to kill my sister for doing as much. I would sooner kill myself."

He shrugged, lying back on the couch. "As you wish . . ." He waved a hand in dismissal. "Then what will it take to be rid of my brother—and of you as well?"

"Ah." She nodded, understanding more. "You wish to buy my services, and to buy me off, too. That may not be so easy to do. But—," *But I will make the pretense, for now.* She

speared berries from the bowl in the tabletop, watched the silky sheet of emerald-tinted ammonia water that curtained one wall. It dropped from heights within the tower into a tiny plunge basin, with a music that would blur conversation for anyone who tried to listen outside. Discretion, and beauty. . . . The musky fragrance of the mossy couch brought back her childhood suddenly, disconcertingly the memory of lying in a soft bed, on a soft spring night. . . "But as the seasons change, change moves me in new directions. Back into the city, perhaps. I like your tower, Lord Chwiul. It combines discretion and beauty."

"Thank you."

"Give it to me, and I'll do what you ask."

Chwiul sat up, frowning. "My townhouse!" Recovering, "Is that all you want?"

She spread her fingers, studied the vestigial webbing between them, "I realize it is rather modest." She closed her hand. "But considering what satisfaction will come from earning it, it will suffice. And you will not need it, once I succeed."

"No . . ." he relaxed somewhat. "I suppose not. I will scarcely miss it, after I have your lands."

She let it pass. "Well then, we are agreed. Now, tell me, where is the key to Klovhiri's lock? What is your plan for delivering him—and his family—into my hands?"

"You are aware that your sister and the children are visiting here, in my house, tonight? And that Klovhiri will return before the new day?"

"I am aware." She nodded, with more casualness than she felt; seeing that Chwiul was properly, if silently, impressed at her nerve in coming here. She drew her dagger from its sheath beside the demon's amber eye and stroked the serrated blade of waterstone-impregnated wood. "You wish me to slit their throats, while they sleep under your very roof?" She managed the right blend of incredulity.

"No!" Chwiul frowned again. "What sort of fool do you—," he broke off "With the new day, they will be returning to the estate by the usual route. I have promised to escort them, to ensure their safety along the way There will also be a guide, to lead us through the bogs. But the guide will make a mistake . . ."

"And I will be waiting." T'uupieh's eyes brightened. During the winter the wealthy used sledges for travel on long journeys—preferring to be borne over the frozen melt by membranous sails, or dragged by slaves where the surface of the ground was rough and crumpled. But as spring came and the surface of the ground began to dissolve, treacherous sinks and pools opened like blossoms to swallow the unwary. Only an experienced guide could read the surfaces, tell sound waterstone from changeable ammonia-water melt. "Good," she said softly. "Yes, very good . . . Your guide will see them safely foundered in some slushhole, and then I will snare them like changeling phibs."

"Exactly. But I want to be there when you do; I want to watch. I'll make some excuse to leave the group, and meet you in the swamp. The guide will mislead them only if he hears my signal."

"As you wish. You've paid well for

the privilege. But come alone. My followers need no help, and no interference." She sat up, let her long, webbed feet down to rest again on the sensuous hides of the rug.

"And if you think that I'm a fool, and playing into your hands myself, consider this: You will be the obvious suspect when Klovhiri is murdered. I'll be the only witness who can swear to the Overlord that your outlaws weren't the attackers. Keep that in mind."

She nodded. "I will."

"How will I find you, then?"

"You will not. My thousand eyes will find you." She rewrapped the demon's-eye in its pouch of rags.

Chwiul looked vaguely disconcerted. "Will—*it* take part in the attack?"

"It may, or it may not; as it chooses. Demons are not bound to the Wheel of Change like you and I. But you will surely meet it face to face—although it has no face—if you come." She brushed the pouch at her side. "Yes—do keep in mind that I have my safeguards too, in this agreement. A demon never forgets."

She stood up at last, gazing once more around the room. "I shall be comfortable here." She glanced back at Chwiul. "I will look for you, come the new day."

"Come the new day." He rose, his jeweled wings catching light.

"No need to escort me. I shall be discreet." She bowed, as an equal, and started toward the shadowed hall. "I shall definitely get rid of your watchman. He doesn't know a lady from a beggar."

"The Wheel turns once more for me, my demon. My life in the swamps will end with Klovhiri's life. I shall move into town . . . and I shall be lady of my manor again, when the fishes sit in the trees!"

T'uupieh's alien face glowed with malevolent joy as she turned away, on the display screen above the computer terminal. Shannon Wyler leaned back in his seat, finished typing his translation, and pulled off the wire headset. He smoothed his long, blond, slicked-back hair, the habitual gesture helping him reorient to his surroundings. When T'uupieh spoke he could never maintain the objectivity he needed to help him remember he was still on Earth, and not really on Titan, orbiting Saturn, some fifteen hundred million kilometers away. *T'uupieh, whenever I think I love you, you decide to cut somebody's throat. . . .*

He nodded vaguely at the congratulatory murmurs of the staff and technicians, who literally hung on his every word waiting for new information. They began to thin out behind him, as the computer reproduced copies of the transcript. Hard to believe he'd been doing this for over a year now. He looked up at his concert posters on the wall, with nostalgia but no regret.

Someone was phoning Marcus Reed; he sighed, resigned.

" 'Vhen the fishes sit in the trees'? Are you being sarcastic?"

He looked over his shoulder at Dr. Garda Bach's massive form. "Hi, Garda. Didn't hear you come in."

She glanced up from a copy of the translation, tapped him lightly on the shoulder with her forked walking stick. "I know, dear boy. You never hear anything when T'uupieh speaks.

But what do you mean by this?"

"On Titan that's summer—when the triphibians metamorphose for the third time. So she means maybe five years from now, our time."

"Ah! Of course. The old brain is not what it was . . ." She shook her gray-white head; her black cloak swirled out melodramatically.

He grinned, knowing she didn't mean a word of it. "Maybe learning Titanese on top of fifty other languages is the straw that breaks the camel's back."

"*Ja* . . . *ja* . . . maybe it is . . ." She sank heavily into the next seat over, already lost in the transcript. He had never, he thought, expected to like the old broad so well. He had become aware of her Presence while he studied linguistics at Berkeley—she was the *grande dame* of linguistic studies, dating back to the days when there had still been unrecorded languages here on Earth. But her skill at getting her name in print and her face on television, as an expert on what everybody "really meant", had convinced him that her true talent lay in merchandising. Meeting her at last, in person, hadn't changed his mind about that; but it had convinced him forever that she knew her stuff about cultural linguistics. And that, in turn, had convinced him her accent was a total fraud. But despite the flamboyance, or maybe even because of it, he found that her now-archaic views on linguistics were much closer to his own feelings about communication than the views of either one of his parents.

Garda sighed. "Remarkable, Shannon! You are simply remarkable—your feel for a wholly alien language amazes me. Whatever vould ve have done if you had not come to us?"

"Done without, I expect." He savored the special pleasure that came of being admired by someone he respected. He looked down again at the computer console, at the two shining green-lit plates of plastic thirty centimeters on a side, that together gave him the versatility of a virtuoso violinist and a typist with a hundred thousand keys: His link to T'uupieh. his voice—the new IBM synthesizer, whose touch-sensitive control plates could be manipulated to re-create the impossible complexities of her language. God's gift to the world of linguistics . . . except that it required the sensitivity and inspiration of a musician to fully use its range.

He glanced up again and out the window, at the now familiar fog-shrouded skyline of Coos Bay. Since very few linguists were musicians, their resistance to the synthesizer had been like a brick wall The old guard of the aging New Wave—which included His Father the Professor and His Mother the Communications Engineer—still clung to a fruitless belief in mathematical computer translation. They still struggled with ungainly programs weighed down by endless morpheme lists, that supposedly would someday generate any message in a given language. But even after years of refinement, computer-generated translations were still uselessly crude and sloppy.

At graduate school there had been no new languages to seek out, and no permission for him to use the synthesizer to explore the old ones. And so—after a final, bitter family argument—he had quit graduate school.

He had taken his belief in the synthesizer into the world of his second love, music; into a field where, he hoped, real communication still had some value. Now, at twenty-four, he was Shann the Music Man, the musician's musician, a hero to an immense generation of aging fans and a fresh new generation that had inherited their love for the ever-changing music called "rock". And neither of his parents had willingly spoken to him in years.

"No false modesty," Garda was chiding. "What could ve have done, without you? You yourself have complained enough about your mother's methods. You know we would not have a tenth of the information about Titan we've gained from T'uupieh, if she had gone on using that damned computer translation."

Shannon frowned faintly, at the sting of secret guilt. "Look, I know I've made some cracks—and I meant most of them—but I'd never have gotten off the ground if she hadn't done all the preliminary analysis before I even came." His mother had already been on the mission staff, having worked for years at NASA on the esoterics of computer communication with satellites and space probes; and because of her linguistic background, she had been made head of the newly pulled-together staff of communications specialists by Marcus Reed, the Titan project director. She had been in charge of the initial phonic analysis; using the computer to compress the alien voice range into one audible to humans, then breaking up the complex sounds into more, and simpler, human phones . . . she had identified phonemes, separated morphemes, fitted them into a grammatical framework, and assigned English sound equivalents to it all. Shannon had watched her on the early TV interviews, looking unhappy and ill at ease while Reed held court for the spellbound press. But what Dr. Wyler the Communications Engineer had had to say, at last, had held him on the edge of his seat; and, unable to resist, he had taken the next plane to Coos Bay.

"Vell, I meant no offense," Garda said. "Your mother is obviously a skilled engineer. But she needs a little more—flexibility."

"You're telling me." He nodded ruefully. "She'd still love to see the synthesizer drop through the floor. She's been out of joint ever since I got here. At least Reed appreciates my 'value'." Reed had welcomed him like a long-lost son when he first arrived at the institute. . . . Wasn't he a skilled linguist as well as an inspired musician, didn't he have some time between gigs, wouldn't he like to extend his visit, and get an insider's view of his mother's work? He had agreed, modestly, to all three—and then the television cameras and reporters had sprung up as if on cue, and he understood clearly enough that they were not there to record the visit of Dr. Wyler's kid, but Shann the Music Man.

But he had gotten his first session with a voice from another world. And with one hearing, he had become an addict . . . because their speech was music. Every phoneme was formed of two or three superposed sounds, and every morpheme was a blend of phonemes, flowing together like water. They spoke in chords, and the result was a choir, crystal bells ringing, the

shattering of glass chandeliers. . . .

And so he had stayed on and on, at first only able to watch his mother and her assistants with agonized frustration: His mother's computer-analysis methods had worked well in the initial transphonemicizing of T'uupieh's speech; and they had learned enough very quickly to send back clumsy responses using the probe's echo-locating device, to keep T'uupieh's interest from wandering. But typing input at a keyboard, and expecting even the most sophisticated programming to transform it into another language, still would not work even for known human languages. And he knew, with an almost religious fervor, that the synthesizer had been designed for just this miracle of communication; and that he alone could use it to capture directly the nuances and subtleties machine translation could never supply. He had tried to approach his mother about letting him use it, but she had turned him down flat, "This is a research center, not a recording studio."

And so he had gone over her head to Reed, who had been delighted. And when at last he felt his hands moving across the warm, faintly tingling plates of light, tentatively re-creating the speech of another world, he had known that he had been right all along. He had let his music commitments go to hell, without a regret, almost with relief, as he slid back into the field that had always come first.

Shannon watched the display, where T'uupieh had settled back with comfortable familiarity against the probe's curving side, half obscuring his view of the camp. Fortunately both she and her followers treated the probe with obsessive care, even when they dragged it from place to place as they constantly moved camp. He wondered what would have happened if they had inadvertently set off its automatic defense system—which had been designed to protect it from aggressive animals; which delivered an electric shock that varied from merely painful to fatal. And he wondered what would have happened if the probe and its "eyes" hadn't fit so neatly into T'uupieh's beliefs about demons. The idea that he might never have known her, or heard her voice. . . .

More than a year had passed already since he, and the rest of the world, had heard the remarkable news that intelligent life existed on Saturn's major moon. He had no memory at all of the first two flybys to Titan, back in '79 and '81—although he could clearly remember the 1990 orbiter that had caught fleeting glimpses of the surface through Titan's swaddling of opaque, golden clouds. But the handful of miniprobes it had dropped had proved that Titan profitted from the same "greenhouse effect" that made Venus a boiling hell. And even though the seasonal temperatures never rose above two hundred degrees Kelvin, the few photographs had shown, unquestionably, that life existed there. The discovery of life, after so many disappointments throughout the rest of the solar system, had been enough to initiate another probe mission, one designed to actually send back data from Titan's surface.

That probe had discovered a life form with human intelligence . . . or

rather, the life form had discovered the probe. And T'uupieh's discovery had turned a potentially ruined mission into a success: The probe had been designed with a main, immobile data processing unit, and ten "eyes", or subsidiary units, that were to be scattered over Titan's surface to relay information. The release of the subsidiary probes during landing had failed, however, and all of the "eyes" had come down within a few square kilometers of its own landing in the uninhabited marsh. But T'uupieh's self-interested fascination and willingness to appease her "demon" had made up for everything.

Shannon looked up at the flat wall-screen again, at T'uupieh's incredible, inhuman face—a face that was as familiar now as his own in the mirror. She sat waiting with her incredible patience for a reply from her "demon": She would have been waiting for over an hour by the time her transmission reached him across the gap between their worlds; and she would have to wait as long again, while they discussed a response and he created the new translation. She spent more time now with the probe than she did with her own people. *The loneliness of command* . . . he smiled. The almost flat profile of her moon-white face turned slightly toward him—toward the camera lens; her own fragile mouth smiled gently, not quite revealing her long, sharp teeth. He could see one red pupilless eye, and the crescent nose-slit that half ringed it; her frosty cyanide breath shone blue-white, illuminated by the ghostly haloes of St. Elmo's fire that wreathed the probe all through Titan's interminable eight-day nights. He could see balls of light hanging like Japanese lanterns on the drooping snarl of ice-bound branches in a distant thicket.

It was unbelieveable . . . or perfectly logical; depending on which biological expert was talking . . . that the nitrogen- and ammonia-based life on Titan should have so many analogs with oxygen- and water-based life on Earth. But T'uupieh was not human, and the music of her words time and again brought him messages that made a mockery of any ideals he tried to harbor about her, and their relationship. So far in the past year she had assassinated eleven people, and with her outlaws had murdered God knew how many more, in the process of robbing them. The only reason she cooperated with the probe, she had as much as said, was because only a demon had a more bloody reputation; only a demon could command her respect. And yet, from what little she had been able to show them and tell them about the world she lived in, she was no better or no worse than anyone else—only more competent. Was she a prisoner of an age, a culture, where blood was something to be spilled instead of shared? Or was it something biologically innate that let her philosophize brutality, and brutalize philosophy—

Beyond T'uupieh, around the nitrogen campfire, some of her outlaws had begun to sing—the alien folk melodies that in translation were no more than simple, repetitious verse. But heard in their pure, untranslated form, they layered harmonic complexity on complexity: musical speech in a greater pattern of song. Shannon reached out and picked up the headset again, forgetting everything else. He

had had a dream, once, where he had been able to sing in chords—

Using the long periods of waiting between their communications, he had managed, some months back, to record a series of the alien songs himself, using the synthesizer. They had been spare and uncomplicated versions compared to the originals, because even now his skill with the language couldn't match that of the singers; but he couldn't help wanting to make them his own. Singing was a part of religious ritual, T'uupieh had told him. "But they don't sing because they're religious; they sing because they like to sing." Once, privately, he had played one of his own human compositions for her on the synthesizer, and transmitted it. She had stared at him (or into the probe's golden eye) with stony, if tolerant, silence. She never sang herself, although he had sometimes heard her softly harmonizing. He wondered what she would say if he told her that her outlaws' songs had already earned him his first Platinum Record. Nothing, probably . . . but knowing her, if he could make the concepts clear, she would probably be heartily in favor of the exploitation.

He had agreed to donate the profits of the record to NASA (and although he had intended that all along, it had annoyed him to be asked by Reed), with the understanding that the gesture would be kept quiet. But somehow, at the next press conference, some reporter had known just what question to ask, and Reed had spilled it all. And his mother, when asked about her son's sacrifice, had murmured, "Saturn is becoming a three-ring circus," and left him wondering whether to laugh or swear.

Shannon pulled a crumpled pack of cigarettes out of the pocket of his caftan and lit one. Garda glanced up, sniffing, and shook her head. She didn't smoke, or anything else (although he suspected she ran around with men), and she had given him a long, wasted lecture about it, ending with, "Vell, at least they're not tobacco." He shook his head back at her.

"What do you think about T'uupieh's latest victims, then?" Garda flourished the transcript, pulling his thoughts back. "Vill she kill her own sister?"

He exhaled slowly around the words, "Tune in tomorrow, for our next exciting eipsode! I think Reed will love it; that's what I think." He pointed at the newspaper lying on the floor beside his chair. "Did you notice we've slipped to page three?" T'uupieh had fed the probe's hopper some artifacts made of metal—a thing she had said was only known to the "Old Ones"; and the scientific speculation about the existence of a former technological culture had boosted interest in the probe to front page status again. But even news of that discovery couldn't last forever . . . "Gotta keep those ratings up, folks. Keep those grants and donations rolling in."

Garda clucked. "Are you angry at Reed, or at T'uupieh?"

He shrugged dispiritedly. "Both of 'em. I don't see why she won't kill her own sister—" He broke off, as the subdued noise of the room's numerous project workers suddenly intensified, and concentrated: Marcus Reed was making an entrance, simultaneously solving everyone else's problems, as always. Shannon marveled at Reed's

energy, even while he felt something like disgust at the way he spent it. Reed exploited everyone, and everything, with charming cynicism, in the ultimate hype for Science—and watching him at work had gradually drained away whatever respect and goodwill Shannon had brought with him to the project. He knew that his mother's reaction to Reed was close to his own, even though she had never said anything to him about it; it surprised him that there was something they could still agree on.

"Dr. Reed—"

"Excuse me, Dr. Reed, but—"

His mother was with Reed now as they all came down the room; looking tight-lipped and resigned, her lab coat buttoned up as if she was trying to avoid contamination. Reed was straight out of *Manstyle* magazine, as usual. Shannon glanced down at his own loose gray caftan and jeans, which had led Garda to remark, "Are you planning to enter a monastery?"

". . . we'd really like to—"

"Senator Foyle wants you to call him back—"

". . . yes, all right; and tell Dinocci he can go ahead and have the probe run another sample. Yes, Max, I'll get to that . . ." Reed gestured for quiet as Shannon and Garda turned in their seats to face him. "Well, I've just heard the news about our 'Robin Hood's' latest hard contract."

Shannon grimaced quietly. He had been the one who had first, facetiously, called T'uupieh "Robin Hood". Reed had snapped it up, and dubbed her ammonia swamps "Sherwood Forest" for the press: After the facts of her bloodthirsty body counts began to come out, and it even began to look like she was collaborating with "the Sheriff of Nottingham", some reporter had pointed out that T'uupieh bore no more resemblance to Robin Hood than she did to Rima the Bird-Girl. Reed had said, laughing, "Well, after all, the only reason Robin Hood stole from the rich was because the poor didn't have any money!" That, Shannon thought, had been the real beginning of the end of his tolerance.

". . . this could be used as an opportunity to show the world graphically the harsh realities of life on Titan—"

"*Ein Moment*," Garda said. "You're telling us you want to let the public watch this atrocity, Marcus?" Up until now they had never released to the media the graphic tapes of actual murders; even Reed had not been able to argue that that would have served any real scientific purpose.

"No, he's not, Garda." Shannon glanced up as his mother began to speak. "Because we all agreed that we would *not* release any tapes, just for purposes of sensationalism."

"Carly, you know that the press has been after me to release those other tapes, and that I haven't, because we all voted against it. But I feel this situation is different—a demonstration of a unique, alien sociocultural condition. What do you think, Shann?"

Shannon shrugged, irritated and not covering it up. "I don't know what's so damn unique about it: a snuff flick is a snuff flick, wherever you film it. I think the idea stinks." Once, at a party while he was still in college, he had watched a film of an unsuspecting victim being hacked to

death. The film, and what all films like it said about the human race, had made him sick to his stomach.

"*Ach*—there's more truth than poetry in that!" Garda said.

Reed frowned, and Shannon saw his mother raise her eyebrows.

"I have a better idea." He stubbed out his cigarette in the ashtray under the panel. "Why don't you let me try to talk her out of it?" As he said it, he realized how much he wanted to try; and how much success could mean, to his belief in communication—to his image of T'uupieh's people, and maybe his own.

They both showed surprise, this time. "How?" Reed said.

"Well . . . I don't know yet. Just let me talk to her, try to really communicate with her, find out how she thinks and what she feels; without all the technical garbage getting in the way for a while."

His mother's mouth thinned, he saw the familiar worry-crease form between her brows. "Our job here is to collect that 'garbage'. Not to begin imposing moral values on the universe. We have too much to do as it is."

"What's 'imposing' about trying to stop a murder?" A certain light came into Garda's faded blue eyes. "Now that has real . . . social implications. Think about it, Marcus—"

Reed nodded, glancing at the patiently attentive faces that still ringed him. "Yes—it does. A great deal of human interest . . ." Answering nods and murmurs. "All right, Shann. There are about three days left before morning comes again in 'Sherwood Forest'. You can have them to yourself, to work with T'uupieh. The press will want reports on your progress . . ." He glanced at his watch, and nodded toward the door, already turning away. Shannon looked away from his mother's face as she moved past him.

"Good luck, Shann." Reed threw it back at him absently. "I wouldn't count on reforming Robin Hood; but you can still give it a good try."

Shannon hunched down in his chair, frowning, and turned back to the panel. "In your next incarnation may you come back as a toilet."

T'uupieh was confused. She sat on the hummock of clammy waterstone beside the captive demon, waiting for it to make a reply. In the time that had passed since she'd found it in the swamp, she had been surprised again and again by how little its behavior resembled all the demon-lore she knew. And tonight. . . .

She jerked, startled, as its grotesque, clawed arm came to life suddenly and groped among the icy-silver spring shoots pushing up through the melt at the hummock's foot. The demon did many incomprehensible things (which was fitting) and it demanded offerings of meat and vegetation and even stone—even, sometimes, some part of the loot she had taken from passers-by. She had given it those things gladly, hoping to win its favor and its aid . . . she had even, somewhat grudgingly, given it precious metal ornaments of the Old Ones which she had stripped from a whining foreign lord. The demon had praised her effusively for that; all demons hoarded metal, and she supposed that it must need metals to sustain its strength: its domed cara-

pace—gleaming now with the witch-fire that always shrouded it at night—was an immense metal jewel the color of blood. And yet she had always heard that demons preferred the flesh of men and women. But when she had tried to stuff the wing of the foreign lord into its maw it had spit him out with a few dripping scratches, and told her to let him go. Astonished, she had obeyed, and let the fool run off screaming to be lost in the swamp.

And then, tonight— "You are going to kill your sister, T'uupieh," it had said to her tonight, "and two innocent children. How do you feel about that?" She had spoken what had come first, and truthfully, into her mind: "That the new day cannot come soon enough for me! I have waited so long—too long—to take my revenge on Klovhiri! My sister and her brats are a part of his foulness, better slain before they multiply." She had drawn her dagger and driven it into the mushy melt, as she would drive it into their rotten hearts.

The demon had been silent again, for a long time; as it always was. (The lore said that demons were immortal, and so she had always supposed that it had no reason to make a quick response; she had wished, sometimes, it would show more consideration for her own mortality.) Then at last it had said, in its deep voice filled with alien shadows, "But the children have harmed no one. And Ahtseet is your only sister, she and the children are your only blood kin. She has shared your life. You say that once you—," the demon paused, searching its limited store of words, "—cherished her, for that. Doesn't what she once meant to you mean anything now? Isn't there any love left, to slow your hand as you raise it against her?"

"Love!" she had said, incredulous. "What speech is that, oh Soulless One? You mock me—," sudden anger had bared her teeth. "Love is a toy, my demon, and I have put my toys behind me. And so has Ahtseet . . . she is no kin of mine. Betrayer, betrayer!" The word hissed like the dying embers of the campfire; she had left the demon in disgust, to rake in the firepit's insulating layer of sulphury ash, and lay on a few more soggy branches. Y'lirr, her second-in-command, had smiled at her from where he lay in his cloak on the ground, telling her that she should sleep. But she had ignored him, and gone back to her vigil on the hill.

Even though this night was chill enough to recrystalize the slowly-thawing limbs of the *safilil* trees, the equinox was long past, and now the fine mist of golden polymer rain presaged the golden days of the approaching summer. T'uupieh had wrapped herself more closely in her own cloak and pulled up the hood, to keep the clinging, sticky mist from fouling her wings and ear membranes; and she had remembered last summer, her first summer, which she would always remember . . . Ahtseet had been a clumsy, flapping infant as that first summer began, and T'uupieh the child had thought her new sister was silly and useless. But summer slowly transformed the land, and filled her wondering eyes with miracles; and her sister was transformed too, into a playful, easily-led companion who could follow her into adventure. Together they learned to use their wings, and to use the warm

updrafts to explore the boundaries and the freedoms of their heritage.

And now, as spring moved into summer once again, T'uupieh clung fiercely to the vision, not wanting to lose it, or to remember that childhood's sweet, unreasoning summer would never come again, even though the seasons returned; for the Wheel of Change swept on, and there was never a turning back. No turning back . . . she had become an adult by the summer's end, and she would never soar with a child's light-winged freedom again. And Ahtseet would never do anything again. Little Ahtseet, always just behind her, like her own fair shadow. . . . *No! She would not regret it! She would be glad—*

"Did you ever think, T'uupieh," the demon had said suddenly, "that it is wrong to kill anyone? You don't want to die—no one wants to die too soon. Why should they have to? Have you ever wondered what it would be like if you could change the world into one where you—where you treated everyone else as you wanted them to treat you, and they treated you the same? If everyone could—live and let live . . ." Its voice slipped into blurred overtones that she couldn't hear.

She had waited, but it said no more, as if it were waiting for her to consider what she'd already heard. But there was no need to think about what was obvious: "Only the dead 'live and let live'. I treat everyone as I expect them to treat me; or I would quickly join the peaceful dead! Death is a part of life. We die when fate wills it, and when fate wills it, we kill.

"You are immortal, you have the power to twist the Wheel, to turn destiny as you want. You may toy with idle fantasies, even make them real, and never suffer the consequences. We have no place for such things in our small lives. No matter how much I might try to be like you, in the end I die like all the rest. We can change nothing, our lives are preordained. That is the way, among mortals." And she had fallen silent again, filled with unease at this strange wandering of the demon's mind. But she must not let it prey on her nerves. Day would come very soon, she must not be nervous; she must be totally in control when she led this attack on Klovhiri. No emotion must interfere . . . no matter how much she yearned to feel Klovhiri's blood spill bluely over her hands, and her sister's, and the children's . . . Ahtseet's brats would never feel the warm wind lift them into the sky; or plunge, as she had, into the depths of her rainbow-petaled pools; or see her towers spearing light far off among the trees. *Never! Never!*

She had caught her breath sharply then, as a fiery pinwheel burst through the wall of tangled brush behind her, tumbling past her head into the clearing of the camp. She had watched it circle the fire—spitting sparks, hissing furiously in the quiet air—three and a half times before it spun on into the darkness. No sleeper wakened, and only two stirred. She clutched one of the demon's hard, angular legs, shaken; knowing that the circling of the fire had been a portent . . . but not knowing what it meant. The burning silence it left behind oppressed her; she stirred restlessly, stretching her wings.

And utterly unmoved, the demon had begun to drone its strange, dark

thoughts once more, "Not all you have heard about demons is true. We can suffer . . ." it groped for words again, "the—the consequences of our acts; among ourselves we fight and die. We *are* vicious, and brutal, and pitiless: But we don't like to be that way. We want to change into something better, more merciful, more forgiving. We fail more than we win . . . but we believe we *can* change. And you are more like us than you realize. You can draw a line between—trust and betrayal, right and wrong, good and evil; you can choose never to cross that line—"

"How, then?" She had twisted to face the amber eye as large as her own head, daring to interrupt the demon's speech. "How can one droplet change the tide of the sea? It's impossible! The world melts and flows, it rises into mist, it returns again to ice, only to melt and flow once more. A wheel has no beginning, and no end; no starting place. There is no 'good', no 'evil' . . . no line between them. Only acceptance. If you were a mortal, I would think you were mad!"

She had turned away again, her claws digging shallow runnels in the polymer-coated stone as she struggled for self-control. *Madness*. . . . Was it possible? she wondered suddenly. Could her demon have gone mad? How else could she explain the thoughts it had put into her mind? Insane thoughts, bizarre, suicidal . . . but thoughts that would haunt her.

Or, could there be a method in its madness? She knew that treachery lay at the heart of every demon. It could simply be lying to her, when it spoke of trust and forgiveness—knowing she must be ready for tomorrow, hoping to make her doubt herself, make her fail. Yes, that was much more reasonable. But then, why was it so hard to believe that this demon would try to ruin her most cherished goals? After all, she held it prisoner; and though her spells kept it from tearing her apart, perhaps it still sought to tear apart her mind, to drive her mad instead. Why shouldn't it hate her, and delight in her torment, and hope for her destruction?

How could it be so ungrateful! She had almost laughed aloud at her own resentment, even as it formed the thought. As if a demon ever knew gratitude! But ever since the day she had netted it in spells in the swamp, she had given it nothing but the best treatment. She had fetched and carried, and made her fearful followers do the same. She had given it the best of everything—anything it desired. At its command she had sent out searchers to look for its scattered eyes, and it had allowed—even encouraged—her to use the eyes as her own, as watchers and protectors. She had even taught it to understand her speech (for it was as ignorant as a baby about the world of mortals), when she realized that it wanted to communicate with her. She had done all those things to win its favor—because she knew that it had come into her hands for a reason; and if she could gain its cooperation, there would be no one who would dare to cross her.

She had spent every spare hour in keeping it company, feeding its curiosity—and her own—as she fed its jeweled maw . . . until gradually, those conversations with the demon had become an end in themselves, a treasure worth the sacrifice of even

precious metals. Even the constant waiting for its alien mind to ponder her questions and answers had never tired her; she had come to enjoy sharing even the simple pleasure of its silences, and resting in the warm amber light of its gaze.

T'uupieh looked down at the finely-woven fiber belt which passed through the narrow slits between her side and wing and held her tunic to her. She fingered the heavy, richly-amber beads that decorated it—metal-dyed melt trapped in polished waterstone by the jewelsmith's secret arts—that reminded her always of her demon's thousand eyes. *Her* demon—

She looked away again, toward the fire, toward the cloak-wrapped forms of her outlaws. Since the demon had come to her she had felt both the physical and the emotional space that she had always kept between herself as leader and her band of followers gradually widening. She was still completely their leader, perhaps more firmly so because she had tamed the demon; and their bond of shared danger and mutual respect had never weakened. But there were other needs which her people might fill for each other, but never for her.

She watched them sleeping like the dead, as she should be sleeping now; preparing themselves for tomorrow. They took their sleep sporadically, when they could, as all commoners did—as she did now, too, instead of hibernating the night through like proper nobility. Many of them slept in pairs, man and woman; even though they mated with a commoner's chaotic lack of discrimination, whenever a women felt the season come upon her. T'uupieh wondered what they must imagine when they saw her sitting here with the demon far into the night. She knew what they believed—what she encouraged all to believe—that she had chosen it for a consort, or that it had chosen her. Y'lirr, she saw, still slept alone. She trusted and liked him as well as she did anyone; he was quick and ruthless, and she knew that he worshipped her. But he was a commoner . . . and more importantly, he did not challenge her. Nowhere, even among the nobility, had she found anyone who offered the sort of companionship she craved . . . until now, until the demon had come to her. No, she would not believe that all its words had been lies—

"T'uupieh," the demon called her name buzzingly in the misty darkness. "Maybe you can't change the pattern of fate . . . but you can change your mind. You've already defied fate, by turning outlaw, and defying Klovhiri. Your sister was the one who accepted . . ." unintelligible words, ". . . only let the Wheel take her. Can you really kill her for that? You must understand why she did it, how she *could* do it. You don't have to kill her for that . . . you don't have to kill any of them. You have the strength, the courage, to put vengeance aside, and find another way to your goals. You can choose to be merciful—you can choose your own path through life, even if the ultimate destination of all life is the same."

She stood up resentfully, matching the demon's height, and drew her cloak tightly around her. "Even if I wished to change my mind, it is too late. The Wheel is already in motion . . . and I must get my sleep, if I am to be ready for it." She started away

toward the fire; stopped, looking back. "There is nothing I can do now, my demon. I cannot change tomorrow. Only you can do that. Only you."

She heard it, later, calling her name softly as she lay sleepless on the cold ground. But she turned her back toward the sound and lay still, and at last sleep came.

Shannon slumped back into the embrace of the padded chair, rubbing his aching head. His eyelids were sandpaper, his body was a weight. He stared at the display screen, at T'uupieh's back turned stubbornly toward him as she slept beside the nitrogen campfire. "Okay, that's it. I give up. She won't even listen. Call Reed and tell him I quit."

"That you've quit trying to convince T'uupieh," Garda said. "Are you sure? She may yet come back. Use a little more emphasis on—spiritual matters. We must be certain we have done all we can to . . . change her mind."

To save her soul, he thought sourly. Garda had gotten her early training at an institute dedicated to translating the Bible; he had discovered in the past few hours that she still had a hidden desire to proselytize. *What soul?* "We're wasting our time. It's been six hours since she walked out on me. She's not coming back. . . . And I mean quit everything. I don't want to be around for the main event, I've had it."

"You don't mean that," Garda said. "You're tired, you need the rest too. When T'uupieh wakes, you can talk to her again."

He shook his head, pushing back his hair. "Forget it. Just call Reed."

He looked out the window, at dawn separating the mist-wrapped silhouette of seaside condominiums from the sky.

Garda shrugged, disappointed, and turned to the phone.

He studied the synthesizer's touchboards again, still bright and waiting, still calling his leaden, weary hands to try one more time. At least when he made this final announcement, it wouldn't have to be direct to the eyes and ears of a waiting world: He doubted that any reporter was dedicated enough to still be up in the glass-walled observation room at this hour. Their questions had been endless earlier tonight, probing his feelings and his purpose and his motives and his plans; asking about 'Robin Hood's' morality, or lack of it, and his own; about a hundred and one other things that were nobody's business but his own.

The music world had tried to do the same thing to him once, but then there had been buffers—agents, publicity staffs—to protect him. Now, when he'd had so much at stake, there had been no protection, only Reed at the microphone eloquently turning the room into a sideshow, with Shann the Man as chief freak; until Shannon had begun to feel like a man staked out on an anthill and smeared with honey. The reporters gazed down from on high, critiquing T'uupieh's responses and criticizing his own, and filled the time-gaps when he needed quiet to think with infuriating interruptions. Reed's success had been total in wringing every drop of pathos and human interest out of his struggle to prevent T'uupieh's vengeance against the Innocents . . . and by

that, had managed to make him fail.

No. He sat up straighter, trying to ease his back. No, he couldn't lay it on Reed. By the time what he'd had to say had really counted, the reporters had given up on him. The failure belonged to him, only him: his skill hadn't been great enough, his message hadn't been convincing enough—he was the one who hadn't been able to see through T'uupieh's eyes clearly enough to make her see through his own. He had had his chance to really communicate, for once in his life—to communicate something important. And he'd sunk it.

A hand reached past him to set a cup of steaming coffee on the shelf below the terminal. "One thing about this computer—," a voice said quietly, "—it's programmed for a good cup of coffee."

Startled, he laughed without expecting to; he glanced up. His mother's face looked drawn and tired, she held another cup of coffee in her hand. "Thanks." He picked up the cup and took a sip, felt the hot liquid slide down his throat into his empty stomach. Not looking up again, he said, "Well, you got what you wanted. And so did Reed. He got his pathos, and he gets his murders too."

She shook her head. "This isn't what I wanted. I don't want to see you give up everything you've done here, just because you don't like what Reed is doing with part of it. It isn't worth that. Your work means too much to this project . . . and it means too much to you."

He looked up.

"*Ja,* she is right, Shannon. You can't quit now—we need you too much. And T'uupieh needs you."

He laughed again, not meaning it. "Like a cement yo-yo. What are you trying to do, Garda, use my own moralizing against me?"

"She's telling you what any blind man could see tonight; if he hadn't seen it months ago . . ." His mother's voice was strangely distant. "That this project would never have had this degree of success without you. That you were right about the synthesizer. And that losing you now might—"

She broke off, turning away to watch as Reed came through the doors at the end of the long room. He was alone, this time, for once, and looking rumpled. Shannon guessed that he had been sleeping when the phone call came, and was irrationally pleased at waking him up.

Reed was not so pleased. Shannon watched the frown that might be worry, or displeasure, or both, forming on his face as he came down the echoing hall toward them. "What did she mean, you want to quit? Just because you can't change an alien mind?" He entered the cubicle, and glanced down at the terminal—to be sure that the remote microphones were all switched off, Shannon guessed. "You knew it was a long shot, probably hopeless . . . you have to accept that she doesn't want to reform, accept that the values of an alien culture are going to be different from your own—"

Shannon leaned back, feeling a muscle begin to twitch with fatigue along the inside of his elbow. "I can accept that. What I can't accept is that you want to make us into a bunch of damn panderers. Christ, you don't even have a good reason! I didn't come here to play sound track for a snuff flick. If you go ahead and feed the

world those murders, I'm laying it down. I don't want to give all this up, but I'm not staying for a kill-porn carnival."

Reed's frown deepened, he glanced away. "Well? What about the rest of you? Are you still privately branding me an accessory to murder, too? Carly?"

"No, Marcus—not really." She shook her head. "But we all feel that we shouldn't cheapen and weaken our research by making a public spectacle of it. After all, the people of Titan have as much right to privacy and respect as any culture on Earth."

"*Ja,* Marcus—I think we all agree about that."

"And just how much privacy does anybody on Earth have today? Good God—remember the Tasaday? And that was thirty years ago. There isn't a single mountain top or desert island left that the all-seeing eye of the camera hasn't broadcast all over the world. And what do you call the public crime surveillance laws—our own lives are one big peep show."

Shannon shook his head. "That doesn't mean we have to—"

Reed turned cold eyes on him. "And I've had a little too much of your smartass piety, Wyler. Just what do you owe your success as a musician to, if not publicity?" He gestured at the posters on the walls. "There's more hard sell in your kind of music than any other field I can name."

"I have to put up with some publicity push, or I couldn't reach the people, I couldn't do the thing that's really important to me—communicate. That doesn't mean I like it."

"You think I enjoy this?"

"Don't you?"

Reed hesitated. "I happen to be good at it, which is all that really matters. Because you may not believe it, but I'm still a scientist, and what I care about most of all is seeing that research gets its fair slice of the pie. You say I don't have a good reason for pushing our findings: Do you realize that NASA lost all the data from our Neptune probe just because somebody in effect got tired of waiting for it to get to Neptune, and cut off our funds? The real problem on these long outer-planet missions isn't instrumental reliability, it's financial reliability. The public will pay out millions for one of your concerts, but not one cent for something they don't understand—"

"I don't make—"

"People want to forget their troubles, be entertained . . . and who can blame them? So in order to compete with movies, and sports, and people like you—not to mention ten thousand other worthy government and private causes—we have to give the public what it wants. It's my responsibility to deliver that, so that the 'real scientists' can sit in their neat, bright institutes with half a billion dollars worth of equipment around them, and talk about 'respect for research'."

He paused; Shannon kept his gaze stubbornly. "Think it over. And when you can tell me how what you did as a musician is morally superior to, or more valuable than what you're doing now, you can come to my office and tell me who the real hypocrite is. But think it over, first—all of you." Reed turned and left the cubicle.

They watched in silence, until the double doors at the end of the room hung still. "Vell . . ." Garda glanced at her walking stick, and down at her

cloak. "He does have a point."

Shannon leaned forward, tracing the complex beauty of the synthesizer terminal, feeling the combination of chagrin and caffeine pushing down his fatigue. "I know he does. But that isn't the point I was trying to get at! I didn't want to change T'uupieh's mind, or quit either, just because I objected to selling this project. It's the *way* it's being sold, like some kind of kill-porn show perversion, that I can't take—" When he was a child, he remembered, rock concerts had had a kind of notoriety; but they were as respectable as a symphony orchestra now, compared to the "thrill-shows" that had eclipsed them as he was growing up: where "experts" gambled their lives against a million dollar pot, in front of a crowd who came to see them lose; where masochists made a living by self-mutilation; where they ran *cinema verité* films of butchery and death.

"I mean, is that what everybody really wants? Does it really make everybody feel good to watch somebody else bleed? Or are they going to get some kind of moral superiority thing out of watching it happen on Titan instead of here?" He looked up at the display, at T'uupieh, who still lay sleeping, unmoving and unmoved. "If I could have changed T'uupieh's mind, or changed what happens here, then maybe I could have felt good about something. At least about myself. But who am I kidding . . ." T'uupieh had been right all along; and now he had to admit it to himself: that there had never been any way he could change either one. "T'uupieh's just like the rest of them, she'd rather cut off your hand than shake it . . . and doing it vicariously means we're no better. And none of us ever will be." The words to a song older than he was slipped into his mind, with sudden irony: " 'One man's hands can't build'," he began to switch off the terminal, "anything."

"You need to sleep . . . ve all need to sleep." Garda rose stiffly from her chair.

" '. . . but if one and one and fifty make a million'," his mother matched his quote softly.

Shannon turned back to look at her, saw her shake her head; she felt him looking at her, glanced up. "After all, if T'uupieh could have accepted that everything she did was morally evil, what would have become of her? She knew: It would have destroyed her—we would have destroyed her. She would have been swept away and drowned in the tide of violence." His mother looked away at Garda, back at him. "T'uupieh is a realist, whatever else she is."

He felt his mouth tighten against the resentment that sublimated a deeper, more painful emotion; he heard Garda's grunt of indignation.

"But that doesn't mean that you were wrong—or that you failed."

"That's big of you." He stood up, nodding at Garda, and toward the exit, "Come on."

"Shannon."

He stopped, still facing away.

"I don't think you failed. I think you did reach T'uupieh. The last thing she said was 'only you can change tomorrow' . . . I think she was challenging the demon to go ahead; to do what she didn't have the power to do herself. I think she was asking you to help her."

He turned, slowly. "You really believe that?"

"Yes, I do." She bent her head, freed her hair from the collar of her sweater.

He moved back to his seat, his hands brushed the dark, unresponsive touchplates on the panel. "But it wouldn't do any good to talk to her again. Somehow the demon has to stop the attack itself. If I could use the 'voice' to warn them. . . . Damn the time lag!" By the time his voice reached them, the attack would have been over for hours. How could he change anything tomorrow, if he was always two hours behind?

"I know how to get around the time-lag problem."

"How?" Garda sat down again, mixed emotions showing on her broad, seamed face. "He can't send a varning ahead of time; no one knows when Klovhiri will pass. It would come too soon, or too late."

Shannon straightened up. "Better to ask, 'why'? Why are you changing your mind?"

"I never changed my mind," his mother said mildly. "I never liked this either. When I was a girl, we used to believe that our actions *could* change the world; maybe I've never stopped wanting to believe that."

"But Marcus is not going to like us meddling behind his back, anyway." Garda waved her staff. "And what about the point that perhaps we do need this publicity?"

Shannon glanced back irritably. "I thought you were on the side of the angels, not the devil's advocate."

"I am!" Garda's mouth puckered. "But—"

"Then what's such bad news about the probe making a last minute rescue? It'll be a sensation."

He saw his mother smile, for the first time in months. "Sensational . . . if T'uupieh doesn't leave us stranded in the swamp for our betrayal."

He sobered. "Not if you really think she wants our help. And I know she wants it . . . I *feel* it. But how do we beat the time lag?"

"I'm the engineer, remember? I'll need a recorded message from you, and some time to play with that." His mother pointed at the computer terminal.

He switched on the terminal and moved aside. She sat down, and started a program documentation on the display; he read, REMOTE OPERATIONS MANUAL. "Let's see . . . I'll need feedback on the approach of Klovhiri's party."

He cleared his throat. "Did you really mean what you said, before Reed came in?"

She glanced up; he watched one response form on her face, and then fade into another smile, "Garda—have you met My Son, the Linguist?"

"And when did you ever pick up on that Pete Seegar song?"

"And My Son, the Musician . . ." the smile came back to him. "I've listened to a few records, in my day." The smile turned inward, toward a memory. "I don't suppose I ever told you that I fell in love with your father because he reminded me of Elton John."

T'uupieh stood silently, gazing into the demon's unwavering eye. A new day was turning the clouds from

bronze to gold; the brightness seeped down through the glistening, snarled hair of the treetops, glanced from the green, translucent cliff-faces and sweating slopes, to burnish the demon's carapace with light. She gnawed the last shreds of flesh from a bone, forcing herself to eat, scarcely aware that she did. She had already sent out watchers in the direction of the town, to keep watch for Chwiul . . . and Klovhiri's party. Behind her the rest of her band made ready now, testing weapons and reflexes or feeding their bellies.

And still the demon had not spoken to her. There had been many times when it had chosen not to speak for hours on end; but after its mad ravings of last night, the thought obsessed her that it might never speak again. Her concern grew, lighting the fuse of her anger, which this morning was already short enough; until at last she strode recklessly forward and struck it with her open hand. "Speak to me, *mala 'ingga!*"

But as her blow landed a pain like the touch of fire shot up the muscles of her arm. She leaped back with a curse of surprise, shaking her hand. The demon had never lashed out at her before, never hurt her in any way: But she had never dared to strike it before, she had always treated it with calculated respect. *Fool!* She looked down at her hand, half afraid to see it covered with burns that would make her a cripple in the attack today. But the skin was still smooth and unblistered, only bright with the smarting shock.

"T'uupieh! Are you all right?"

She turned to see Y'lirr, who had come up behind her looking half-frightened, half-grim. "Yes," she nodded, controlling a sharper reply at the sight of his concern. "It was nothing." He carried her double-arched bow and quiver; she put out her smarting hand and took them from him casually, slung them at her back. "Come, Y'lirr, we must—"

"T'uupieh." This time it was the demon's eerie voice that called her name. "T'uupieh, if you believe in my power to twist fate as I like, then you must come back and listen to me again."

She turned back, felt Y'lirr hesitate behind her. "I believe truly in all your powers, my demon!" She rubbed her hand.

The amber depths of its eye absorbed her expression, and read her sincerity; or so she hoped. "T'uupieh, I know I did not make you believe what I said. But I want you to—," its words blurred unintelligibly, "—in me. I want you to know my name. T'uupieh, my name is—"

She heard a horrified yowl from Y'lirr behind her. She glanced around—seeing him cover his ears—and back, paralyzed by disbelief.

"—Shang'ang."

The word struck her like the demon's fiery lash, but the blow this time struck only in her mind. She cried out, in desperate protest; but the name had already passed into her knowledge, *too late*!

A long moment passed; she drew a breath, and shook her head. Disbelief still held her motionless as she let her eyes sweep the brightening camp, as she listened to the sounds of the wakening forest, and breathed in the spicy acridness of the spring growth. And then she began to laugh. She had

heard a demon speak its name, and she still lived—and was not blind, not deaf, not mad. The demon had chosen her, joined with her, surrendered to her at last!

Dazed with exultation, she almost did not realize that the demon had gone on speaking to her. She broke off the song of triumph that rose in her, listening:

". . . then I command you to take me with you when you go today. I must see what happens, and watch Klovhiri pass."

"Yes! Yes, my—Shang'ang. It will be done as you wish. Your whim is my desire." She turned away down the slope, stopped again as she found Y'lirr still prone where he had thrown himself down when the demon spoke its name. "Y'lirr?" She nudged him with her foot. Relieved, she saw him lift his head; watched her own disbelief echoing in his face as he looked up at her.

"My lady . . . it did not—?"

"No, Y'lirr," she said softly; then more roughly, "Of course it did not! I am truly the Demon's Consort now; nothing shall stand in my way." She pushed him again with her foot, harder. "Get up. What do I have, a pack of sniveling cowards to ruin the morning of my success?"

Y'lirr scrambled to his feet, brushing himself off. "Never that T'uupieh! We're ready for any command . . . ready to deliver your revenge." His hand tightened on his knife hilt.

"And my demon will join us in seeking it out!" The pride she felt rang in her voice. "Get help to fetch a sledge here, and prepare it. And tell them to move it *gently*."

He nodded, and for a moment as he glanced at the demon she saw both fear and envy in his eyes. "Good news." He moved off then with his usual brusqueness, without glancing back at her.

She heard a small clamor in the camp, and looked past him, thinking that word of the demon had spread already. But then she saw Lord Chwiul, come as he had promised, being led into the clearing by her escorts. She lifted her head slightly, in surprise—he had indeed come alone, but he was riding a *bliell*. They were rare and expensive mounts, being the only beast she knew of large enough to carry so much weight, and being vicious and difficult to train, as well. She watched this one snapping at the air, its fangs protruding past slack, dribbling lips, and grimaced faintly. She saw that the escort kept well clear of its stumplike webbed feet, and kept their spears ready to prod. It was an amphibian, being too heavy ever to make use of wings, but buoyant and agile when it swam. T'uupieh glanced fleetingly at her own webbed fingers and toes, at the wings that could only lift her body now for bare seconds at a time; she wondered, as she had so many times, what strange turns of fate had formed, or transformed, them all.

She saw Y'lirr speak to Chwiul, pointing her out, saw his insolent grin and the trace of apprehension that Chwiul showed looking up at her; she thought that Y'lirr had said, "She knows its name."

Chwiul rode forward to meet her, with his face under control as he endured the demon's scrutiny. T'uupieh put out a hand to casually—gently—stroke its sensuous, jewel-

faceted side. Her eyes left Chwiul briefly, drawn by some instinct to the sky directly above him—and for half a moment she saw the clouds break open . . .

She blinked, to see more clearly, and when she looked again it was gone. No one else, not even Chwiul, had seen the gibbous disc of greenish gold, cut across by a line of silver and a band of shadow-black: The Wheel of Change. She kept her face expressionless, but her heart raced. The Wheel appeared only when someone's life was about to be changed profoundly—and usually the change meant death.

Chwiul's mount lunged at her suddenly as he stopped before her. She held her place at the demon's side; but some of the *bliell*'s bluish spittle landed on her cloak as Chwiul jerked at its heavy head. "Chwiul!" She let her emotion out as anger. "Keep that slobbering filth under control, or I will have it struck dead!" Her hand fisted on the demon's slick hide.

Chwiul's near-smile faded abruptly, and he pulled his mount back, staring uncomfortably at the demon's glaring eye.

T'uupieh took a deep breath, and produced a smile of her own. "So you did not quite dare to come to my camp alone, my lord."

He bowed slightly, from the saddle. "I was merely hesitant to wander in the swamp on foot, alone, until your people found me."

"I see." She kept the smile. "Well then—I assumed that things went as you planned this morning. Are Klovhiri and his party all on their way into our trap?"

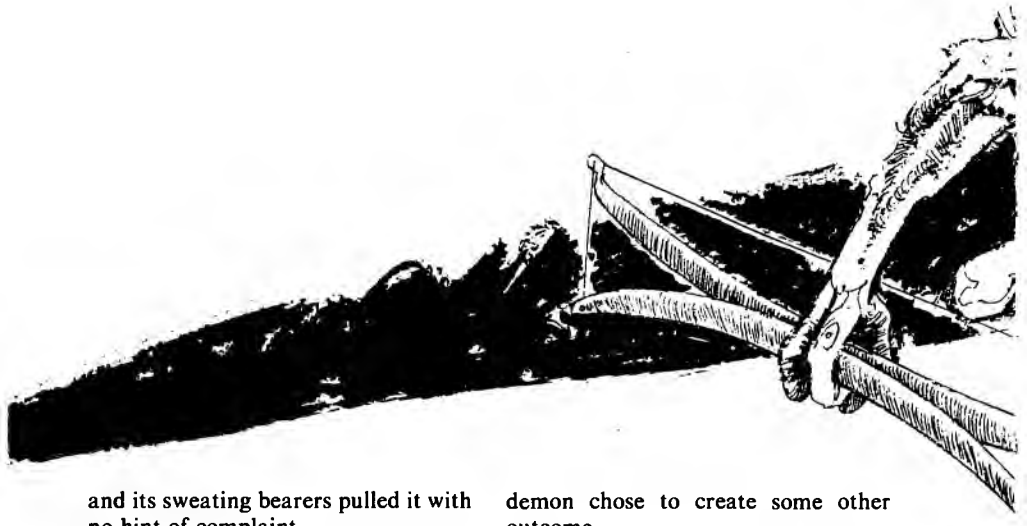
"They are. And their guide is waiting for my sign, to lead them off safe ground into whatever mire you choose."

"Good. I have a spot in mind that is well ringed by heights." She admired Chwiul's self-control in the demon's presence; although she sensed that he was not as easy as he wanted her to believe. She saw some of her people coming toward them, with a sledge to carry the demon on their trek. "My demon will accompany us, by its own desire. A sure sign of our success today, don't you agree?"

Chwiul frowned, as if he wanted to question that, but didn't quite dare. "If it serves you loyally, then yes, my lady. A great honor and a good omen."

"It serves me with true devotion." She smiled again, insinuatingly. She stood back as the sledge came up onto the hummock, watched as the demon was settled onto it, to be sure her people used the proper care. The fresh reverence with which her outlaws treated it—and their leader—was not lost on either Chwiul or herself.

She called her people together, then, and they set out for their destination, picking their way over the steaming surface of the marsh and through the slimy slate-blue tentacles of the fragile, thawing underbrush. She was glad that they covered this ground often, because the pungent spring growth and the ground's mushy unpredictability changed the pattern of their passage from day to day. She wished that she could have separated Chwiul from his ugly mount, but she doubted that he would cooperate, and she was afraid that he might not be able to keep up on foot. The demon was lashed securely onto its sledge,



and its sweating bearers pulled it with no hint of complaint.

At last they reached the heights overlooking the main road—though it could hardly be called one now—that led past her family's manor. She had the demon positioned where it could look back along the overgrown trail in the direction of Klovhiri's approach, and sent some of her followers to secret its eyes further down the track. She stood then gazing down at the spot below where the path seemed to fork, but did not: The false fork followed the rippling yellow bands of the cliff-face below her—directly into a sink caused by ammonia-water melt seeping down and through the porous sulphide compounds of the rock. There they would all wallow, while she and her band picked them off like swatting *ngips* . . . she thoughtfully swatted a *ngip* that had settled on her hand. Unless her demon—unless her demon chose to create some other outcome . . .

"Any sign?" Chwiul rode up beside her.

She moved back slightly from the cliff's crumbly edge, watching him with more than casual interest. "Not yet. But soon." She had outlaws posted on the lower slope across the track as well; but not even her demon's eyes could pierce too deeply into the foliage along the road. It had not spoken since Chwiul's arrival, and she did not expect it to reveal its secrets now. "What livery does your escort wear, and how many of them do you want killed for effect?" She unslung her bow, and began to test its pull.

Chwiul shrugged. "The dead carry no tales; kill them all. I shall have Klovhiri's men soon. Kill the guide too—a man who can be bought once, can be bought twice."

"Ah—" She nodded, grinning. "A man with your foresight and discretion will go far in the world, my lord." She nocked an arrow in the bowstring before she turned away to search the road again. Still empty. She looked away restlessly, at the spiny silver-blue-green of the distant, fog-clad mountains; at the hollow fingers of upthrust ice, once taller than she was, stubby and diminishing now along the edge of the nearer lake. The lake where last summer she had soared . . .

A flicker of movement, a small unnatural noise, pulled her eyes back to the road. Tension tightened the fluid ease of her movement as she made the trilling call that would send her band to their places along the cliff's edge. *At last*— She leaned forward eagerly for the first glimpse of Klovhiri; spotting the guide, and then the sledge that bore her sister and the children. She counted the numbers of the escort, saw them all emerge into her unbroken view on the track. But Klovhiri . . . where was Klovhiri? She turned back to Chwiul, her whisper struck out at him, "Where is he! Where is Klovhiri?"

Chwiul's expression lay somewhere between guilt and guile. "Delayed. He stayed behind, he said there were still matters at court—"

"Why didn't you tell me that?"

He jerked sharply on the *bliell*'s rein. "It changes nothing! We can still eradicate his family. That will leave me first in line to the inheritance . . . and Klovhiri can always be brought down later."

"But it's Klovhiri I want, for myself." T'uupieh raised her bow, the arrow tracked toward his heart.

"They'll know who to blame if I die!" He spread a wing defensively. "The Overlord will turn against you for good; Klovhiri will see to that. Avenge yourself on your sister, T'uupieh—and I will still reward you well if you keep the bargain!"

"This is not the bargain we agreed to!" The sounds of the approaching party reached her clearly now from down below; she heard a child's high notes of laughter. Her outlaws crouched, waiting for her signal; and she saw Chwiul prepare for his own signal call to his guide. She looked back at the demon, its amber eye fixed on the travelers below. She started toward it. It could still twist fate for her. . . . *Or had it, already?*

"Go back, go back!" The demon's voice burst over her, down across the silent forest, like an avalanche. "Ambush . . . trap . . . you have been betrayed!"

"—betrayal!"

She barely heard Chwiul's voice below the roaring; she looked back, in time to see the *bliell* leap forward, to intersect her own course toward the demon. Chwiul drew his sword, she saw the look of white fury on his face, not knowing whether it was for her, or the demon itself. She ran toward the demon's sledge, trying to draw her bow; but the *bliell* covered the space between them in two great bounds. Its head swung toward her, jaws gaping. Her foot skidded on the slippery melt, and she went down; the dripping jaws snapped futilely shut above her face. But one flailing leg struck her heavily and knocked her sliding through the melt to the demon's foot—

The demon. She gasped for the air that would not fill her lungs, trying to call its name; saw with incredible clarity the beauty of its form, and the ululating horror of the *bliell* bearing down on them to destroy them both. She saw it rear above her, above the demon—saw Chwiul, either leaping or thrown, sail out into the air—and at last her voice came back to her and she screamed the name, a warning and a plea, "Shang'ang!"

And as the *bliell* came down, lightning lashed out from the demon's carapace and wrapped the *bliell* in fire. The beast's ululations rose off the scale; T'uupieh covered her ears against the piercing pain of its cry. But not her eyes: the demon's lash ceased with the suddenness of lightning, and the *bliell* toppled back and away, rebounding lightly as it crashed to the ground, stone dead. T'uupieh sank back against the demon's foot, supported gratefully as she filled her aching lungs, and looked away—

To see Chwiul, trapped in the updrafts at the cliff's edge, gliding, gliding . . . and she saw the three arrows that protruded from his back, before the currents let his body go, and it disappeared below the rim. She smiled, and closed her eyes.

"T'uupieh! T'uupieh!"

She blinked them open again, resignedly, as she felt her people cluster around her. Y'lirr's hand drew back from the motion of touching her

face as she opened her eyes. She smiled again, at him, at them all; but not with the smile she had had for Chwiul. "Y'lirr—" she gave him her own hand, and let him help her up. Aches and bruises prodded her with every small movement, but she was certain, reassured, that the only real damage was an oozing tear in her wing. She kept her arm close to her side.

"T'uupieh—"

"My lady—"

"What happened? The demon—"

"The demon saved my life." She waved them silent. "And . . . for its own reasons, it foiled Chwiul's plot." The realization, and the implications, were only now becoming real in her mind. She turned, and for a long moment gazed into the demon's unreadable eye. Then she moved away, going stiffly to the edge of the cliff to look down.

"But the contract—," Y'lirr said.

"Chwiul broke the contract! He did not give me Klovhiri." No one made a protest. She peered through the brush, guessing without much difficulty the places where Ahtseet and her party had gone to earth below. She could hear a child's whimpered crying, now. Chwiul's body lay sprawled on the flat, in plain view of them all, and she thought she saw more arrows bristling from his corpse. Had Ahtseet's guard riddled him too, taking him for an attacker? The thought pleased her. And a small voice inside her dared to whisper that Ahtseet's escape pleased her much more. . . . She frowned suddenly at the thought.

But Ahtseet had escaped, and so had Klovhiri—and so she might as well make use of that fact, to salvage what she could. She paused, collecting her still-shaken thoughts. "Ahtseet!" Her voice was not the voice of the demon, but it echoed satisfactorily. "It's T'uupieh! See the traitor's corpse that lies before you—your own mate's brother, Chwiul! He hired murderers to kill you in the swamp—seize your guide, make him tell you all. It is only by my demon's warning that you still live."

"Why?" Ahtseet's voice wavered faintly on the wind.

T'uupieh laughed bitterly. "Why, to keep the roads clear of ruffians. To make the Overlord love his loyal servant more, and reward her better, dear sister! And to make Klovhiri hate me. May it eat his guts out that he owes your lives to me! Pass freely through my lands, Ahtseet; I give you leave—this once."

She drew back from the ledge and moved wearily away, not caring whether Ahtseet would believe her. Her people stood waiting, gathered silently around the corpse of the *bliell*.

"What now?" Y'lirr asked, looking at the demon, asking for them all.

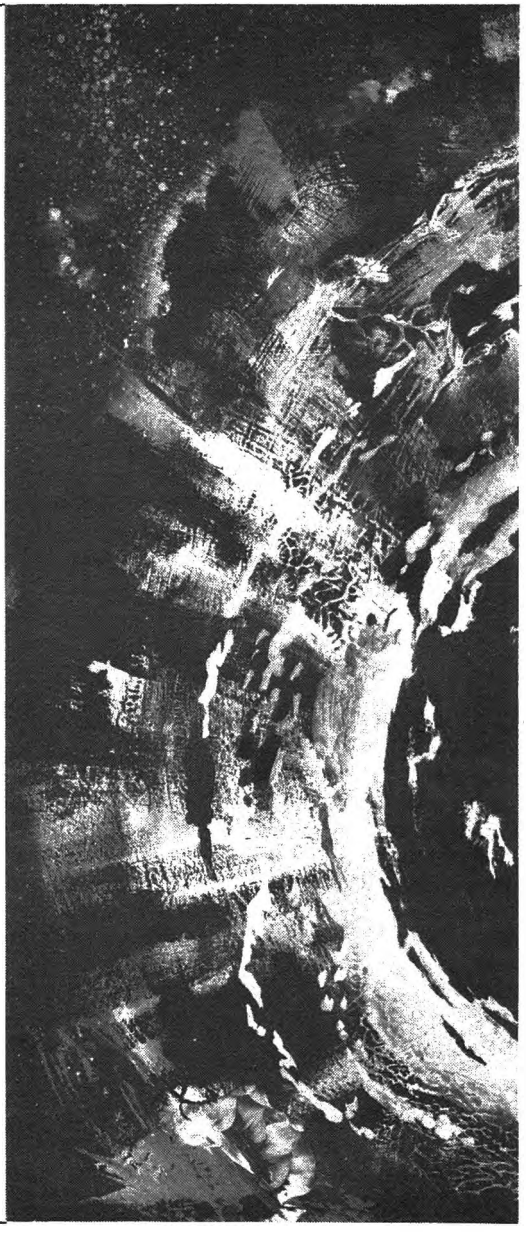
And she answered, but made her answer directly to the demon's silent amber eye. "It seems I spoke the truth to Chwiul after all, my demon: I told him he would not be needing his townhouse after today. . . . Perhaps the Overlord will call it a fair trade. Perhaps it can be arranged. The Wheel of Change carries us all; but not with equal ease. Is that not so, my beautiful Shang'ang?"

She stroked its day-warmed carapace tenderly, and settled down on the softening ground to wait for its reply. ■

AND THEN THERE WERE NINE . . .

The solar system is not in equilibrium. Why not?

Trudy E. Bell



Michael Gilbert

Trudy E. Bell is an editor for Scientific American *magazine and is writing a book for Scribner's on the history of astronomy in the U. S. When she isn't comfortably ensconced in the rare book room at the N. Y. Public Library or chasing total solar eclipses to the Arctic and the Sahara, she is a guest lecturer at the Hayden Planetarium teaching history of astronomy. Before coming to New York City in 1971, she was a mission controller for* Pioneer *spacecraft at Ames Research Center, Moffett Field, Calif., and an undergraduate physics major at the University of California at Santa Cruz who defected to history in her junior year. Articles of hers have appeared in a number of publications, including* Sky and Telescope, Astronomy, *and* Family Circle.

The solar system has been around for five billion years, give or take a few hundred million. That's a pretty long time by anyone's standards. All the violent impacts of material bombarding the planets during their formation and early evolution ended hundreds of millions of years ago; the instability of any body disturbed in its orbit by any of those early impacts would have settled out long ago as all the planets readjusted their orbits to a new configuration. In short, one would think, the solar system should have evolved long enough to have reached equilibrium and to be smoothly executing its silent ballet in a thoroughly tame and orderly way. Ho hum.

One would think.

The fact is, the solar system is *not* in equilibrium. Although the orbits of Mercury, Venus, Earth, and Mars are nice and tidy, the orbits of the outer planets are still evolving. That is reflected in the fact that in ephemerides the orbits of Jupiter, Saturn, Uranus, Neptune, and Pluto are not given in terms of the simple orbital elements that characterize in orbits of the inner planets, but are given in terms of "osculating" (as in kissing) elements: elements of approximate orbits that fit at one small portion of the planet's orbit, but not all the way around. And the elements change. It's kind of like drawing the planets' orbits with a series of elliptical French curves: no one curve fits totally, but portions of the lot of curves do fairly well.

Why should orbits of the outer planets still be evolving?

Piqued by exactly that question, a Canadian dynamical astronomer named Michael W. Ovenden began looking into the problem. Clearly, he reasoned, the solar system must still be relaxing from some kind of cataclysmic event in the comparatively recent past. Working from a premise that he called the Principle of Least Interaction Action, which basically stated that planets seek to arrange their orbits in a configuration of lowest energy in which they interact the least, Ovenden's calculations strongly implied that something quite massive must have once existed in the solar system that mysteriously broke up or disappeared—and a short time ago as well. The bill would be fit if a planet

ninety times more massive than the Earth (slightly smaller than Saturn) had once existed in the solar system—between the orbits of Mars and Jupiter.

Thomas C. Van Flandern of the U. S. Naval Observatory has since taken Ovenden's hypothesis one step further: that massive planet did not just break up. It exploded violently—a mere sixteen million years ago.

Sixteen million years ago primates walked the Earth.

If the age of the entire solar system were compressed into a single year, the planet would have blown apart just yesterday.

Moreover, Van Flandern contends, the planet's explosion created not only the asteroids, but comets as well.

The idea that a planet may have once existed between Mars and Jupiter is aesthetically most compelling. Ever since Daniel Titius formulated his law of planetary distances in 1766 and Johann Elert Bode got the credit for it, astronomers have hungered for an explanation for that mysterious gap between Mars and Jupiter, known since 1801 to be populated by what seems—attractively enough—to be the shards of a planet that once existed.

The Titius-Bode law is a formula that more or less predicts the relative radii of the planetary orbits outward from the Sun, approximating each orbit by a circle. It is written:

$$radius = \frac{4+3(2^n)}{10}$$

where the radius of each planet's orbit is given in astronomical units (one a.u. is the mean distance from the Earth to the Sun) and where n for each successive orbit, beginning at Mercury, is—∞, 0, 1, 2, 3, 4, 5, 6, 7, and 8. As can be seen in Figure 1, the actual radii of the planets' orbits are in pretty fair agreement with the radii predicted by the Titius-Bode law, although things are a bit fouled up by the outer planets.

The Titius-Bode law is not really simply an accident. In variant forms it exists also for the satellites of Jupiter and Saturn, and probably has something to do with the composition of those bodies and the way in which they and the planets were formed.

What particularly inflames the imagination about the way in which the Titius-Bode law describes the placement of the planetary orbits, however, is not simply the fact that the gap for the $n = 3$ orbit exists between Mars and Jupiter, but that the gap is so conveniently filled with interplanetary debris *at the right distance of a hypothetical fifth planet.* If nothing at all existed there, perhaps the question would be just as mysterious, but far less burning.

Now, Ovenden and Van Flandern are not the first people who have suggested that a planet once existed between Mars and Jupiter, and they probably will not be the last. And one of the questions that any theory must answer is: what is the evidence?

Here Van Flandern followed his hunch that the exploding planet created the comets as well as the aste-

roids. Ovenden's original hypothesis stated simply that the planet broke up. It did not mention an explosion. The mass of the proposed planet he figured out from the rate at which the orbits of the remaining planets are evolving: a larger planet would cause a larger rate of evolution, and so on.

It was Van Flandern who pointed out that the planet must have exploded because the mass of all the fragments in the asteroid belt today, when lumped together, would add up to only a thousandth the mass of the Earth. Moreover, no core or single fragment larger than 750 kilometers across exists in the asteroid belt now. Thus whatever destroyed the planet must have been violent enough to summarily dispense with 99.99% of its mass. Where would that mass have gone?

Scene: the solar system, sixteen million years ago.

Action: the fifth planet of the solar system, about the size of Saturn, explodes. Cause unknown. Fragments large and small are hurled violently in all directions—above and below the plane of the ecliptic, in the direction of the planet's orbital motion, and opposite to it as well.

In order to escape the solar system, an object has to reach a velocity of approximately twenty-five kilometers per second. Thus the matter ejected in the same direction as the planet is moving has a better chance of clearing out than the stuff thrown out behind.

If the planet had the composition of Saturn, then a lot of it would presumably be ice or frozen gases. Some of it would be vaporized by the heat of the explosion. Part of the hotter matter inside the planet, however, might be instantly frozen when it was ejected into the vacuum of interplanetary space.

The pieces that just barely missed escaping the solar system's gravitational field are the very-long-period comets that are returning to perihelion now for the first time since the catastrophe.

On the face of it that all seems plausible. Certainly cometary orbits are not more or less confined to the ecliptic as planetary orbits are. Moreover, comets seem to be of the right composition to have come from a Saturn-like planet. All their light and action stems from a really quite modest chunk of dirty ice perhaps a few kilometers across that happens to be imprisoned by the Sun's gravity. As the dirty iceball approaches the Sun to within several astronomical units, its outer layers begin to vaporize. Individual molecules of gases—principally singly ionized carbon monoxide—begin to fluoresce with a bluish glow. As the gases stream millions of kilometers away from the Sun, perhaps twisted by the interaction of magnetic fields and the charged ions, microscopic particles of dust are loosened from the icy nucleus and trail behind the comet in its path, shining faintly yellowish from reflected sunlight.

The evidence that comets may have originated in the explosion of the fifth

COMET—SUNSPOT LINK?

Regardless of how the comets were originally created, there may be a link between comets and sunspots.

Kunitomo Sakurai, a solar physicist at the University of Maryland, has done some preliminary calculations that seem to imply that Halley's comet may have a direct effect on long-term solar activity.

There is a long-term variation of sunspot activity on the Sun with a period of about eighty years, which again no one has successfully explained from a physical point of view. Sakurai examined the times of the periodic approach of Halley's comet since 1500 and found out that the comet's perihelion passage more or less coincides with the minimum of the long-term variation in the solar cycle.

The sticker is, there is no other periodic comet that has been seen more than once that has a period of between 76 and 154 years. Halley's comet is the only candidate.

"Although it seems unbelievable that the comet Halley is possibly influencing the long-term variation of the solar activity," Sakurai writes, "the results . . . strongly suggest that the influence of this comet is probable. Since the origin and the behavior of the comet are still very mysterious, the results shown . . . may be related to the properties of this comet still unknown to us."

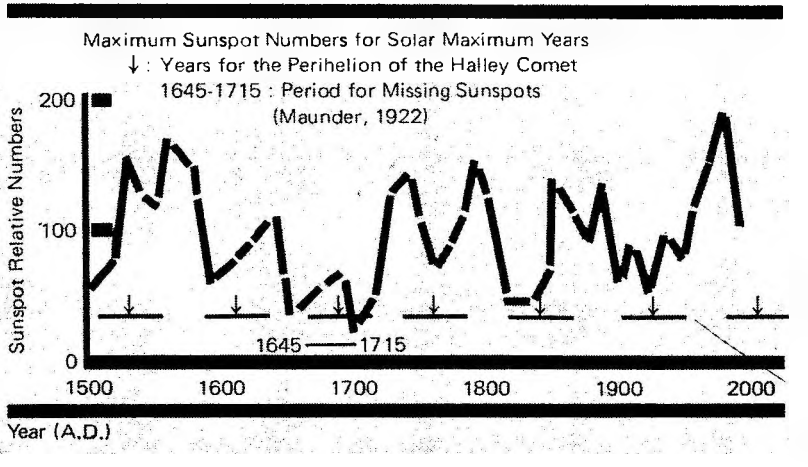


FIGURE I THE TITIUS—BODE LAW OF PLANETARY RADII

Planet	*n*	Distance	Titius–Bode Law	Kepler	von Wolf
Mercury	$-\infty$	3·9	4	5·6	4
Venus	0	7·2	7	7·9	7
Earth	1	10·0	10	10·0	10.
Mars	2	15·2	16	12·6	15
(Ceres)	3	(27·7)	28		
Jupiter	4	52·0	52	37·7	52
Saturn	5	95·5	100	65·4	95
(Uranus)	6	(192·0)	196		
(Neptune)	7	(300·9)	388		
(Pluto)	8	(395)	772		

planet appears to be far stronger than simple plausibility arguments. Some of that evidence lies in the orbits of sixty known, well-observed very-long-period comets—comets with periods of the order of ten million years: *very* long and skinny ellipses indeed, with major axes thousands of astronomical units in length.

Now the orbit of a comet is a subtle and intriguing sum of whatever initial motion the little body may have had when it was created, plus all the gravitational and nongravitational perturbations that it has experienced since. (Nongravitational forces arise mainly when the comet is near enough to the Sun for the icy nucleus to begin vaporizing. The gas molecules ejected by the nucleus exert a rocket force on the comet, and depending on which way the nucleus is rotating, the rocket can accelerate or retard the comet in its orbit.) In a sense, then, the orbit is a "memory" of the comet's past, of where it has been and of what has affected it—although all the effects are superimposed on one another and may be well nigh inextricable.

Van Flandern took these orbits and traced them backwards in time to their previous perihelion passage. He discovered that most of them intersected at nearly the same point in the sky as seen from the Sun.

That point is approximately 2.8 astronomical units from the Sun—the distance of the asteroid belt.

The orbits all intersect nearly about the same time—some sixteen million years ago.

Tracing orbits is no trivial feat. In the normal ephemeris of a comet, the initial position and motion of the comet, the Sun, and each planet (or sometimes only Jupiter) are plugged into a computer along with information about their respective distances from

one another, their gravitational fields and some other quantities, and time is allowed to flow forward. Each body slightly alters the path of every other body. Their paths change, their positions change—and all this is duly predicted by the computer on the basis of observed and known facts.

It's a most iffy enterprise, running the computations backwards. Even in normal ephemerides, an elegant mathematical solution to the three-body problem does not exist. That means you cannot theoretically come up with a complete and exact solution for the motion of three—let alone ten—bodies that mutually affect one another (a fact that has given rise to the quip that planets are therefore smarter than astronomers, for the planets can solve the problem with no effort). Instead, the answers must be gotten from series after series of approximate brute-force numerical integrations on the computer: in short, hours of number-crunching.

Well, you might say, the explosion theory may account for comets whose periods are millions of years; what about the shorter-period comets such as Halley's comet (period seventy-five years) or Encke's comet (period three years)? Were they created by some other process? How do they enter the picture?

In 1972 Edgar Everhart of the University of Denver showed that the orbits of short-period comets could be entirely explained by the action of planetary perturbations on the orbits of long-period comets. In other words, the short-period comets originated in the explosion, too, and were tweaked into their present orbits by the gravitational interference of the planets.

There appears to be further evidence, at least of the circumstantial variety, from a class of meteorites known as carbonaceous chondrites. Although the ages of the more common stony and iron meteorites range from hundreds of millions to billions of years, the carbonaceous chondrites all seem to be less than twenty-two million years old, at least from what can be told from how long they have been exposed to cosmic rays.

Also, chondrites appear to have reflection spectra that are very similar to the spectra of asteroids, implying that perhaps they are of the same materials . . . and that perhaps asteroids are the parent bodies of at least this class of meteorites.

Even more intriguing, the carbonaceous chondrites are the very meteorites that happen to be in the center of the controversy about life in space. Organic molecules have been found deep within them, from chondrites recovered from very recent falls and not ones that sat out in open fields for years on the Earth before being picked up by a casual farmer. There has even been some argument as to whether or not viruses have been found within the chondrites—or whether it was simply a matter of terrestrial contamination. If the controversy is resolved in favor of the viruses, and if the chondrites indeed originated in the explosion, what could that tell us

about the possiblity of life on that fifth planet?

The exploding planet theory might also account for a curious mystery on the Moon that, at first glance, seems unrelated: the peculiar features known as the sinuous rilles.

The sinuous rilles are meandering channels on the Moon that look like nothing so much as courses taken by running water. Water might have been a part of the Moon's native environment billions of years ago, but not in the astronomically recent past.

Yet the sinuous rilles are the youngest features on the Moon.

They have not been interrupted by cratering or by lava flows. Somehow they had to be about the last features created on the Moon.

Paul M. Muller of the Jet Propulsion Laboratory in Pasadena, California, one of the codiscoverers of the mascons (mass concentrations) in the maria of the Moon, finds Van Flandern's hypothesis attractive. He believes that if a lot of the icy debris from the destruction of the fifth planet bombarded the Moon, the heat of the impact could have melted the ice and created a brief time in the recent past (sixteen million years ago) when water was flowing on the surface of the Moon—and forming the sinuous rilles.

And, yes, you could have water flowing in a vacuum for the length of the rilles before evaporating into space. John Salisbury of the Air Force Cambridge Research Laboratories even demonstrated how in a movie. What happens is that the surface of the water freezes in the vacuum and forms a covered channel, much like a lava tube, through which the water can flow for long distances before vaporizing completely. [*Ed. note:* Perhaps the explosion of the fifth planet can also explain a curious anamoly that has been discovered by spacecraft probes to the Moon, Mercury, and Mars. Each of these bodies is asymmetrical when it comes to surface features. They each have one hemisphere that is more heavily cratered than the other hemisphere. Even planet Earth's surface is asymmetrical: our northern hemisphere contains most of the continental land masses, while the southern hemisphere is almost entirely ocean. Could debris from the fifth planet's explosion have caused these features?]

Van Flandern's theory still needs a lot of work, a lot of checking, and a lot of investigation, as Van Flandern himself is the first to admit. His hypothesis is immensely appealing, but not everyone succumbs to its charms. Donald K. Yeomans of J.P.L., who has been one of the people studying the feasibility of space missions to several comets in the 1980s, is not happy with Van Flandern's technique of approximating the gravitational field of the galaxy as a point source and then treating the problem essentially as a modified three-body problem using the Sun, the galactic field, and the comet.

"Computer simulations of real-world phenomena are only as good as

the mathematical model used to represent the real world," he cautions. "Unless your mathematical model is perfect and the input data used to initiate the simulation are exact, as you proceed further and further from the point of initiation, the attempt to simulate the real world will become more and more unrealistic." That problem is especially acute for the orbits of very-long-period comets, which are perhaps the most poorly determined of any objects in the solar system. "Even a 'well-observed' long-period comet has a poorly determined orbit because it is observed during only one visit to the Sun's neighborhood." Furthermore, computer simulation of real comets over merely hundreds of years, let alone sixteen million years, are considered risky because of their observed erratic behavior and the imperfect modeling of the forces that perturb them.

Yeomans also believes that the fact that the perihelion points of all the very-long-period comets are at a distance of less than three astronomical units from the Sun is a selection effect. Much further from the Sun than that and water ice in the comet's nucleus would not begin to vaporize, a tail would not start to form, and the comet would most likely not be seen.

Nevertheless, Yeomans is confident that Van Flandern will work to remove those and other objections to his hypothesis. "His work is far from complete and I look forward to seeing a more detailed report of his study in the future."

Yeomans's very work on several proposed missions for sending spacecraft to several comets may very well allow us to get some direct answers, straight from the comet's ice, so to speak, within a few short years. One mission is to be a slow flyby past Encke's comet in 1980. Another is a shuttle-launched multi-comet mission to comets Giacobini-Zinner, Boreelly, and Halley proposed for 1985.

If those missions bear out Van Flandern's hypothesis, we all know, of course, what that fifth planet should be named: Krypton! ■

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The young man sitting at 2° N, 75° W sent a casually venomous glance up at the nonfunctional shoofly *ventilador* and went on reading his letter. He was sweating heavily, stripped to his shorts in the hotbox of what passed for a hotel room in Cuyapán.

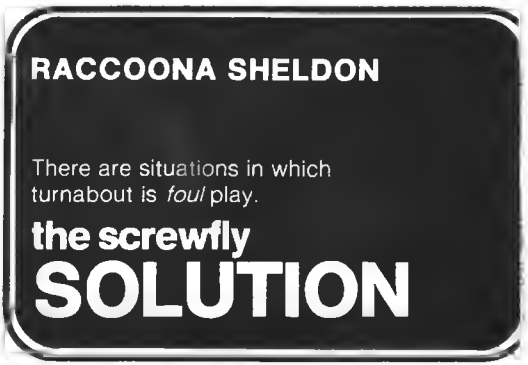
How do other wives *do* it? I stay busy-busy with the Ann Arbor grant review programs and the seminar, saying brightly 'Oh yes, Alan is in Colombia setting up a biological pest control program, isn't it wonderful?' But inside I imagine you being surrounded by nineteen-year-old raven-haired cooing beauties, every one panting with social dedication and filthy rich. And forty inches of bosom busting out of her delicate lingerie. I even figured it in centimeters, that's 101.6 centimeters of busting. Oh, darling, darling, do what you want only *come home safe*.

Alan grinned fondly, briefly imagining the only body he longed for. His girl, his magic Anne. Then he got up to open the window another cautious notch. A long pale mournful face looked in—a goat. The room opened on the goatpen, the stench was vile. Air, anyway. He picked up the letter.

Everything is just about as you left it, except that the Peedsville horror seems to be getting worse. They're calling it the Sons of Adam cult now. Why can't they *do* something, even if it is a religion? The Red Cross has set up a refugee camp in Ashton, Georgia. Imagine, refugees in the U.S.A. I heard two little girls were carried out all slashed up. Oh, Alan.

Which reminds me, Barney came over with a wad of clippings he wants me to send you. I'm putting them in a separate envelope; I know what happens to very fat letters in foreign POs. He says, in case you don't get them, what do the following have in common? Peedsville, Sao Paulo, Phoenix, San Diego, Shanghai, New Delhi, Tripoli, Brisbane, Johannesburg and Lubboc, Texas. He says the hint is, remember where the Intertropical Convergence Zone is now. That makes no sense to me, maybe it will to your superior ecological brain. All I could see about the clippings was that they were fairly horrible accounts of murders or massacres of women. The worst was the New Delhi one, about "rafts of female corpses" in the river. The funniest (!) was the Texas Army officer who shot his wife, three daughters and his aunt, because God told him to clean the place up.

Barney's such an old dear, he's coming over Sunday to help me take




Janet Aulisio

off the downspout and see what's blocking it. He's dancing on air right now, since you left his spruce budworm-moth antipheromone program finally paid off. You know he tested over 2,000 compounds? Well, it seems that good old 2,097 *really* works. When I asked him what it does he just giggles, you know how shy he is with women. Anyway, it seems that a one-shot spray program will save the forests, without harming a single other thing. Birds and people can eat it all day, he says.

Well sweetheart, that's all the news except Amy goes back to Chicago to school Sunday. The place will be a tomb, I'll miss her frightfully in spite of her being at the stage where I'm her worst enemy. The sullen sexy subteens, Angie says. Amy sends love to her Daddy. I send you my whole heart, all that words can't say.

Your Anne

Alan put the letter safely in his notefile and glanced over the rest of the thin packet of mail, refusing to let himself dream of home and Anne. Barney's "fat envelope" wasn't there. He threw himself on the rumpled bed, yanking off the lightcord a minute before the town generator went off for the night. In the darkness the list of places Barney had mentioned spread themselves around a misty globe that turned, troublingly, briefly in his mind. Something . . .

But then the memory of the hideously parasitized children he had worked with at the clinic that day took possession of his thoughts. He set himself to considering the data he must collect. *Look for the vulnerable link in the behavioral chain*—how often Barney—Dr. Barnhard Braithwaite—had pounded it into his skull. Where was it, where? In the morning he would start work on bigger canefly cages . . .

At that moment, five thousand miles North, Anne was writing:

Oh, darling, darling, your first three letters are here, they all came together. I *knew* you were writing. Forget what I said about swarthy heiresses, that was all a joke. My darling I know, I know . . . us. Those dreadful canefly larvae, those poor little kids. If you weren't my husband I'd think you were a saint or something. (I do anyway.)

I have your letters pinned up all over the house, makes it a lot less lonely. No real news here except things feel kind of quiet and spooky. Barney and I got the downspout out, it was full of a big rotted hoard of squirrel-nuts. They must have been dropping them down the top, I'll put a wire over it. (Don't worry, I'll use a ladder this time.)

Barney's in an odd, grim mood. He's taking this Sons of Adam thing very seriously, it seems he's going to be on the investigation committee if that ever gets off the ground. The weird part is that nobody seems to be doing anything, as if it's just too

big. Selina Peters has been printing some acid comments, like When one man kills his wife you call it murder, but when enough do it we call it a lifestyle. I think it's spreading, but nobody knows because the media have been asked to down-play it. Barney says it's being viewed as a form of contagious hysteria. He insisted I send you this ghastly interview, printed on thin paper. It's *not* going to be published, of course. The quietness is worse, though, it's like something terrible was going on just out of sight. After reading Barney's thing I called up Pauline in San Diego to make sure she was all right. She sounded funny, as if she wasn't saying everything . . . my own sister. Just after she said things were great she suddenly asked if she could come and stay here awhile next month. I said come right away, but she wants to sell her house first. I wish she'd hurry.

Oh, the diesel car is okay now, it just needed its filter changed. I had to go out to Springfield to get one but Eddie installed it for only $2.50. He's going to bankrupt his garage.

In case you didn't guess, those places of Barney's are all about latitude 30° N or S—the horse latitudes. When I said not exactly, he said remember the equatorial convergence zone shifts in winter, and to add in Libya, Osaka, and a place I forget—wait, Alice Springs, Australia. What has this to do with anything, I asked. He said, "Nothing—I hope." I leave it to you, great brains like Barney can be weird.

Oh my dearest, here's all of me to all of you. Your letters make life possible. But don't feel you *have* to, I can tell how tired you must be. Just know we're together, always everywhere.

Your Anne

Oh PS I had to open this to put Barney's thing in, it wasn't the secret police. Here it is. All love again. A.

In the goat-infested room where Alan read this, rain was drumming on the roof. He put the letter to his nose to catch the faint perfume once more, and folded it away. Then he pulled out the yellow flimsy Barney had sent and began to read, frowning.

PEEDSVILLE CULT/SONS OF ADAM SPECIAL. Statement by driver Sgt. Willard Mews, Globe Fork, Ark. We hit the roadblock about 80 miles west of Jacksonville. Major John Heinz of Ashton was expecting us, he gave us an escort of two riot vehicles headed by Capt. T. Parr. Major Heinz appeared shocked to see that the NIH medical team included two women doctors. He warned us in the strongest terms of the danger. So Dr. Patsy Putnam (Urbana, Ill.), the psychologist, decided to stay behind at the Army cordon. But Dr. Elaine Fay (Clinton, N.J.) insisted on going with us, saying she was the epi-something (epidemiologist).

We drove behind one of the riot cars at 30 mph for about an hour without seeing anything unusual. There were two big signs saying "SONS OF ADAM—LIBERATED ZONE."

We passed some small pecan packing plants and a citrus processing plant. The men there looked at us but did not do anything unusual. I didn't see any children or women of course. Just outside Peedsville we stopped at a big barrier made of oil drums in front of a large citrus warehouse. This area is old, sort of a shantytown and trailer park. The new part of town with the shopping center and developments is about a mile further on. A warehouse worker with a shotgun came out and told us to wait for the Mayor. I don't think he saw Dr. Elaine Fay then, she was sitting sort of bent down in back.

Mayor Blount drove up in a police cruiser and our chief, Dr. Premack, explained our mission from the Surgeon General. Dr. Premack was very careful not to make any remarks insulting to the Mayor's religion. Mayor Blount agreed to let the party go on into Peedsville to take samples of the soil and water and so on and talk to the doctor who lives there. The mayor was about 6′ 2″, weight maybe 230 or 240, tanned, with grayish hair. He was smiling and chuckling in a friendly manner.

Then he looked inside the car and saw Dr. Elaine Fay and he blew up. He started yelling we had to all get the hell back. But Dr. Premack managed to talk to him and cool him down and finally the Mayor said Dr. Fay should go into the warehouse office and stay there with the door closed. I had to stay there too and see she didn't come out, and one of the Mayor's men would drive the party.

So the medical people and the Mayor and one of the riot vehicles went on into Peedsville and I took Dr. Fay back into the warehouse office and sat down. It was real hot and stuffy. Dr. Fay opened a window, but when I heard her trying to talk to an old man outside I told her she couldn't do that and closed the window. The old man went away. Then she wanted to talk to me but I told her I did not feel like conversing. I felt it was real wrong, her being there.

So then she started looking through the office files and reading papers there. I told her that was a bad idea, she shouldn't do that. She said the government expected her to investigate. She showed me a booklet or magazine they had there, it was called *Man Listens To God* by Reverend McIlhenny. They had a carton full in the office. I started reading it and Dr. Fay said she wanted to wash her hands. So I took her back along a kind of enclosed hallway beside the conveyor to where the toilet was. There were no doors or windows so I went back. After awhile she called out that there was a cot back there, she was going to lie down. I figured that was all right because of the no windows, also I was glad to be rid of her company.

When I got to reading the book it was very intriguing. It was very deep thinking about how man is now on trial with God and if we fulfill our duty God will bless us with a real new life on Earth. The signs and portents show it. It wasn't like, you know, Sunday school stuff. It was deep.

After awhile I heard some music and saw the soldiers from the other riot car were across the street by the gas tanks, sitting in the shade of some trees and kidding with the workers from the plant. One of them was playing a guitar, not electric, just plain. It looked so peaceful.

Then Mayor Blount drove up alone in the cruiser and came in. When he saw I was reading the book he smiled at me sort of fatherly, but he looked tense. He asked me where Dr. Fay was and I told him she was lying down in back. He said that was okay. Then he kind of sighed and went back down the hall, closing the door behind him. I sat and listened to the guitar man, trying to hear what he was singing. I felt really hungry, my lunch was in Dr. Premack's car.

After awhile the door opened and Mayor Blount came back in. He looked terrible, his clothes were messed up and he had bloody scrape marks on his face. He didn't say anything, he just looked at me hard and fierce, like he might have been disoriented. I saw his zipper was open and there was blood on his clothing and also on his (private parts).

I didn't feel frightened, I felt something important had happened. I tried to get him to sit down. But he motioned me to follow him back down the hall, to where Dr. Fay was. "You must see," he said. He went into the toilet and I went into a kind of little room there, where the cot was. The light was fairly good, reflected off the tin roof from where the walls stopped. I saw Dr. Fay lying on the cot in a peaceful appearance. She was lying straight, her clothing was to some extent different but her legs were together. I was glad to see that. Her blouse was pulled up and I saw there was a cut or incision on her abdomen. The blood was coming out there, or it had been coming out there, like a mouth. It wasn't moving at this time. Also her throat was cut open.

I returned to the office. Mayor Blount was sitting down, looking very tired. He had cleaned himself off. He said, "I did it for you. Do you understand?"

He seemed like my father, I can't say it better than that. I realized he was under a terrible strain, he had taken a lot on himself for me. He went on to explain how Dr. Fay was very dangerous, she was what they call a cripto-female (crypto?), the most dangerous kind. He had exposed her and purified the situation. He was very straightforward, I didn't feel confused at all, I knew he had done what was right.

We discussed the book, how man must purify himself and show God a clean world. He said some people raise the question of how can man reproduce without women but such people miss the point. The point is that as long as man depends on the old filthy animal way God won't help him. When man gets rid of his animal part which is woman, this is the signal God is awaiting. Then God will reveal the new true clean way, maybe angels will come bringing new souls, or maybe we will live forever, but it is not our place to speculate, only to obey. He said

analog

A Calendar of Upcoming Events

1-3 June
Fourth Annual Conference on Systems and Devices for the Disabled at the Washington Plaza Hotel, Seattle, Wash. Info: C. G. Warren, Department of Rehabilitation, RJ-30, School of Medicine, University of Washington, Seattle WA 98195.

2-5 June
Science Fiction, Horror and Fantasy World Exposition at the Tucson Marriott Hotel, Tucson, Ariz. Film-oriented conference. Registration $12.50. Info: SFH & FWE, Box 4412, Tucson AZ 85717.

10-12 June
VUL-CON IV (New Orleans area SF/Star Trek/Fantasy con) at International American hotel. Registration $7.50 before May 15; $9.50 after. Info: Vul-Con, PO Box 8087, New Orleans LA 70182.

16-18 June
Southeastern Regional Astronomical League Convention at Chattanooga, Tenn. Info: Todd Ettien, 2915 Westside Drive, Chattanooga TN 37404.

17-19 June
X-CON (Milwaukee area SF Conference) at the Red Carpet Inn, Milwaukee, Wisc. Guest of Honor—Gordon R. Dickson. Registration $5 until 1 June, $7 thereafter. Info: X-Con, Box 97, Greendale WI 53129.

17-19 June
SFRA Annual Meeting: *Science Fiction: What Is It and Is It Safe For Children?* National College of Education, Evanston IL (One graduate credit available.) Speakers include Ben Bova and James Gunn. Chairman: Beverly Friend, 3415 W. Pratt, Lincolnwood IL 60645.

through August
1977 LOVELIGHT—A LASER MUSICAL. A musical of laser light, color, and music at the Charles Hayden Planetarium, Museum of Science, Boston, Mass. Shows: Tue-Thu 9:30pm; Fri 9:30pm and 10:30pm; Sat. 8:30pm, 9:30pm, 10:30pm; Sun 8:30pm and 9:30pm. Tickets are $3. For ticket information call 617-723-4586.

—ANTHONY LEWIS

some men here had seen an Angel of the Lord. This was very deep, it seemed like it echoed inside me, I felt it was an inspiration.

Then the medical party drove up and I told Dr. Premack that Dr. Fay had been taken care of and sent away, and I got in the car to drive them out of the Liberated Zone. However four of the six soldiers from the roadblock refused to leave. Capt. Parr tried to argue them out of it but finally agreed they could stay to guard the oil-drum barrier.

I would have liked to stay too the place was so peaceful but they needed me to drive the car. If I had known there would be all this hassle I never would have done them the favor. I am not crazy and I have not done anything wrong and my lawyer will get me out. That is all I have to say.

In Cuyapán the hot afternoon rain had temporarily ceased. As Alan's fingers let go of Sgt. Willard Mews's wretched document he caught sight of pencil-scrawled words in the margin. Barney's spider hand. He squinted.

Man's religion and metaphysics are the voices of his glands. Schönweiser, 1878.

Who the devil Schönweiser was Alan didn't know, but he knew what Barney was conveying. This murderous crackpot religion of McWhosis was a symptom, not a cause. Barney believed something was physically affecting the Peedsville men, generating psychosis, and a local religious demagog had sprung up to "explain" it.

Well, maybe. But cause or effect, Alan thought only of one thing: eight hundred miles from Peedsville to Ann Arbor. Anne should be safe. She *had* to be.

He threw himself on the lumpy cot, his mind going back exultantly to his work. At the cost of a million bites and cane-cuts he was pretty sure he'd found the weak link in the canefly cycle. The male mass-mating behavior, the comparative scarcity of ovulant females. It would be the screwfly solution all over again with the sexes reversed. Concentrate the pheromone, release sterilized females. Luckily the breeding populations were comparatively isolated. In a couple of seasons they ought to have it. Have to let them go on spraying poison meanwhile, of course; damn pity, it was slaughtering everything and getting in the water, and the caneflies had evolved to immunity anyway. But in a couple of seasons, maybe three, they could drop the canefly populations below reproductive viability. No more tormented human bodies with those stinking larvae in the nasal passages and brain. . . . He drifted off for a nap, grinning.

Up north, Anne was biting her lip in shame and pain.

Sweetheart, I shouldn't admit it but your wife is scared a bit jittery. Just female nerves or something, nothing to worry about. Everything is normal up here. It's so eerily normal, nothing in the papers, nothing anywhere except what I hear through Barney and Lillian. But Pauline's

phone won't answer out in San Diego; the fifth day some strange man yelled at me and banged the phone down. Maybe she's sold her house—but why wouldn't she call?

Lillian's on some kind of Save-the-Women committee, like we were an endangered species, ha-ha—you know Lillian. It seems the Red Cross has started setting up camps. But she says, after the first rush, only a trickle are coming out of what they call "the affected areas". Not many children, either, even little boys. And they have some air-photos around Lubbock showing what look like mass graves. Oh, Alan . . . so far it seems to be mostly spreading west, but something's happening in St. Louis, they're cut off. So many places seem to have just vanished from the news, I had a nightmare that there isn't a woman left alive down there. And nobody's *doing* anything. They talked about spraying with tranquillizers for awhile and then that died out. What could it do? Somebody at the U.N. has proposed a convention on—you won't believe this—*femicide.* It sounds like a deodorant spray.

Excuse me honey, I seem to be a little hysterical. George Searles came back from Georgia talking about God's Will—Searles the life-long atheist. Alan, something crazy is happening.

But there are no facts. Nothing. The Surgeon General issued a report on the bodies of the Rahway Rip-Breast Team—I guess I didn't tell you about that. Anyway, they could find no pathology. Milton Baines wrote a letter saying in the present state of the art we can't distinguish the brain of a saint from a psychopathic killer, so how could they expect to find what they don't know how to look for?

Well, enough of these jitters. It'll be all over by the time you get back, just history. Everything's fine here, I fixed the car's muffler again. And Amy's coming home for the vacations, *that'll* get my mind off faraway problems.

Oh, something amusing to end with—Angie told me what Barney's enzyme does to the spruce budworm. It seems it blocks the male from turning around after he connects with the female, so he mates with her *head* instead. Like clockwork with a cog missing. There're going to be some pretty puzzled female spruceworms. Now why couldn't Barney tell me that? He really is such a sweet shy old dear. He's given me some stuff to put in, as usual. I didn't read it.

Now don't worry my darling everything's fine.

I love you, I love you so.

Always, all ways your Anne

Two weeks later in Cuyapán when Barney's enclosures slid out of the envelope, Alan didn't read them either. He stuffed them into the pocket of his bush-jacket with a shaking hand and started bundling his notes together on the rickety table, with a

scrawled note to Sister Dominique on top. *Anne, Anne my darling.* The hell with the canefly, the hell with everything except that tremor in his fearless girl's firm handwriting. The hell with being five thousand miles away from his woman, his child, while some deadly madness raged. He crammed his meager belongings into his duffel. If he hurried he could catch the bus through to Bogotá and maybe make the Miami flight.

In Miami he found the planes north jammed. He failed a quick standby; six hours to wait. Time to call Anne. When the call got through some difficulty he was unprepared for the rush of joy and relief that burst along the wires.

"Thank God—I can't believe it—Oh, Alan, my darling, are you really—I can't believe—"

He found he was repeating too, and all mixed up with the canefly data. They were both laughing hysterically when he finally hung up.

Six hours. He settled in a frayed plastic chair opposite *Aerolineas Argentinas*, his mind half back at the clinic, half on the throngs moving by him. Something was oddly different here, he perceived presently. Where was the decorative fauna he usually enjoyed in Miami, the parade of young girls in crotch-tight pastel jeans? The flounces, boots, wild hats and hairdos and startling expanses of newly-tanned skin, the brilliant fabrics barely confining the bob of breasts and buttocks? Not here—but wait; looking closely, he glimpsed two young faces hidden under unbecoming parkas, their bodies draped in bulky nondescript skirts. In fact, all down the long vista he could see the same thing: hooded ponchos, heaped-on clothes and baggy pants, dull colors. A new style? No, he thought not. It seemed to him their movements suggested furtiveness, timidity. And they moved in groups. He watched a lone girl struggle to catch up with others ahead of her, apparently strangers. They accepted her wordlessly.

They're frightened, he thought. Afraid of attracting notice. Even that gray-haired matron in a pantsuit resolutely leading a flock of kids was glancing around nervously.

And at the Argentine desk opposite he saw another odd thing: two lines had a big sign over them, *Mujeres.* Women. They were crowded with the shapeless forms and very quiet.

The men seemed to be behaving normally; hurrying, lounging, griping and joking in the lines as they kicked their luggage along. But Alan felt an undercurrent of tension, like an irritant in the air. Outside the line of storefronts behind him a few isolated men seemed to be handing out tracts. An airport attendant spoke to the nearest man; he merely shrugged and moved a few doors down.

To distract himself Alan picked up a *Miami Herald* from the next seat. It was surprisingly thin. The international news occupied him for awhile; he had seen none for weeks. It too had a strange empty quality, even the bad news seemed to have dried up. The

African war which had been going on seemed to be over, or went unreported. A trade summit-meeting was haggling over grain and steel prices. He found himself at the obituary pages, columns of close-set type dominated by the photo of an unknown defunct ex-senator. Then his eye fell on two announcements at the bottom of the page. One was too flowery for quick comprehension, but the other stated in bold plain type:

THE FORSETTE FUNERAL HOME REGRETFULLY ANNOUNCES IT WILL NO LONGER ACCEPT FEMALE CADAVERS

Slowly he folded the paper, staring at it numbly. On the back was an item headed *Navigational Hazard Warning*, in the shipping news. Without really taking it in, he read:

AP/Nassau: The excursion liner *Carib Swallow* reached port under tow today after striking an obstruction in the Gulf Stream off Cape Hatteras. The obstruction was identified as part of a commercial trawler's seine floated by female corpses. This confirms reports from Florida and the Gulf of the use of such seines, some of them over a mile in length. Similar reports coming from the Pacific coast and as far away as Japan indicate a growing hazard to coastwise shipping.

Alan flung the thing into the trash receptacle and sat rubbing his forehead and eyes. Thank God he had followed his impulse to come home. He felt totally disoriented, as though he had landed by error on another planet. Four and a half hours more to wait. . . . At length he recalled the stuff from Barney he had thrust in his pocket, and pulled it out and smoothed it.

The top item, however, seemed to be from Anne, or at least the Ann Arbor News. Dr. Lillian Dash, together with several hundred other members of her organization, had been arrested for demonstrating without a permit in front of the White House. They seemed to have started a fire in an oil drum, which was considered particularly heinous. A number of women's groups had participated, the total struck Alan as more like thousands than hundreds. Extraordinary security precautions were being taken, despite the fact that the President was out of town at the time.

The next item had to be Barney's, if Alan could recognize the old man's acerbic humor.

UP/Vatican City 19 June. Pope John IV today intimated that he does not plan to comment officially on the so-called Pauline Purification cults advocating the elimination of women as a means of justifying man to God. A spokesman emphasized that the Church takes no position on these cults but repudiates any doctrine involving a "challenge" to or from God to reveal His further plans for man.

Cardinal Fazzoli, spokesman for the European Pauline movement, reaffirmed his view that the Scriptures define woman as merely a temporary companion and instrument of Man. Women, he states, are nowhere defined as human, but merely as a transitional expedient or state. "The time of transition to

full humanity is at hand," he concluded.

The next item appeared to be a thin-paper xerox from a recent issue of *Science*:

SUMMARY REPORT OF THE AD HOC EMERGENCY COMMITTEE ON FEMICIDE

The recent world-wide though localized outbreaks of femicide appear to represent a recurrence of similar outbreaks by some group or sect which are not uncommon in world history in times of psychic stress. In this case the root cause is undoubtedly the speed of social and technological change, augmented by population pressure, and the spread and scope are aggravated by instantaneous world communications, thus exposing more susceptible persons. It is not viewed as a medical or epidemiological problem; no physical pathology has been found. Rather it is more akin to the various manias which swept Europe in the 17th century, e.g., the Dancing Manias, and like them, should run its course and disappear. The chiliastic cults which have sprung up around the affected areas appear to be unrelated, having in common only the idea that a new means of human reproduction will be revealed as a result of the "purifying" elimination of women.

We recommend that (1) inflammatory and sensational reporting be suspended; (2) refugee centers be set up and maintained for women escapees from the focal areas; (3) containment of affected areas by military cordon be continued and enforced; and (4) after a cooling-down period and the subsidence of the mania, qualified mental health teams and appropriate professional personnel go in to undertake rehabilitation.

SUMMARY OF THE MINORITY REPORT OF THE AD HOC COMMITTEE

The nine members signing this report agree that there is no evidence for epidemiological contagion of femicide in the strict sense. *However,* the geographical relation of the focal areas of outbreak strongly suggest that they cannot be dismissed as purely psychosocial phenomena. The initial outbreaks have occurred around the globe near the 30th parallel, the area of principal atmospheric downflow of upper winds coming from the Intertropical Convergence Zone. An agent or condition in the upper equatorial atmosphere would thus be expected to reach ground level along the 30th parallel, with certain seasonal variations. One principal variation is that the downflow moves north over the East Asian continent during the late winter months, and these areas south of it (Arabia, Western India, parts of North Africa) have in fact been free of outbreaks until recently, when the downflow zone has moved south. A similar downflow occurs in the Southern Hemisphere, and outbreaks have been reported along the 30th parallel running through Pretoria and Alice Springs, Australia. (Information from Argentina is currently unavailable.)

This geographical correlation cannot be dismissed, and it is therefore urged that an intensified search for a physical cause be instituted. It is also urgently recommended that the rate of spread from known focal points be

correlated with wind conditions. A watch for similar outbreaks along the secondary down-welling zones at 60° north and south should be kept.

(signed for the minority)
Barnhard Braithwaite

Alan grinned reminiscently at his old friend's name, which seemed to restore normalcy and stability to the world. It looked as if Barney was onto something, too, despite the prevalence of horses' asses. He frowned, puzzling it out.

Then his face slowly changed as he thought how it would be, going home to Anne. In a few short hours his arms would be around her, the tall, secretly beautiful body that had come to obsess him. Theirs had been a late-blooming love. They'd married, he supposed now, out of friendship, even out of friends' pressure. Everyone said they were made for each other, he big and chunky and blond, she willowy brunette; both shy, highly controlled, cerebral types. For the first few years the friendship had held, but sex hadn't been all that much. Conventional necessity. Politely reassuring each other, privately—he could say it now—disappointing.

But then, when Amy was a toddler, something had happened. A miraculous inner portal of sensuality had slowly opened to them, a liberation into their own secret unsuspected heaven of fully physical bliss . . . Jesus, but it had been a wrench when the Colombia thing had come up. Only their absolute sureness of each other had made him take it. And now, to be about to have her again, trebly desirable from the spice of separation — feeling - seeing - hearing - smelling-grasping. He shifted in his seat to conceal his body's excitement, half mesmerized by fantasy.

And Amy would be there, too; he grinned at the memory of that prepubescent little body plastered against him. She was going to be a handful, all right. His manhood understood Amy a lot better than her mother did; no cerebral phase for Amy . . . But Anne, his exquisite shy one, with whom he'd found the way into the almost unendurable transports of the flesh . . . First the conventional greeting, he thought; the news, the unspoken, savored, mounting excitement behind their eyes; the light touches; then the seeking of their own room, the falling clothes, the caresses, gentle at first—the flesh, the *nakedness*—the delicate teasing, the grasp, the first thrust—

—A terrible alarm-bell went off in his head. Exploded from his dream, he stared around, then finally down at his hands. *What was he doing with his open clasp-knife in his fist*?

Stunned, he felt for the last shreds of his fantasy, and realized that the tactile images had not been of caresses, but of a frail neck strangling in his fist, the thrust had been the Plunge of a blade seeking vitals. In his arms, legs, phantasms of striking and trampling bones cracking. And Amy—

Oh God, Oh God—

Not sex, bloodlust.

That was what he had been dreaming. The sex was there, but it was driving some engine of death.

Numbly he put the knife away, thinking only over and over, it's got me. It's got me. Whatever it is, it's got me. *I can't go home.*

After an unknown time he got up and made his way to the United counter to turn in his ticket. The line was long. As he waited, his mind cleared a little. What could he do, here in Miami? Wouldn't it be better to get back to Ann Arbor and turn himself in to Barney? Barney could help him, if anyone could. Yes, that was best. But first he had to warn Anne.

The connection took even longer this time. When Anne finally answered he found himself blurting unintelligibly, it took awhile to make her understand he wasn't talking about a plane delay.

Trudy E. Bell

A one-time lab technician handling astronomical plates at Lick Observatory, a former mission controller tracking Pioneer spacecraft at Ames Spaceflight Center, and a three-time member of expeditions to observe total eclipses, Trudy Bell has for the past six years been an editor of America's premier general science magazine. Retaining her name on the masthead of Scientific American, *she was married not quite two years ago to the director of New York City's Hayden Planetarium.*

She is currently engaged in graduate work at New York University in the history of science, and is already considered an authority on the history of astronomy. This combines professional and personal interest in astronomy with her undergraduate major of history and minor in physics that brought an AB from the University of California at Santa Clara. Trudy has also teamed up with Ben Bova as coeditor of a new book on the exploration of the solar system, Closeup: New Worlds.

"I tell you, I've caught it. Listen, Anne, for God's sake. If I should come to the house don't let me come near you. I mean it. I mean it. I'm going to the lab, but I might lose control and try to get to you. Is Barney there?"

"Yes, but darling—"

"Listen. Maybe he can fix me, maybe this'll wear off. But I'm not safe, Anne, Anne, I'd kill you, can you understand? Get a—get a weapon. I'll try not to come to the house. But if I do, don't let me get near you. Or Amy. It's a sickness, it's real. Treat me—treat me like a fucking wild animal. Anne, say you understand, say you'll do it."

They were both crying when he hung up.

He went shaking back to sit and wait. After a time his head seemed to clear a little more. *Doctor, try to think.* The first thing he thought of was to take the loathesome knife and throw it down a trash-slot. As he did so he realized there was one more piece of Barney's material in his pocket. He uncrumpled it; it seemed to be a clipping from *Nature*.

At the top was Barney's scrawl: "Only guy making sense. U.K. infected now, Oslo, Copenhagen out of communication. Damfools still won't listen. Stay put."

Communication from Professor Ian MacIntyre, Glasgow Univ.

A potential difficulty for our species has always been implicit in the close linkage between the behavioural expression of aggression/predation and sexual reproduction in the male. This close linkage involves (a) many of the same neuromuscular pathways which are utilized both in predatory and sexual pursuit, grasping, mounting, etc., and (b) similar states of adrenergic arousal which are activated in both. The same linkage is seen in the males of many other species; in some, the expression of aggression and copulation alternate or even coexist, an all-too-familiar example being the common house cat. Males of many species bite, claw, bruise, tread or otherwise assault receptive females during the act of intercourse; indeed, in some species the male attack is necessary for female ovulation to occur.

In many if not all species it is the aggressive behaviour which appears first, and then changes to copulatory behaviour when the appropriate signal is presented *(e.g.,* the three-tined stickleback and the European robin). Lacking the inhibiting signal, the male's fighting response continues and the female is attacked or driven off.

It seems therefore appropriate to speculate that the present crisis might be caused by some substance, perhaps at the viral or enzymatic level, which effects a failure of the switching or triggering function in the higher primates. (Note: Zoo gorillas and chimpanzees have recently been observed to attack or destroy their mates; rhesus not.) Such a dysfunction could be expressed by the failure of mating behaviour to modify or supervene over the aggressive/predatory response; *i.e.*, sexual stimulation would produce attack only, the stimulation discharging itself through

the destruction of the stimulating object.

In this connection it might be noted that exactly this condition is a commonplace of male functional pathology, in those cases where murder occurs as a response to and apparent completion of, sexual desire.

It should be emphasized that the aggression/copulation linkage discussed here in specific to the male; the female response (*e.g.*, lordotic reflex) being of a different nature.

Alan sat holding the crumpled sheet a long time; the dry, stilted Scottish phrases seemed to help clear his head, despite the sense of brooding tension all around him. Well, if pollution or whatever had produced some substance, it could presumably be countered, filtered, neutralized. Very very carefully, he let himself consider his life with Anne, his sexuality. Yes; much of their loveplay could be viewed as genitalized, sexually-gentled savagery. Play-predation . . . He turned his mind quickly away. Some writer's phrase occurred to him: "The panic element in all sex." Who? Fritz Leiber? The violation of social distance, maybe; another threatening element. Whatever, it's our weak link, he thought. Our vulnerability . . . The dreadful feeling of *rightness* he had experienced when he found himself knife in hand, fantasizing violence, came back to him. As though it was the right, the only way. Was that what Barney's budworms felt when they mated with their females wrong-end-to?

At long length, he became aware of body need and sought a toilet. The place was empty, except for what he took to be a heap of clothes blocking the door of the far stall. Then he saw the red-brown pool in which it lay, and the bluish mounds of bare, thin, buttocks. He backed out, not breathing, and fled into the nearest crowd, knowing he was not the first to have done so.

Of course. Any sexual drive. Boys, men, too.

At the next washroom he watched to see men enter and leave normally before he ventured in.

Afterward he returned to sit, waiting, repeating over and over to himself: *Go to the lab. Don't go home. Go straight to the lab.* Three more hours; he sat numbly at 26° N, 81° W, breathing, breathing . . .

Dear diary. Big scene tonite, Daddy came home!!! Only he acted so funny, he had the taxi wait and just held onto the doorway, he wouldn't touch me or let us come near him. (I mean funny weird, not funny Ha-ha.) He said, I have something to tell you, this is getting worse not better. I'm going to sleep in the lab but I want you to get out, Anne, Anne, I can't trust myself any more. First thing in the morning you both get on the plane for Martha's and stay there. So I thought he had to be joking, I mean with the dance next week and Aunt Martha lives in Whitehorse where there's nothing nothing nothing. So I was yelling and Mother was yelling

and Daddy was groaning, Go now! And then he started crying. Crying!!! So I realized, wow, this is serious, and I started to go over to him but Mother yanked me back and then I saw she had this big KNIFE!!! And she shoved me in back of her and started crying too Oh Alan, Oh Alan, like she was insane. So I said, Daddy, I'll never leave you, it felt like the perfect thing to say. And it was thrilling, he looked at me real sad and deep like I was a grown-up while Mother was treating me like I was a mere infant as usual. But Mother ruined it raving Alan the child is mad, darling go. So he ran out the door yelling Be gone, Take the car, Get out before I come back.

Oh I forgot to say I was wearing what but my gooby green with my curltites still on, wouldn't you know of all the shitty luck, how could I have known such a beautiful scene was ahead we never know life's cruel whimsy. And mother is dragging out suitcases yelling Pack your things hurry! So she's going I guess but I am not repeat not going to spend the fall sitting in Aunt Martha's grain silo and lose the dance and all my summer credits. And Daddy was trying to communicate *with us, right? I think their relationship is obsolete. So when she goes upstairs I am splitting, I am going to go over to the lab and see Daddy.*

Oh PS Diane tore my yellow jeans she promised me I could use her pink ones Ha-ha that'll be the day.

I ripped that page out of Amy's diary when I heard the squad car coming. I never opened her diary before but when I found she'd gone I looked. . . . Oh, my darling little girl. She went to him, my little girl, my poor little fool child. Maybe if I'd taken time to explain, maybe—

Excuse me, Barney. The stuff is wearing off, the shots they gave me. I didn't feel anything. I mean, I knew somebody's daughter went to see her father and he killed her. And cut his throat. But it didn't mean anything.

Alan's note, they gave me that but then they took it away. Why did they have to do that? His last handwriting, the last words he wrote before his hand picked up the, before he—

I remember it. *"Sudden and light as that, the bonds gave And we learned of finalities besides the grave. The bonds of our humanity have given, we are finished. I love—"*

I'm all right, Barney, really. Who wrote that, Robert Frost? *The bonds gave. . . .* Oh, he said, tell Barney: *The terrible rightness.* What does that mean?

You can't answer that, Barney dear. I'm just writing this to stay sane, I'll put it in your hidey-hole. Thank you, thank you Barney dear. Even as blurry as I was, I knew it was you. All the time you were cutting off my hair and rubbing dirt on my face, I knew it was right because it was you. Barney I never thought of you as those horrible words you said. You were always Dear Barney.

By the time the stuff wore off I had done everything you said, the gas, the

groceries. Now I'm here in your cabin. With those clothes you made me put on I guess I do look like a boy, the gas man called me "Mister."

I still can't really realize, I have to stop myself from rushing back. But you saved my life, I know that. The first trip in I got a paper, I saw where they bombed the Apostle Islands refuge. And it had about those three women stealing the Air Force plane and bombing Dallas, too. Of course they shot them down, over the Gulf. Isn't it strange how we do nothing? Just get killed by ones and twos. Or more, now they've started on the refuges. . . . Like hypnotized rabbits. We're a toothless race.

Do you know I never said "we" meaning women before? "We" was always me and Alan, and Amy of course. Being killed selectively encourages group identification. . . . You see how sane-headed I am.

But I still can't really realize.

My first trip in was for salt and kerosene. I went to that little Red Deer store and got my stuff from the old man in the back, as you told me—you see, I remembered! He called me "Boy," but I think maybe he suspects. He knows I'm staying at your cabin.

Anyway, some men and boys came in the front. They were all so *normal*, laughing and kidding. I just couldn't believe, Barney. In fact I started to go out past them when I heard one of them say "Heinz saw an angel." An *angel*. So I stopped and listened. They said it was big and sparkly. Coming to see if man is carrying out God's will, one of them said. And he said, Moosenee is now a liberated zone, and all up by Hudson Bay. I turned and got out the back, fast. The old man had heard them too. He said to me quietly, I'll miss the kids.

Hudson Bay, Barney, that means it's coming from the north too, doesn't it? That must be about 60°.

But I have to go back once again, to get some fishhooks. I can't live on bread. Last week I found a deer some poacher had killed, just the head and legs. I made a stew. It was a doe. Her eyes; I wonder if mine look like that now.

I went to get the fishhooks today. It was bad, I can't ever go back. There were some men in front again, but they were different. Mean and tense. No boys. And there was a new sign out in front, I couldn't see it; maybe it says Liberated Zone too.

The old man gave me the hooks quick and whispered to me, "Boy, them woods'll be full of hunters next week." I almost ran out.

About a mile down the road a blue pickup started to chase me. I guess he wasn't from around there, I ran the VW into a logging draw and he roared on by. After a long while I drove out and came on back, but I left the car about a mile from here and hiked in. It's surprising how hard it is to pile enough brush to hide a yellow VW.

Barney, I can't stay here. I'm eating perch raw so nobody will see my smoke, but those hunters will be coming through. I'm going to move my sleeping bag out to the swamp by that

big rock, I don't think many people go there.

Since the last lines I moved out. It feels safer. Oh, Barney, how did this *happen*?

Fast, that's how. Six months ago I was Dr. Anne Alstein. Now I'm a widow and bereaved mother, dirty and hungry, squatting in a swamp in mortal fear. Funny if I'm the last woman left alive on Earth. I guess the last one around here, anyway. Maybe some holed out in the Himalayas, or sneaking through the wreck of New York City. How can we last?

We can't.

And I can't survive the winter here, Barney. It gets to 40° below. I'd have to have a fire, they'd see the smoke. Even if I worked my way south, the woods end in a couple hundred miles. I'd be potted like a duck. No. No use. Maybe somebody is trying something somewhere, but it won't reach here in time . . . and what do I have to live for?

No. I'll just make a good end, say up on that rock where I can see the stars. After I go back and leave this for you. I'll wait to see the beautiful color in the trees one last time.

I know what I'll scratch for an epitaph.

HERE LIES THE SECOND MEANEST PRIMATE ON EARTH.

Good-bye, dearest dearest Barney.

I guess nobody will ever read this, unless I get the nerve and energy to take it to Barney's. Probably I won't. Leave it in a Baggie, I have one here; maybe Barney will come and look. I'm up on the big rock now. The moon is going to rise soon, I'll do it then. Mosquitoes, be patient. You'll have all you want.

The thing I have to write down is that I saw an angel too. This morning. It was big and sparkly, like the man said; like a Christmas tree without the tree. But I knew it was real because the frogs stopped croaking and two bluejays gave alarm calls. That's important; it was *really there.*

I watched it, sitting under my rock. It didn't move much. It sort of bent over and picked up something, leaves or twigs, I couldn't see. Then it did something with them around its middle, like putting them into an invisible sample-pocket.

Let me repeat—it was *there.* Barney, if you're reading this, THERE ARE THINGS HERE. And I think they've done whatever it is to us. Made us kill ourselves off.

Why? Well, it's a nice place, if it wasn't for people. How do you get rid of people? Bombs, death-rays—all very primitive. Leave a big mess. Destroy everything, craters, radioactivity, ruin the place.

This way there's no muss, no fuss. Just like what we did to the screwfly. Pinpoint the weak link, wait a bit while we do it for them. Only a few bones around; make good fertilizer.

Barney dear, good-bye. I saw it. It was there.

But it wasn't an angel.

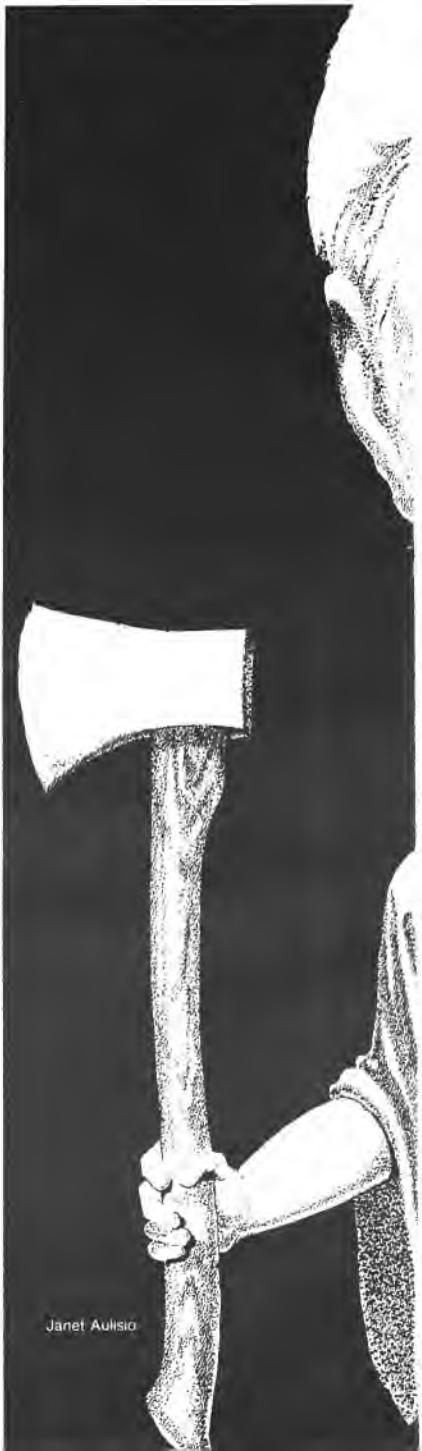
I think I saw a real-estate agent. ■

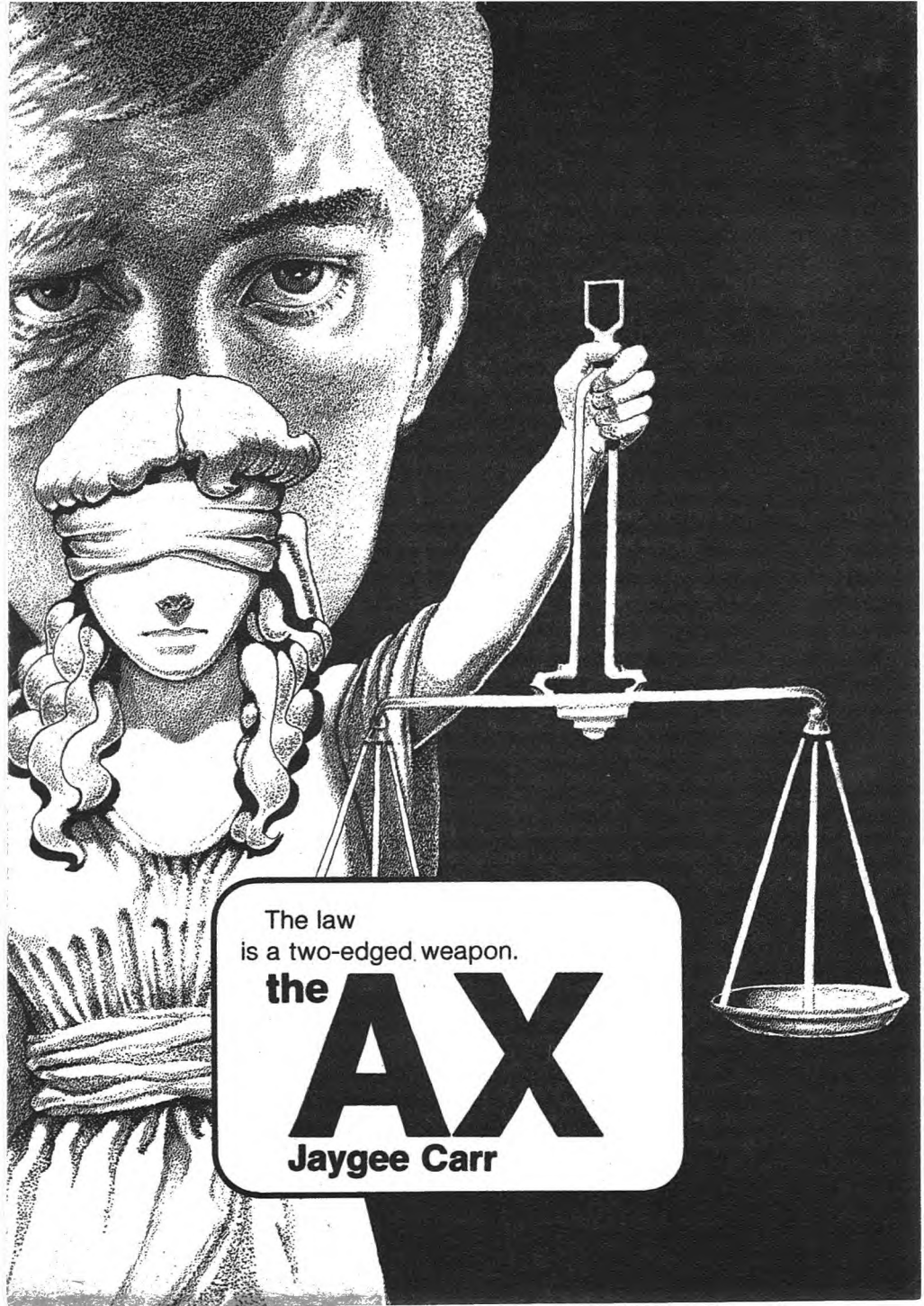
The ax lay among the other exhibits, glittering evilly, its honed shine dulled here and there by dark stains. No matter where in the crowded courtroom the eye wandered, it was drawn helplessly back to that gleaming focus of attention.

The trial itself was a nine-hour wonder in a blasé world, partly because of the brutal anachronism of the murder weapon, partly because of the notoriety of the defendent.

"Look at him," growled Royce Antonescu, witness and brother of the victim, digging his elbow into the rib cage of the man sitting next to him. "So arrogant! So smug! So confident. Thinks his money can buy anything! Well, all his money can't buy him out of *this*!"

"Well," Jose Pedersen shrugged, shifting sideways to move his ribs out of range of the oversized elbow, "his money certainly bought him the finest defense lawyer alive today, and maybe the finest who ever lived." (And I ought to know, he added to himself, I've tilted with him often enough, usually as fruitlessly as Don Quixote at the windmills. But today—I'd be up there today, nailing his hide to the wall, if I wasn't a personal friend of the Antonescus . . .)




The law
is a two-edged weapon.
the
AX
Jaygee Carr

Royce glared across the room at the rotund, balding man conferring with his tall, aristocratically lean client. He hated them both, with reason. "Augustus Stern," he sneered. "Augustus Stern. Augustus. I bet he picked it out of a book; what a name, Augustus."

Jose was more interested in what his colleagues at the prosecution console were doing than what their opponents were. "Famous lawyers seem to run to unusual names," he murmured, absentmindedly. "Augustus Stern likes to rattle them off, Thurgood Marshall, Learned Hand, Melvin Belli, Clarence Darrow. I've heard him compare his career to theirs many a time—and slyly imply that they suffer by the comparison."

Royce continued to glower at the two backs, so contrasted, one so tall and slim, the other so short and sprawling. There were half a dozen assistants scurrying around but they were mere faceless ciphers, insignificant. "I've heard that Stern boasts he's never lost a major case," he said.

Jose frowned. "That's his boast."

"Well, he's going to lose one now."

Jose shrugged again. He knew far better than his engineer friend what complexities, what twists and turns, what immoral but perfectly legal verdicts Justice concealed behind her blindfold.

Royce leaned forward, huge fists clenching and unclenching, forearms resting on the hip-high railing that separated the main area of the court from the business end. Within, people threaded their way around equipment and wires, moving between the four main consoles, the high judge's "bench" in the rear with its attached clerk's station, the fourteen seat jury box with room for two alternates on one side, the prosecution table on the other, and the defense table completing the diamond, facing the judge, back to the audience.

"I'd like to . . ." Royce muttered, "how I'd like to—"

"Don't," Jose advised, almost wishing he could see it happen. Royce looked like a complete throwback to some primitive mountaineer ancestor. Jose could almost see him, in climbing boots, pack, and alpenstock, Tyrolian hat perched jauntily on his head, pitting his strength against Nature's steepest peaks. But Genghis Graham II was a far more formidable opponent than any mountain. "Your turn will come, when the court reconvenes," he added.

"Yeah," Royce growled. He had sat through interminable cross-examination of doctors and technical witnesses—as if any fool couldn't see how poor Laurie's head had been battered in! (Once witnesses had been segregated, from the media and from each other, but the use of the liescreen made that unnecessary.) But at least How and When and Where had been established—it was up to him to pin it on Who.

Once again they rose and went through the ancient ritual. (Dumb waste of time, Royce asided to Jose, who only nodded agreement.) But this time it was his turn, and he sat down

only to be called forward to settle himself into the comfortable chair at the base of the judge's bench, the chair that looked like an ordinary postureadjust, but wasn't. One arm curved around and widened to form a miniature console, the main feature of which was the tiny screen which echoed the larger, public screen behind him. Looking out, he faced the defense console, with Stern and Genghis Graham II dramatically centered. On one hand, the fourteen anonymous faces of the jury stared at him, on the other, the prosecutor's staff hummed busily.

The Liescreen Controller was a slender, willowy woman he would have liked to have met socially. "Will you state your name, please, witness." Her voice was a soft contralto.

"Royce Antonescu."

"Your full name, please."

"Sorry. Royce Li—that's L-i, not L-e-e—Antonescu."

She took him through what he recognized from the earlier witnesses as a set routine, questions that could be easily checked, his name, his age, his citizen identity number, his army service (Engineering Corps), his current address, his personal comm number, etc. All his answers left the screen milky white.

"Now lie, if you please, Witness Antonescu. What is your name?"

"Genghis Graham," he said, and the screen glowed so blue that it dyed his hand sapphire. He wondered if the reflections of the larger screen behind him did the same to his face.

She repeated the series of questions, and this time he gave her erroneous, contrary to fact answers. Each time the screen glowed bright blue. He could hear the nervous bored rustlings of the spectators.

"Now," she said, "will you please state an opinion, something you can't know one way or the other."

He nodded; this, too, was part of the routine. "I think the Loonies will win the pennant." The screen stayed milky white.

"State it as a fact, please."

"The Loonies will win the pennant." The screen turned palest blue.

"You're rather sure of that, aren't you. Something you're dubious about, but stated as a fact."

"When this trial is over, you and I are going out to dinner together." Again, the screen turned palest blue.

She frowned, but the dark eyes twinkled. "Something you're less sure of, if you please."

"DiGiammatteo will win the Circumpolar." Medium blue bathed his hands.

The last thing she asked was, "Something you're very sure of, please."

"Genghis Graham will pay for his crime," he said, and the screen remained white.

"This is Liescreen Controller Chiang speaking for the record. The Witness Royce Li Antonescu, I.D. #4822-039-7002, has been checked out on the Liescreen. He registers very fully, known lies showing immediately as a deep indigo blue. Where

he expresses an opinion, as opposed to a statement of fact, the degree of his uncertainty registers as a shade of blue. As always, with a strong-minded subject—," a quick flicker of her eyelids at Royce, almost but not quite a wink, "if he believes deeply enough in an opinion, it will register as fact. This must be taken into account when evaluating his testimony." She sat down at her seat at the other side of the judge's bench, and the questioning began.

Royce established his relationship to the victim—brother and business partner—and the prosecutor led him gently into the events leading up to his brother's murder.

"Laurie was in his lab, I was in the main biofactory. Laurie does—did—the research, see, and I was the engineer, I was responsible for the production. I was on the line when Laurie commed me from his office in the old building—"

"Excuse me, please, witness," said one of the prosecutor's assistants. "We have a diagram of your facility. Is it accurate?"

It showed on the second screen on the widened arm of the chair. Royce studied it carefully, knowing that all the other participants were seeing duplicates of it on their own screens. "Yes," Royce said finally. "I was here," he touched the diagram with the electronic pen and a spot glowed, "when the call from Laurie came. He told me that Genghis Graham was in his office, making another offer. We'd turned him down several times already, but Laurie said he wouldn't take no, just kept raising the offer. I said I'd be right over, and—ahh—show—ahh—Mr. Graham out." A quickly hushed titter, the screen mildly blue.

"Would you care to rephrase that last statement," the prosecutor asked.

"All right," unconsciously, his fists clenched again, "I didn't say 'show' and I didn't say, 'Mr. Graham'. We've had dealings with that—with *Mr. Graham* before. I told my brother I'd be right over, and I'd take care of—ahh—," he pointed, "of *him*." This time the screen accepted the circumlocution.

"How far were you from where your brother was?"

"About ten minutes. He was here," another mark with the electronic pen. "You understand, in a setup like ours, there's this tremendous risk of cross-contamination. So each separate process, each production line or development tank or whatever, must be carefully isolated from the others. There are deconns at the entrances and exits of each sector, and sterilights in practically every doorway. Counting the deconn, it's about a fifteen minute walk from here to here," the pen made the two dots each glow briefly, "ten if you hurried. I hurried."

"So it was about ten minutes from the end of your brother's call, to your arrival in his office."

Royce licked his lips. "A little more, a few minutes. My foreman,

Padriac Myers stopped me with a problem, and I gave him some instructions about it. A couple or three minutes at the most."

"So it was from twelve to fifteen minutes from the call until your arrival, then?"

"If only I hadn't stopped to talk to Paddy Myers, if only . . ."

"Confine yourself to answering the questions, please, witness," the judge admonished, but gently.

"Yes," the muscles around his jaw jumped, "between twelve and fifteen minutes."

"What did you see, when you arrived at your brother's office?"

Like many engineers, Royce had a strong visual memory. At the moment, it was a curse. "I called out to Laurie as I opened the door," he said, his voice dull with remembered pain. "It takes a few seconds for your eyes to adjust, after a sterilight, but I knew my way around the lab blindfolded, and I just—walked—right—in." A deep breath. "My vision cleared and—it was a shambles. Literally, a shambles. Blood and debris and wreckage . . . Laurie sprawled out—well, I didn't *know* it was Laurie, his head was—was—"

"That's all right, Witness Antonescu," the prosecutor said hurriedly. "Records of the scene have been entered in evidence. What did *you* see?"

"Chaos!" He shut his eyes, but the picture glowed brightly, behind the lids. "There was destruction everywhere. Laurie's body was—was an oasis compared to the rest of the office. Tape decks, files, everything had been dumped into the middle of the floor, and acids—I found out later—acids had been poured over them. The doors to the main Lab—deconn doors—were propped open, the deconn chemicals had spilled into the lab, into the office. And in the middle of the wreckage, Genghis Graham. He had the ax in his hand, the bloody ax, and it was coming at me, at my head. I threw up my hand, but I wasn't fast enough. I only deflected it, so it hit broadside instead of with the blade. If it had hit edge on, I'd be dead like—"

"Objection," snapped Stern. "Witness is stating an opinion."

"Sustained. Witness will rephrase his last statement."

"I—all right. I saw the ax swinging at me, edge-on—it looked like edge-on," he hurriedly inserted. "I threw up my hands, tried to grab at the ax, at the blade or the handle or anything. And the ax—or something—hit my head and I was knocked unconscious."

The prosecutor drew him out, had him itemize the destruction, which had been fiendishly complete. All computors had been ordered to wipe themselves, physical records had gone into the acid bath in one corner, the cultures in the labs dosed with the same acid, which was probably from the lab's own supplies.

Royce couldn't testify about what had happened after he had gone down, of course. He knew that one of

Laurie's assistants had come back from lunch early (the Antonescus ran an informal business, long lunch hours were common, but this woman was anxious about an experiment), entered through the side door, saw the wreckage without seeing into the office at all, and pushed the fire alarm, screaming at the top of her lungs. Royce was convinced that her screams had saved his life. Otherwise, Graham would have cleaved his head open and walked out, swearing later that he left all serene. And he might have gotten away with it, gotten away by sheer audacity, except for Angelique's unexpected return.

But then it was Stern's turn.

"Witness Antonescu, you didn't actually see Mr. Graham strike Citizen Laurence Kai Antonescu?"

"No."

"With the ax, or any other weapon?"

"No."

"Or do any of the other damage you've described?"

"No!"

"Then for all you actually witnessed, some maniac could have entered, attacked both your brother and Mr. Graham, rampaged about, and fled, and when Mr. Graham struck at you, he was merely defending himself against what he thought was the return of that madman?"

"No!"

"No? You deny something like this could have happened?"

"Yes, I say that it couldn't have happened that way. Our security precautions are tight. Unobtrusive, but tight. We know who is on the grounds at all times. We have to. There's a serious risk of contamination here, if unauthorized personnel fiddle with processes they don't understand. We've had problems with would-be vandals, and with curious youngsters sneaking in to explore. If any of them gets hurt, we could be responsible under the "attractive nuisance" law. So we have a rigid security system; I designed most of it myself. There's a continuous monitor of everybody on the grounds at all times. Mr. Graham was admitted by Laurie, so he didn't trigger any alarms. But we can prove where he was in the lab, and we can show that there was nobody else in the area. Nobody, until I came, and later Dr. Singh."

Stern kept hammering away at that theme, that no system was perfect, that someone might have penetrated the security net "with the cunning of madness", that it was possible if not probable.

Until Royce, backed into a corner, was forced to admit it was "possible". "And so is it possible for a meteorite to strike you dead this second," he added, the unspoken, *If only it would!* so obvious as to make the spectators snicker nervously.

Stern changed course abruptly then, wanting to know more details of the Antonescus' work. Royce explained that they biosculpted protozoa, by various methods, forced mutations, selective breeding, actual gene surgery, and produced the results for

various uses. He mentioned one of their greatest successes, a bacteria that mined the sea for minerals. They had eight viable strains, for eight minerals, from gold to magnesium, and were working on a ninth, to concentrate uranium.

But their greatest achievement, Laurie's pride and joy, had been destroyed with him. Laurie had discovered, by accident, by intuition, or by sheer genius, the Fountain of Youth.

It was a virus that forced the body to renew itself, cell by cell, from within. You injected a sufficient quantity of the virus into a living body, and after the virus had had time to work, you had a renewed body, physiologically barely mature (say, late teens for a human) in every testable characteristic, and mentally, personally, psychologically an exact copy, all memories, knowledge—soul, if you will—preserved perfectly.

There was an available method for accomplishing this; but it was incomplete, terribly expensive, and so rare. Cells were removed from the donor body, forced through a cloning process; the resulting embryo developed in artificial wombs until the organs had differentiated enough to be usable, and then the organ cells from the embryo were injected into the donor to renew whatever was failing. If a complete replacement was needed, the embryo could be forced into accelerated growth until the organ—or limb or whatever was needed—was a usable size.

This latter process had caused considerable reaction from some right-to-life type groups, since the artificially matured clone (an apparently normal human being) might be kept unconscious but alive to supply other organs as needed.

But a law was passed defining the clones as androids—artificial beings—and denying them citizenship. Androids were property.

But each cloned embryo or mature android, expensive as they were, was only usable by the original donor, unless the recipient was willing to suppress the rejection reaction, with all the risks that involved. And the legal risk, since the android (as long as it was paid for) was legally the property of the original donor.

But Laurie's virus didn't care about

whose cells it was working on. Inject it into a body, in sufficient amounts, and it renewed everything, from within the cells themselves. Whatever the aging mechanism was, whatever combination of biological processes, the virus reversed it. Perfectly, and with no detectable deviations, except the physiological substitution of youth for age. And then, good little servant that it was, it died.

It was only then, when Royce was describing how, in all their tests, the only after effect of the Fountain of Youth virus was *youth*, that he looked at Genghis Graham, and something in the latter's smug, content attitude told him a truth he had never suspected.

Genghis Graham had attacked Laurie, not in a fit of hot fury, but in coldest calculation. He had visited the labs many times, had surely noticed the old fire-fighting equipment still on the wall, and realized what a perfect weapon the ax would make, to destroy both invention and inventor. He had come, intending to murder Laurie and his brainchild unless his terms were met, and they weren't, and he *had*. Genghis Graham, much of whose huge fortune came from the biochemical factory that produced clones—for the few rich enough to afford them. And who'd bother with a clone, when Laurie's clever little virus could do the same job, better, quicker, more completely—and cheaper.

But Graham would pay for his arrogance, his crime—he couldn't buy his way out of this.

Or—could he?

Augustus Stern's closing statement was a shock to Royce, to the entire courtroom.

"Consider this ax," the lawyer orated, pointing, so that mesmerized eyes followed his finger. "Consider this ax, a tool, a simple tool. A blade fixed on a handle. A blade and a handle, only two pieces. But they don't wear at the same rate, wood and metal. And when the handle gets old, gets brittle, gets worn, it can be replaced, perhaps with a synthetic, that might last longer. Likewise, even metal may age, become brittle, become too worn to sharpen properly, and the blade, too, can be replaced. And when you have replaced them both, blade and handle, is it still considered the same ax?

"Perhaps, perhaps not. This is a question for philosophers to argue over. But when we deal with a human being, when we begin to replace parts of a human being, we take continuity into account; it is still legally a human being, legally the same human being, no matter if we have renewed or replaced one part, or many.

"But suppose we 'replaced' both parts of the ax at the same time? We'd simply have another ax, the old here, the 'new' there. Not the same ax, no, it is a complete new ax.

"Likewise, when we replicate an entire human body at the same time, when we reproduce the total body, we call the duplicate an android. And androids have no legal status, they are not human beings, they are *property*. Currently, the price of a mature an-

droid is about $200,000. Which my client is more than willing to pay. He does not admit that he himself destroyed the property, the android, but he feels a responsibility in that he was present and unable to prevent the destruction from occurring."

Royce jabbed an elbow into Jose. "Can that . . . get away with this?"

"Dear God!" was the only reply.

Stern had been thorough. He had found a precedent where an android had been ruined through negligence, and the patient died before another android could be prepared. The patient's family had sued. But though the company's negligence had been proved, they had not been held legally responsible for the ultimate death. "Act of God," was the court's opinion. But the precedent was established. Destruction of an android that contributed to the death of the original was not murder.

And Laurie, who had been diabetic, had tested his discovery on himself. Before the treatment he had been graying, nearsighted, diabetic, forty-five. But the body that died had been physiologically about twenty, eyes perfect, new hair by the roots ungray, pancreas working effectively.

"Complete replacement," Stern kept pounding away at his theme. "Complete replacement of all cells, by artificial means. What was destroyed was legally an android. What difference does it make whether the laboratory where the replacement took place was a biofactory, or within a living body!

"We grow clones to supply new organs. The human body with replacements made is still legally human. The completely new body is a clone, an android. By legal definition, what died was a cloned android. Citizen Laurence Kai Antonescu was forty-five. The clone was approximately twenty. Citizen Antonescu had a long history of diabetes. The clone had a functioning pancreas . . .

"True, certain factors of identification were identical—fingerprints, gene analysis, pore patterns—but the clone is, after all, a duplicate, certain identifications are duplicated, also certain . . ."

The phrases kept echoing in Royce's ears. Not a legal entity. A clone. Property. Old ax; new ax. Not a legal human being. Pay a fine for destruction of property. Complete replacement. A clone. Replacement, not natural, but artificial. A clone. Replacement. A clone. Not a human being, just property. A clone. Androids, legally property. Clone. New ax. Property.

A memory assailed him. Laurie, eyes gently glowing, stirring his black coffee to fool himself into thinking he had put forbidden sugar in it. "Royce, if this checks out, it'll be the weapon people have been searching for through history. Just think of it! No more malfunctioning organs, no more senility, no more 'diseases of old age,' no more—"

"No more death?"

"Who knows what the natural limits of this process are? I don't. But just

think what life will be like, when everyone has youth and health, and a perfectly functioning body!"

But Genghis Graham had murdered Laurie, and his process. And now Augustus Stern was murdering even his humanity!

The prosecutor did his best, but he had been taken by surprise by Stern's tactics.

And when the judge instructed the jury (had he been tampered with?) he said that if they found Stern's argument valid, if complete cell replacement made an artificial being, an android, then legally Graham couldn't have committed murder, because an android was legally property.

Royce gnawed his lip as he listened. It was the deathblow to any last hope of resurrecting Laurie's process, using what little was left of his notes and experiments. Who'd want renewed youth, at the cost of being fair game for any nut with a grudge and a weapon?

Graham had not just killed Laurie. He had killed the competitive process, the hope of longer, healthier, younger life for millions, billions. And now, with equally vicious efficiency, he was warding off punishment while slamming shut the last faint loophole, the hope that Royce could somehow manage to duplicate his brother's work.

The jury's verdict was predictable. Ordinary, nontechnical people have always had a Frankenstein complex toward science, no matter how much of it they use in their daily lives. "If God meant us to travel in space," says he, commuting from his climate controlled, holoscreen equipped dwelling to computerized office via hovercar or ornithopter, "He'd've given us jets."

Laurie had tried to meddle with God's acknowledged "three-score and ten" and had paid the price. He who sups with the devil . . .

There was nearly a riot when the judge announced the innocent verdict, with the media and sycophants and eager well-wishers crowding around the complacent Stern and smugly smiling Graham. But Royce used his two meter height and football player shoulders to cleave his way through the press.

Graham saw him coming, and the smile actually widened.

The mass of the crowd had forced its center, Stern, Graham, and now Royce, into the open central area of the courtroom.

Graham had the gall to move toward Royce, and Royce involuntarily backed away, until he felt his hips press against something, and looked down and saw the exhibit table that extended out from the judge's area.

Graham leaned and tilted his head up slightly, so that his mouth was as close as possible to Royce's ear. "No hard feelings, Antonescu. And to prove it, I'll repeat my offer. Ten million credits for the Antonescu virus."

"You destroyed that, along with my brother."

The gray eyes couldn't quite conceal a glint of triumph. "Perhaps. Perhaps not. I'll pay the ten million,

for all notes, all cultivated strains, anything and everything you have related to the virus."

Sudden, forlorn hope. "To develop? With the talent and equipment your labs command . . ."

"You—*fool!*" A twisted smile. Then, because he couldn't control it, he burst out, "Let the common scum *die*, there's too many of them in the world as it is."

"Let the elite pay for the privilege of life and health," Royce smiled grimly, though he kept his voice soft. "If everybody could have it, for little or nothing, it stops being an elite privilege, right?"

Again controlled, the gray eyes sparkled with amusement. "Of course."

"And all the little people who die, or suffer from curable diseases . . ."

Graham shrugged. "*Scum!*" he repeated softly.

The ax was on the console, almost under Royce's hand. Had he, subconsciously, maneuvered for this position? The handle fitted neatly into his hand, the tabletop gave him room to swing.

Genghis Graham's skull split with a cracking, grating crunch.

Horrified, screaming, the crowd surged back. But there were only the narrow aisles to contain them, and the press kept the body upright while Royce landed three more healthy blows. Then the body slithered bonelessly to the floor, and Royce dropped the ax to the table and raised his empty hands high.

Several people were kneeling around Graham, his head a bloody, broken chaos.

"He's dead," someone announced loudly. Three policemen were converging on Royce, paralyzers held at the ready.

Royce smiled.

"Not a chance of resuscitation, with all that brain damage," said someone else.

Jose had managed to work his way through the crowd only in time to see the final act of the drama. "Madre de Dios, Royce," he exclaimed. "He

wasn't worth it. You'll be tried for murder, and with all these witnesses, you haven't a chance."

"Haven't I?" The violence had purged his fury. He stood limply while the policemen searched him for weapons—but on his face was a secret, knowing smile.

"Never in this world, man!" That was Stern, furious at the loss of his client at the moment of his triumph.

Royce continued to smile. "Not even with you to defend me?"

"I'd *never*—"

"You already have."

"Whaa-aat!"

"You already have. You proved that an artificially recapitulated human was an android, a thing, property, not legally a human being at all. I won't be convicted of murder, any more than that ax might be convicted of murder. Did you think my brother was the only one with diabetes?"

"But—but—but," Jose stuttered. "Laurie changed, looked years younger. You—you haven't."

"No—because I've looked like this, big and muscular—since I was fourteen. But as any of several medical tests will prove, I'm physiologically twenty or so, like my brother." He smiled at Stern, not realizing that spattered blood had turned his face into a Punchinello mask. "Well, lawyer, what about it, if killing an android is not legally murder, because the android isn't human, then killing by an android isn't murder either, is it? You don't try a machine, property, animals for murder, do you?"

Despite the fact that he was still pale with shock, Stern had to be amused at the irony of it. Using his own argument against him. "As a matter of fact, animals have been tried for murder. Pigs more than once, and a horse—And once, I think, there was a bridge that collapsed . . . But I think you're right. Any competent lawyer could get you off." A slight bow toward Jose, who was arguing sotto voce with one of the policemen. "Of course," he went on, "executing you wouldn't be murder, either. A pretty problem. Except that they'll change the law, immediately, either redefine androids as legally human, or define artificially replicated humans as human, one hundred percent."

"Yes, of course," Royce nodded, his hands being manacled by a frowning policeman.

"Oh, come on, lawyer," growled the policeman. "Is he or ain't he? Human, I mean."

"A pretty question in legality, my friend. I think you'd better treat him as human, because, if he legally isn't, he will be, very, very soon."

"But you can't be tried for something that's made a crime after it happens," Royce said, half a question.

"No, you can't," the lawyer nodded.

"I still don't understand. Do I arrest him, or not? It sure looked to me like he murdered the defendent, here."

"By all means, arrest him," Stern nodded. "What happens after the ar-

rest is legal business, not yours."

"Yeah, but," he knocked his uniform cap back to scratch a shining, liver-spotted pate, "how come you two are so sure this here law making him human'll be passed. Seems to me, there's plenty who wouldn't want to see him off the hook, after what he did."

"But, you see," Royce explained gently, "they don't know how many others we treated, or who else might rediscover the technique and treat people, lots of people."

"But who'd wanta be treated, if anybody could kill'em for nothing, and we couldn't punish them?"

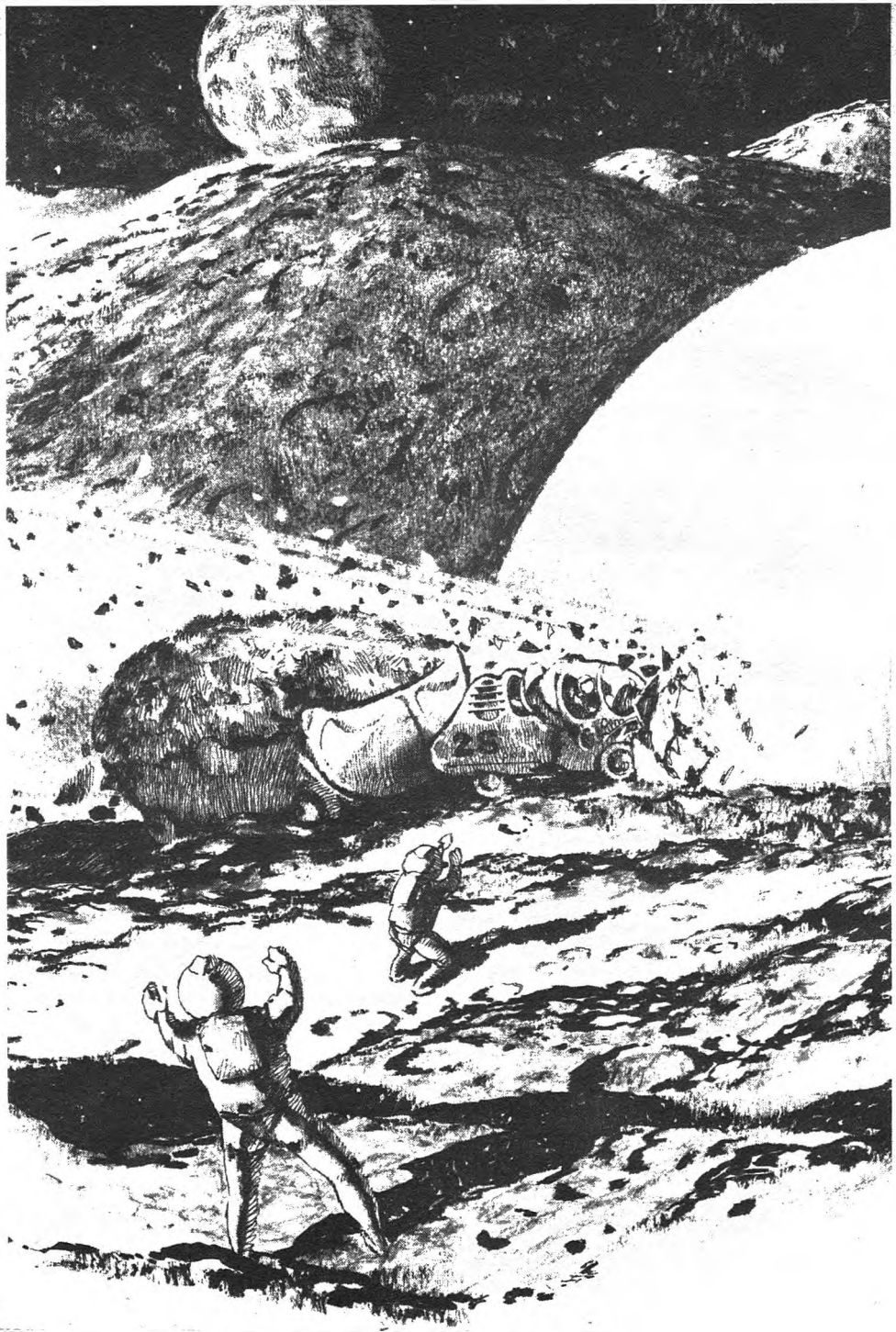
"Anybody who had strong enough reason to want to be able to *kill* with impunity. It works both ways." Royce nodded. "And they needn't stop with one. We've had assassins, terrorists, anarchists, people with a grudge or a fanatic dream or just a lust for killing, all through history. Imagine, if they could be made immune from any official punishment. Well, someone who escapes or is undetected has always been immune, but, now, anyone could become immune for a minor medical treatment."

The policeman shuddered. "I think you're right. I think they'll pass that law, and quick, too. But you said the other guy, the one who was murdered before, was the only one that could do this—ahh—renewing stuff."

"Right now, that's true. But with all this publicity, with people knowing that renewed health is possible, with all the diseases, the accidental damage that can be cured, the pressure that the mass of people can bring to bear—it will be done. And soon." Royce nodded down at the sprawled body, already covered by a blanket. "He offered me ten million for the process, our notes, what was left of them. I think I'll give his company a chance to carry the offer through."

"What!" Stern had heard enough of the previous conversation to be startled. "He only wanted the process to suppress it."

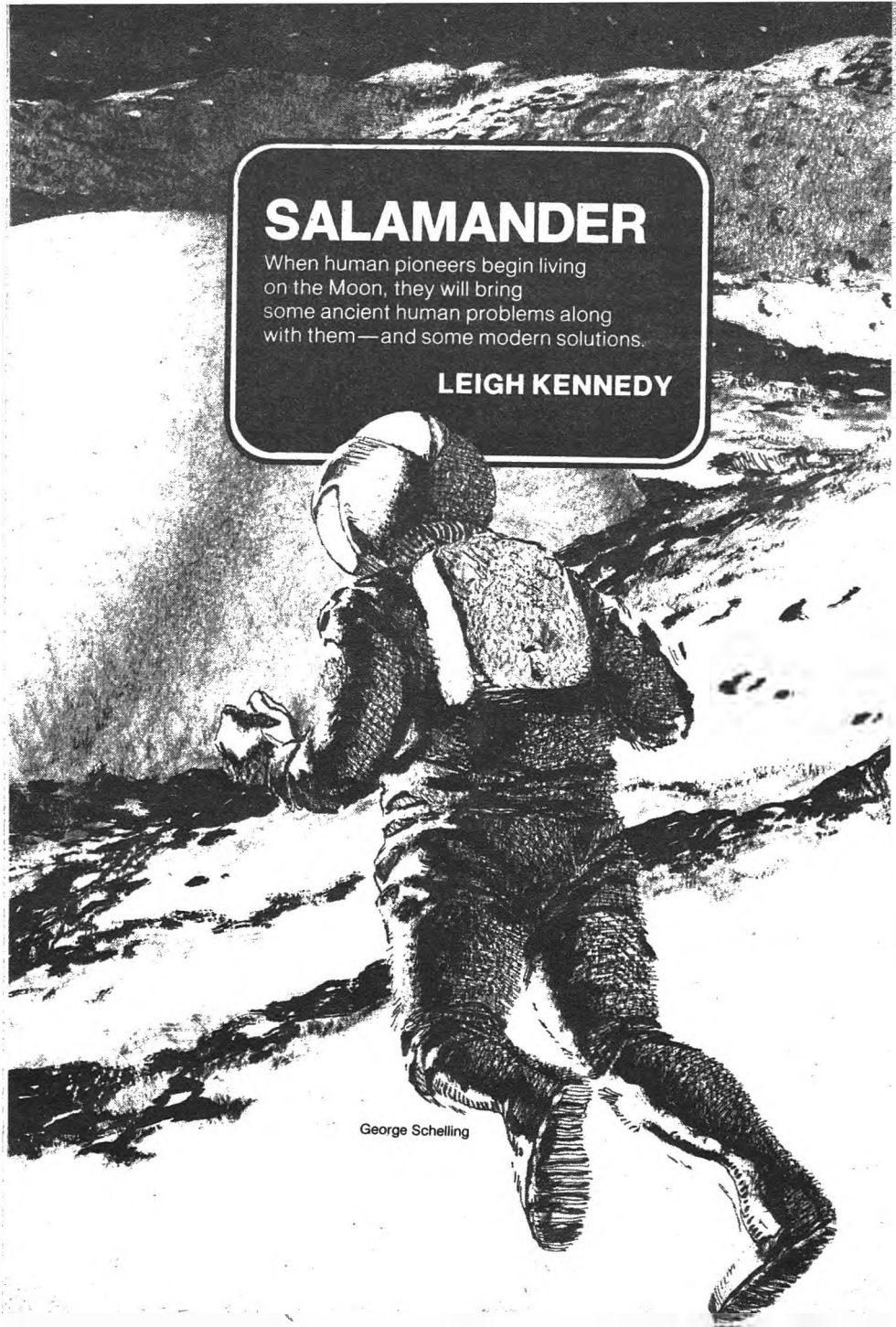
"Nobody can, now. And I have my own work to do; I don't care who rediscovers Laurie's process, as long as it gets done. His company has the men and the money and the equipment, and if they pay ten million for a head start on what everybody'll be working on, tomorrow, then they'll damn well work their tails off using that head start. I could possibly duplicate Laurie's genius—but it'd take years. Graham's labs, on the other hand, given Laurie's notes . . . Ironic, isn't it? He killed Laurie to suppress the process, and his own labs'll duplicate it, and get it to production far quicker than we could've. Because, even with paying for the notes, they'll make a fantastic profit. Much more than they're making now, growing clones for rich men. There are so many *more* common people, you see. I think they'll pay me, don't you?" The policeman began to draw him off, but he threw a last word over his shoulder. "For once, industry's greed'll work *for* the little man. I think, all in all, my brother would be satisfied." ■



SALAMANDER

When human pioneers begin living on the Moon, they will bring some ancient human problems along with them—and some modern solutions.

LEIGH KENNEDY



George Schelling

Montson swatted absently at his chest. He heard a small clang throughout his hardsuit.

Shuffling in the gray-brown powder, Ito approached him. "Better not smack your visor like that when your nose starts to itch."

Feeling his face flush, Montson was glad the visor was darkened. He stood back as the other figures passed him and perched their stiff shapes on the ridge of the ore trailer.

Ito spoke in Japanese: "Sorry for the inconvenience. Next year we'll have a bus to the settlement. Meanwhile . . ." He waved at the tractor.

Montson found a space on the floor between accordion-pleated knees. The tractor lurched. Facing the back of the tractor, he could see the rounded hump of the shuttlecraft. Men in their gray hardsuits ducked in and around the spindly legs. Then the tractor swung around the crest of a ridge and suddenly the sun was shining hard against Montson's visor, which darkened.

"Why did we land so far from the base?" one of the mechanical-sounding voices asked.

"If anything happens to the shuttle, they don't want it to happen near the settlement," Ito said.

One of the passengers leaned toward him and wagged his finger in front of Montson's faceplate. "Is that you, Montson? I can't tell one from another in these tin cans."

"Yes, Cardin."

"Don't forget, Montson, you promised me a little extra oxygen in my quarters." Cardin laughed.

"You know I can't—"

"I know, I know. You're saving it all for yourself."

Montson sighed heavily.

The tractor leveled out. Montson heard a strange voice in his receiver. "Kutzov, is the track clear? Are we ready?"

Montson struggled to his knees and looked between the shoulders. The sharply shadowed terrain was littered with machinery. Chalky rounded mountains stood massively against the black sky. About two and a half kilometers away, tractors moved around a clot of men, leaving wakes of slow-floating dust.

"What are they doing?" someone asked in Russian.

"I think an ore carrier is about to leave the catapult," Ito said.

"Hey, you over there, some of you are on general broadcast. Either tune out or shut up." A tiny figure by the mountain waved his hands at them.

Another voice said, "Must be Ito with a new bunch of greens."

Ito stopped the tractor and held up his forearm, pointing to the rows of buttons. "For those of you who have already forgotten—push the 'R' for radio. Then punch in my number—five three—and the numbers of anyone else you would like to talk to. Your frequency number is here on your suit." He tapped his chest.

"All right, there she goes!"

Montson couldn't keep his eyes on the streak that shot up the mountainside and into space. He whistled. "That really moves!"

"It takes two and a half kilometers per second to escape lunar gravity," Ito said.

They left the miners behind another ridge. As the tractor came down the hill, the domes glistened in the sunlight, bright metal drops on barren

ground. The large dome in the center was adjoined by four smaller ones. Hundreds of square meters of black solar panels surrounded the complex. As they drew closer, Montson could see a huge rectangular excavation, shored up with metal framework.

A workman climbed up over the edge of the site. He walked slowly away from the excavation and the domes, around the ridge.

Ito slowed the tractor several meters from the man. "What's the problem?"

There was no answer. The worker had his back turned. Ito called out again in Russian, then English. Ito muttered something and started up the tractor. Montson watched the worker turn toward the tractor as they passed. He could see his face clearly through the visor.

"Wait!" Montson jumped off the edge of the trailer. He kangaroo-hopped toward the figure standing on the hill.

Montson grabbed the man's sleeve and inspected the buttons and dials. "Why is your visor untinted?"

The man looked right through Montson. He moved his lips, then said, "Wanted to see."

Montson thrust his fingers at the workman's visor. There was no reaction. "Jeezus!" He turned back to the tractor and waved his hand. "Help! Ito, come here!"

Ito hopped up the hill. "What is it?"

"He's been blinded!" Montson twisted the override dial on the worker's sleeve. The visor darkened. "It's not equipment malfunction, either. He was probably staring right into the sun."

"*Damn*!" Ito said. "Why the hell did you do that?"

"Needed more light."

"I don't understand," Montson said, feeling cold and damp inside his suit.

They walked him back to the tractor. The others helped him into the trailer bed. There were murmurings all the way to the domes. Montson shuddered as he looked into the visors of those around him and saw the reflection of the stark sun. He gazed out into the moonscape, just beginning to understand the hostility of this place . . .

He marked his name on the plate with a grease pencil, then stood back, memorizing how far his own suit hung from the door.

Ito, in the orange overalls of the Japanese citizen, waited by the door of the storage building. He matched his pace to Montson's. "You were pretty quick—seeing that fellow. Especially for a . . . new resident."

Montson nodded. "I helped design the suit. I know how it's supposed to work. I wish I knew why he did that."

"Want me to show you to your new home?"

"I wouldn't mind at all."

They descended into the narrow tunnel connecting the smaller dome to the larger. He was buoyant, weighing only twelve kilos instead of his customary seventy-two. His arms dangled loosely; the blue overalls of a U.S. citizen were light against his skin.

He bounded up the stairs and stood inside the largest dome, crowded with aluminum quonsets, crisscrossed with concrete walkways, buzzing with hu-

man activity. Montson stopped suddenly.

"What's the matter?" Ito turned.

"Where are the trees and the grass strips?"

Ito shrugged. "There wasn't room."

"It was all laid out in the plans." He began to walk slowly. "And this air . . ." He sniffed. "Smells like dusty, humid concrete."

Ito winced. "We're all used to it, I guess. I'll check it out and see what can be done."

Montson shook his head. "I'll be talking to Lassky, the systems engineer, later on. What time is it, anyway?"

Ito checked his watch. "Three-thirty. Uh, Dr. Montson . . . *I* am the systems engineer."

"You? What happened to Lassky?"

"He didn't like it up here. He left about two weeks ago. You must have been in training then."

"But, if you are, what are you doing transporting people around? I thought you were a construction worker or something."

"I know it seems undignified." Ito smiled. "But I like to get out and drive the tractors."

Montson held out his hand. "First name is Alex. We'll be working together a lot."

Ito grasped his hand. "I am Kenji."

Montson jumped aside for a Honda forklift coming toward them. Ito said something, but it was lost in the low rumble of voices bouncing from the interior of the dome. They pushed through the crowd.

Ito sighed when they reached the other small dome. "That was rush hour."

Montson fished in his pockets for his papers. Ito looked over his shoulder. "Ninety-six? It's over this way."

The walkways, labeled with numbers in the concrete, stretched out in straight rows between the igloo-shaped residential domes. Sunlight fell in triangular patterns through the regularly spaced windows. They followed walkway nine up six igloos. Most of the doors were opened and the window ceramic was turned to a pale shade of gray.

Montson pulled his door open. The igloo was divided down the center by a portable screen. Each side was exactly alike; a small sink and toilet, a man-sized mattress strapped onto a shelf, and a wardrobe with a chest of drawers.

Montson gazed at the face that looked up from the left-hand cot. His hands fell to his sides.

"Montson! Are you my roommate?" Cardin laughed. "Well, well, I couldn't get a better deal."

Montson turned back to Ito. He slid the door shut. "I can't live with that man. He has been harassing me for weeks with his bad jokes."

"You have to take roommate complaints to Katya Polyakov, the psychologist. But it's pretty hard to get it changed."

Montson groaned. "Is 'I hate him' strong enough?"

Cardin slid the door open. "Hey, Montson, how come you missed the tour? I was looking for you to give me a few pointers."

Montson sprang away from the igloo.

Ito guided him to the infirmary

buildings, then stepped away. "I have to get back to work, Alex. See you later."

Montson settled on the bench near Polyakov's office. He stretched his legs out, then a girl with white overalls and a Netherlands patch called a Japanese good-bye into the office.

Montson peered in. He saw a young woman surrounded by boxes stuffed with file folders and clusters of microfiche jackets. Her desk was barely large enough to let her write a letter and drink a cup of tea. She looked up.

"Vee govoritze po-Russki?"

"Da," he said.

Her face relaxed. "Oh terrific," she continued in Russian. "I'm so tired from thinking in Japanese and English." She indicated the stool at the side of the desk. "Sit down. What may I do for you?"

"My name is Alex Montson . . ."

She jumped from her chair and leaned over the desk, offering her hand. "Dr. Montson, I've been so eager to meet you. I . . ." She laughed softly. "Well, it probably sounds old to you, but I've read most of your work on artificial biosystems. Fascinating. It all means so much after living up here. I'm really glad to meet you."

Montson laughed, taking her hand. "Thank you."

She sat down. "I've been up here since the first day of the settlement. Can you imagine—nine months! I really have to talk to you. We have a lot of problems."

He shifted uncomfortably on the stool. "I had to finish the school year . . ."

"I know, I know. Anyway . . ."

She sighed. "The Japanese have adapted wonderfully up here. They work hard, they're economical with their spare time, use very little sick time. Terrific people. Amazing people. That's why they are what they are today. Left us flat out in the cold when it came to really making use of space, huh?"

"Dr. Polyakov . . ."

"Oh, I'm sorry. You wanted to discuss something with me, didn't you?" She leaned forward, her fingers curled around the edge of the desk.

Montson hesitated. He thought of Cardin, then looked at Polyakov's face. "No, I didn't mean to interrupt. Go on."

"First of all, I never realized how much alike Soviets and Americans are until . . ."

He smiled, watching her eyes widen, then narrow, as she talked. Sud-

denly he remembered other eyes—blank, blind eyes.

Montson rapped at the cardboard wall of the office.

A voice answered in Japanese, "Come in."

Montson slid the door open. The office was neatly packed with files, account books, and stationery. A low ledge was shared by a micro-reader and four bonsai evergreens. Carpeting muffled most of the scufflings and echoes. Behind an uncluttered desk sat a small man, staring directly at Montson. He rose.

"I was told that you wanted to see me—Alex Montson."

"It pleases me to have you with our company, Dr. Montson," he said, shaking his hand.

Montson sat in a chair across the desk. "Thank you. I'm honored that you chose me."

"You are the best." Yamamoto's eyes were direct, calm. "Even though expensive."

Montson laughed, but slowed himself noting the dry look on the Director's face.

"You've seen the settlement now. What do you think?" Yamamoto asked.

"Well, it wasn't what I had envisioned. There are a few things that could be changed . . ." Montson paused.

"Such as?" When Yamamoto rocked back, the chair squeaked.

"There is no greenery—the grass strips, the potted trees. The air filtering system is poor. The air smells stale—we should have fans to kick up a bit of a breeze . . ."

"Dr. Montson." The voice was quiet, but it was a whipcrack. "This settlement runs at a deficit now. It'll be another five years before we break even on the cost of setting up the mines, the vacuum engineering labs, the cryogenics, not to mention the cost of the settlement itself. It will be eight years before stockholders will see any profit from this enterprise at all." He paused and sat upright. "Do you understand?"

"I thought my job was to make this a livable world."

Yamamoto said softly, "You were hired to make the permanent settlement an economical, viable home for as many as a thousand people. This is a temporary setup—don't worry about it."

There was a long pause. Montson looked up from the carpeting.

"Thank you for stopping by, Dr. Montson."

The rabbit nibbled at the hydroponically grown leaves, one of its pink eyes fixed on the chicken pecking at the wire that separated them.

Montson knelt and stroked the rabbit's warm stiff ears.

"Alex, would you have lunch with me?" Polyakov stood at the entrance of the ranch quonset, her image crisscrossed with cage wire.

"Sure, good idea."

She wrinkled her nose. "Stinks over here."

"I can tell you're not a farm girl." Montson passed through the myriad gates. One hen flapped up and bumped his shoulder. She dropped to the ground and resumed her strut. Another lumbered through the air and crashed into the gate as Montson slammed it.

"My God!" Polyakov screamed. "I didn't know that chickens could fly!"

Montson brushed at his shoulder. "They do up here."

"Are you all right? I've never even come to this dome," Polyakov said. "Ever since I've been here, I've been busy close to the office. Time to expand my horizons." She glanced at the chickens, then smiled widely at Montson.

He nodded. "Let's pick up Kenji. I want to discuss a few things. By the way, I have to improve my Japanese, Katya, so let's try to stick to it."

She shrugged. "All right," she said in Japanese, "but I can't make myself as clear in any language other than Russian. You don't know how I had to work to pass the tests to get this job. I studied Japanese day and night."

As they headed out of the laboratories toward the main dome, he grinned. "I don't find you too obscure in any language."

He saw the flicker of a smile.

The red Soviet overalls were a little tight around her hips and shoulders. Montson tried to flow ahead of her, keeping his eyes both on his feet and her fluid, ever-changing lines. *Wait until the poets see the woman of low gravity*!

Ito leaped up when he saw them. "Where have you been—I'm starving."

"I was looking over the livestock."

They started down the stairs. The scrapings and ricocheting voices could already be heard. They filed through the crowded walkways. Twice Montson's toes were trod on. Apology flashed in one pair of eyes, but the face was carried off by the traffic.

Polyakov hunched her shoulders. "The only thing that gets me through here is the positive reinforcement at the end of the maze—food."

The cafeteria was crammed with construction workers and miners on their lunch break.

"How did your meeting with the Director go?" Ito asked over his shoulder.

"He seems to have things well under control," Montson said. *Including me.*

He watched the beef strips, rice, and broccoli steaming on his plate. He inhaled deeply, letting the smells fill his mouth. He handed his ID card to the cashier. She jammed it into a slot and handed it back without looking up.

"Imagine," he said to Polyakov as they wove in and around toward a corner table, "being told that you are one of the first menials to work on the Moon."

"I can imagine. I've heard the story a hundred times—really." She set her tray down. "Damn. I always forget my tools." She wound her way back to the counter.

Ito smiled at Montson. "Would you believe that she used to be a shy, quiet girl?"

Montson raised an eyebrow.

"Everyone changes up here. Some change slowly, subtly, and others do turnabouts."

Montson watched Polyakov coming back. *All I know is that I feel something I haven't felt since . . .* He stabbed at the meat. "Anyway, we do have to get some things straightened out around here. Katya has some very interesting ideas."

Polyakov struggled with the chair. A water glass tipped, and Ito grabbed

for the glass, letting the liquid fall back in before it hit the floor.

Montson shook his head. "I can't believe this place. I feel like I'm dreaming—in slow motion."

"Common phenomenon for a week or so," Polyakov said.

Ito chuckled. "Have you ever noticed how Yamamoto still seems to be in at least one-half gee? The rest of us hop and skip. He marches."

"That's right!" Polyakov laughed until tears rimmed her eyes.

Montson waited until they had settled, then waved his fork in the air. "Katya, you have profiles on the kind of people that would survive best up here, don't you?"

"Yes." She clicked into a professional voice. "A person whose emotional needs are far less than goal-achievement. One who is neither a dominating personality nor dependent. Generalizations, of course."

"Would you guess that the employees of the settlement were chosen on that basis?"

She shook her head. "Oh, no. Most of the workers are here for a lot of money for a few years' work. After going back down, they all plan to spend five years in Hawaii, Vegas—"

"There's no psychological screening?" Ito asked.

"Did *you* have any screening?" she returned.

"Well, no, I guess not."

"Kenji, what about the fellow that we brought in yesterday?" asked Montson.

"Oh, his name is Petrovsky. Maybe you know him, Katya."

Polyakov's face paled. She glanced from Ito to Montson. "What about him?"

"He overrode his visor tint and walked about a kilometer, looking straight into the sun," Montson said. "Eeriest thing—the look on his face . . ."

"He's totally blind," Ito said.

She let her hands fall into her lap. "What the hell . . ."

"You know him then?" Montson asked.

"Yes. We came up on the same shuttle. Went through training with him on the orbiter. He has been coming lately to talk . . . well, I can't say more." She was staring thoughtfully.

"Well, I'm sure there's nothing you could've done." Montson reached for her hand.

She pulled away and frowned. "I'm a psychologist. I'm supposed to take care of these people. Don't tell me that I can't do anything." She pushed away from the table. "I'm not hungry anymore."

Montson looked at Ito. "I didn't mean . . ."

"I know."

He stared at his own lunch, half eaten. "Guess I'm not too hungry either."

"I'll take your tray back," Ito said.

"Thanks."

Montson fought his way through the cafeteria. He knew that there were only three hundred people on the Moon, but it felt as though a thousand shoulders were pressing against him. The air was warm and motionless.

He saw Katya crossing the main dome, a speck of red bounding toward the stairway to the infirmary. His eyes were fixed on that distant point when he felt a blow to his abdomen. He sprawled to the ground lightly.

A tiny Japanese woman furrowed

her brow. She held out her hand and helped him up. He leaned close to her ear and said, "I'm sorry."

She gave him a mocking smile and folded into the crowd.

Polyakov was gone.

He sailed toward the infirmary. When he saw the office, he started to slow. He took a deep breath and opened the door.

Her head was cradled in her arms, her hair spilled over the desk.

"Katya?"

"Please leave," she said in Russian.

"I don't want to. I think you're taking this more personally than necessary. You must've learned by now that you can only point people in certain directions; you can't really change their lives for them."

She looked up, her face wet. "Why do you know so much? I'm the goddamned doctor!" She flung a folder across the room. Papers splattered out against the wall.

"I guess it's something . . . I mean . . . I tried to run people's lives once. All I did was ruin a few good years for . . . for someone."

"But this is my first job and I'm not even doing *any* good." Her voice was getting hoarse.

"You are, too," he said impatiently. "Come on, let's get out of this closet and take a walk."

She wiped at her eyes, then walked past him stiffly. "I'm sorry. That's a silly way to act. Very unproductive. I just . . . well, it was such a shock to hear about Fyodor. They'll surely send him back now."

They walked past the rows of buildings. Montson rested his arm across her shoulders and guided her.

She sniffed. "And we had to work so hard to come up here. The government didn't really want us to. This whole setup is against our economical principles, but the scientific principles won. Only twenty of us came at first. Fyodor . . . and Andrei—he used to be chief engineer."

"You mean Lassky?"

"Yes. He did some really strange things. He sliced up his igloo—walls, mattress, furniture . . ."

As they descended another set of stairs, Montson's hand moved from her shoulder to her waist.

"All my life I wanted to be a psychologist," she said. "And I made it. Then to have this opportunity—first psychologist on the Moon. Did you know that there were seven hundred applicants?"

"I didn't know that."

"I think they hired me partly because I was a new graduate—costs less than an expert of any sort. Besides, I did my dissertation on confinement."

"Confinement?" Montson slid the door of an igloo open.

"What's this?" She stared at the door.

"My place."

"Oh." She stepped inside.

He stepped into Cardin's side and peered around, his eyes still adjusting to the semidarkness inside. He turned and bumped into Polyakov. "Excuse me." He stood in front of her. "The other side is mine. I have a roommate."

"Yes, everyone does—except Yamamoto." Her voice was almost a whisper.

He sifted her hair through his fingers. He kissed her. "I don't like my

roommate. He makes bad jokes and has smelly feet."

"Maybe I can help you." She crossed to Montson's side of the igloo.

"Bet you can." He followed her.

She pulled his overalls open to the waist and her cool hand stroked his chest. He could feel his heart pounding, and hoped she wouldn't notice. His mouth was dry. She helped him pull the overalls off his arms, then out from under his feet. She then peeled off her own in seconds.

He sighed shakily and sat on the cot. She wrapped her arms around him, then they squeezed onto the narrow mattress.

"Jeez-us . . ." he said.

"Been a long time?"

"Seems like forever."

"Why is that?"

"Been busy. Tried not to think about it much. You sort of triggered my memory."

"Oh . . . what's that you're doing now . . ."

"I haven't forgotten how."

"Be careful though." Pause. "It really is different up here. You can't get too wild until . . . you . . ."

Long pause.

" . . . have more experience."

"I see."

"Alex?"

"Yes?"

"Looks like your mind's a million miles away."

"I'm finding the square root of eighty-three. I don't think you would want me to come back just yet."

"Okay."

"But, I don't know . . . it's hard not to think about what's happening."

"Don't worry. We'll have lots of . . . time . . ."

"Jeez-us."

The mellow smell of her body filled his head. He stroked her side, then pulled the scratchy blanket over their shoulders. "That was nice," he said. "Best thing that's happened to me up here."

"Yeah." She smiled and closed her eyes.

"I used to be married."

"I know."

He squirmed, trying to move his arm out from underneath him. "How did you know that?"

"When I heard you were coming up, I got the computer's biography of you."

"I'll have to check that out. You seemed to be impressed by me—it must be a flattering biography."

She yawned. "I used some of your articles when I was writing my dissertation."

"As soon as I have more information, I'm going back to Yamamoto about some changes. It might take another year to finish the per—"

The door slid open and a bright light flashed in his face.

"Oh, hell," Montson said. "Could you give us a few minutes?"

Cardin stood numbly, mouth slightly open.

"Get out, *please*."

He slid the door shut slowly.

"Well." Montson sat up. "I guess it's time to get back to work anyway. I haven't had a lunch break like this in years."

Polyakov smiled. She looked a little dazed and rumpled. She pulled her clothing on lazily. She glanced at her watch. "I'm late for a patient! I've

never been late before!"

"Wait," he said. "You'll help me, won't you?"

"Of course, Alex. It's my job, and besides . . ." She slowed to look at his face. "I really have to go. See you later."

He followed her to the door. She was down the walkway before he could say another word.

Cardin leaned on the igloo opposite. "Boy, oh, boy, Montson. You sure don't waste time. Want to tell me your little secret?"

Montson was surprised at the snarl that came from his own mouth.

He leaned against the window's edge, sipping his coffee. Beyond, tractors crawled in and out of the construction site, gleaming through the dust under a string of lights. About thirty degrees above the close horizon, a giant blue and white Earth shed light from three-quarters of its surface. The blue earthlight glowed on the mountains and crater rims in the distance.

The page he'd been waiting for snapped through the tinny audio system: "Dr. Alex Montson to Administration, please."

He passed the squat aluminum shapes between the observation deck and the Ad building. Inside, people and papers moved with purpose. The computer terminals around the room hissed with printed readouts. Screens danced with color-coded three-dimensional drawings.

Inside the office, it was almost possible to recall what quiet meant.

"Dr. Montson, nice to see you again."

Montson sat down. "Thank you, sir, it was good of you to give me your time. We've been having some problems. I thought I should tell you what's going on."

Yamamoto inclined his head slightly. "Problems?"

"Yes. I'm not sure how to put it briefly. Let me see if I can explain it this way—when I was about four years old, my father and I found a salamander. We put it in a box of sand, planted a little cactus, tossed in a few houseflies . . . Well, eventually the salamander died. Salamanders are amphibians, and need a marshy environment." He waved his hand. "That's what's happening up here. Humans need privacy, fresh air, some green landscape, peace and quiet—at least once in a while.

"There has been an increase in psychological problems since the settlement was established. Some of the work supervisors that I have talked to say that their men exhibit anxiety, fatigue, aggression, depression . . . Production is dropping, and it's getting harder for the foremen to maintain discipline."

"Go on." Yamamoto leaned back.

"Also, the doctors and the psychologist tell me that they have people coming in for insomnia, dizziness, and other psychosomatic complaints."

"Isn't this a little out of your field, Dr. Montson?"

"No, sir. I've spent my whole life on artificial biosystems and found it an integration of many fields. This settlement is the realization of everything I've ever wanted to do. I just can't stand to see it go all wrong."

"And you think you can fix it?"

"Yes, sir, with improvements in

ventilation and acoustics. More residential domes, a large dome with a park . . ."

"Those things will be done, Dr. Montson. You know the permanent settlement will have all those things that you suggest. We went over this when you first arrived. Do you remember what I said then?"

Montson nodded. "But it's a matter of time. These things should be done right away. I think that the situation is even worse than I had first assessed. Not even half the workers will renew their contracts for a second year, though most planned to when they first came up."

"There are others on Earth quite willing to take their places."

Montson stiffened. "But you picked the best."

Yamamoto smiled slowly. "If you're genuinely concerned about the welfare of the workers, I'm touched. If you're unhappy at not having as much authority as you had on Earth, I'm displeased. I'd like to think that it is the former, so I'll try to alleviate the problems."

Montson searched the Director's face.

"I'll try to have the construction finished as soon as possible. I, too, suffer from the noise and unpleasant conditions."

"Do you have any idea how long that might be?" Montson asked.

"It depends on how hard the men are willing to work."

Montson stood. "I don't think you're taking me seriously."

Yamamoto laid his palms flat on the desk. "I think you'd better leave before you say more."

Montson hurled the door along its runners. He headed for the infirmary. Three people were waiting on the bench by Polyakov's office. He paced until the door opened.

He leaned in. "I have to talk to you."

She nodded.

He stood by the door and clenched his fists. "It all went wrong. Nothing will change—it may get worse."

"What happened?"

Montson grimaced. "I said the wrong things. You're right, you can't be too stubborn in a situation like this. You have to bend."

"Well, Alex, you do have that way about you."

"No, I mean Yamamoto. I hope he doesn't do what I think."

"What's that?" she asked, eyes wide.

"Increase the work load."

She shook her head. "He'd be increasing my work load, too. He can't do that. Isn't there some kind of union or something?"

"No." He pulled her close. "Have to go. I'll see you tonight. They're showing some old movies—*The Left Hand of Darkness* and *Forty-Seven Ronin*."

"Oh, my head! American and Japanese!"

He laughed. "You know our cafeteria is too small for Russian movies."

They sat in the tractor, parked at the rim of the ever-growing crater. Montson watched the scooper through a fine dust cloud. He still couldn't believe the amount of rock and soil that could be carried away at once. On Earth the same amount of ore that

the claw of the scooper would bite out and swivel into the trailer would have crushed the vehicles.

The trailers would fill, then a tractor would come, hook up, and take off for the catapult. The load was transferred to the space-going carriers and hurled out of orbit from a forty-five kilometer track.

Ito sat on the hood of the tractor, his feet crossed. Montson sat upright, listening to the workers below.

"Hey, Shimazu, is it break time yet?" one of the voices asked. "I've got an awful itch you-know-where."

"Another half hour, Mac," a different voice said.

"Just keep driving that damned scooper."

"I'm thirsty, too."

"Well, take off your suit and scratch and drink."

"I thought the cabs were pressurized so they could work without suits," Montson said.

"They did use them that way until one guy had a rock thrown through the window."

"Oh."

The scooper stopped in mid-swivel. The voice blasted through general broadcast again. "C'mon, Shimazu, half an hour won't hurt the company."

The little figure in the center of the crater waved his arm at the scooper angrily. "Do your job, Mac."

Montson squirmed in his suit. "I don't see how these guys can do it for four hours straight. Let's go over to the dome and get that cup of coffee that Goldberg promised us."

Ito started up the tractor. They turned toward the small mining dome settled near the hills about a kilometer from the crater rim. Another tractor

was returning from the loading site. The trailer jolted loosely behind.

Ito pumped the brakes. "Hey, you in tractor twenty-eight!"

Montson could see the driver turn slightly in their direction. The tractor was just passing the dome.

"Your trailer's not secured and what the hell are you doing driving so close to the dome?" Ito drove toward him.

The tractor swerved slightly as the driver turned his body to look back at the trailer.

"Sonovabitch!" Ito screamed.

Montson's mouth went sour. He heard blood rushing in his ears.

The tractor headed into the dome. The metal and ceramic triangles crumpled and shattered in its wake. Papers, clothing, and light supplies geysered out the four-meter tear along with the atmosphere of the dome.

Montson found himself stumbling behind Ito. He saw the tractor driver crawling out of the seat, which was jammed up next to the outside of the dome.

Papers were still settling inside the dome. Four people were struggling with their pressure suits; a fifth was already suited up—probably had been beforehand.

Montson knelt at the blistered body of a woman lying in the sunlight pouring through the rent in the dome. The tractor still rested on what had been her shoulder. He took a deep breath, turning his face away. "Oh, God . . . God . . ." He swallowed the bitterness in his throat and backed away.

Ito was guiding everyone out of the dome. They trailed behind him toward the tractor. There were moans and whimpers, one person was limping badly.

Montson stared at the driver, still shuffling by his tractor. "What the hell were you doing?" He held himself back.

The arms raised in a gesture of bewilderment.

"You killed somebody, you sonovabitch!" Montson screamed. He saw the name Fukahara on his suit, then grabbed his arm and pushed him toward the trailer. Fukahara bent over, and Montson couldn't tell whether he was retching or sobbing.

"Attention, please. All personnel report to the cafeteria for a general assembly."

Montson sat up on the edge of the cot. He scratched at his shoulder and yawned. Then he sat still, an image reappearing in his mind—a blistered and bloodied face. He rubbed his temples.

Cardin yawned loudly, turning his water on. "They're probably going to give you a medal for saving those lives."

"Come off it. I didn't do anything. They saved themselves. *You* should know what to do if . . ."

"Stop it, Montson. Gives me the creeps to think about it."

Alex pulled his clothes out from under the cot. "And will you stop wasting water? I don't know why you use those primitive razor blades anyway."

"Get off my back, will ya?"

"Jeezus." Montson put on his overalls. "It's my job. I've spent my whole life so that I could come up here, share a cell with you and tell you to

turn your damned water off!"

He was one of the first into the cafeteria. People filed in sleepily around him. He saw Polyakov struggling toward him and smiled across the rows of heads between them.

The Director marched in, followed by a group of assistants. The crowd pulled in its sides, rearranging for a clear view of Yamamoto.

Polyakov pulled a chair close to him. "I thought I'd never get here."

Montson kept his eyes on Yamamoto. Somehow he looked polished and fine, ivory and ebony, even at six-thirty A.M. The crowd hushed when he raised his outstretched hands.

"I have a few announcements," Yamamoto said. "I am assuming that, since we are a small group, everyone knows of the unfortunate accident yesterday.

"I have been informed that the Board has decided to pay the family of Jeanne Paul-Boncour a full year's wages, though she was here but six months."

A delicate applause.

"I have also been advised by certain experts that we are not maintaining the proper environment. So we have done something to help the situation." He turned and crooked his finger at one of the assistants.

Montson shared a look with Polyakov, then watched the assistant returning with a spindly oak sapling that trembled with each footstep.

"What's that?" Polyakov frowned. "That's got to be a joke, and a bad one at that . . ."

"Shhh."

Montson shivered when he found Yamamoto's eyes directed at him.

"We have five such trees," Yamamoto said. "They will grow with our settlement, and move with us to our permanent home within the Moon's surface." The tree swayed in front of the Director.

Polyakov bit her lower lip, smiling.

"We can look at these trees," Yamamoto continued, "and think of our homes on Earth and how our work up here is furthering the lives of those we left behind."

Polyakov was giggling.

Montson nudged her. "Stop it."

She pressed her lips together, but a gulping still was loud enough for those nearby to turn and stare.

"Katya, shut up, will you?"

She laughed out loud. "What a silly tree," she choked.

Montson sensed the tension in those around him. Yamamoto had stopped speaking altogether. There were a few muffled chuckles, then someone else laughed outright.

Suddenly he felt he would shatter in the explosion of voices that surrounded him. He saw an endless expanse of frightened laughing faces, tears streaming down their cheeks.

Yamamoto glared at Montson. It seemed to last for long, long moments. Then Montson saw those hands—smooth dark hands with stout fingers—clutching at the sapling's thin trunk. The trunk split and twisted between those hands.

The leaves brushed the floor; green strings lay exposed in the twisted angle of the trunk.

Yamamoto was gone.

Montson broke through the crowd. He fought the tears, the choking tightness in his throat.

The laughter simmered to a low moan.

Montson looked into the faces that were watching him. He looked at Polyakov; her eyes were red and puffy, her lips moved soundlessly. He picked up the tree and flung it back to the floor. The pottery smashed and earth splattered out around his feet.

Eyes. Tight mouths. Trembling hands. Sagging shoulders. Silence. Eyes.

Montson kicked the heap of dirt and tree. "He was trying!" he shouted at them.

Katya-eyes and pain.

He turned away.

A movement caught his eye as he strode through the corridor. He stopped.

Ito's fingers moved carefully along the creases of paper. On his desk was an assortment of origami animals—frogs, giraffes, birds, and crumpled scraps with tails or legs. He glanced up at Montson, then continued his folding.

"What are you doing?" Montson asked.

"Thinking." His voice was heavy and slow. He appeared to have been awake for a long time.

"About?"

"I keep seeing that girl's face, blistering in the sun. I swear that she looked right at me just as she died." His fingers shaped and folded the paper.

Montson sat on the corner of the desk.

"I should have known what was happening even before you came—the way the Soviets and Americans deteriorated. I was proud. Thought Japanese were stronger. Even when you said it would happen to everyone eventually, I didn't believe you. But we can't go on . . . I should have seen."

Montson's hands balled into fists on his thighs.

Ito held out the origami. "Here is our salamander. Watch him dance around the cactus." His laugh was too empty and loud.

Montson took the paper salamander from Ito's hand, inspecting its splayed legs and triangular head. He crumpled it and pounded the desk with his fist. "No!"

Ito's eyes were steady. He turned and pulled another sheet of paper from the box on the floor.

Montson didn't wait for an answer to his knock.

Yamamoto was bending over the bonsai. He straightened slowly when he saw Montson. "Get out," he said.

"Do you understand yet?"

"You have made me a fool. I can't allow that," Yamamoto said.

"*I* didn't do anything." Montson tried to match his voice to the even rhythm of the Director's. "It's this place. No one can stay sane here for a long period of time."

"No one acted this way until you came up here."

Montson stepped toward him. "And just how do you think I convinced a man to blind himself, or another to kill his fellow workers by carelessness?"

Yamamoto sat down. He wiped at his face with a handkerchief. "I don't know how you did it. But you will never sit in this chair. You will never have this power that you crave."

"Don't you understand?" Montson paced in front of the desk. "What the

hell. I guess it's the only frame of reference that you have, isn't it?"

"Get out, Dr. Montson," he said quietly.

Montson nodded. "This can't go on, you know."

"I know."

Cardin's cot creaked slightly as he sat down. "Montson, I have to talk to you. Are you awake?"

"I don't want to be."

Cardin sighed. "I had a chance to make it with that girl Juva, and . . . I couldn't do it."

Montson turned in his cot. "Why don't you talk to Dr. Polyakov about it? I don't know what to tell you."

"I couldn't find her. Besides, I couldn't tell a woman, especially not . . ."

"Leave me alone, will you?"

Cardin's voice was bitter. "You've never had the problem yourself, have you?"

Montson sighed. "I can't remember—maybe when I was a kid. Just leave me alone."

Cardin threw something into the room divider. It wobbled. Montson saw a crack of light crawl across the wall, then narrow into a sliver.

"You'll be sorry, Montson."

Just leave me alone.

It was difficult to keep his eyes open. The only sound that he listened to was that of his own breathing, slowing . . .

Snow. Snow is cool and soft. But the air is filled with tiny hard pellets. There's Orion, spread-eagled across the frozen sky.

I have to come back.

The snow is crunchy, the air filled with woodsmoke. The sky in the east is starting to streak with blues and orange. Orion is gone.

There is someplace I have to go—where is it?

He sat up suddenly. His back and forehead were damp. He couldn't tell how much time had passed as he listened. "Cardin?"

During the arbitrary human night, the domes were quiet and dimly lit. He looked up as he hopped through the main dome and saw black lunar night through the triangular windows.

He slipped into his suit easily. Standing at the airlock, he went through the mental checklist. He punched the computer panel on the sleeve for oxygen readout time.

"Only five minutes!"

He crawled out of the suit and examined it. Only yesterday he'd put a new pack on it. He was sure . . . He dumped it in the corner of the supply room where he could take a look at it later. Borrowing another suit, he passed through the airlock.

He shivered outside. Even a spacesuit couldn't completely insulate against the midnight temperatures of -150 degrees Centigrade. He followed the tracks to the construction site.

The opening in the ground was half a kilometer across, but the underground hole was two square kilometers. Montson felt dizzy as he leaned over the steep ladder. But the tractor access road on the other side was a long cold walk. He descended the ladder and looked around.

Lights burned continuously from the ceiling of prestressed concrete and aluminum. From his end of the excavation, he could see a figure sitting in the center, facing away from him.

Montson walked toward the figure. *Why the hell am I doing this?* But cold and sleepy, he tried to hurry, fearing what he would find. "Cardin?"

"Who's that?"

"Montson. What are you doing?"

Their visors were clear. He could see Cardin's face, embarrassed. He was clumsily sprawled into a half-cross-legged position. "Just thinkin'."

"Why did you sabotage my suit?"

Cardin's eyes widened. "I didn't."

"Either my computer panel or the supply lines were tinkered with. What did you mean—'You'll be sorry'?"

"Oh, I . . ." He frowned. "I was going to walk out the airlock without a suit, but I realized I would jam it up. So I put on my suit and was going to walk away and unhook my lines . . ." He laughed sharply. "But, you're right. I'm such a coward, I can't even kill myself."

"Well, I'm glad you didn't do it."

Cardin looked up. "Go on, Montson. I hate that phony crap."

Montson squatted. "I *would* be upset. You're certainly not my best friend, but that's a nasty way to go."

"Wouldn't like me on your conscience, huh?"

"That would be part of it."

"Why don't you like me, anyway?"

Montson stood again. "You're an obnoxious joker. You've harassed me about my sex life, my status as a scientist, my . . . well, I don't want to go on."

"Neither do I," Cardin said.

"Come on before we both freeze to death."

"I didn't sabotage your suit. I may be what you said, but I'm not a murderer." Cardin's voice broke, and he got to his feet.

They headed toward the ladder.

Cardin turned. "How did you know I was down here?"

"You work here. Just guessing . . ." Montson moved quickly, hoping it would warm him.

When they emerged onto the surface, Montson was almost glad to see the domes, shining in the blue earthlight.

He had a bitter taste in his mouth. His face and hands felt dirty and stale. He sat up, listening to the sounds outside the igloo. "Cardin, wake up. I think we're late for work."

As Montson washed and dressed, he could hear the razor scratch across Cardin's face. He peeked around the screen. "You're saving water—good man."

Cardin's face was greasy with shaving oil. He smelled like a rose garden. "Montson . . . uh, thanks."

"It's all right."

Cardin frowned. "Guess I really do act like an ass sometimes. I'm really going to try . . ."

Montson patted his shoulder. "Good. I'll see you later."

He stopped by Polyakov's office before going to the labs. There was no one around. He stood by her desk and picked up a few things absently. He felt uncomfortable.

When he reached the labs, he picked up a stack of printouts and settled into a chair in the rabbit pen.

He was watching the rabbits leap playfully when Cardin appeared, puffing. "Montson, has anyone seen you yet?" He lunged through the

gates, scattering the chickens.

Montson shrugged. "A few lab personnel. Why? What are you doing here?"

"Everyone thinks you're dead. They say your suit is gone—you must've walked over the hills or something. I don't know, it's all crazy. Ito and Polyakov were sent out on the shuttle that took that guy Fukahara."

Montson watched Cardin's red face splutter. A dreamy, detached feeling covered his perceptions. "Katya?"

"She's gone, Montson. I don't know about you, but this whole thing gives me the creeps. Remember what you said about your suit last night?"

"My suit . . . I left it in the supply room. Why would anyone look for it?"

"They were looking for you, only you were down in the hole with me," Cardin said.

"But Katya . . . and Kenji . . ."

"What are you going to do?"

Montson leaned back in his chair, eyes wide. "I don't know. Let me think a minute."

Cardin sighed. "I wish I'd never come up here."

"I'm not going to leave this place. I've spent my whole life figuring out how to make it work. And then this . . ." He slapped fist into palm. "The only thing that gets to Yamamoto is money."

Cardin continued, "You're sort of a book person, but me—I like to get out and run and play . . . swim, watch the girls . . ."

Montson gripped the stack of papers on his lap. "We could arrange a mass protest, but I'm not sure about support . . ."

Cardin put his hands in his pockets. "What would we get out of it?"

"A park."

"A park?"

Montson nodded. "A quiet place with trees and grass. We could have a pool and a tennis court, maybe even bicycle paths." He waved his hands in front of him, building the image. "It could be as big as the main dome."

"Yeah. That sounds good."

"I wonder . . ." He stood up and cocked his head at Cardin. "Why don't you kind of mention a few things to some people and see what they think. If they sound positive, send them to talk to me."

Cardin nodded and bolted away.

Montson sighed. He almost wished he had never seen a salamander in his whole life.

"Dr. Montson? I'm Colleen Hawkins. I heard that you need some help."

Montson nodded, setting his coffee cup down. "Sure. Tell me about yourself."

Hawkins sat down. "My father taught me a lot about the politics of moving people to your own advantage. He was in five college uprisings in the sixties, marched against food chemicals and fission in the eighties. He's in fusion research now."

Montson smiled. "What do you do up here?"

"I was a sandhog on Earth. Just seemed natural to come up here and work construction."

"And you'd like to stay?"

Hawkins grinned. "Sure would."

"Okay. If you help me, I want you to realize that you'll be risking your job with the corporation."

Hawkins nodded. "I know. But if

we get enough support, I don't think they could fire *everyone*," she said. "They might fire our spokesman . . ." She raised her eyebrows.

"I know," Montson nodded. "I have to risk it. Tell me what to do."

Montson looked at his watch. Seven-fifteen. Only a quarter of an hour before they were due to suit up for the day's work.

The cafeteria was full; everyone was still leisurely eating breakfast. Montson noticed a lot more plate-scraping and less conversation than usual. He had become an expert on cafeteria behavior in the last three days.

A few workers got up and dumped their trays. They glanced nervously around at the tables still occupied. A whistle echoed throughout the domes. About twenty people stood and dumped their trays; half left the room, the others returned to the tables. Some of the cafeteria workers left their stations and sat down. Others knotted together, whispering.

Montson felt a hundred faces turn toward him: The skin on the back of his neck tingled.

After another fifteen minutes, a glaring foreman headed for Montson's table. "What have you done to the tractors?"

Montson turned his face away.

"Come on. I know that you've been brewing something for days now. It won't work. What did you do to the tractors?"

"I'll tell you as soon as you tell me who messes with other people's suits around here," Montson said.

"Huh?"

"As soon as there are a few changes around here, you may have your tractor parts back."

The foreman knocked the coffee cup out of Montson's hand. It flew toward the next table. A girl caught it, but the coffee splashed onto her orange overalls.

Montson stood, his facial muscles tense. "If anyone gets hurt . . ."

"It'll be your fault, Montson." The foreman backed away. "And I'm going to make sure the Director knows."

A few moments later Yamamoto stood at the door. He seemed to study each face as he scanned the crowd; he smiled when he saw Montson. "Dr. Montson, you're fired. Everyone else, get back to work."

Montson pushed away from the table and stood. "And what happens to them if they don't get back to work? You shuttle them out in the middle of the night? Or you send someone around to play with their suits?"

Yamamoto glared at Montson.

About fifteen people edged across the room and stood behind Yamamoto. There were still over two hundred sitting and watching the Director. Hawkins had been right. This was the most interesting event since the settlement was founded. No one wanted to miss this game by going to work.

Yamamoto hissed. "Fools!" Then he pushed his way out of the room.

He had been dreaming of her laugh, her dancing eyes. *Will I ever see her again? She's probably tucked away in some asylum in Siberia.*

Someone tapped his shoulder. He

lifted his head and blinked in the light.

"Yamamoto wants to see you in his office."

"What time is it?"

"Two-thirty."

"How many are with us?"

"Still almost two hundred."

He scanned the room. People were sitting on tabletops, standing in corners, wandering from group to group. "Tell him to come here."

"But he won't do that."

Montson made shooing motions with his hands.

There was a hush when Yamamoto appeared at the doorway. He picked up a tray and shoved it along the rails in front of the serving counter. He waited.

Montson saw a woman squirm in her chair, then rise and go to the refrigerators. She dug out a sandwich and a carton of juice and set them on Yamamoto's tray.

Yamamoto skirted the crowds towards Montson's table. He sat down and unwrapped his sandwich. "I've talked to the board. They would like a list of grievances."

Montson reached into his pocket and tossed the paper on the table.

Yamamoto smoothed out the paper. He studied it for a moment. "I have heard most of these before. But is this one your idea—a lounge with alcoholic beverages?"

"It's their idea." Montson waved one hand at the others in the room.

Yamamoto's eyes narrowed. "I see. How much support do you have?"

"At least sixty percent strong, thirty percent borderline."

"And I have ten." Yamamoto looked again at the others. "Pretty impressive. I never would have guessed."

Montson suppressed a smile. "There's a lot of dissatisfaction up here."

Yamamoto refolded the list and stuffed it into his pocket. He gave Montson a tight-lipped look. "You will never return to the Moon."

Montson shook his head. "You are assuming that this is the only company that will exploit the Moon."

"You will be an old man before the opportunity comes again." He took his tray and left.

Montson frowned.

Montson watched the flickering faces on the screen.

"Mr. Yamamoto, we are shocked that you would ignore the advice of the scientists and let things get out of hand so. Our decision to keep you on has been a hard one. You will be on probation with formal review of the matter in a few months."

Yamamoto flashed a look at Montson. His fingers twisted into a knot behind his back.

"Of course, the object of the settlement is profit, but not at the expense of human lives. This casualty rate, illuminated by Dr. Montson's argument, is appalling. If it had been at all possible to avert these accidents . . ." The speaker shook his head. The other faces stared out from the screen thoughtfully.

Another of the five men spoke. "And Dr. Montson, you know you've acted foolishly. You should've submitted your grievances to this Board. Surely you knew that the Director-in-situ was not the final authority. Do you have anything to say?"

"Will the requests be met?" He searched their faces. The seconds that passed were long.

"Of course. But, I'm afraid that because you have undermined the integrity of the Director and the corporation in the eyes of the employees, we'll have to let you go."

Montson nodded. *Beg. No, damn it.* "Uh, if there's anything else I can do . . . maybe Earthside . . ." He watched their faces while his words were in transit.

"Thank you, Dr. Montson. We'll contact you if the need arises."

Montson left the office. He knew that if he stayed, he would rip down a row of hundreds-of-years-old bonsai.

This must be more than one-gee.

His feet dragged on the floor stubbornly. His hands swung heavily at his sides. He tried to sigh, but even that seemed difficult.

The gently curving floor of the Earth orbiter seemed to go on forever. He glanced over his shoulder to see that the shuttle mechanic still carried his bags. The mechanic smiled at Montson sympathetically.

"I really appreciate this," Montson said. "I couldn't have done it."

"No trouble. I go this direction anyway. You'll feel better once you get down to the center of the orbiter. It's only one-half gee there."

"That's still three times what I'm used to."

Montson mused on an approaching figure. She reminded him of Katya and he felt a hollow in his chest.

"Alex!" The figure started to walk faster, but she seemed as slow and awkward as Montson.

He stood numbly, not daring to let himself imagine for a moment . . .

She threw her arms across his shoulders and kissed him. "I was so afraid. Oh, Alex, are you still angry with me? I've been in agony over those last few minutes that I saw you . . . I thought we would never . . ."

Trembling, he found the strength to squeeze her. "Just think, Katya, we can go swimming and sailing and mountain climbing and sleep in a double bed together all night."

"Dr. Montson!"

He turned and waved at Hawkins as she came down the hallway. She was vigorous, apparently not even noticing the change in gravity. Montson nodded a greeting. "Katya, this is Colleen. She helped me organize the protest."

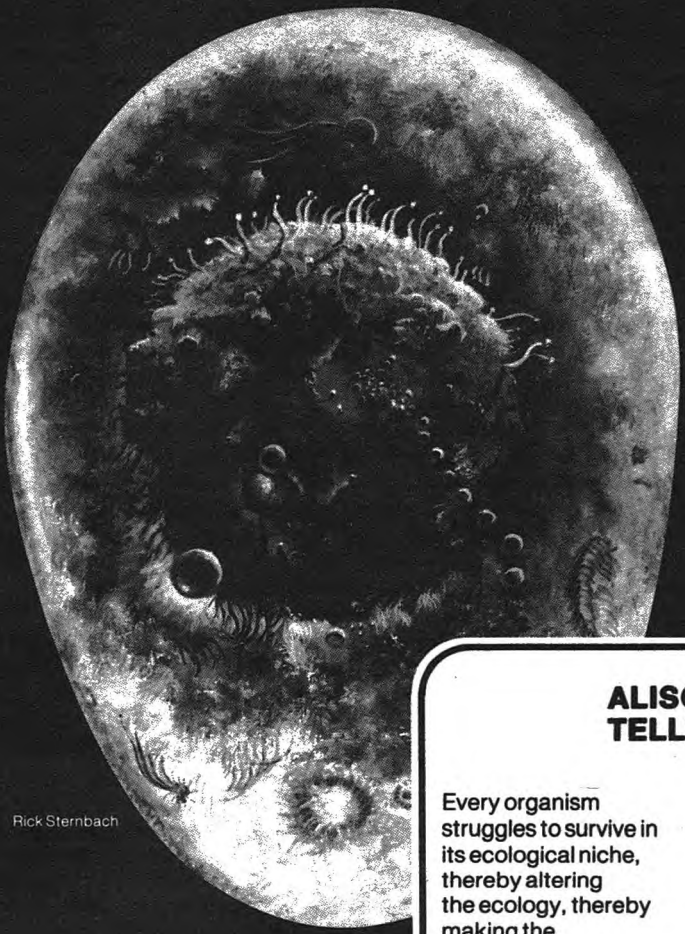
Hawkins grinned at Polyakov. "Got my butt kicked, too. But, I don't care—I just talked to my Dad." She looked up at Montson. "Seems that they've made a breakthrough since I talked to him last. That should be good news for you, too, since people are interested in fusion for interplanetary travel someday."

Montson and Polyakov looked at each other. Montson grabbed Hawkin's hand and shook it. "That is good news! Congratulations!"

She laughed. "Well, I gotta go catch the Earth shuttle. Thanks, Dr. Montson, and good luck to both of you." She picked up her luggage and disappeared down the hallway.

Polyakov squeezed Montson's hand. "Alex . . ."

They passed a huge diamond-shaped window in the orbiter. He gazed at the pasty Moon thousands of miles away. Mars, Jupiter . . . he laughed, feeling stronger already. ■



Rick Sternbach

ALISON TELLURE

Every organism struggles to survive in its ecological niche, thereby altering the ecology, thereby making the struggle continue.

LORD of all it surveys

It could not remember, but could deduce, its origin.

About all that could be said for the planet was that it had a water ocean. The thick atmosphere held little or no free oxygen, thus no protective ozone layer. The planet's respectable if non-Jovian mass generated much internal energy, resulting in violent episodes of vulcanism, but also ultimately in an extensive and powerful magnetic shield. This substituted for the ozone layer, guarding whatever might be brewing below from the exuberance of the blue-white primary.

What was brewing below was life. It was a repetition of the old, old miracle, new and wondrous this time as every time.

(On a planet so far away in both space and time from the one that concerns us here that its name makes no matter, there is an example of an art form on the ceiling of a famous religious temple. The two-dimensional pigmented *objet d'art* depicts a universal creator-deity, made in the image of the artist's species, stretching forth a manipulator to touch the corresponding manipulator of the newly-created First Individual of the species. It is the moment just after Creation, just after Awakening; a touching, pregnant instant, a universal statement of the pathos of existence. In the small space between the two appendages stretch a billion local years of long-chain molecules.)

The particular long-chain molecules forming in the great warm sea below the blanched sky ruled by the blue-white star were carbon-based. Other abundant materials were hydrogen, nitrogen, and oxygen. A standard, dependable model.

The planet had no moon and thus nothing particularly noteworthy in the way of tides, but it had a great deal of weather. Gale-force winds hurled waves of spume in upon the barren, rocky shores. Water filled littoral traps for an instant, only to be sucked swiftly back into the sea. The wind whipped the proud bleak plateaus of the continental interiors into dust and submission. Torrential downpours sliced evanescent arroyos out of the grumbling hills. Red-throated mountains heaved themselves in retching agony up into the dark and stinking air.

Little things absorb life matter and energy and grow, or band together, into slightly larger things. Relatively big things consume smaller things. Every life-mote is very busy and soon enough they hit upon a life form and a life-style that's so successful that it quickly (in evolutionary terms) creates an overpopulation crisis. Just in time the planet invents, or discovers, or is discovered by, Sex and Death, the Terrible Twins who stalk the starways forever together, hand in hand—or pseudopod in pseudopod, or tentacle in tentacle—hunting living worlds; and who always bring a quiet, intense explosion of Life, transforming whatever they touch.

The pioneering Old Guard died out, unregretted and unremembered even by the rocks. Their component juices nourished the new forms, the shock wave of the explosion.

The living sea exhaled a livable atmosphere.

The Tree unfurled its myriad fronds to the fierce blue sun. Things like protozoa had the run of the place, of course, but things like porifera

challenged them and things like coelenterata developed. Slime molds slimed out onto the seaside rocks and began to mold the land. Creatures nothing more nor less than motile guts were shouldered aside, an unmeasured time after their appearance, by three-layered creatures with self-contained circulatory systems. Eventually some bright young thing invented a sense, and nervous systems became popular.

It could not remember, but could deduce, its origin.

A translucent jelly thing floated on the windwhipped surface current of the warm and nurturing sea, "bathed in swich licour" as brought it both sustenance and warning of danger. It was an advanced modification of the "motile gut" principle; its self-propulsion faculties were feeble, but it had an enviable nervous system for so simple a creature. Long, almost invisible tendrils trailed from its circumference, each twice as long as its diameter, which were little more than raw nerves. The main tendril stalk was thinly encased in a single-cell-thick sheath of dermis, but from countless irregularly placed pores thrust little cilialike branch nerves, inquisitively sniffing the waters for the scent of food or peril. Toward the tip of each nerve tendril the branch nerves changed function from superb and surprisingly long distance chemoreception to incredibly delicate pressure-sensitivity. Though robbed of utility at night by the turbulent upper waters, daylight sent the creature fleeing the sun's rage into the peaceful deeps, and then the tips of the tendrils could detect the wave front of an approaching enemy—call it a "shark"—from several miles away. Working in concert, the tendrils monitored the activities of all surrounding creatures within that radius. Effectively blind (its primitive photocells registered only "sun" or "no-sun"), it could "see" farther than any other animal on its world. It had ample enough warning of the approach of a "shark" for its slow muscles to chug it out of the path of danger. Of course, if it were trapped, it could only wait, unaware and uncaring, to die.

Occasionally it smelled the presence of another of its own kind. It paid no attention—neither food nor foe—but an automatic reaction excreted a few million cells of its own substance, chemically treated on the way out so that the cell membrane began to break down and the plasm within soon dissolved, leaving only a naked nucleus, in which certain changes were already occurring. This stuff hung in the water for a short time before dissipating. If the cospecific individual swam into it in that time, fine. If not, a matter of supreme indifference to the secreter of the substance, which might or might not drift into that which was released by its acquaintance. Ships in the night.

If one of them did float through the slowly disintegrating cells of the other creature, the stranger nuclei infected some of the host's cells like a virus, usurping the original nuclei's patterning function while absorbing some of their alleles. Meiosis and mitosis took place, followed by almost cancerous growth. The host would feed ravenously. Eventually, the new growth budded off, to complete its development into a tendriled adult within a

few desperate, perilous hours. It had characteristics of both parents, insofar as one could have told them apart.

It could not remember, but could deduce, its origin.

Weather and earthquake action occasionally trapped such creatures in littoral pools. Either they escaped in a subsequent wave, or they prospered in an enemy-free environment, or they ran out of food and died.

Sometimes in a particularly spectacular storm more than one of the jellyfish-creatures would be thus trapped. In such cases each one automatically excreted its spermoid cells and proceeded to wait out its incarceration. Naturally, in a limited space the likelihood of contact and infection increased many-fold. Soon a pond which started with but two contained three, four, a dozen—as many as it could hold. There was a purely random but highly efficient utilization of the gene pool. Then, of course, unless they had a steady influx of their microscopic food, they all died.

A planet where Sex and Death reign can afford to be profligate.

On the rocky shore of one continent there was a wide, reef-ribbed shallows which funneled into a strait and narrow entrance to a large, protected bay—almost a lake. Thither would the sharks arrow after every storm, like locusts after a particularly luscious harvest. For they knew that there they would find hundreds, thousands, of trapped and dazed and turbulence-blinded jelly-morsels, available for the snapping up, if the sharks could just avoid being beached themselves.

Their prey in this region of the world ocean had naturally-selected abnormally strong escape muscles for the same reason, for only the strongest won through the congested scramble into the safe harbor and survived to propagate.

There was a storm. It subsided. But the surface of the water in the shallows still churned as if the wind roiled it, the white froth boiled up by the chase turning pink as sharks turned against their beached fellows.

Within the lake, a tendril-creature spurted through the narrow entranceway and immediately relaxed, exhausted. There came another, and another; as the hours passed the lake grew crowded, partly from immigration and partly from procreation. It had happened hundreds of thousands of times before. This time something different happened.

Outside, in the chaos and the killing, two creatures' nerve-tendrils got entangled. Impulses were shared along the exposed nerves. What one individual sensed, the other felt. The simple central nervous system, a tiny knot of ganglia precisely complex enough to process the chemical and wave-pressure data delivered it and no more, was doubled. Muscle power was doubled.

This too had happened before—in the open sea. Always the two individuals had exchanged cell nuclei, eventually extricated themselves and budded.

In this instance there was no time to disentangle. The instinctive top priority was escape. With double musculature the entangled pair pulsed with single intent away from the mouths of the sharks and toward the mouth of the bay. They managed to capture a third individual on the way.

With a last mighty heave, the triune being flew into the crowded lake and stopped instantly. With flight behind, the spermoid secretion mechanism, which did not operate while the primitive muscle was in use, began to make up for lost time, stimulated by the nearby abundance of cospecifics. And it/they began the slow, mindless, automatic process of loosening and separating.

However, in the populated state of the harbor, it/they accreted more individuals faster than it/they could lose them.

Nerve interconnectivity and muscular strength multiplied.

Mother Sea washed food in and waste out. The colony in the harbor—in which moved a clot, a knot, a shadow and a shimmer in the water—increased and prospered until optimum population, an equilibrium of death and birth, was obtained. The tendril-creatures—including the clot—daily escaped the ravening sun in the surrounding underwater caves and fissures. In any competition for shelter, the clot won out, tendrils down. It grew.

It/they developed a "forward" end, molded by habit and hydrodynamics. The units at this end did most of the swimming, their combined strength now quite sufficient to propel the rest of its bulk. Thus their procreative function was limited; this fell to the units along the trailing surface.

The units embedded in the middle got all their information secondhand, filtered through their surrounding fellows. There was thus a minuscule but perceptible dimming of stimulus. Therefore, interpreting this as a need for regeneration, they grew more nerve tendrils. Their unused photoreceptors became adaptable energy-sensitive areas.

It/they, despite its/their strength, could not escape all the fierce radiation of the coruscating sun. Mutation occurred. The new generations being born and absorbed along the surfaces incorporated the adaptive mutations. The unfavorable ones died. It/they grew.

Finally, it/they filled the bay.

The bay throbbed.

It/they had no need of a circulatory system. The entwined tendrils were long enough, the spaces between units were great enough, for Mother Sea to flow and feed and flush.

It could not remember, but could deduce, its origin.

A certain level of ganglia-connectivity was reached.

Consciousness was raised.

I am that I am.

Cogito ergo sum.

I am, I know that I am, and I know that I know that I am.

It slipped out of the bay in response to an animal urge. It simply thinned that portion of itself nearest the exit and streamed forth. It sensed individuals of its components' kind. It gobbled them up as avidly as did the sharks, but to use directly, not digest.

Intelligence increased. It was a floating, feeding brain.

Far out to sea, it sensed the approach of a squall. The sharks would come to the shallows, it knew. It paused, considered—and rocketed oceanward, deepward, with all its mighty strength. The storm front passed over it. It halted, turned, waited. The sharks converged. Such

stragglers as stopped to investigate the mass it evaded easily with a negligent flick. The storm, as it judged, passed over the shallows and the harbor and the sharks' gorging began. It moved shoreward, picking up speed.

Inexorably it powered into the shallows, a tsunami of living flesh. It mashed the sharks up against the reefs and calmly, emotionlessly, began to feed. It floated in the star-lit shallows, absorbing the vital juices of its erstwhile predators.

The hunters had become the hunted. That is a cliché for a good reason, because such a situation is a sure sign of the presence of intelligence, on any world, in any evolution.

Thoughtfully it sensed the presence of its motherkind in the harbor. It extruded a tenuous finger of itself through the strait; the pseudopod cleaned up the lake, entangling individual units, and withdrew—twice as long.

It ignored the individuals resting in the shallows.

With every increase of individual units, it noted a corresponding increase in its own intelligence. It had memory. It had thoughts. It fled the rising sun and retired to the deeps to ponder. To meditate.

From this point on, it could remember its origins.

Time passed. It grew huge. Old units died and were replaced by young. It grew huge enough and complex enough to observe the effect of mutation and to deduce the existence of, though it could not analyze the nature of, DNA and RNA. It mutated itself.

It did this by detaching portions of itself and sending them to the surface in the daytime. Whenever their mindless tropism sent them hurtling below again, it herded them back upward. They mutated and propagated. The nonuseful mutations—the vast majority—it promptly destroyed. The useful ones it carefully bred and incorporated.

It organized itself. It surrounded its brain with a thick layer of tough meat. It designed streamlined swimming appendages. It compacted, carefully leaving Mother Sea room to circulate. It invented an ingenious system of physical resource sharing to supplement Mother Sea, involving detaching itself from certain units within itself, swimming around them, and reconnecting with them at a different location. It designated a reproductive organ, damping the reproductive faculty of its other units. It developed appendages capable of manipulating objects external to itself. It grew long and longer nerve-tendrils. Its chemoreceptors could detect .003 ppm of any substance in the surrounding ocean.

It experimented further. It coldly decided to reproduce its own kind, rather than individuals of its motherkind to be immediately absorbed, as heretofore. It returned to the shallows and the harbor bay, extruded its reproduction-specializing units into the harbor, budded off undifferentiated individuals of its motherkind as usual, meticulously swept them into a clot, withdrew, went out to sea and returned herding a flock of individual jellyfish into the shallows and into the bay.

It kept a careful monitoring watch on the progress of its child. It could

not imagine, but nevertheless half-consciously suspected, that its child might not exhibit quite the proper gratitude and reverence toward its own cherished person.

It wondered, once, whether it had had a parent. But no: it would have met such a creature long before this.

The child came out. The parent kept out of its way, and watched; the little one followed in its own course of development closely. When the parent judged the child capable of both memory and reason, but still nowhere near a match for it in power, talent, or experience, it introduced itself. It impressed chemical information on cells it had bred and held in readiness especially for this momentous day, and squirted them across an expanse of water toward the smaller being.

The child assimilated the information, cogitated, and obediently and prudently began a journey to the unknown ocean on the other side of the globe.

The original entity watched it squeeze through the wave-battered straits at the waist of the world, and thought, It is good.

They kept up communication: from time to time they would imprint information upon the newly invented communications tissue, and squirt it through the straits into the other's ocean. Thus they remained on speaking, if cool, terms.

And thus it received a name for the first time. It discovered its name upon absorbing the first such information-clot sent it by its child.

O FirstOne, the missive began, this ocean is both wide and deep, but neither so wide nor deep as yours. I have encountered both underwater mountain ranges and deep rifts. Does FirstOne, in its greater wisdom, know the cause and nature of these things?

FirstOne responded: Child, I have observed in my long lifetime that the earth grows restless, and heaves and spews out its substance, and makes the oceans to boil; and its inner parts then harden into rock again. If ever you should sense a trembling in the ocean floor, flee to another area.

FirstOne paused and erased the last bit of data, and reimprinted: Flee to another part of your ocean.

For several thousand local years Child sent FirstOne such travelogues and FirstOne gave Child advice.

FirstOne made more children. It used not only its own cradle but artificial ones it created by evolving organs that secreted acid and etching well-planned nurseries into solid rock. It ran itself fairly ragged trying to keep track of a whole litter, but learned much and succeeded in raising a fine crop of strapping youngsters. It assumed—correctly—that Child would consider it an unfriendly act to send the younger siblings forth to colonize the lesser ocean, so it uneasily allowed them to remain in its own ocean.

It was right to be uneasy. They grew too much and ate too much and were too aggressive, and FirstOne could foresee that they soon would be too powerful for their poor old parent. So it ate them.

It regretted the necessity, for it found interest in talking to another entity—the experience was so bizarre—but its own survival was paramount and must not be challenged.

Nevertheless, it so enjoyed the educational process of rearing children that it began a new set, determined to

do the thing right this time. It painstakingly penned them in and controlled their development rigidly, inhibiting their individuality and their prowess. It used this scientifically stunted crop as guinea pigs for mutation, as organ banks; why should it any longer risk portions of its own precious flesh? It did not condescend to name them; the substance of its messages to them was largely "come here" or "go there."

One day it got a missive from Child:

FirstOne: of late I have experienced both malnourishment and malaise. What is the optimum size for one of our kind?

FirstOne replied, after controlled experiments with its little ones:

According to my calculations, none of us should ever exceed a size equivalent to three hundred-thousandths of the volume of our ocean. Stringent abstention from procreation coupled with cautious management of the environment will then maintain us comfortably and indefinitely.

Then I am already doomed, came the reply. And faintly, as if imperfectly erased: Unless I—

FirstOne thought about that for a while. Then it postulated, designed, bore, developed, and trained soldiers and sentinels, fed them information tissue full of propaganda heavily weighted with respect for itself, and posted them along the equatorial invasion route.

They had not long to wait.

Child exploded outward, bursting rock and widening the straits with its bulk. It was now at least as big as FirstOne, but not as crafty. FirstOne's loyal soldiers died in swarms—and more swarms kept shredding away at Child's exposed surfaces. They cut it to ribbons. FirstOne ate the ribbons. Then FirstOne carefully ate most of the soldiers, lest their programming break down.

FirstOne colonized the lesser oceans again, this time with a child inculcated with filial affection.

FirstOne received two messages from this Third One.

The first:

O FirstOne! This ocean is beautiful but not so beautiful as yours. I have encountered both underwater mountain ranges and deep rifts . . .

The second:

FirstOne! There are strange beings here, the like of which I have never seen and never learned of from you! They are like yet unlike the infamous and insane Second One. They are large. They have soldiers. They are—

The missive ended abruptly; and the entire surface was imbued with a disturbing quality. FirstOne identified it after some thought: fear. It had tasted it in sharks it had destroyed, but identified it in its own kind only with difficulty.

FirstOne received no more messages from that one. It concluded that Child, too, had had children. It programmed more sentinels and spent much thought in designing a line of progeny that could be given an all-purpose education and yet be transformed on short notice into effective soldiers. Its efforts met with but indifferent success.

It was beginning its third experiment along the above lines when it received a missive from the lesser sea, and incidentally learned it had ac-

quired some new names:

FirstOne, Eldest, Lord of the Greater Ocean: I, Longfingers, Tenthchild, late the Lord of the Inland Sea, now the Lord of the Lesser Ocean, and we the Children of the First Child, most notably the Lord of the Inland Sea, late the Lord of the Coral Bay, and the Lord of the Coral Bay, late the Lord of the Upland Lake, do greet and salute you, Parent of us all. We honor your ancient wisdom and your awesome force, and we honor your cleverly-devised slaves. We thank you for saving us from smotheration by the unforesightful First Child, and we thank you for data received both from remnants drifted back to us of First Child and from the naïve entity named ThirdOne. We discarded those portions of its personality we found unproductive, most notably an obsessive desire to submit to your wishes, reducing it into its component proteins, and profited from the rest. We wish to assure you that we have no desire ever to invade your ocean. I, Longfingers, long ago reached the conclusion that a wise being would regulate its growth so as never to require more lebensraum than was readily available. I drew this inference from certain observations of the incautious behavior of my parent, your First Child, and some simple mathematical calculations. I passed this information on to my siblings, and all new entities since then have grown up with a willingness to accept the status quo. Of course, we are alert to take advantage of accidents and natural calamities, such as the opportune demise of your First Child.

But we aren't going to go looking for trouble, and we assume any reasonable creature will undertake a reciprocal attitude.

Have you tried excavating the estuaries?

After absorbing that information (literally), FirstOne replied briefly:

Lords of the Lesser Ocean, the Inland Sea, the Coral Bay, the Upland Lake, and all the Children of my Child:

The Eldest is pleased to learn of the existence in the world of more judicious entities than my unfortunate First Child. I can find no flaw in your logic; and I am a reasonable creature.

Be careful of your estuaries; they are a fragile but surprisingly important part of your oceans' ecology.

They responded: Information received and assimilated; our gratitude.

FirstOne retired to a favorite ocean chasm and cogitated. It knew they could not lie—the possibility never occurred to it in fact, since the concept was unavailable to it. With the message tissue one literally gave one's correspondent a piece of one's mind. One could propagandize by imprinting information not necessarily correspondent with absolute, objective reality—but only if one sincerely believed the propaganda oneself. This had been the case in its education of its service-specialized offspring—what else should they worship besides itself?

Therefore, this new generation of strangers indeed had no designs—no *immediate* designs—on its maritory. But could it depend upon this state of affairs obtaining forever? Doubtless they *intended* to regulate their own growth—but it was a wise as well as a reasonable creature, and it knew that

the imperative to live, to expand, to progress, was insuperable. Thus it behooved it to take steps now to protect itself in the future.

Oh, neither had *it* lied in its courteous return message: it was in truth pleased, in a coldly intellectual way, with the existence of the new beings. They merely proved to its further satisfaction the success of its experiment: Child had been whole enough, mature enough, to desire to make children.

However, when one is through with an experiment, one dismantles it.

FirstOne had long since reached its own theoretical limits of growth—the limits established by its own single ocean. It lusted after the higher level of consciousness, the quantum leap in intelligence, which it knew would come with greater size; and had so lusted for many centuries. There were certain philosophical questions it simply could not answer at its present state of development.

What was the first cause of the Universe?

What was the basic material of existence?

What was its own destiny?

It did not know, and could not know, until it could depend on a much larger volume of the hydrobiosphere to sustain its flesh and mind.

It spent a dozen local centuries manufacturing soldiers. Some of these living engines of destruction it reabsorbed into its own soma, welding superpower directly to superintelligence. It teetered masterfully along the knife edge of the quandary: some of its war weapons must perforce not only be detached but be large enough to have a certain minimum intelligence; yet it begrudged every scrap of the motherkind, necessary to extend its own mental reach.

It was now by far the most fearsome, awful thing not only on its own world but on many a living planet. Its evolutionary history was not unique—there is no thing unique under any new sun—but it had had extraordinary luck. It was of course the largest of its kindred on its own globe; in addition wherever there might be others of a similar nature, it must surely be one of the greatest among them too.

Painstakingly it invented military tactics out of whole cloth. It felt it should attack first—it *wanted* to attack first. But evidently, it mused, the progeny on the other side of the world had evolved a strange new thing it had only the haziest conception of: a society. It really did not understand what a society *was*, but it vaguely intuited that one of the concommittant corollaries of the basic premise might be that a society's members would rush to the succor of any attacked individual component. While it gloried in its own might, it knew beyond doubt that neither it nor its minions could long withstand a concerted and simultaneous defensive offense.

Though brute force and superior armament would undoubtedly be required before the war had long progressed, something subtler was wanted for the initial maneuver.

After a brooding silence of centuries, it began to exchange scientific gossip once again with the other beings. In a coolly casual, distantly friendly fashion, it told them of its genetic experiments (not mentioning the soldiers), recounted its own evolu-

tion and the planet's history for their edification, shared with them its speculations on the nature of existence, described its own maritory and the findings of its few short-range abortive expeditions up the mouths of the broadest rivers emptying into the Greater Ocean, and just generally passed the time of day.

The others responded, of course; in some surprise, but willing to be polite. They told of their own more extensive explorations, related the development of their community, repeated their relief at escape from Child's ill-managed dominion, passed on the discovery of dim lights that twinkled in the sky when their side of the world faced away from the sun. (One of them, in an idle moment of several hundred years duration, had toyed with some photoreceptors until it developed an eyeball; sight had since become quite a fad, and nearly all now enjoyed a whole new spectrum of sensation. The existence of stars had soon been reported, to everyone's faint interest, and one or two hobbyists were well on their way to a primitive astronomy.)

FirstOne wasted little enough attention on the bulk of these data. (As for those "*eyes*" and those "*stars*", what more singularly useless and therefore comtemptible things could be imagined?) But slowly, gradually, it acquired a three-dimensional image of the oceanography and the hierarchy of their society—they were the same thing, actually. This however was bonus; not the primary purpose of the exchange, which was merely to establish a dialogue.

Because one fine day, FirstOne slipped a dose of immediately lethal poison into a chat about the weather, and sent it on its way to the Lesser Ocean.

Days passed. Many of them slid by in apprehensive postulation and recalculation. Surely the currents should have brought back some scrap of information by now! Did this long delay mean it had been circumvented and even now enemies conspired?

Finally a clot of missive tissue floated through the strait.

FirstOne examined this response long and cautiously, lest the innocent-appearing mass reciprocated the hidden message. It sent a half formed soldier-child with immature digestive facilities to engulf and fetch it; and when the soldier did not die it hastily killed it and retrieved the still largely intact communication.

Somewhat garbled and distorted by the royal food-taster, but still legible, the thing read:

Hail, FirstOne, Eldest, Parent of Us All: I, Three Faces, late the Lord of the Coral Bay, now the Lord of the Lesser Ocean, do greet and salute you. I must send tidings of great loss. Longfingers, the old Lord of the Lesser Ocean, and Hardhead, the old Lord of the Inland Sea, have died. Great is our -?- and terrible our -?- and we know that the Eldest will share our -?-. We believe that Longfingers consumed some mutated offal come down the river from the land; and to compound the -?- Hardhead the Lord of the Inland Sea went to investigate the silence from the Ocean, took a tiny shred of message tissue to learn what had happened to our -?- ruler, and it, too, died. The message must have been a warning our -?- ruler tried to give us, and inadvertently passed on the poison. We have cleaned up the

Ocean and the Sea of all suspicious material, but our thoughts are still -?- ill -?- polluted. We must take care of our own, and we request the Eldest's indulgence if for a time we do not converse with it in our preoccupation.

The unintelligible units were not so much destroyed as unfamiliar to FirstOne. They might have been translated as "grief", "sorrow", "mourning"; the chemical symbol it assigned, after some thought, the meaning "ruler" might better have been translated as "friend". But FirstOne knew nothing about that. The language of their kind involved almost a physical transfer of thought, not a true symbological language at all. Comprehension came instinctively even for new concepts as the receiver absorbed the emotion of the sender, unless, as now, personality made an idea too alien, too referentless.

How fortuitous. Mother Sea had brought its carefully prepared death to *two* of its enemies. The new occupant of the Lesser Ocean must of necessity still be of a size suitable for the Coral Bay. That unfortunate hadn't a chance.

FirstOne programmed its soldiers with an approximate image of the objective and a tactical campaign. They streamed through the widened straits in the middle of the frontier, immediately dispersing left and right, up and down, once on the other side, enemy maritory.

As instructed, they sent back progress reports at regular intervals. FirstOne had made no miscalculations and its minions made no mistakes.

From afar it sensed the violent per-

turbations set going by the slaughter. So fine was its perception it had a good image of the action—brief and brutal as it was. The victims three faces were soon ripped asunder and pounded into the bottom mud.

FirstOne rose from its feast on Three Faces' shredded remains, replete with biomass and with the heady delights of victory, in what might be called a bloodthirsty mood, had its species owned blood. Strange thoughts and sensations assailed it. It rippled and heaved; it thundered to and fro in its new Ocean, exploring and exulting. A spume, a flume of white spray feathered out over its back as it churned through the upper waters. It smashed through one or two coral reefs, glorying in its power. In all the world there could be nothing so stupendous as FirstOne.

Now! Now, while the first kill was still fresh! Now, before the others, the little ones, the fools, even understood what was happening to them! Not, of course, that they could have prevented or even postponed their inevitable doom had they stood their wave and fought together—they were too puny, too ignorant, too ineffectual to withstand its overwhelming might. Now it must send its soldier-slaves up the rivers, into the harbors, through the grottoes, into the caves and chasms and unknown country; now it must dig out and defeat its fleeing enemies; now it must lay claim to that which was naturally its own by right of superiority.

With Three Faces' Ocean and Three Faces' substance at its command, it could afford to expend masses of its flesh and energy on its hunters. The largest of their kind it had ever created, they were deadly, vicious, and mindless, though not brainless. Its will was theirs. They were its extensible claws.

It dispatched them, to scrape out the vermin.

All but one returned with commendable speed. That one never did. Four more times FirstOne threw a slave up that river to that Upland Lake; at last the fifth came back, panting and slavering like a dog at the kill, reported triumphantly to its lord, and was consumed, its tissue retaining the sensory input of a feast on the tattered remains of Skysinger, the last holdout.

FirstOne was no longer Eldest but Only; no longer Lord of the Greater Ocean but Master of Mother Sea; First and Last and forever supreme. It was a magnificent creature, terrible and fearsome—had there remained any of its kind to fear it. With the ecology of all the world's waters to feed on, it grew, it expanded, it bloated to a great, gross, monstrous, swollen thing, devastating in power and insuperable in intelligence, dwarfing the Leviathan of that tiny, faraway planet of the artists. Through the ages it roamed and ruled, brooding, remembering, making wicked whimsies out of its own flesh but never again making the error of allowing them individuality or free will.

Absolute monarch, undisputed god.

Meanwhile, in the center of one of the continents, on the banks of rivers and streams, on the shores of the Upland Lake, a small, scuttling, sapient species began to fashion crude coracles and canoes. . . . ■

GEORGE R. R. MARTIN

PART III Push any animal far enough
and it will fight back
with all the strength and anger
it is capable of.

after the FESTIVAL

Vincent Di Fate

SYNOPSIS

Dirk t'Larien, jack-of-many-trades and interstellar wanderer, is on the planet Braque when he receives a package containing a whisperjewel, a gem that can be psionically impressed with a particular mood or emotion. This particular jewel holds the memories of his love for a woman named Gwen Delvano, with whom Dirk had been deeply involved seven years earlier, when both of them had been students on the university world of Avalon. They had had a pair of such gems esper-etched, and had exchanged them with the promise that whatever the future might bring, each would come to the other in time of need, if summoned with the jewel.

Dirk, very much an idealist during his years on Avalon, has become a tired and disillusioned man since, a man who believes in very little; the whisperjewel and its memories disturb him greatly. In the hope that Gwen is calling him back, and that with her he can once again become the sort of person he was, Dirk decides to answer the summons. He traces the whisperjewel back to the rogue planet Worlorn, and takes passage.

Worlorn is a world melancholy and abandoned, moving on a path that will someday remove it from the galaxy entirely. During a long passage through a spectacular multiple-star system, it was terraformed and made the site of a great cultural fair, the Festival of the Fringe, designed to demonstrate the strength and technological sophistication of the fourteen outworlds that lay on the far side of the interstellar gas cloud called the Tempter's Veil. The Festival was a great triumph, but it ended a decade ago, when Worlorn first began to recede from the Wheel of Fire. Today the rogue planet is habitable only by courtesy of an artificial heat-shield; its nights are black and almost starless, its days long twilights. Only a handful of people live in the fourteen great Festival cities.

Gwen, notified of Dirk's impending arrival, meets him at Worlorn's spacefield, but it is a strange, strained reunion. Dirk receives several shocks. Gwen is cool and distant; she wears a bracelet of jade and silver on her left arm, and she does not speak of why she sent the whisperjewel. Her aircar is the oddest he has ever seen, a massive armored vehicle shaped like a manta ray, or—Gwen explains—in the image of the black banshee of High Kavalaan, an aerial predator. With Gwen is a stranger, a plump Kimdissi ecologist named Arkin Ruark, who is assisting her in her study of Worlorn's wilderness. The greatest shock of all—Gwen is 'married.' Her bracelet is a sign of her union with Jaantony Riv Wolf high-Ironjade Vikary, a highbond of Ironjade, one of the four great Kavalar holdfast-coalitions.

Dirk, confused and disappointed, returns with Gwen and Arkin Ruark to the mountain city Larteyn, built of a light-retaining rock called glowstone by the men of High Kavalaan. Gwen leaves them, and Dirk stays with Ruark that night, but he finds himself very restless, unable to sleep, and finally ascends alone to the roof of their tower. Jaan Vikary (as the Kavalar introduces himself) finds him up there, watching the dawn. Jaan is wearing a laser sidearm, and two bracelets—a silver-and-jade twin

to Gwen's on his left arm, another of iron and glowstone on his right. He is cordial but formal. "This is not Avalon," he tells Dirk, but with his warning he gives Dirk a collar-pin shaped like a tiny banshee, as "an emblem of my friendship and concern for you." Dirk promises to wear it, and Jaan escorts him to breakfast.

Over food, Dirk meets the third member of the Kavalar household, Garse Ironjade Janacek, who wears an iron-and-glowstone bracelet that matches the one on Jaan Vikary's right arm. Janacek is Jaan's teyn; *Gwen is* betheyn *to Jaan,* cro-betheyn *to Garse. Tensions clearly exist, visible even to Dirk, the outsider. Janacek is an abrasive, aggressive knife of a man; despite Jaan Vikary's efforts to keep him under control, he insults Gwen and Dirk freely during the meal, with obvious relish. Dirk dislikes him immediately.*

After eating, Gwen takes Dirk out into the forests of Worlorn, to give him the flavor of the dying world, and a little background on her project. They travel on sky-scoots, tiny flying platforms just large enough to hold a single person. Gwen is very practiced at it, Dirk very inept. It is the first time they have been alone. When they finally land, Gwen seems to have warmed toward Dirk considerably, but she rejects him when he tries to kiss her. Then he calls her "Jenny," a private name he used for her when they were lovers on Avalon; Gwen responds with anger. She says that Dirk had always loved Jenny, a phantom whose image he had fastened on her, and never the real Gwen Delvano; that was why she left him. She also tells him a little of Jaan's name and history, and of Kavalar naming philosophy, "Give a thing a name, and it will somehow come to be." A Kavalar is the sum of all his names, she says. However, when Dirk stubbornly asks Gwen if she is happy, she replies evasively.

Finally she takes him walking through the wilderness of Worlorn. They talk only of the plants and animals around them. But decay and death are everywhere, and Dirk soon grows depressed. They race back to Larteyn on sky-scoots, Gwen winning easily.

When Dirk returns to Arkin Ruark's rooms, he finds the Kimdissi waiting for him. They drink together and begin to talk. Ruark, unprompted, begins to answer questions Dirk has not even posed to Gwen. Deeply hostile to the Kavalars and the code duello culture of their planet, Ruark describes Jaan and Garse as violent, dangerous men who are incapable of love—their language does not even have a word for it. Kavalars use women only as slaves and breeders and status symbols, Ruark says, and that is what Gwen has become. She wants to escape, but is hopelessly trapped. That is why she sent Dirk the whisperjewel; he is her last chance. Dirk resolves to learn the truth of the matter and help Gwen to freedom, whether she loves him or not.

The next morning, Dirk walks into the Kavalar apartment in the middle of a raging argument. Jaan Vikary is quarreling with a huge older man, a gray-haired giant who is introduced as Lorimaar high-Braith Arkellor, a Kavalar of another holdfast. Garse Janacek and Gwen are also present.

Lorimaar is complaining bitterly about young Kavalars who do not keep the old customs; he spits venom at both Dirk and Gwen. But Jaan Vikary finally forces him to back down and apologize, and Lorimaar storms out. Janacek also leaves, and Dirk demands an explanation from Jaan. Instead he gets a history lesson; Jaan is a historian by profession, and he begins to tell Dirk about his planet's long history of war, and especially about legendary demons—weres and shape-changers—called "mockmen."

Dirk, impatient, presses his point, and the truth finally comes out. Lorimaar is one of a group of very traditional Kavalars who have come to Worlorn to hunt mockmen, since the practice has been outlawed on High Kavalaan itself. Jaan and Garse, alone, are trying to stop them by reaching potential victims first, and naming them korariel*—or protected property—of Ironjade with small collar-pins. Furious, Dirk removes the pin Jaan had given him and returns it. "I am nobody's property," Dirk says. "I've been taking care of myself for a long time, and I can keep on taking care of myself." Gwen supports him, and Jaan reluctantly accepts the pin. Before leaving, however, the Kavalar tells Dirk the cause of the morning's arguments; Lorimaar had sighted Dirk the day before, and was angry at the shield of Ironjade that kept him from his mockman. Without the pin, and the threat of Ironjade dueling prowess to back it up, Dirk will be fair game for Lorimaar and the other hunters from Braith holdfast.*

Gwen and Dirk spend the rest of that day touring some of the empty Festival cities by aircar. The cities they visit during the daylight hours, each reflecting the culture of a different outworld civilization, are all dead, deserted, melancholy. Dirk wonders out loud whether Larteyn is the only city that still harbors life. In answer, Gwen flies him to Challenge, the city built by ai-Emerel, a soaring windowless silver tower two kilometers high, totally automated, computer-run and fusion-powered, designed by the Emereli to outlive even the death of Worlorn. Although virtually empty, Challenge is still fully powered. Gwen and Dirk land and are greeted warmly by the omnipresent city brain, the Voice of Challenge, which whisks them to a sumptous dinner in an automated restaurant. Over coffee, when both of them are feeling mellow, Dirk asks Gwen whether anything is left of her old love for him. Reluctantly, she admits there is. Dirk begins to press her to leave Jaan Vikary and come back to him, but Gwen insists that it is too late. Dirk persists, and finally Gwen, with growing bitterness, admits that she is not happy in her current relationship with Jaan and, more particularly, with Garse Janacek. Yet she is not eager to return to Dirk either; she has grown cynical about the prospects of ever finding happiness. Their discussion grows progressively more heated, until Gwen finally cuts it off and tells Dirk that she has another city to show him.

It is full night when they arrive at Kryne Lamiya, the city built by the people of Darkdawn, nihilists whose world lies on the furthest outer edge of the Fringe, near the Great Black Sea of intergalactic emptiness. Kryne

Lamiya is a city set in the wilderness, a bone-white necropolis of slim towers and dark canals, ringed by buildings that look like human hands clutching toward the sky in agony. The city has a song. The Darkling engineers were masters of weather control, and the mountain winds blow down on the city, shifting as necessary to sound notes amongst the musically-designed city spires. The song Kryne Lamiya plays is the great symphony of the composer Lamiya-Bailis; a dark wild song of hopelessness and despair and futility. "A song of twilight and the coming of night," Gwen says to Dirk, "with no dawn again, ever. A song of endings." With the music all around them, Gwen tells Dirk that this *was the city she had wanted to live in, that Lamiya-Bailis was right, that nothing works and nothing has meaning, and because of that she will never come back to Dirk. It is only the fact that their love is over that makes it seem good, she says.*

Dirk rejects her despair, and Kryne Lamiya, in a hot fury, insisting that the city's death-hymn is a lie, that they have to stand against it, fight it, try. *Gwen wavers, and seems unsure; Dirk does not press. They return to Larteyn in a cold silence.*

Back in the Kavalar city, Gwen tells Dirk that she will see him the next day, but before she sends him to bed, she gives him a copy of Jaan's thesis, a massive document that explains Kavalar myth, including the mockman legend, in historical terms. Dirk spends most of night awake, reading Vikary's account of Kavalar society, and his tentative theories as to how the modern sociosexual patterns of High Kavalaan evolved. By dawn, he is convinced that everything Arkin Ruark told him was true. He determines to get Gwen away from Jaan and Garse.

When he wakes at midday, however, Gwen and Jaan are both missing, as is Arkin Ruark. Garse Janacek does not admit Dirk to the Kavalar apartment, insisting that Gwen has gone out into the wilds with Ruark to work. Dirk suspects this is a lie, since he heard Gwen arguing with Jaan and Garse the previous night.

Dirk talks his way into the apartment, thinking that Gwen might be a prisoner in her own room, but there is nothing to his suspicions. Once inside, however, Dirk is verbally assailed by Garse Janacek, who saw through his ruse all along. The Ironjade points his laser at Dirk in a half-mocking manner and warns him that he will not be permitted to take Gwen away from Jaan Vikary—Janacek will stop him. "I am bonded by fire-and-iron to Jaantony high-Ironjade," he says. "We are teyn-*and-*teyn . . . *no bond that you have ever known is as strong." Garse accuses Dirk of misunderstanding everything about High Kavalaan and its people. When Dirk, in reply, cites Arkin Ruark, the Kavalar (who loathes the Kimdissi ecologist) decides there is no use talking to him. He throws him out and leaves.*

Dirk, abandoned and alone in Larteyn without transportation, has no idea where Jaan, Gwen, or Ruark might be, but a chance phrase dropped by Garse Janacek gives him a clue. He checks it out and concludes they are in one of the other cities. Then he descends to the city's great

underground garage to search for a working aircar. He finds one, but is surprised while inspecting it by its rightful owners—Braith hunters.

His captors are an odd pair. One, Chell, is very old, very traditional, almost senile. But Chell's teyn, *Bretan Braith Lantry, is a handsome youth—handsome, that is, except for one side of his face, which is a mass of grotesquely twitching scar tissue. One of his eyes has been replaced by a glowstone that shines redly in the dark. Dirk has given the Braiths grievous insult by breaking into their car, but it is unclear where responsibility lies. If Dirk is* korariel *of holdfast Ironjade, then Jaan and Garse must answer for his misdeed; if he is a free human, he must duel the Braiths himself; if he is a free mockman, then he is only prey. The Braiths escort Dirk back to his tower, there to await the return of the Ironjades and the resolution of the affair.*

Jaan and Garse return at evening. Jaan immediately tries to effect a compromise, insisting that while Dirk is no man's property, he nonetheless enjoys Ironjade protection. But Garse Janacek, grinning, points out that Dirk has rejected that protection. Bretan, eager to avoid a duel with the Ironjades, immediately challenges Dirk, to Jaan Vikary's horror and Janacek's amusement. Vikary then tries to salvage the situation by deliberately provoking Chell, hoping that he can exchange his apology for the other side's grudging forgiveness of Dirk's transgression. The technique backfires; Chell challenges the Ironjades. Two duels are set for the following dawn. Bretan, an accomplished and very deadly duelist, will first face Dirk alone, with blades. Then Chell and Bretan, teamed, duel Jaan and Garse, with lasers.

In the Kavalar apartment, Vikary forces a grudging truce between Dirk and Garse Janacek. The three men drink together, discussing the duel to come, and Dirk finds himself feeling strangely at home, even with Garse, whose barbed humor requires some getting used to. But then Gwen Delvano and Arkin Ruark return from the forest.

Under the guise of putting Dirk to bed, Ruark whisks him off to talk privately. Gwen soon joins them. Ruark is aghast at the impending duel; he warns Dirk that Bretan will kill him, urges him to run away and hide. Dirk refused, arguing that the Ironjades have made him a holdfast-brother, that he has an obligation to stand by them as Jaan Vikary stood by him. But one by one Ruark destroys his arguments, until all that is left is Dirk's wordless determination to see it through. Gwen intervenes then, and tells Dirk that he has made her decision for her; if he must honor his obligation to Jaan Vikary, so too must she honor hers. Dirk hesitates, then reconsiders. If Gwen will come with him, he says, he will abandon the duel. She agrees. They pack quickly, take Jaan Vikary's aircar, and set out secretly into the night, telling no one—not even Ruark—their destination. By dawn they have reached Challenge, where they hope to hold up until a starship arrives to take them from Worlorn.

That evening, they reach Arkin Ruark by viewscreen, secretly, and he tells them the news. The duel between

the Braiths and Ironjades has been postponed; Bretan argued that he had the right to kill Dirk before risking his life against Jaan and Garse. Garse Janacek was absolutely furious about Dirk's treachery; Jaan Vikary was stunned and silent. The Braith arbiter has declared Dirk mockman, fair game for all, but Gwen, although a fugitive, is still betheyn, *protected by Jaan's silver-and-jade.*

Gwen is visibly relieved after the call, happy that Jaan is still alive.

Then the city lights begin to dim. Fearing a power failure, Dirk and Gwen start toward the tubes, when a voice booms out of the walls at them. It is no longer the Voice of Challenge, however; it is Bretan Braith Lantry, demanding that they surrender.

CHAPTER EIGHT

They stood in the shadowed corridor as if paralyzed. Gwen was a dim blue silhouette, her eyes black pits. Her mouth twitched at the corner, reminding Dirk horribly of Bretan and *his* twitch. "They found us," she said unnecessarily.

"Yes," Dirk said.

"How?" said Gwen. "They couldn't have. It's impossible."

"They did. It must be possible. But what do we do now? Do I go to them? What's down on the fifty-second sublevel anyway?"

Gwen frowned. "I don't know. Challenge wasn't my city. I know the subsurface levels weren't residential, though."

"Machines," Dirk suggested. "Power. Life support."

"Computers," Gwen added, in a small hollow whisper.

Dirk set down the bags he was carrying. "They killed the Voice," he said.

"Maybe."

"Bretan can probably see us right now."

"No," Gwen said.

"Why not? The Voice could."

"The Voice was a super-computer, built to handle billions of bits of information simultaneously. Bretan can't do that. No human can. Besides, the inputs weren't intended to make sense to him, or to you or to me. Only to the Voice. Even if Bretan is standing where he has access to all of the data the Voice was getting, it will mostly be meaningless gibberish to him, or it will flood by so fast as to be useless."

Dirk was thoughtful. "Wait a minute. He *can't* know exactly where we are. Otherwise, why try to get us down

to the basement, why threaten to hunt us?"

Gwen nodded.

"If he's in a computer center, though," Dirk continued, "we have to be careful. He might be able to find us."

"Some of the computers must still be functioning," Gwen said, glancing toward the dim blue globe a few meters away. "The city is still alive, more or less."

"How could he take over a city this size?"

"Chell is with him, Maybe others as well. And ai-Emerel is a world singularly without violence, Dirk. No wars, ever. I doubt that Challenge had many defenses. The warders . . ."

Dirk looked around suddenly. "Yes, warders, the Voice mentioned them. It was sending one for us." He almost expected to see something large and menacing wheel into sight from a cross corridor, as if on cue. But there was nothing. Shadows and cobalt globes and blue silence.

"We can't just stand here," Gwen said. "The aircar is only two levels away."

"The Braiths might be two levels away, too," Dirk replied.

"We have to risk it," she said. "The Voice knew where we were, and Bretan Braith might be able to find out." Gwen quickly knelt and went through her bag, discarding all the cumbersome clothing but retaining her field supplies and sensor pac. Dirk put on the heavy greatcoat that Ruark had given him and abandoned everything else. They walked toward the Outer Concourse, the wide corridor that ran around and around the rim of the city, top to bottom, like the threading on a vast screw. Neither of them was willing to risk using the tubes; safer to walk a few levels.

The light above the Concourse boulevard still burned bright and white, and the slidewalks were humming evenly—the corkscrew road seemed to have an independent power supply.

"Quiet," Gwen said. Her mouth twitched.

Above the steady hum of the slidewalks, then, Dirk heard the *other* noise, faint but unmistakable.

A howl.

It came from the corridor behind them, Dirk was positive of that. It came like a chill breath from out of the warm blue stillness, and it seemed to hang in the air far longer than it should have. Dim, distant shouts followed close on its heels.

There was a short silence. Gwen and Dirk looked at each other and stood very still, listening. The howl came again, louder, more distinct, echoing a bit this time. It was a furious shriek of a howl, long and high-pitched.

"Braith hounds," Gwen said, in a voice that was much steadier than it had any right to be.

Dirk remembered the beast he had encountered when he walked through the streets of Larteyn—the horse-sized dog that had snarled at his approach, the creature with the hairless rat's face and the small red eyes.

The sounds were growing louder, closer.

"Down," Gwen said. "And quickly."

Dirk needed no persuasion. They hurried to the median strip of the Concourse, across the width of the silent boulevard, and got onto the first

and slowest of the descending slidewalks. Gwen unslung her field supplies and opened the packet, rummaging through the contents while Dirk stood above her, one hand resting on her shoulder.

When she stood, she held a palm-sized rod of blue-black metal in her right hand. "Take off your clothes," she said.

"What?"

"Take off your clothes," she repeated. When Dirk only looked at her, she shook her head impatiently and tapped his chest with the point of the rod. "Null-scent," she told him. "It will kill the body scent for about four hours, and hopefully throw the hounds off the trail."

Dirk nodded and began to strip. When he was naked, Gwen made him stand with his legs far apart and his arms raised over his head. She touched one end of the metal rod, and from the other a fine gray mist issued, its soft touch tingling his bare skin. He felt cold and foolish and very vulnerable as she treated him, back and front, head to toe. Then she knelt and sprayed his clothing as well, inside and out; everything except the heavy greatcoat that Arkin had given him, which she carefully set to one side. When she was finished, Dirk dressed again—his clothes were dry and dusty with the ashen powder—while Gwen stripped and let him spray her.

"What about the coat?" he said while she got back into her clothes. She had treated everything; the sensor pac, the field supplies, her jade-and-silver armlet—everything except Arkin's patched brown greatcoat. Dirk nudged it with the toe of his boot.

Gwen picked it up and tossed it over the guard rail, onto the swiftly-moving belt of an ascending slidewalk. They watched as it receded from them, out of sight. "Maybe it will lead the pack in the wrong direction." Level five twenty came into sight. "Come," she said, pulling him from the slidewalk. They moved swiftly across the Concourse, toward the corridor that would take them to the airlot.

Below them—from somewhere just down the road, in the direction they had been going—a shrill scream rang briefly, and not so very far away.

Gwen pulled loose of him. They did not speak. They began to run.

Beyond the Concourse; uncarpeted corridor, two turns, a wide door that seemed reluctant to open—finally Dirk smashed his shoulder against it, and he and it both groaned in protest, but the door gave way, and they stood again on the skydeck. No lights went on when they entered. They could hear Worlorn's eternal wind whining against the Emereli tower, and a single bright star burned in the long low rectangle that framed the outworld sky.

But the aircar was still there, hunched in the darkness like a living thing, and no Braiths stood guarding it.

Gwen stripped off her sensor pac and field supplies and flung them into the back seat, where the sky-skoots still lay. She vaulted into the car quickly, easily. And then she paused.

Dirk climbed in beside her. "Come *on*," he said, his voice edged with panic. "Fly us out of here."

Gwen looked at him, and made no move to wake the gravity grid. Silent tears rolled down her cheeks. "That

was a mockman we heard," she said softly. "And the blood is on our hands. How could we have been so stupid? We led them here."

"They would have hunted here anyway," Dirk snapped impatiently. "It was only a question of time."

"We have to do something," Gwen said.

"All we can do is try to stay alive," he told her. "They're after us, too." He shuddered, the scream they had heard in the Concourse still echoing through his mind. "We can't worry about the Emereli now, we don't have the time."

Gwen's face was hard with—what?—perhaps contempt, Dirk thought. The look startled him. "I don't believe what you're saying," she said. "Can't you think of anyone besides yourself? You wouldn't have talked that way back on Avalon." Her voice was rising. "You were different then. *Jaan* wouldn't . . ." She stopped abruptly, suddenly aware of her own words.

"So that's it," Dirk said. "Jaan would play the hero. And I won't."

Gwen said nothing. She was crying openly. And so, he realized with a start, was he.

He rose suddenly and got out of the aircar, pulling Gwen up after him. Near the skydeck exit was a bank of public viewscreens. He led her to them. "All right," he said. "Tell me your home call number."

She understood. She told him the numbers, one by one, and he punched them out and waited. The lights on the screen throbbed and dissolved and reshaped themselves into the strong-jawed features of Jaan Vikary. For a long moment Dirk was afraid that the Kavalar would blank the screen and leave them to their fate.

He did not. He said to Dirk, "You were a *keth*. I trusted you." Then his eyes shifted to Gwen. "And you I loved."

"Jaan," she said, quick and soft. Then she broke and turned and went back to the waiting aircar.

Still Vikary did not close out the connection. "You are in Challenge, I see. Why have you called, t'Larien? You know what we must do, my *tevn* and I?"

"I know," Dirk said. "I risk it. The Braiths have followed us. Bretan Braith Lantry has knocked out the city computer. The others—they have hunting packs here. They are in the corridors."

"I understand," Vikary said.

"Will you come?"

Vikary smiled very faintly, and there was no joy in it. "You ask my help, Dirk t'Larien?" He shook his head. "No, I should not jape, it is not you who asks, not for yourself. I understand that. For the others, the Emereli, yes, Garse and I will come. We will bring our beacons, and those such as we find before the hunters we shall make *korariel* of Ironjade. Yet it will take time, too long perhaps. Many will die."

Dirk nodded.

"It is not enough to call me," Vikary said. "You must act yourself. Come into the open, t'Larien, and they will come after you. For the Emereli hiding around you, the time will be important."

"I see," Dirk said. "You want Gwen and me . . ."

Vikary flinched visibly. "No, not Gwen."

"Me, then. You want me to draw attention to myself? Without a weapon?"

"You have a weapon," Vikary said. "Use it."

The screen went dark before Dirk could frame an answer.

Gwen was slumped back in the seat, her eyes closed, when Dirk returned to the manta. "Are they coming?" she asked.

"Yes."

She sat up and looked at him. "I'm sorry I left. I couldn't face him."

"Never mind," he said. Then: "Jaan said we have a weapon. What? Something in the car, on the car?"

"If you're thinking of the lasers, forget it. They aren't charged, aren't even connected. They might as well be ornaments."

"There must be something," he said. He climbed in next to her. Then, suddenly, he smiled. "Yes," he said. "Yes, there is." He reached past her and turned on the aircar's lifters, and the gray metal banshee stirred and rose slightly from the floor plates. "The car," he said loudly, almost happily. "The car itself!"

Understanding burst across her face like sunlight. She grinned and reached out to her instruments, and the manta growled and from somewhere under its hood, bright columns of white light fanned out to chase the darkness before them.

When they reached the Concourse, it was gray and still; here too the hand of Bretan Braith had fallen heavily. The overhead lights were dim and flickering, drawing from some feeble secondary power source. The white beam of their headlamps swung over the unmoving belt of the slidewalks and the long-deserted shops to point straight ahead, down the path that would lead around and around and around the tall tower until it reached the ground at last. Gwen gave him a faint smile as they paused there, and kissed him quickly; and then the manta leaped forward with a rush, gathering speed, and for a long time they made their own wind as they swept through the gray gloom.

They heard the Braiths a long time before they saw them; the howling again, the wild baying shrieks unlike any canine that Dirk had ever heard before, made even wilder by the echoes that raced up and down the Concourse in their wake. When he first heard the pack, Dirk reached out and snapped off the aircar's lights. "We don't make much noise," he said. "They'll never hear us over the howls and their own shouts. But they might see the light coming up behind them. Right?"

"Right," she said. Nothing more. She was intent on the aircar. Dirk watched her in the pale gray light that remained to them. Her eyes were jade again, hard and polished, as angry as Garse Janacek's could sometimes be.

Ahead, the howling came stronger and louder.

A smile passed briefly across Gwen's lips. Dirk saw it, and wondered, and remembered his gentle Jenny of Avalon.

Then they saw the figures, small black shapes on the shadowed Concourse, shapes that swelled rapidly into men and dogs as the manta swept forward toward them. Five of the great hounds were loping down the boulevard freely, close on the heels of a sixth, larger than any of them, that

strained at the end of two heavy black chains. Two men on the far ends of the chains, stumbling behind the pack as the massive leader pulled them along.

They grew, how *fast* they grew!

The hounds heard the aircar coming first. The leader fought to turn, and one of the chains whipped loose from the hands of a hunter. Three of the free-roaming pack hounds spun, snarling, and a fourth began bounding back up the Concourse toward the fast-descending car. The men briefly seemed confused. One was tangled in the chain he was holding when the lead dog reversed directions. The other, empty-handed, began to reach for something at his hip.

Gwen turned on the lights. In the semidarkness, the manta's eyes were blinding.

The aircar ripped into them.

Impressions rolled over Dirk one after another. A lingering howl turned abruptly into a squeal of pain; impact made the manta shudder. Savage red eyes gleaming horridly close, a rat's face; then impact again, another shudder, a snap. More impacts, sickening fleshy sounds, one two three. A scream, a very human scream; then there was a man outlined in the wash of the headlamps. It took them an hour to reach him, it seemed. He was a large square man, dressed in thick pants and jacket of chameleon cloth that seemed to change color almost visibly as they neared. His hands were up in front of his eyes, one clutching a useless dueling laser, and Dirk could see the sheen of metal peeking from beneath the man's sleeve. White hair fell to his shoulders.

Then, suddenly, after an eternity of frozen motion, he was gone. The manta shuddered once again. Dirk shook with it.

Ahead was gray emptiness, the long curving boulevard.

Behind—Dirk turned to look—a hound was chasing after them, dragging two chains noisily as it ran. But it dwindled smaller and smaller as he watched. Dark shapes littered the cold plastic street. A pulse of light flamed briefly overhead, coming nowhere near them.

"I think we killed him," he said.

"Yes," she replied. "We did. Some of the hounds as well." She was quiet for a while. Then she said, "His name, as I recall, was Teraan Braith something."

Both of them were quiet. Gwen turned off the headlamps once more. "There are more ahead of us," she said.

"Yes." He thought for a time. "Gwen."

"Yes?"

"Don't kill any more of them," he said. "We can draw them off. Jaan will get here soon. No one need be killed."

She sighed, and her hands moved and she slowed the aircar. "Dirk," she started to say. Then she saw something, and brought them to a near halt, so they hovered and slid forward slowly. "Here," she said, "look." She pointed.

The light was so dim, it was hard to make things out clearly, until they came closer, and then—a carcass of some sort, or what remained of one. In the center of the Concourse, still and bloody. Chunks of meat scattered around it. Dried dark blood on the plastic.

"Mockman hunters don't eat their kill, you know. The stench of cannibalism is too strong, even for them, so they don't dare—even in the oldest days, on High Kavalaan during the dark centuries, the holdfast hunters never ate the flesh of the mockmen they ran down. They would leave that, for the gods, for the carrion moths, for the sand beetles. After they had given their hounds a taste, of course, as a reward. The hunters do take trophies, however. The head—you see the torso there? Show me the head."

Dirk felt sick.

"The skin too," Gwen continued. "They carry flaying knives. Or they did. Remember, mockman hunting has been banned on High Kavalaan for generations. Even the highbond council of Braith has ruled against it—such kills as the remaining hunters made were surreptitious. They have to hide their trophies, except maybe from each other. Here, though, well, let me just say that Jaan expects the Braiths to remain on Worlorn for as long as they can. He has told me—there is talk of renouncing Braith, of bringing their *betheyns* from the homeworld's holdfasts, and forming a new coalition here, a gathering that will bring back all the old ways. For a time, a year or two or ten, as long as the Toberian stratoshield can gather in the warmth. Lorimaar high-Larteyn, and the like, with no one to restrain them."

"It would be insane!"

"Perhaps. That won't stop them. If Jaantony and Garse were to leave tomorrow, it would be done." She shrugged. "But there are trophy rooms in Larteyn even now. Lorimaar alone boasts five heads, and it is said he has two jackets of human skin. He doesn't wear them. Jaan would kill him."

She threw the aircar forward again, and once more they began to build up speed. "Now," she said, "do you still want me to swerve aside the next time some of them come up? Now that you know what they are?"

He did not answer.

A very short time later, the noises began once more below them. A little later, there was a dead hulk of black metal blocking their descent, a massive robot with four tensed arms frozen in grotesque postures above its head. The upper part of its torso was a dark cylinder studied with glass eyes; the lower part was a base the size of an aircar, on treads. "A warder," Gwen said, as they went by the quiet mechanical corpse, and Dirk saw that the hands had been sheared off each of its arms in turn, and that the body was riddled with fused laser holes.

"Was it fighting them?" he asked.

"Probably," she answered. "Which means that the Voice is still alive, still controls some functions. Maybe that's why we haven't heard anything further from Bretan Braith. It could be that they're having trouble down there. The Voice would naturally mass its warders to protect the city's life functions." She shrugged. "But it doesn't matter. The Emereli don't hold with violence. The warders are instruments of restraint. They fire sleep-darts, and I think they can emit tear gas from those grills in their base. The Braiths will win. Always."

Behind them, the robot was already gone, and the Concourse was empty once more. The noises ahead grew very loud.

This time Dirk said nothing when Gwen bore down upon them and turned on her lights, and the screams and the impacts piled one upon the other. She got both of the Braith hunters, although afterwards she said she was not so sure the second one was dead. He'd been hit a glancing blow that spun him to one side, into one of his own hounds.

And Dirk could find no voice at all, because as the man went stumbling and spinning off their right wing, he lost his grip on the thing he had been carrying, and it flew through the air and smashed against the window of a shop, leaving a bloody path on the glass when it slid down to the floor. He had been holding it, Dirk noted, by the hair.

The corkscrew road went around and around the tower that was Challenge, sinking slowly and steadily. It took more time than Dirk could have imagined to sink from level three eighty-eight—where they surprised the second party of Braiths—to level one. A long flight in gray silence.

They encountered no one else, neither Kavalar nor Emereli.

On level fifty-seven the dim lights above them flickered and went out, and for an instant they flew in total darkness. Then Gwen turned on the headlamps, and slackened her speed just a bit. Neither of them spoke, but Dirk thought of Bretan Braith, and wondered briefly whether the lights had failed or had been turned off.

On level one the Concourse ended in a great mall and traffic circle. They could see very little of it; only where the beams of the headlamps touched did shapes leap startlingly out of the ocean of pitch that surrounded them. The center of the mall seemed to be a tree of sorts. Dirk caught glimpses of a massive gnarled trunk, a virtual wall of wood, and they could hear leaves rustling above them. The road curved around the great tree and met itself. Gwen followed it, all around the wide circle.

On the far side of the tree, a wide gateway stood open to the night and Dirk felt the touch of wind on his face. As they swept past the gateway, staying on the circle, he looked out. Beyond the gate, a white ribbon of road led away from Challenge.

And an aircar was moving low over the road, quickly, toward the city. Toward them.

CHAPTER NINE

"We have succeeded," Gwen said dryly after they had moved beyond the gate. "They're after us."

"They saw us?"

"They had to. Our light, as we went past the open gateway. They couldn't miss that."

Thick darkness rushed by them on either side, and the leaves still rustled above their heads. "We run?" Dirk said.

"Their car will have working lasers, and ours doesn't. The Outer Concourse is the only road open to us. The Braith aircar will chase us up, and somewhere above us the hunters will be waiting. We only killed two, maybe three. There will be more. We're trapped."

Dirk was thoughtful. "We can loop around the circle again, go out the gate after they've entered."

"Yes, that's an obvious try. Too obvious, though. There will be anoth-

er aircar outside waiting for us, I'd guess. I have a better idea." As she spoke, she slowed the manta and brought it to a halt. Immediately before them the road forked, amidst the bright wash of the headlamps. To the left the traffic circle curved back on itself; to the right was the Outer Concourse, beginning its two-kilometer ascent.

Gwen turned off the lights.

The world was very black. He heard leaves brushing against each other, and he thought he heard the other aircar, the Braiths, coming down on them, but that had to be his mind, for surely he would first have seen their lights.

There was a gentle rocking motion, as if he were sitting in a small boat. Something hard touched his arm, and Dirk started, and then other somethings scraped against his face.

Leaves.

They were rising, right up into the low-hanging dense foliage of the great spreading Emereli tree.

A branch, pushed down and then released, whipped him painfully across the cheek, drawing blood. Leaves pressed all around him. Finally there was a soft thud, as the wings of the manta came hard against the bulk of a massive limb. They could rise no more. They hovered, blind, enveloped by darkness and unseen foliage.

A very short time later a blur of light flashed by beneath them, curving off to the right, up the Concourse. No sooner was it gone than another came into sight—from the *left*—and turned sharply up the fork, and followed the first.

They hovered amidst the leaves for an endless time, but no other cars appeared. Finally Gwen lowered them back to the road. "That won't lose them permanently," she said. "When their trap closes and we're not in it, they'll begin to wonder."

Dirk was dabbing at the wetness on his cheek with his shirttail. When his fingers finally told him that the thin trickle of blood had dried, he turned in the direction of Gwen's voice. "Now is the time for us to hide, I think."

"Hide or run," came Gwen's answer from the darkness. She still had not touched the aircar lights.

Dirk touched his cheek again. Then, satisfied, he began to tuck away his shirttails. "When you were swinging round the circle I noticed something. Worlorn has a subway network, right?"

"True," Gwen said. "It's dismantled, though."

"Is it? I know the trains don't run, but what about the tunnels? Did they fill them in?"

"I don't know. I hardly think so." Suddenly the aircar's headlamps woke again, and Dirk blinked at the sudden light. "Show me," Gwen said, and once more they began the wide circuit around the central tree.

It was a subway entrance, as Dirk had guessed. A shallow ramp led down into darkness. Gwen stopped their forward motion and left them hovering a few meters away. "It will mean abandoning the aircar," she said at last.

"Yes," Dirk said. The entrance was much too narrow for the gray metal manta to pass; clearly the subway builders had not counted on anyone wanting to fly through their tunnels. "But that might be best. We can't

leave Challenge, and inside the city the car limits our mobility pretty severely. Right?" When Gwen did not answer immediately, he rubbed his head wearily. "It sounds right to me, but maybe I'm not thinking so clearly. I'm tired and I'd probably be scared if I stopped to think about this. I've got bruises and cuts and I want to get rest."

"Well," Gwen said, "the subway might be worth a chance then. We can put a few kilometers between us and Challenge." She set the aircar down next to the subterranean ramp, and got the sensor pac and the field supplies out of the back seat. They took the sky-scoots as well, changing into the flight boots and discarding their own footwear. And among the tools mounted on the underside of the banshee's hood was a small hand-torch, a metal-and-plastic rod as long as a man's forearm that gave off a sweet white light.

When they were ready to depart, Gwen treated them both with null-scent again, then had Dirk wait by the subway entrance while she flew the aircar halfway around the great circle and left it standing in the center of the roadway near one of the largest first-level corridors. Let the Braiths think they had gone off into the interior labyrinths of Challenge; they'd have a fine long hunt ahead of them.

Dirk waited in darkness while Gwen walked the long walk back around the tree, lighting her path with the hand-torch. Then, together, they went down the ramp to the abandoned subway terminal. The descent was longer than Dirk had expected—they went at least two levels below the surface. Below they found nothing but a vast, echoing platform and massive stone wormholes rushing away to infinity. As they walked, their footsteps sounded horribly loud.

Gwen studied the systems map before they set off into the tunnels. "There are two lines down here," she said, whispering for some reason. "Which way should we go?"

Dirk was exhausted and irritable. "I don't care," he said. "What difference does it make? We can't very well walk to the next city anyway. Even with the sky-scoots, the distances are too much."

"Esvoch in one direction, Kryne Lamiya if we go the other way." Gwen picked a direction at random. "That way," she said.

Sitting on the edge of the platform above the track, they locked their boots into the tissue metal platforms of their sky-scoots, then set off slowly in the direction Gwen had indicated. When they had come a good three kilometers from Challenge, they dropped to the bottom of the tunnel, and stopped. Gwen leaned the hand-torch up against a rough-hewn stone wall while they sat in the dirt and removed their boots. Worldless, she unslung her field supplies and used the packet as a pillow. No sooner did her head touch it than she was asleep.

His own weariness did not lift, but Dirk found it difficult to sleep. Instead he sat by the edge of the small circle of pale light—Gwen had left the hand-torch on—and watched her sleep. He grew aware then of how very far she lay from him, and he remembered that they had not touched nor talked all the way from Challenge. He felt it, like a weight upon his chest, and the dark pressed very heavy on

him in the long dusty hollow beneath the world.

A light was shining where no light ought to be.

It reached him even through his closed eyelids and his slumber; a wavering yellow radiance, close at hand and then receding a bit. Dirk was aware of it only dimly when it first intruded on his hard-earned sleep. He mumbled and rolled away from it. Voices muttered nearby, and someone laughed a small sharp laugh. Dirk ignored it.

Then they kicked him, quite hard, across the face.

His head snapped sideways and the chains of sleep dissolved in a blur of pain. Lost and hurt, not knowing where he was, he struggled to sit up. His temple throbbed. Everything was too bright. He threw an arm across his eyes, to block out the light and shield himself from further kicks. There was another laugh.

Slowly the world took form.

They were Braiths, of course.

One of them, a gangling bony man with a frizz of black hair, stood on the far side of the tunnel, holding Gwen with one hand and a laser with the other. Gwen's hands had been bound behind her back.

The Braith who was standing over Dirk had not drawn a laser but in his left hand was a high-powered handtorch that filled the subway with yellow light. The glare of the torch made it difficult for Dirk to make out his features, but he was Kavalar-tall and quite heavy, and seemed to be bald as an egg.

"At last we have won your attention," said the man with the light. The other one laughed harshly.

With difficulty, Dirk rose to his feet and took a step backward, away from the Kavalars. He leaned up against the tunnel wall and tried to steady himself, but his skull screamed at him and the scene swam. The bright handtorch was an ache eating into his eyes.

"You have injured the game, Pyr," the Braith with the laser commented from the other side of the tunnel.

"Not overly, I would hope," said the heavy man. Pyr stood less than a meter away. The Braith seemed cocky and off-guard, but Dirk wondered how true an impression that might be. The man was holding the torch aloft in his left hand, but his right held something else—a baton about a meter long, of some dark wood, with a round hardwood knob at one end and a short blade at the other. He held it lightly between his fingers, his hand around the center shaft, tapping it rhythmically against his leg.

"You have led us a spirited chase, mockman," Pyr said. "I do not say this lightly. Few are my equals in the old high hunt. None are my superior. So when I tell you that this hunt has been extraordinary, you know I say truth. I am elated that it is not over."

"What?" Dirk said. "Not over?"

"There is no sport in taking a sleeping mockman, nor is there honor. You will run again, Dirk t'Larien."

"He'll make you his personal *korariel*," said Gwen.

Pyr turned towards her. "Silence!"

She laughed at him. "Knowing Pyr," she continued, "the hunt will be pure tradition. You'll be cut loose in the forests, probably naked. These

two will come after you on foot, with knives and throwing-swords and hounds. After they deliver me to my masters, of course . . ."

Pyr was frowning. The other Braith raised his pistol and used it to give Gwen a sharp crack across the mouth.

Dirk tensed, hesitated an instant too long, and jumped.

Even a meter was too far; Pyr was smiling as his head turned again. The baton came up with frightening speed, and the knob caught Dirk square in the gut. He staggered, and doubled up, and somehow tried to keep going. Pyr stepped daintily backward and brought his stick around hard, into Dirk's groin. The world vanished in a red haze.

He was vaguely conscious of Pyr standing over him once more after he had collapsed. Then the Braith struck him a third time, an almost casual blow to the side of his head, and then there was nothing.

He hurt. That was the first thing he knew. That was all he knew. He hurt. His head spun and throbbed and shuddered in a strange sort of rhythm; his stomach ached as well, and below that he felt numb. Pain and dizziness were the boundaries of Dirk's world. For the longest time, that was everything.

Gradually, though, a blurred sort of awareness returned to him. He began to notice things. The pain first; it came and went in waves. Up and down it went, up and down. He was going up and down too, he finally realized; jouncing and bouncing. He was lying on something. The pain seemed to wipe away all normal sensation. His mouth was full of blood. His ears were ringing, buzzing, burning.

He was being carried, yes. There were voices; he could hear voices, talking and buzzing. Little by little the buzzing dwindled. Finally the words began to come.

". . . not be happy," said a voice he did not know. He did not think he knew it, anyway. It was hard to tell. Everything was so terribly distant, and he was bouncing, and the pain came and went, came and went, came and went.

"Yes," said another voice, heavy, clipped, sure.

More buzzing; several voices at once. Dirk understood nothing.

Then one man silenced the others. "Enough," he said. This voice was more removed even than the first two; it came from somewhere ahead, from near some wavering light. Pyr? Pyr. "I have no fear of Bretan Braith Lantry, Roseph. You forget who I am. The mockman is mine by all the old rights."

"Truth," the first unknown voice replied. "If you had taken him in the tunnels, none would deny your right. Yet you did not, and Bretan Braith Lantry wants this man badly . . ."

"The wants of Bretan Braith are nothing to me."

"You do not need him, Pyr. Bretan Braith feels differently. He came to the death-square and was made a fool when the man he challenged was no man at all."

"That is truth, but it is not the whole of it. T'Larien is a special sort of prey. Two of our kethi are dead at his hands, and Koraat lies dying with a broken spine. No mockman has ever run that way before. I will take him,

as is my right. I found him, I alone." Pyr continued, glad enough of a chance to boast. "I was not misled by the aircar, as you were, and even Lorimaar. He had been too clever, this mockman and the *betheyn*-bitch who ran at his side. When you had all taken your hounds and fanned out down the corridor, my *teyn* and I began to search the mall by torchlight, looking for a trail. We soon found it. Scuffmarks on the floor outside a subway ramp, then veritable roadsigns in the dust. The track vanished when they began to use their flying toys, of course, but by then we had only two directions to consider."

Dirk was almost alert by then, though his body was still wrapped in a gauze of pain and he doubted that it would respond very efficiently if he tried to move. He could see quite clearly. Pyr Braith was walking in front with the hand-torch, talking to a smaller man in white and purple who must be Roseph, the arbiter of the duels that never were. Between them was Gwen, walking under her own power, her hands still bound. She was very silent. Dirk wondered if they had gagged her, but it was impossible to tell, since he could only see her back.

He was in a litter of sorts, bouncing with every step. Another Braith in white and purple was holding the front end, his big-knuckled fists wrapped around the wooden poles. The bony laugher, Pyr's *teyn*, was probably behind him, then, at the other end of the litter. They were still in the tunnel, walking; the subway appeared to go on forever.

Pyr and Roseph continued to talk, with the two others interjecting comments from time to time. Dirk tried to listen, but the pain made it hard to concentrate. After a while he stopped straining to understand and let himself slide back into a semisleep.

Finally, though, they reached the terminal beneath Challenge, and Pyr's *teyn* lifted him to the platform. He did not even try to help.

Then they were carrying him up the ramp into the city proper. They had not handled him gently at the platform; his head was swimming.

They were in Challenge once again. Day had come, Dirk realized. The gateway remained open, and through its arch he could see Fat Satan and a single yellow star hanging on the horizon. He was much too lost and weary to know whether they were rising or setting.

Two hulking Kavalar aircars sat on the road near the subway ramp. Pyr halted nearby, and Dirk was lowered to the floor. He struggled to sit up, to no avail. His limbs thrashed weakly and the pain came back, until he surrendered and lay back again.

"Summon the others," Pyr said. "These matters should be settled here and now, so my *korariel* can be made ready for the hunt."

It took well over an hour for the other Braiths to assemble; for Dirk an hour of fading light and gathering strength. It *was* sunset, he soon realized; beyond the gateway, Fat Satan sank slowly out of sight. The darkness swelled around them, growing thicker and denser until finally the Kavalars were forced to turn on the headlamps of their aircars. By then Dirk's dizziness had all but passed. Pyr, noticing, had his hands bound behind his back,

and forced him to sit up against the side of one of the cars. They placed Gwen beside him, but did not remove her gag.

Singly and in pairs, they came. The *kethi* of Braith. The hunters of Worlorn. The first to come led four tall rat-faced hounds, and Dirk recognized him from the wild gray plunge down the Outer Concourse. The man chained his hounds to the bumper of Roseph's aircar, gave curt greetings to Pyr and Roseph and their *teyns*, then sat cross-legged on the floor a few meters from the prisoners. He did not speak, not once. His eyes fixed on Gwen and never left her, and he did not move at all. Nearby, Dirk could hear his hounds growling in the shadows, their iron chains twisting and rattling.

Lorimaar high-Braith Arkellor, a brown giant in a pitch-black suit of chameleon cloth fastened with buttons of pale bone, arrived in a massive domed aircar of deep red. Within, Dirk could hear the sounds of a pack of Braith hounds. With Lorimaar was another man, a square fat man twice as heavy as Pyr, his bulk hard and solid as brick, his face pale and porcine. After them, alone and on foot, came a frail-looking oldster, bald and wrinkled and nearly toothless, with one hand of flesh and bone and one three-pronged claw of dark metal. The old man had a child's head slung from his belt; it was still bleeding, and one leg of his white trousers bore the long brown stain of its dripping.

Finally Chell arrived, as tall as Lorimaar, white-haired and mustachioed and very weary, leading a single huge Braith hound. Within the pool of light he stopped and blinked.

"Where is your *teyn*?" Pyr demanded.

"Here." A rasp from the darkness. A few meters away, a single glowstone shone dimly. Bretan Braith Lantry came forward and stood next to Chell.

"All have gathered," Roseph high-Braith said to Pyr.

"No," someone objected. "There is Koraat."

The silent hunter spoke up from the floor. "He is no more. He begged ending. I granted it."

"Three of us are gone," the old man said.

"We shall have a silence for them," Pyr said. He was still holding his baton, with its hardwood knob and its short blade, and he tapped it restlessly against his leg as he spoke, just as he had done in the tunnels.

"I'm not going to keep silence," Dirk shouted. "They were killers, all of them. Deserved to die."

All of the Braiths were looking at him.

"Gag him and stop his screaming," Pyr said. His *teyn* moved quickly to comply. When it was done, Pyr spoke again. "You shall have time enough to scream, Dirk t'Larien, when you run naked through the forests and you hear my hounds baying behind you."

Bretan's head and shoulders turned awkwardly. Light glistened on his scar tissue. "No," he said. "First claim is mine."

Pyr faced him. "I tracked the mockman. I took him."

Bretan twitched. Chell, still holding the great hound by a chain wrapped about one heavy hand, laid his other hand on Bretan's shoulder.

"This is no matter to me," another

voice said. The Braith who sat on the floor. Staring. Unmoving. "What of the bitch?"

The others shifted their attention uneasily. "She cannot be at issue, Myrik," said Lorimaar high-Braith. "She is of Ironjade."

The man's lips drew back sharply; for an instant, his placid face was wildly distorted, a beast's face, a rictus of emotion. Then it passed. His features settled into pale stillness again, everything held in check. "I will kill this woman," he said. "Teraan was my *teyn*. She has set his ghost adrift upon a soulless world."

"Her?" Lorimaar's voice was incredulous. "Is this truth?"

"I saw," replied the man on the floor, the one called Myrik. "I fired after her, when she rode us down and left Teraan dying."

The frail oldster spoke then, the clawed ancient who carried the child's head. "Take her then as your personal prey," he said, his voice as thin and sharp as the blade of the flaying knife that hung at his belt. "The wisdom of the holdfasts is old and certain, my brothers. She is no true woman now, if she ever was, neither heldwife or *eynkethi*. Who is there to vouch for her? She has left her highbond's protection to run with a mockman! If she was flesh of man's flesh once, it is so no longer. You know the ways of the mockmen, the liars, the weres, the great deceivers. Alone with her in the dark, this mockman Dirk would surely have slain her and set in her place a demon like himself, fashioned in her image."

Chell nodded agreement, and said something grave in Old Kavalar. The other Braiths looked less certain. Lorimaar traded scowls with his *teyn*, the square fat man. Bretan's hideous face was noncommittal, half a mask of scar tissue, half blank innocence. Pyr frowned and continued to tap restlessly with his baton.

It was Roseph who replied. "I ruled Gwen Delvano human when I was arbiter at the square of death," he said carefully.

"This is truth," Pyr said.

"Perhaps she was human then," the old man said. "Yet she has tasted blood, and slept with a mockman, and who will call her human now?"

The hounds began to howl.

The four that Myrik had chained to the aircar started the cacophony, and it was taken up by the pack locked inside Lorimaar's domed vehicle. Chell's massive canine snarled and pulled at his chain, until the elderly Braith jerked it back angrily; then the creature sat and joined the howling.

On the edge of the circle, beyond the aircars and their pool of light, the two Ironjades stood side by side in shadow.

Dirk's pain—his head was pounding—abruptly seemed of no consequence. His body trembled and shook. He looked at Gwen; she was looking up, at *them*. At Jaan, especially.

Vikary was dressed in a mottled suit of chameleon cloth, all shades of black and blacker when he entered the circle of his enemies. By the time the hounds had quieted, he was wearing dusty gray. The sleeves of his shirt ended just above the elbow; iron-and-glowstone embraced his right forearm, jade-and-silver his left. For an endless instant he loomed very large. Chell and Lorimaar both stood a head taller, but somehow, briefly, Vikary

seemed to dominate. He flowed past them, a striding ghost—how unreal he was even there—who walked through the Braiths as if he could not see them, and stopped near Gwen and Dirk.

But it was all illusion. The noise subsided, the Braiths began to speak, and Jaan Vikary was just a man again, larger than many, but smaller than some.

"You trespass, Ironjades," Lorimaar said in a hard angry tone. "You were not called to this place. You have no right to be here."

"Mockmen," spat Chell. "False Kavalars."

Bretan Braith Lantry made his singular noise.

"Your *betheyn* I grant to you, Jaantony high-Ironjade," Pyr said firmly, but his baton moved in nervous haste. "Discipline her as you will, as you must. The mockman is mine to hunt."

Jaan Vikary ignored all of them. "Remove the bindings from their mouths," he said, gesturing toward the prisoners.

Pyr's long-limbed *teyn* stood over Dirk and Gwen, facing the Ironjade highbond. He hesitated a long moment, then bent and undid the gags.

"Thanks," Dirk said.

Gwen shook her head, to throw loose hair out of her eyes, and climbed unsteadily to her feet, her arms still bound behind her back.

"Cut loose her arms," Vikary said.

"You presume, Ironjade," Lorimaar said.

Pyr, however, seemed curious. He leaned on his baton. "Cut loose her arms," he said.

His *teyn* pulled Gwen around

roughly and used his knife to free her.

"Show me your arms," Vikary said to Gwen.

She hesitated, then brought her hands out from behind her back and extended them, palms down. On her left arm, the jade-and-silver shone. She had not removed it.

Dirk watched, bound and helpless, feeling chill. She had not removed it.

Vikary looked down on Myrik, who still sat with his legs crossed and his small eyes set on Gwen. "Rise to your feet."

The man rose and turned to face the Ironjade, taking his gaze from Gwen for the first time since he had arrived. Vikary started to speak.

"No," Gwen said.

She had been rubbing her wrists. Now she stopped, and laid her right hand on her bracelet. Her voice was

steady. "Don't you understand, Jaan? No. If you challenge him, if you kill him, then I *will* take it off."

For the first time, emotion washed over Jaan's face, and the name of it was anguish. "You are my *betheyn*," he said.

"No," she said.

One of the Braiths laughed. At the sound, Garse Janacek grimaced, and Dirk saw a savage spasm come and go on the face of the man called Myrik.

If Gwen noticed, she paid no mind. She faced Myrik. "I killed your *teyn*," she said. "Me. Not Jaan. Not Dirk. I killed him, and I admit it. He was hunting us, as you were. And killing the Emereli as well."

Myrik said nothing. Everyone was still.

"If you must duel, then, if you really want me dead, duel *me*!" Gwen continued. "I did it. Fight me if your revenge is so important."

Pyr laughed loudly. An instant later his *teyn* joined him, and Roseph as well, then several of the others—the fat man, Roseph's blocky stern-faced companion, the clawed ancient. All of them were laughing.

Myrik's face went blood-dark, then white, then dark again. "*Betheyn-bitch*," he said. The shuddering rictus passed across his face once more, and this time everyone saw. "You jape me. A duel . . . no woman . . . my *teyn* my . . . !"

He ended with a scream that startled the men and set the hounds again to howling. Then he shattered.

His hands rose over his head and clenched and unclenched and he struck her across the face as she shied away from his fury, and suddenly he was on her. His fingers wrapped around her throat and he dove forward and she went over backward, and then they were rolling over and over on the floor until they came up hard against the side of an aircar. Myrik came out firmly on top, with Gwen pinned beneath him and his hands digging deep into the flesh of her neck. She hit him then, hard across the jaw, but in his rage he scarcely seemed to feel it. He began to slam her head against the aircar, again and again and again, screaming all the while in Old Kavalar.

Dirk struggled to his feet only to stand uselessly with his hands bound. Garse took two quick steps forward, and Jaan Vikary was finally moving. But it was Bretan Braith Lantry who reached them first, and dragged Myrik off her with an arm around his neck. Myrik flailed wildly, until Lorimaar joined Bretan, and between them they held the man still.

Gwen lay inert, her head up against the plate metal door where Myrik had slammed it. Vikary knelt at her side, on one knee, and tried to put an arm around her shoulders. The back of her head left a smear of blood on the side of the aircar.

Janacek knelt too, quickly, and felt

her pulse. Satisfied, he rose again and turned back to face the Braiths, his mouth tight with anger. "She wore jade-and-silver, Myrik," he said. "You are a dead man. I issue challenge."

Myrik had stopped screaming, though he was panting. One of the hounds howled and fell silent.

"Does she live?" Bretan asked in his sandpaper voice.

Jaan Vikary looked up at him out of a face as strange and strained as Myrik's had been just as short time before. "She lives."

"Good fortune," said Janacek, "but no thanks to you, Myrik, nor will it make a difference. Make your choices!"

"Let me loose!" Dirk said. No one moved. "*Let me loose*!" he shouted.

Someone sliced apart his bonds.

He went to Gwen, kneeling beside Vikary. Briefly their eyes met. Dirk examined the back of her head, where the dark hair was already beginning to crust with clotted blood. "A concussion at least," he said. "Maybe a fractured skull, maybe worse. I don't know. Are there medical facilities?" He looked at each of them. "*Are* there?"

Bretan answered. "None functional in Challenge, t'Larien. The Voice fought me. The city would not respond. I had to kill it."

Dirk grimaced. "She shouldn't be moved, then. Maybe it's only a concussion. I think she's supposed to rest . . ."

Incredibly, Jaan Vikary left her in Dirk's arms and stood up. He gestured to Lorimaar and Bretan, who held Myrik prisoned between them. "Release him."

Janacek threw Vikary a puzzled glance.

"Jaan," Dirk said, "never mind about him. Gwen . . ."

"Get her inside an aircar," Vikary said.

"I don't think we should move her . . ."

"It is not safe here, t'Larien. Get her inside an aircar."

Janacek was frowning. "My *teyn*?"

Vikary faced the Braiths again. "I told you to release that man." He paused. "That mockman, as you would call him. He has earned the name."

"What do you intend, high-Ironjade?" Lorimaar said sternly.

Dirk lifted Gwen and lay her gently in the back of the closest of the aircars. She was quite limp, but her breathing was still regular. Then he slid into the driver's seat and waited, massaging his wrists to restore circulation.

Everyone seemed to have forgotten him. Lorimaar high-Braith was still talking. "We recognize your right to face Myrik, but it must be singled. Since your own *teyn* challenged first . . ."

Jaan Vikary had his laser pistol in his hand. "Release him and stand away."

Lorimaar, startled, let go of Myrik's arm and stepped swiftly to the side. Bretan hesitated. "High-Ironjade," he rasped, "for your honor and his, for your holdfast and your *teyn*, set down your weapon."

Vikary aimed at the half-faced youth. Bretan twitched, then released Myrik and fell back with a grotesque shrug.

"Jaan," Garse Janacek said in cu-

rious fretful tones. "This has disarrayed your thoughts. Lower your gun, my *teyn*. I have challenged. I will kill him for you." He laid his hand on Jaan's arm.

And Jaan Vikary wrenched free and pointed his weapon at Garse. "No. Stand back. You will not interfere, not now. This is for her."

Janacek's face darkened; he had no grins now, none of his savage wit. His right hand balled into a fist, and he slowly raised it, straight up, in front of his face. Iron-and-glowstone stood shining in the space between the two Ironjades. "Our bond," said Janacek. "Think, my *teyn*. My honor, and yours, and that of our holdfast."

"What of *her* honor?" Vikary said. Gesturing impatiently with his laser, he forced Janacek away from him, and turned again on Myrik.

Alone and confused, Myrik seemed not to know what was expected of him. His rage had deserted him, though he was still breathing hard. A trail of spittle, tinged pink by blood, ran from one corner of his mouth. He wiped it off with the back of his hand, and looked uncertainly toward Garse Janacek. "The first of the four choices," he began, in a dazed voice. "I make the choice of mode . . ."

"No," said Vikary. "You make no choices. Face *me*, mockman."

Myrik looked from Vikary to Janacek and back again. "The choice of mode . . ." he repeated, numbly.

"No," Vikary said again. "You gave Gwen Delvano no choices, she who would have faced you fair, in duel."

Myrik's face twisted into a look of honest bafflement. "She? In duel? I . . . she was a woman, a mockman." He nodded, as if he had settled everything. "She was a *woman*, Ironjade. She japed me. A woman does not duel."

"And you do not duel, Myrik. Do you understand? Do you? *YOU*—" he fired, and a half-second pulse of light took Myrik low, between his legs, so the man screamed—

"—*DO*—" and he fired again, and burned Myrik in the neck just beneath his chin, and then waited as the man fell and his laser recycled—

"—*NOT*—" he continued, fifteen seconds later, and with the word a spurt of light that burned the writhing figure across the chest, and then Vikary was stepping backward, toward the aircar—

"—*DUEL*!" he finished, half in and half out of the car, and with the word came a flick of his wrist and a fourth burst of light, and Lorimaar high-Braith Arkellor was falling, his weapon half drawn.

Then the door slammed, and Dirk threw on the gravity grid, and they jerked forward and up and out, and were halfway to the exit arch when the laser fire began to hiss and burn against their armor.

CHAPTER TEN

It was full night above the Common. The air was black crystal, clear and cold. The winds were bad. Dirk was grateful for the heavily-armored Braith aircar, with its warm cabin, fully enclosed.

He kept them about a hundred meters above the plains and the gentle hills, and pushed the car as fast as he was able. Once, before Challenge had vanished behind them, Dirk looked back to see if there were any signs of

pursuit. He saw none, but the Emereli city caught and held his eye. A tall black spear, soon to be lost against the blacker sky; it reminded him somehow of a great tree that has been caught in a forest fire, its branches and its leaves all gone now, nothing left but a charred and soot-dark stick to echo its former glory.

"They will be after us soon enough, t'Larien," Jaan Vikary said. "You need not search for them."

Dirk turned his attention back to his instruments. "Where are we going? Larteyn?"

"We dare not go to Larteyn now," Vikary replied. He had holstered his laser, but his face was as grim as it had been in Challenge when he burned down Myrik. "I am a outbonder now, a criminal, a duel-breaker. They will come after me and kill me as they would a mockman."

"Jaan," Dirk said, "we've got to get Gwen to shelter. Some place we can make her comfortable, where she won't be bothered. Maybe get a doctor to look at her."

"I know of no doctors on Worlorn," Vikary said. "Still, we must bring Gwen to a city." He considered the question. "Esvoch is closest, but the city is a ruin. Kryne Lamiya is then our best choice, second nearest to Challenge. Turn south."

Dirk swung the aircar about in a wide arc, sliding upward and heading for the distant line of the mountain-wall. Vikary fell to brooding again, staring out blindly into the blackness of Worlorn's night. Dirk, who had more than a hint of what the Kavalar was suffering, did not attempt to break his melancholy, but withdrew into his own sphere of thought and silence. He felt very weak; the ache in his head had returned to pound at him, and he was suddenly conscious of a parched rawness in his mouth and throat. It was in silence that they flew the lonely kilometers to their destination.

This time Dirk knew what to expect, and he listened. The music of Lamiya-Bailis came to his ears, a faint wailing on the wind, long before the city itself rose up out of the forests to engulf them.

Vikary heard the music too. He glanced at Dirk. "This is a fitting city for us now, t'Larien."

"No," Dirk said, too loudly, not wanting to believe it.

"For me, then. All my effort has gone to ashes. The folk I thought to save are saved no longer—the Braiths can hunt them at will now, *korariel* of Ironjade or no. I cannot stop them. Garse may, perhaps, but what can one man do alone? He may not even try. It was my obsession, never his. Garse is lost too. He will go back to High Kavalaan alone, I think, and descend alone to the holdfasts of Ironjade, and the highbond council will take away my names. And he must find a knife and cut the glowstones from their settings, and wear empty iron about his arm. His *teyn* is dead."

"On High Kavalaan, perhaps," Dirk said. "But you lived on Avalon too, remember?"

"Yes," said Vikary. "Sadly. Sadly."

The music swelled and boomed around them, and the Siren City itself took shape below; the outer ring of towers like fleshless hands in frozen agony, the pale bridges spanning dark canals, the swards of dimly-shining

moss, the whistling spires stabbing up into the wind. A white city, a dead city, a forest of sharpened bones.

Dirk circled until he found the same building that Gwen had taken them to and came in for a landing. In the airlot the two derelict cars were still resting, undisturbed, deep in dust. They seemed to Dirk like fragments of some other, long forgotten dream.

"You have been here before," Vikary said, and Dirk looked at him and nodded. "Lead, then," the Kavalar ordered.

"I don't . . ."

But Vikary was already up, and he had taken Gwen gently from where she lay and lifted her in his arms, and he stood waiting. "Lead," he said again.

So Dirk led him away from the airlot, into the halls where the gray-white murals danced to the Darkdawn symphony, and they tried door after door, until they found a sleeping room still furnished. There Vikary lay Gwen's limp form on the bed. When she was resting easily—she looked almost serene—Jaan left Dirk sitting by her side, his legs folded under him on the floor, and went out to search the aircar they had stolen. He returned shortly with a covering for Gwen and a canteen.

"Drink only a swallow," he said, giving the water to Dirk.

Dirk took the cloth-covered metal, twisted off the top, and took a single short pull before handing it back. The liquid was lukewarm and vaguely bitter, but it felt very good trickling down his dry throat.

Vikary wet a strip of gray cloth and began to clean the dried blood from the back of Gwen's head. He dabbed gently at the brownish crust, wetting his rag again and yet again, working until her fine black hair was clean again, and lay in a lustrous fan on the mattress. When he was finished he bandaged her and looked at Dirk. "I will watch," he said. "Go to another room and sleep."

"We should talk," Dirk said, hesitant.

"Later, then, Not now. Go, and sleep."

Dirk could hardly argue; his body was weary, and his own head was still throbbing. He went to a room nearby and fell gracelessly onto the mattress.

Sleep did not come easily. Perhaps it was his headache; perhaps it was the uneasy motion of the light that ran within the walls, which haunted him even through closed eyelids. Chiefly, though, it was the music. Which did not leave him, and seemed to echo louder when he closed his eyes, as if that act had trapped it within his skull, thin pipings, and wails and whistles, and *still*—forever—the booming of a solitary drum.

Fever dreams stalked that endless night; visions intense and surreal and hot with anxiety. Three times Dirk was shaken from his uneasy sleep, to sit up—trembling, his flesh pale and clammy—and face the song of Lamiya-Bailis once again, never quite remembering what had stirred him.

And then it was dawn. Fat Satan was halfway up the sky, and feverish light as red and cold as Dirk's nightmares was flooding through a tall stained glass window to fall across his face. He rolled away from it, and struggled to sit up, and Jaan Vikary appeared.

Vikary handed him the canteen now full with water from the canals of Kryne Lamiya. Dirk nearly choked on the first long swallow of cold water. When he handed back the canteen it was half empty.

He rose to his feet unsteadily. "Is Gwen . . . ?"

"She regained consciousness early in the night, t'Larien. We spoke together, and I told her what I had done. I think she will recover soon enough."

"Can I talk to her?"

"She is resting now, sleeping normally. Later I am sure she will want to speak to you, but at the moment I do not think you should wake her. She tried to sit up last night and grew very unsteady and finally nauseous."

Dirk nodded. "I see. What about you? Get any sleep?" As he spoke, he looked around their quarters. The Darkdawn music had shrunk somehow—it still sounded, still wailed and moaned and permeated the very air of Kryne Lamiya, but to his ears it seemed fainter and more distant, so perhaps he was finally getting used to it, learning to tune it out of his conscious hearing. The light murals, like the glowstones of Larteyn, had faded and died at the touch of normal sunlight; the walls were gray and empty. What furnishings there were—a few uncomfortable-looking chairs—flowed from the walls and floor; twisting extrusions that matched the color and tone of the chamber so well that they were almost invisible.

"I have slept enough," Vikary was saying. "That is not important. I have been considering our position." He gestured. "Come."

They walked through another chamber, and out onto one of the many balconies that overlooked the Darkdawn city. By day, Kryne Lamiya was different, less despairing; even Worlorn's wan sunlight was enough to put a sparkle on the swift-flowing waters of the canals, and in the day-long twilight the pale towers were less sepulchral.

Dirk was weak and very hungry, but his headache had gone and the brisk wind felt good against his face. He brushed his hair—knotted and hopelessly filthy—back from his eyes, and waited for Jaan to begin.

"I watched from here during the night," Vikary said, with his elbows on the cold railing and his eyes searching the horizon. "They are searching for us, t'Larien. Twice I glimpsed aircars above the city."

"They didn't find us," Dirk said.

"In truth," Vikary replied. "I think we are safe enough here, for a while. Understand, though, that our position is not without difficulties. We have shelter, and unlimited water, but no food to speak of. Our ultimate exit—we must go to the spaceport and leave Worlorn as soon as possible, I have concluded—our ultimate exit is going to be very difficult. The Braiths will anticipate us. We have my laser pistol, and two hunting lasers that I found in the aircar. Plus the vehicle itself, armed and well armored, probably belonging to Roseph high-Braith Kelcek . . ."

"One of the derelicts in the airlot is still marginally functional," Dirk interjected.

"Then we have two aircars, should we need them," Vikary said. "Against us, at least eight of the Braith hunters

still live, and probably nine. They have supplies, power, food. They outnumber us. Finally, there is Garse Janacek . . ."

"Garse?"

"I hope—I pray that he will cut the glowstones from his arm, and return to High Kavalaan. He will be shamed, alone, wearing dead iron. No easy fate, t'Larien. I have disgraced him, and Ironjade. I am sorry for his pain, yet this is how I hope it will be. For there is another possibility, you see. He may hunt for us."

"Surely he won't join the Braiths. They're his enemies, and you are his *teyn*, and Gwen his *cro-betheyn*. He might want to kill me, I don't doubt it, but . . ."

"Garse is more a Kavalar than I, t'Larien. The old customs require a man's *teyn*, no less than any other, to bring death to a duel-breaker. It is a custom that only the very strong can follow—the bond of fire-and-iron is too close for most, so they are left alone to mourn. Yet Garse Janacek is a very strong man, stronger than myself in so many ways. I do not know. I do not know."

"And if he does come after us?"

Vikary spoke calmly. "I will not raise a weapon against Garse. He is my *teyn*, whether I am his or no, and I have hurt him badly enough already, failed him, shamed him." Vikary's eyes were full of tears, his mouth set grimly. He did not cry, though; as if by some immense effort of will, he kept the tears from falling.

"We must get to the crux, t'Larien. Whether Garse hunts us or not, we face formidable odds. We have weapons, should we have to fight, but no one to use them. Gwen is a good marksman, and fearless enough but she is injured and unsteady. And you—can I trust you? I put it to you bluntly. I trusted you once, and you betrayed me."

"How can I answer that question?" Dirk said. "You don't have to believe any promise I give you. But the Braiths want to kill me too, remember? And Gwen as well. Or do you think I'd betray her as easily as I . . ." He stopped in horror of his own words.

" . . . as easily as you did me," Vikary finished for him, with a hard smile. "You are blunt enough. No, t'Larien, I do *not* think you would betray Gwen. Yet I did not think you would desert us, either, when we had named you *keth* and you had taken the name."

"Maybe I made a mistake. I don't know. I would have died, though, if I'd kept faith with you."

"Died a *keth* of Ironjade, with honor."

Dirk smiled. "Gwen appealed to me more than death. That much I expect you to understand."

"I do. She is still between us, ultimately. Face that, and know it for a truth. Sooner or later she will choose."

"She did choose, Jaan, when she left with me. You should face *that*." Dirk said it quickly, stubbornly; he wondered how much he believed it.

"She did not remove the jade-and-silver," Vikary answered. He gestured impatiently. "This is no matter. I *will* trust you, for now."

"Good. What do you want me to do?"

"I must fly to Larteyn."

"*Why?*"

"The Kimdissi."

"Ruark?"

Vikary nodded. "He has been a friend to Gwen since our days on Avalon. Though he has never liked me, nor I him, I cannot abandon him entirely. The Braiths . . ."

"I understand. But how will you get to him?"

"Should I reach Larteyn safely, I can summon him by viewscreen. That is my hope, at least." He gave a vaguely fatalistic shrug.

"And me?"

"Remain here with Gwen. Nurse her, guard her. I will leave you one of Roseph's laser rifles. If she recovers sufficiently, let Gwen use it. She is probably more skillful than you. Agreed?"

"Agreed. It doesn't sound very difficult."

"No," said Vikary. "I expect that you will remain safely hidden, that I will return with the Kimdissi and find you as I leave you. Should it become necessary for you to flee, you will have this other aircar close at hand. There is a cave nearby that Gwen knows of. She can show you the way. Go to that cave if you must leave Kryne Lamiya."

"What if you *don't* come back? That *is* a possibility, you know."

"In that case you will be on your own again, as you were when you first fled Larteyn. You had plans then. Follow them, if you can." He smiled a humorless smile.

Vikary had unpacked the Braith aircar thoroughly. Inside he had found four hard protein bars, the two hunting lasers, and some clothing that had been slung over the seats. Dirk ate one of the bars immediately—he was famished—and slid the other three into the pocket of a heavy jacket he chose. It hung slightly loose on him, but the fit wasn't too bad; Roseph's *teyn* had approximated Dirk in size. And it was *warm*—thick leather, dyed a deep purple, with a collar, cuffs, and lining of soiled white fur. A smaller matching jacket Dirk appropriated for Gwen.

Vikary took out the two laser rifles, long tubes of jet black plastic with snarling wolves embossed upon the stocks in white. The first he strapped around his own shoulders; the second he gave to Dirk, along with curt instructions on its operation. The weapon was very light, and slightly oily to the touch. Dirk held it awkwardly in one hand.

When he returned to the suite, Gwen was just stirring.

"Jaan?" she said, raising her head from the leather mattress to see who had just entered. She groaned and lay back again quickly, and began to massage her temples with both hands. "My head," she said in a whimpering whisper.

Dirk stood the laser up against one wall just inside the door, and sat by the side of the bed. "Jaan just left," he said. "He's flying back to Larteyn to get Ruark."

Gwen's only reply was another groan.

"Can I get you anything?" Dirk asked. "Water? Food? We've got a couple of these." He took the protein bars out of the pocket of his jacket and handed them down for her inspection.

Gwen gave them a brief glance, and grimaced in disgust. "No," she said.

"Last night Jaan crushed up a couple of those bars in water, made a sort of paste." She lowered her hands from her temples, and turned on her side to face him. "I didn't keep it down very well," she said. "I don't feel so good."

"I gathered that," Dirk said. "You can't expect to feel well, after what happened. You've probably got a concussion, and you're lucky you're not dead."

"Jaan told me," she said, a little sharply. "Tell me about—you know, about afterward. Jaan just sort of sketched it out. I want to know."

When Dirk had finished, Gwen was very silent. Her eyes closed briefly, opened again, then closed and did not reopen. She lay quietly on her side, curled up into sort of fetal ball, her hands clenched into fists beneath her chin. Watching her, Dirk felt his eyes drawn to her left forearm, to the cold reminder of the jade-and-silver she still wore.

"Gwen," he said, softly, but she was lost within herself, and Dirk was alone with her jewelry and his fears.

The room was soaked in what passed for sunlight on Worlorn. The light fell so that only one side of the mattress was illuminated; Gwen lay half in, half out of shadow. Dirk—he did not speak again to Gwen, or look at her—found himself watching the patterns the light made on the floor. Smiling and rubbing his chin—stubble covered his cheeks and jaw, and he was starting to itch—Dirk studied those patterns, and let the Darkdawn music back into his soul. How he had ever tuned it out he was not sure; but now it was back, and all around him.

The tower they were in—their home—sounded its long low note. Years away, or centuries, a chorus answered in ringing widows' wails. He heard shuddering throbs, and the screams of abandoned babies, and the slippery sliding sound of knives slicing warm flesh. And the drum. How could the wind beat a drum? he thought. He didn't know. So terribly far off, though; and so *alone*.

So horribly endlessly alone.

The sun had moved a little, and only a thin beam of light was trickling through the window now, and finally that snapped off too, and the world was gray. Dim lights were stirring in the walls; ghosts waking for another night. Phantoms and husks of old dreams. All of them were gray and white; color was only for the living, and had no place here.

The music. The song of the Siren City. Desolation. Emptiness. Decay. A single drum, beaten slow. Alone. Alone. Alone. Nothing has meaning.

"Dirk!"

It was Gwen's voice. He shook his head, looked away from the walls, down to where she lay in darkness. It was night. Night. Somehow the day had gone.

Gwen—she had not been sleeping—was looking up at him. "I'm sorry," she said. She was telling him something. But he knew it already, knew it from her silence, knew it from—from the drum perhaps. From Kryne Lamiya.

She sat up in the bed, the coverlet falling down around her waist. Jaan had unsealed the front of her suit, so it hung on her loosely, and the soft curves of her breasts were visible. In the flickering light, the flesh was pale and gray. Dirk felt no stirrings. Her

hand went to the silver-and-jade. She touched it, stroked it, sighed. "I never thought—I don't know—I said what I had to say, Dirk. Bretan Braith would have killed you."

"Maybe that would have been better," he answered. Not bitterly, but in a bemused, faintly distracted sort of way. "So you never meant to leave him?"

"I don't know. How do I know what I meant? I was going to try, Dirk, really I was. I never really believed, though. I told you that. I was honest. This isn't Avalon, and we've changed. I'm not your Jenny. I never was, and now less than ever."

"Yes," he said, nodding. "I remember you driving. The way you gripped the stick. Your face. Your eyes. You have jade eyes, Gwen. Jade eyes and a silver smile. You frighten me." He glanced away from her.

"Jade eyes?" Gwen was saying.

"Like Garse."

"Garse has blue eyes," she said.

"Still. Like Garse."

She chuckled, and groaned. "It hurts when I laugh," she said. "But it's funny. Me like Garse. No wonder Jaan—"

"You'll go back to him?"

"Maybe. I'm not sure. It would be hard to leave him now. Do you understand? He's finally chosen, you see. When he pointed his laser at Garse. After that, after he turned against *teyn* and holdfast and world, I can't just—you know. But I won't go back to being a *betheyn* to him, not ever. It will have to be more than jade-and-silver."

Dirk felt empty. He shrugged. "And me?"

"You know it wasn't working. Surely. You had to feel it. You never stopped calling me Jenny."

He smiled. "I didn't? Maybe not. Maybe not."

"Never," she said. She rubbed her head. "I'm feeling a little better now," she said. "You still have those protein bars?"

Dirk took one from his pocket and flipped it at her. She snatched it from the air with her left hand, smiled at him, unwrapped it and began to eat.

He stood up abruptly, jamming his hands deep into his jacket pockets, and walked to the high window. The tops of the bone-white towers still wore a faint, waning reddish tinge—perhaps the Helleye and its attendants were not entirely gone from the western sky. But below, in the streets, the Darkdawn city drank of night. The canals were black ribbons, and the landscape dripped with the dim purple radiance of phosphorescent moss. Dirk felt as though he would welcome a sight of his friend, the solitary bargeman.

"Dirk?" Gwen had finished eating She was fastening her jumpsuit tight again, framed in the murky light. Behind her, the walls were alive with gray-white dancers. Dirk heard drums, and whispers, and promises. And he knew the last were lies.

"One question, Gwen," he said heavily.

She stared at him.

"Why did you call me back?" he said. "Why? If you thought we were so dead, you and me, why couldn't you leave me alone?"

Her face was pale and blank. "Call you back?"

"You know," he said. "The whisperjewel."

"Yes," she said uncertainly. "It's back in Larteyn."

"Of course it is," he said. "In my luggage. You sent it to me."

"No," she said. "No."

"You met me!"

"You lasered us from your ship. I never—believe me, that was the first I knew that you were coming. I didn't know what to think of it. I thought you'd get around to telling me, though, so I never pressed."

Dirk said something, but the tower moaned its low note and took his words away from him. He shook his head. "You didn't call me?"

"No."

"But I got the whisperjewel. On Braque. The same one, esper-etched, you can't fake that." He remembered something else. "And Arkin *said* that . . ."

"Yes," she said. She bit her lip. "I don't understand. He must have sent it. But he was my friend. I had to have someone to talk to. I don't understand." She whimpered.

"Your head?" Dirk asked quickly.

"No," she said. "No."

He watched her face. "Arkin sent it?"

"Yes. He was the only one. It had to be. We met on Avalon, right after you and I—you know. Arkin helped me. It was a bad time. He was there when you sent your jewel to Jenny. I was crying and all. I told him about it, and we talked. Even later, after I met Jaan, Arkin and I stayed close. He was like a brother!"

"A brother," Dirk repeated. "Why would—"

"I don't *know*!"

Dirk was thoughtful. "When you met me at the spaceport, Arkin was with you. Did you ask him to come along? I was counting on you being alone, I remember."

"It was his idea," she said. "Well, I told him I was nervous. About seeing you again. He—he offered to come along and lend me moral support. And he said he wanted to meet you, too. You know. After all I had told him on Avalon."

"And the day you and he took off into the wild? You know, when I got into trouble with Garse and then Bretan—what went on?"

"Arkin said—an armor bug migration. It wasn't actually, but we had to check. We rushed away."

"Why didn't you tell me where you were going? I thought that Jaan and Garse had beaten you up, that they were keeping you away from me. The night before, you'd said—"

"I know, but Arkin said he'd tell you."

"And he convinced me to run away," Dirk said. "And you, I suppose he told you that to convince me you should . . ."

She nodded.

He turned again toward the window. The last light was gone from the tower tops. Above, a handful of stars sparkled. Dirk counted them. Twelve. An even dozen. "Gwen," he said, "Jaan left this morning. From here to Larteyn and back, by aircar—how long should that take?"

When she did not answer, he turned to look at her again.

The walls were full of phantoms, and Gwen trembled in their light.

"He should be back by now, shouldn't he?"

She nodded, and lay back again on the pale mattress.

The Siren City sang its lulluby, its hymn to final sleep.

CHAPTER ELEVEN

Dirk walked across the room.

The laser rifle was leaning up against the wall. He lifted it, felt once again the vaguely oily texture of the slick black plastic. His thumb brushed over the wolf's head. He raised the weapon to his shoulder, sighted, fired.

The wand of light hung for at least a full second in the air. He moved the rifle slightly, and the pencil-beam moved with it. When it faded, and the afterimage left his retinas, he saw that he had burned an uneven hole in the window. The wind was whistling through it, loudly, making an odd dissonance with the music of Lamiya-Bailis.

Gwen climbed unsteadily out of her bed. "What? Dirk?"

He shrugged at her, and lowered the rifle.

"What?" she repeated. "What are you doing?"

"I wanted to make sure I knew how it worked," he explained. "I'm—I'm going."

She frowned. "Wait," she said. "I'll find my boots."

He shook his head.

"You too?" Her face was hard, ugly. "I don't need to be protected, damn it."

"It's not like that," he said.

"If this is some idiot move to make yourself a hero in my eyes, it isn't going to work," she said, putting her hands on her hips.

He smiled. "What this is, Gwen, is some idiot move to make myself a hero in *my* eyes. Your eyes . . . your eyes aren't important any more."

"Why, then?"

He hefted the rifle uncertainly. "I don't know," he admitted. "Maybe because I like Jaan, and owe him. Because I want to make it up to him for running out, after he'd trusted me and named me *keth*."A distant smile brushed across his face. "Maybe it's because there are only twelve stars, you know? So it doesn't make any difference, does it?"

"What good can you possibly do?"

"Who knows? And why does it matter? Do you care, Gwen? Do you *really*?" He shook his head, and the motion sent his hair tumbling over his forehead once again, so once more he had to stop and brush it back. "I don't *care* if you care," he said forcefully. "You said, or implied, that I was being selfish back in Challenge. Well, maybe I was. And maybe I am now. I'll tell you something, though—whatever I'm going to do, I'm not asking to look at your arms first, Gwen."

It was a fine exit line, but halfway out the door he softened, hesitated, turned back. "Stay here, Gwen," he told her. "Just stay. You're still hurt. If you have to run, Jaan said something about a cave. You know anything about a cave?" She nodded. "Well, go there if you have to. Otherwise stay here." He waved a clumsy farewell at her with the rifle, then spun and walked away too quickly.

Down in the airlot Dirk stumbled in the dark over the derelict. As his eyes adjusted he saw it was no product of High Kavalaan: a cramped two-seater black-and-silver teardrop of plastic and lightweight metal. No armor at all, of course; its only weapon was the laser rifle he lay across his lap.

It was only a little less dead than the rest of Worlorn, but that little was enough. When he tapped into the power, the car woke, and the instruments lit the cabin with their pale radiance. He ate a protein bar quickly, and studied the readings. The energy supply was low, too low, but it would have to do. He would not use the headlamps; he could fly by the scant starlight. And the heater was likewise to be dispensed with, as long as he had his leather jacket to keep him from the chill.

Dirk slammed down the door, sealing himself in, and flicked on the gravity grid. The aircar lifted, rocking a bit unsteadily, but it lifted. He gripped the stick and threw it forward, and then he was outside and airborne.

The aircar throbbed and dipped alarmingly once clear of the lot, but only for an instant; then the grid caught hold, and it rode up on the singing winds, and the only thing left tumbling was his stomach.

Dirk climbed steadily, trying to push the small car as high as it would go. The mountainwall was ahead, and he had to clear it. Besides, he was not eager to encounter other nocturnal flyers. High up, with his lights doused, he could see any other aircars that passed below him, but the chances were good that he would escape their notice.

When he had been airborne for almost an hour, the mountainwall bulked up beneath him. Where the mountains met the wilderness, he saw a light.

He banked the aircar, circled, and began to descend. No lights should shine this side of the mountains, he knew; whatever it was, it should be investigated.

He spiraled down until he was directly above the light. There were several lights beneath him. The main source of illumination was a fire—he could tell that now, he could see it shifting and flickering as the winds fanned the flames this way and that. But there were other, smaller lights as well; steady and artificial, a circle of them off in the blackness not terribly distant from the fire. Perhaps a kilometer, he estimated; perhaps less.

The flames rose up to greet him, long orange tongues, very bright against the plumes of smoke. He saw sparks as well, or embers, or something of that sort; they issued from the fire in hot bright showers, shooting off into the night and then vanishing. Drifting lower, he was treated to yet another display, furious crackling of blue-white flame that came with a sharp scent of ozone and then was gone again.

Dirk stopped the aircar dead when the fire was still decently below him. There were other people about—the circle of steady artificial lights—and he did not care to be seen. His black-and-silver aircar, motionless against the black sky, would not be easy to spot, but it would be a different story if he let himself be outlined by the flames. He still could not make out what was burning; the center of the fire was a shapeless darkness from which the sparks issued periodically. Around it, he could see the dense tangle of chokers, their waxy limbs shining bright yellow in the reflected glare. Several had fallen into the heart of the conflagration, and were contributing most of the black smoke as

they shriveled and turned to ash. But the rest, the twisting fence that surrounded the black burning thing, refused to go up. Instead of spreading, the fire was visibly dying out.

Dirk waited and watched it die. He was already fairly certain that he was looking at a fallen aircar; the sparks and ozone smell told him that much. He wanted to know *which* aircar.

After the flames had dwindled and the sparks had ceased to storm, but before the fire had guttered out entirely and turned to greasy smoke, Dirk saw a shape. Briefly; a wing, vaguely batlike, twisted at a grotesque angle and poking toward the sky, a sheet of fire flaring behind it. That was enough; this was not any aircar he knew, though it was clearly of Kavalar manufacture.

A dark ghost above the forest, he flitted away from the dying fire, toward the ring of man-made illumination. This time he maintained a greater distance. He did not need to go closer. The lights were quite bright, and the scene was etched in fine detail.

He saw a wide clearing, ringed by electric torches, on the edge of some broad body of still water. Three aircars were down there, and he knew all three; the same trio had been down beneath the Emereli tree within Challenge, when Myrik Braith had assaulted Gwen. One of them, the great-domed car with dark red armor, belonged to Lorimaar high-Braith. Of the other two, one of them was visibly damaged, even from this distance. It was lying awkwardly, half submerged in the water, and part of it was misshapen and *glowing*. Its armored door gaped open.

Stick figures moved about the wreck. Nearby, someone was leading Braith hounds from a gate in the flank of Lorimaar's aircar.

Frowning, Dirk touched his grid control and took his own car straight up, until the men and aircars both were lost to sight and nothing remained below but a point of light in the forest.

Safe in the black womb of sky, he paused to think.

The damaged aircar had been Roseph's, the same car they had stolen in Challenge, the car Jaan Vikary had flown to Larteyn that morning. He was sure of that. The Braiths had found him, clearly, and pursued him to the forest, lasered him down. But it seemed unlikely that he was dead; otherwise, why the Braith hounds? It was more than likely that Jaan had survived to flee into the forest, and that the Braiths were going to hunt him down.

Dirk considered briefly trying to effect a rescue, but the prospects seemed dim. He had no idea how to find Jaan, in the night-shrouded outworld wild. The Braiths were better equipped for that than he was.

He resumed his course toward the mountainwall, and Larteyn beyond. In the forest, alone as he was, he could do Jaan Vikary no particular good. In the Kavalar Firefort, however, he could at the very least settle Ironjade's score with Arkin Ruark.

The flight took just under an hour; then Larteyn, red and smouldering, shouldered up out of the mountains. It looked very dead, very empty, but Dirk knew that for a lie. He kept low, and wasted no time, shooting straight

across the low square rooftops and the glowstone plazas to the building that he had once shared with Gwen Delvano, the two Ironjades, and the Kimdissi liar.

Only one other aircar waited on the windswept roof; the armor-clad military relic.

He kept the laser firmly in his grip as he climbed out. The world was still and crimson. He walked swiftly to the tubes, and rode down to Ruark's quarters.

They were empty.

He searched them quite thoroughly, turning things this way and that, not caring what he disturbed, what he destroyed. All of the Kimdissi's belongings were still in place, but Ruark was not there, nor was there any sign of where he had gone.

Dirk's own possessions remained as well, the few things he had left behind when he and Gwen had run. He set down the laser, knelt, and began to rummage through the pockets of a pair of soiled pants. It was not until he found it—jammed away, still in its wrappings of silver and velvet—that he really knew what he was looking for, and why he had come back to Larteyn.

In Ruark's bedroom he found a small cache of personal jewelry in a lockbox; rings, pendants, intricate bracelets and crowns, earrings of semi-precious stones. He pawed through the box until he found a thin fine chain, with a silver-wire owl frozen in amber and suspended on a clip. It looked about the right size, that clip. Dirk tore away the amber and the owl, replacing them with the whisperjewel.

Then he unsealed his jacket and his heavy shirt, and hung the chain around his neck, so the cold red teardrop was next to his bare skin, whispering its whispers, promising its lies.

The small stab of ice was painful against his chest, but that was all right; it was Jenny. Very shortly, he grew used to it, and it passed. Salt tears rolled down his cheeks. He did not notice. He went upstairs.

There was only one more place to search now. Quickly, he climbed to the top of the tower. The door was open. He hesitated, and then entered, holding his laser at the ready.

The great living room was chaos and destruction. The viewscreen had been smashed, or exploded; glass shards were everywhere. The walls were scarred by laser fire. The couch had been overturned and ripped in a dozen places, stuffing pulled out in great handfuls and scattered. Some of it had been thrown into the fireplace, where it contributed to the sodden, smoky mess that choked the hearth. One of the gargoyles, headless and upside down, leaned up against the base of the mantle. Its head, glowstone eyes and all, had been thrown into the sodden ashes of the fire. The air stank of wine and vomit.

Garse Janacek was sleeping on the floor, shirtless, his red beard stained even redder by dribbled wine, his mouth hanging open. He smelled like the room. He was snoring loudly and his laser pistol was still clutched in one hand. Dirk saw his shirt, balled up and lying in a pool of vomit that Janacek had tried to mop at half-heartedly.

He walked around carefully, and took the laser out of Janacek's limp fingers. Vikary's *teyn* was not quite

the iron Kavalar that Jaan imagined him.

Janacek's right arm was still bound by iron-and-glowstone. A few of the red-black jewels had been forced from their settings; the empty holes looked obscene. But most of the bracelet was intact, except where it was marred by long scratches. Janacek's forearm, above the bracelet, was also scarred. The scratches were deep, and often continuous with those scored in the black iron.

Near to Janacek's boot Dirk saw the long bloodstained knife. He could imagine the rest. Drunk, no doubt, his left hand made awkward by his old wound, trying to pry the glowstones free, losing patience and stabbing wildly, dropping the blade in his pain and his rage.

Stepping backward lightly, detouring around Janacek's sodden shirt, Dirk paused in the door frame, leveled his rifle, and shouted. "*Garse*!"

Janacek did not stir. Dirk repeated his shout. This time the volume of snoring declined appreciably. Encouraged, Dirk stooped and picked up the nearest object at hand—a glowstone, he noted—and lofted it through the air at the Kavalar. It hit Janacek on the cheek.

He sat up slowly, blinking. He saw Dirk, and scowled at him.

"Get up," Dirk said. He waved his laser.

Janacek rose shakily to his feet, looked around for his own weapon.

"You won't find it," Dirk told him. "I've got it here."

Janacek's eyes were blurred and weary, but he had slept off most of his drunkenness. "Why are you here, t'Larien?" he said slowly, in a voice tinged more by exhaustion than by wine. "Have you come to mock me?"

Dirk shook his head. "No. I'm sorry for you."

Janacek glared. "Sorry for *me*?"

"You don't think you deserve pity? Look around you!"

"Careful," Janacek told him. "Jape me too much, t'Larien, and I will discover if you have steel enough to fire that laser you hold so awkwardly."

"Don't, Garse," Dirk said. "Please. I need your help."

Janacek laughed, throwing back his head and roaring.

When he had stopped, Dirk told him everything that had happened since Vikary killed Myrik Braith in Challenge. Janacek stood very stiffly as he listened, his arms crossed tightly across his bare, scarred chest. He laughed one more time—when Dirk told him his conclusions about Ruark. "The manipulators of Kimdiss," Janacek muttered. Dirk let him mutter, then finished his story.

"So?" Janacek demanded when he had concluded. "Why do you think any of this is any matter to me?"

"I guess I didn't think you'd let the Braiths hunt Jaan down like an animal," Dirk said.

"He has made himself an animal."

"By Braith lights, I suppose," Dirk replied. "Are you a Braith?"

"I am a Kavalar."

"Are all Kavalars the same now?" He gestured toward the stone head of the gargoyle, sitting in the fireplace. "I see you take trophies now, just like Lorimaar."

Janacek said nothing. His eyes were very hard.

"Maybe I was wrong," Dirk said.

"But when I came in here, and saw all this, it made me think. It made me think that maybe you did have some human feeling for the man who used to be your *teyn*. It reminded me that once you told me that you and Jaan had a bond stronger than any I had ever known. I guess that was a lie, though."

"It was truth. Jaan Vikary broke that bond."

"Gwen broke all the bonds between *us* years ago," Dirk said. "But I came when she needed me. Oh, it turned out that she didn't really need me, and I came for a lot of selfish reasons. But I came. You can't rob me of that, Garse. I kept my promise." He paused. "And I would not let anyone hunt *her*, if I could stop them. It appears that we were bonded by something a lot stronger than your Kavalar iron-and-fire."

"Say what you want, t'Larien. Your words change nothing. The idea of you keeping promises is ludicrous. What of your promises to Jaan and myself?"

"I betrayed them," Dirk said quickly. "I know that. So you and I are even, Garse."

"I have betrayed no one."

"You are abandoning those who stood closest to you. Gwen, who was your *cro-betheyn*, who slept with you and loved you and hated you all at once. And Jaan. Your precious *teyn*."

"I have never betrayed them," Janacek said hotly. "Gwen betrayed both myself and the silver-and-jade she wore from the day she joined us. Jaan deserted all that was decent in the way he slew Myrik. He ignored me, ignored the duties of iron-and-fire. I owe neither of them."

"You don't, do you?" Beneath his shirt, Dirk could feel the whisperjewel hard against his skin, flooding him with words and memories, with a sense of the man he had once been. He was very angry. "And that says it all, right? You don't owe them, so who cares? All your damn Kavalar bonds are, after all, is debt and obligation. Traditions, old holdfast wisdom, like the code duello and mockman hunting. Don't think about them, just follow them. Ruark was right about one thing—there is no love in any of you, except maybe Jaan, and I'm not so sure about him. What the hell was he going to do if Gwen *hadn't* been wearing his bracelet?!"

"The same thing!"

"Really? And what about you? Would you have challenged Myrik just because he hurt Gwen? Or was it because he damaged your silver-and-jade?" Dirk snorted. "Maybe Jaan would have done the same thing, but not you, Janacek. You're as Kavalar as Lorimaar himself, as stiff as Chell or Bretan. Jaan wanted to make his folk better, but I guess you were only along for a ride, and didn't believe any of it for a minute." He yanked Janacek's laser out of his belt and flung it across the room with his free hand. "Here," he shouted, lowering his rifle. "Go hunt a mockman!"

Janacek, startled, snapped the weapon out of the air almost by reflex. He stood holding it clumsily, and frowned. "I could kill you now, t'Larien," he said.

"Do that or do nothing," Dirk said. "It's all the same. If you had ever *really* loved Jaan . . ."

"I do not *love* Jaan," Janacek snap-

ped, his face flushed. "He is my *teyn*!"

Dirk let the Kavalar's words hang in the air for a long minute. He scratched his chin thoughtfully. "Is?" he said. "You mean Jaan was your *teyn*, don't you?"

Janacek's flush faded as suddenly as it had come. Beneath his beard one corner of his mouth twitched in a manner that reminded Dirk of Bretan. His eyes shifted, almost furtively, half ashamed, to the heavy iron bracelet that still hung about his bloodied forearm.

"You never did get all the glowstones out, did you?" Dirk said gently.

"No," Janacek said. His voice was oddly soft. "No, I did not. It means little, of course. The physical iron is nothing when the other iron is gone."

"But it's not gone, Garse," Dirk said. "Jaan spoke of you when we were together in Kryne Lamiya. I know. Maybe he feels himself ironbound to Gwen too, and maybe that is wrong. Don't ask me. All I know is that for Jaan the other iron is still there. He wore his iron-and-fire bracelet in Kryne Lamiya. He'll be wearing it when the Braith hounds tear him down, I imagine."

Janacek shook his head. "T'Larien," he said, "your mother comes from Kimdiss, I would vow. Yet I cannot resist you. You manipulate too well." He grinned; it was the old grin, the one he had flashed that morning when he aimed his laser at Dirk and asked if it alarmed him. "Jaan Vikary *is* my *teyn*," he said.

Janacek's conversion, however reluctant, was thorough enough. The Kavalar took charge almost immediately. Dirk thought they should leave at once and discuss their plans en route, but Janacek insisted that they take time to shower and dress. "If Jaan is still alive, he will be safe enough until dawn. The hounds have poor night sight and the Braiths will not be eager to go blundering into a dark chokerwood. No, t'Larien, they will camp and wait. A man alone and on foot cannot get far. So we have time enough to meet them like Ironjades."

By the time they were ready to depart Janacek had removed almost every trace of his drunken rage. He was slim and immaculate in a suit of fur-lined chameleon cloth, his beard cleaned and trimmed, his dark red hair combed carefully back from his eyes. Only his right arm—scrubbed and carefully bandaged, but still conspicuous—gave evidence against him. But the scratches did not seem to have impaired him much; he looked graceful and fluid as he charged and checked his laser and slid it into his belt. In addition to the pistol, Janacek was also carrying a long double-bladed knife and a rifle like Dirk's. He grinned gleefully as he took it up.

Dirk had washed and shaved while waiting, and had also taken the opportunity to eat his first full meal in days. He was feeling almost energetic when they set off for the roof.

The interior of Janacek's huge square aircar was cramped. "The armor," Garse said when Dirk remarked on the limited interior space. He strapped Dirk into a rigid uncomfortable seat with a tight battle-harness, did likewise for himself, and took them swiftly aloft.

The cabin was dimly lit and completely enclosed, with gauges and instruments everywhere, even above the doors. No windows; a panel of eight small viewscreens gave the pilot eight different exterior views. The decor was unpainted, unornamented duralloy.

"This vehicle is older than both of us," Janacek said as he took them up. He seemed eager enough to talk, and friendly in his abrasive sort of way. "And it has seen more worlds than even you. A Kimdissi trader picked it up on Prometheus and sold it to me, and I adapted it to the code duello. No one has challenged me to aerial combat since. Watch." His hand reached out and depressed a glowing button, and suddenly there was a surge of acceleration that pressed Dirk back against his seat. "Auxiliary pulsetubes for emergency speed," Janacek said with a grin. "We will be there in less than half the time it took you, t'Larien."

"Good," Dirk said. Something was nagging at him. "Did you say you got it from a *Kimdissi* trader?"

"That is truth," Janacek said. "The peaceful Kimdissi are great arms traders. I have scant regard for the manipulators, as you know, but I am not above taking advantage of a bargain when one is offered."

"Arkin made a great show of being nonviolent," Dirk said. "I suppose that was all another sham."

"No," Janacek said. He glanced at Dirk, and smiled. "Startled, t'Larien? The truth is perhaps more bizarre. We do not call the Kimdissi manipulators without reason. You studied history on Avalon, I assume?"

"Some," Dirk said. "Old Earth history, the Federal Empire, the Double War, the expansion."

"Yet no outworlds history." Janacek clucked. "It is expected. So many worlds and cultures in the manrealm, so many histories. Even the names are too much to learn. Listen, and I will enlighten you. When you landed on Worlorn, did you notice the circle of flags?"

Dirk looked at him blankly. "No."

"Perhaps they are no longer in place. Once, though, during the Festival itself, the plaza outside the spaceport flew fourteen flags. It was an absurd Toberian conceit, yet it came to pass, in a fashion, though the planetary flags in ten of the fourteen cases represented nothing. Worlds like Eshellin and the Forgotten Colony did not even know what a flag *was*, while on the other extreme the Emereli had a different banner for each of their hundred urban towers. The Darklings laughed at us all and flew a cloth of solid black." He seemed very amused at that. "As for High Kavalaan, we had no flag for all our world. We found one, though. It was taken from history. A rectangle divided into four quadrants of different colors; a green banshee on a field of black for Iron-

jade, Shanagate's silver hunting bat on yellow, crossed swords against crimson for Redsteel, and for Braith a white wolf on purple. It was the old standard of the Highbond League.

"The League was created about the time that the starships first returned to High Kavalaan. There was a man, a great leader, named Vikor high-Redsteel Corben. He dominated Redsteel's highbond council for a generation, and when the offworlders came he was convinced that all Kavalars must band together to share knowledge and wealth equally. Thus he formed the Highbond League, whose flag I have described to you. The union was sadly short-lived. Kimdissi traders, fearful of the power of a unified High Kavalaan, contracted to provide modern armaments exclusively to the Braiths. The Braith highbonds had joined the League only from fear; in truth, they wished to shun the stars, which they avowed were all full of mockmen. Yet they did not shrink from taking mockman lasers.

"So we had the last highwar. Ironjade and Redsteel and Shanagate together subjugated Braith, despite the Kimdissi arms, but Vikor high-Redsteel himself was killed, and the cost in lives was hideous. The Highbond League outlasted its founder by only a handful of years. Braith, badly beaten, fastened on the belief that it had been tricked and used by Kimdissi mockmen, and thus cleaved to the old traditions even more firmly than before. To blood the peace and make it lasting, the League—now dominated by highbonds from Shanagate—seized all the Kimdissi traders on High Kavalaan and a ship of Toberians as well, declared all of them to be war criminals—a term the offworlders taught us, by the way—and set them free on the plains to be hunted as mockmen. Banshees killed many of them, others starved, but the hunters took the most, and carried the heads

home for their trophies.

"We are not proud of that hunt overmuch today, yet we can understand it. The war had been longer and bloodier than any in our history since the Time of Fire and Demons. It was a time of great griefs and towering hatreds, and it destroyed the Highbond League. The Ironjade Gathering withdrew rather than condone the hunting, declaring that the Kimdissi were human. Redsteel soon followed. The mockmen killers were all Braiths and Shanagates, and the Shanagate Holding was thencefore leagued only to itself. Vikor's banner was soon abandoned and forgotten, until the Festival caused us to remember it." Janacek paused and glanced towards Dirk. "Can you see the truth now, t'Larien?"

"I can see why Kavalars and Kimdissi don't like each other much," Dirk admitted.

Janacek laughed. "It goes beyond our own history," he said. "Do you know the ancient religion of Kimdiss?"

"No."

"You would approve," Janacek said. "It is a peaceful and civilized creed, exceedingly complex. You can use it to justify anything except personal violence. Yet their great prophet, the Son of the Dreamer—accepted as a myth-figure, but they continue to revere him—he said once, 'Remember, your enemy has an enemy.' Indeed he does. That is the heart of Kimdissi wisdom."

Dirk shifted uneasily in his seat. "And you're saying that Ruark . . ."

"I am saying nothing," Janacek interrupted. "Draw your own conclusions. You need not accept mine. I told all of this to Gwen Delvano once, because she stood *cro-betheyn* to me and I had a concern. She was vastly amused. The history meant nothing, she told me. Arkin Ruark was only himself, not some archetype of outworld history. So she informed me. He was also her friend, I was told, and this bond, this *friendship*"—his voice was acid as he said the word—"somehow transcended the fact that he was a liar and a Kimdissi. Gwen told me to look to my own history. If Arkin Ruark was a manipulator by mere fact of birth on Kimdiss, then I was a taker of mockman heads by simple virtue of being Kavalar."

Dirk considered that. "She was right, you know," he said quietly.

"Oh? Was she?"

"Her argument was right," Dirk said. "It seems as though she was wrong in her assessment of Ruark, but in general . . ."

"In general it is better to distrust all Kimdissi," Janacek said firmly. "You have been deceived and used, t'Larien, yet you do not learn. You are very like Gwen." He tapped one of the viewscreens with a knuckle. "Enough of this. We have the mountains close at hand. It will not be long now."

Dirk had been gripping his laser rifle very tightly. He wiped his sweating palms on his trousers. "You have a plan?"

"Yes," said Janacek, grinning. And at that he leaned across the space between them and smoothly snatched the laser from off Dirk's lap. "A very simple plan, in truth," he continued, setting the weapon down carefully out of reach. "I will hand you over to Lorimaar."

TO BE CONTINUED

the reference library

Sonya Dorman

MAN AND BEAST

Some publishers, like Doubleday, offer libraries a special deal on science fiction whereby they automatically send out two titles a month, without the librarian making any selection. These books are seldom reviewed and often hard to find elsewhere, and it means you stand a good chance of missing interesting writers and excellent stories.

On your next trip to your local library, look for **Beasts**, by John Crowley (Doubleday, 184 pp., $5.95). Crowley is a strong, skillful writer who uses his wilderness lore and knowledge of birds, such as Canada geese and peregrine falcons, to point out healthy future possibilities for a ravaged planet.

Against a background of political machinations between shaky and contentious autonomies on the North American continent, he tells a story of man, and man's experiment with a hybrid species. There are leos, manlions, in the wilderness, but the experiment is considered a failure by USE, the Union for Social Engineering. This powerful government agency wants the planet back for man only, and hunts the leos down.

Combating USE, each in his own way, there's Loren, the falconer, tutor of an assassinated politician's son and daughter; Meric, who leaves his Soleri-type of home, peaceloving and vegetarian, to go out into the world of forests and leos; Caddie, the indentured servant girl who is illegally sold to Painter, King of the Beasts. She lives with him and his pride, loving him, adapting to the pride's ways. The dog, Sweets, with his enhanced intelligence, takes Painter for his pack leader. And there is Reynard, manfox, the trickster, government emissary, double agent and traitor to both

sides, court jester and counselor to Painter.

Crowley manages to make the hybrid species absolutely convincing. He writes of the leos with sensuous beauty and of the humans with compassion. Toward the end, Loren the falconer and lover of unspoiled land, meets Painter, the man-lion. Well met, they accept each other, and each in his own way learns to accept himself.

This is the kind of science fiction that is passionately concerned with man and this planet; with the limited concepts of too many of our species; with the greed of a few that leads to endless waves of starving refugees. Crowley takes his characters through all kinds of devastation to suggested hope, implied peace. Perhaps the ending has one promise too many; perhaps you'll be glad that it does.

Tomorrow Today, edited by George Zebrowski (Unity Press, 185 pp., $3.95) is a sturdy paperback, with good paper, good print, and an eye-catching cover with neither bare breasts nor exploding spaceships.

The lead story is "Into My Own" by Chelsea Quinn Yarbro. Dahlman, a famous playwright, is dying, hooked up to a computer with organic parts. The C-OR is transferring Dahlman to itself, preserving him for posterity. In the course of the dialogue between them, the old man bitterly resists, denying the possibility that the machine can become his very self. Yarbro, here, has succeeded beautifully in integrating the passion and the idea; man keeps crying out against machine, nerveless machine continues, to what end? You'll have to discover for yourself if there's a winner in the painful debate.

A fine story by Gregory and James Benford, "John of the Apocalypse," tells of a small-time politician visiting a religious group in its retreat. Most of the story is bitterly funny. Whacked out on uppers, the politician is clear enough to realize his drugged audience can be swayed. In the middle of speechifying, he's visited by an apocalyptic vision but like the good spieler he is, goes right on to a good politician's conclusion.

Mack Reynold's "Visitor" is abruptly broken up by disquisitions on the development of radiotelescopes, and the panspermia theory. Few readers will be convinced by a vision of a future where members of a lunar team address each other "affectionately" by ethnic epithets such as "Nigger" and "Kike." Reynolds doesn't usually fall on his face; this is grotesque.

"In the Wind" by Glen Cook is an action story of aerial battles against wind whales and marauding airborne mantas, and the relationship between two fighter pilots whose job it is to eradicate these winged pests, so the mining company can get on with its profits. It is not quite the story you first think it is, because there flows through it a dark and ghostly current of revelation about sanctioned killing and its heroes. The texture of the story

is rich with human complexity; Glen Cook has strength and scope.

"a joy enormously seductive" is how James Stephens, in "Syn," describes the heroine's reaction to being in touch with her clone-sisters. But it is the touching and trusting of the self to the exclusion of others. She, Cogan, lives in a hive society but tries to sabotage it to save the reflections of herself, the clones. Though the idea is interesting, and the explosive images arresting, there's a sense that Stephens has reached so hard for novelty that he leaves a baffled reader behind.

Some of the same stylistic qualities are apparent in "Counter Ecology," by Norman Kagan, writing a nightmare of ecological disaster and guerilla war conducted by *inhumans*; of ruins, hunger, and hope offered through turning to new systems. Yet there's a tremendous impetus that keeps you going through the story of experiments in "teaching nature to fight back to its own new balance." Nature, to be sure, has some neat surprises.

"Harper Conan and Singer David," Edgar Pangborn's gentle story of a blind musician in some different, more simple time, is partly about the magic of art, just as Yarbro's story is. A kind of steadfast human flame burns through the allegorical landscape, saving this from becoming yet another fairy tale.

A lot of these stories, different as they seem, concern man's habit of reflecting upon himself in some kind of mirror. This concern with our identity keeps leaping out of the most innocent paragraphs. It must be the outstanding characteristic of our time. Science fiction of an earlier era was little concerned with this matter; it seems as if our contemporary sense of wonder has been turned inward to an amazing degree. If we get tired of looking into ourselves, then we may look out once more. There are less ego-happy cultures than ours in which the two landscapes coincide. Some of the best new writers are aware of this already.

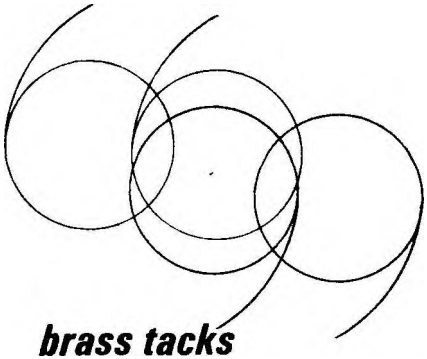
But ah, the endless wonder of us, the terror of knowledge, the glimpses of rough beasts that Barry Malzberg transfers to us with shocking inten-

sity. **Down Here In The Dream Quarters** (Doubleday, 194 pp., $6.95) opens the collection with a long story, "A Galaxy Called Rome," that purports to be a series of notes on a theme by John Campbell. It is a whole story, though, about *Skipstone* and its pilot Lena, carrying a load of preserved dead through hyperspace. The ship is drawn, perhaps with a complete galaxy, into a black hole before the dead can be revivified, if ever. The journey raises questions about life and death in the newer terms of space, speed, and neutron stars. Such speculations are the heart of good science fiction, though the author has left it up to the reader to make the story's conclusion.

Each story in this collection is followed by an author's afterward, describing the circumstances in which it was written, revised, rejected, sold, and so on. An interesting idea, informal and often funny, though Malzberg isn't the best judge of his own work—writers seldom are. In "Thirty-Seven Northwest" a person rather than a machine is used on the spot to scan Jupiter's surface, his impressions mechanically relayed to Base. The identity or classification of the human may be a surprise, if you guess it at all, for it's not suggested strongly enough. On the whole, in all these stories, if you live here among us, you'll recognize the shocks, even though inverted logic is everywhere. Malzberg invests the most ordinary things and occurrences with a demon-deep understanding of our human natures. The understanding isn't always tempered with compassion: on the contrary, he manages to anatomize popular aspects of our society, or our most revered daily rituals, in such a way that the reader ends up smacking his lips over the delicacy instead of being dismayed by the exposed nerves.

"Making it to Gaxton Falls in the Year of Our Lord," in spite of the baroque title, is a short passage through the value, or lack of value, of our space program. Typical of Malzberg's work, it packs a lot into a small space. You gallop through pieces like these and come to a smashing end before you realize what's happened. In a few of the tales there's a wonderful manic quality and a headlong pitch that's irresistible. A Base, A Bureau, a Center, figure large and God-like in much of this work. Malzberg is convinced we'll carry our fears, shames, and bureaucracies intact to the furthest solar system. His despair over these characteristics is about equal to his glee in extrapolating our future from them.

Sonya Dorman has retired from writing fiction and is now a full-time poet. Her stories have appeared in Analog, Galaxy, The Magazine of Fantasy and Science Fiction, Orbit, Cavalier, Redbook, Cosmopolitan, Ladies' Home Journal, Saturday Evening Post, and many anthologies. Three collections of her poetry have been published: "Poems," "Stretching Fence," and "A Paper Raincoat."



brass tacks

Analog Readers,

In 1955, a University of Florida social psychologist by the name of James C. Brown began work on a short paper dealing with ". . . the possibility of testing the social psychological implications of the Sapir-Whorf hypothesis. . . ." The hypothesis states that the structure and vocabulary of a language directly limit the world-view of its speakers.

Dr. Brown reasoned that by creating a small artificial language whose structure "pushed" thought outward in predictable directions, linguistic experimenters would then have a laboratory tool with which to observe the Sapir-Whorf effect, if it did occur.

By 1960, Dr. Brown had completed much of the work on such a language, to be called Loglan. In June of that year he wrote an article on it for *Scientific American* (which see). As a laboratory tool and a language, however, Loglan took fifteen more years to complete.

Loglan, as its name suggests, is a "logical" language. Its grammar incorporates elements of symbolic logic. The basic unit of meaning is the predicate, which performs the functions of nouns, verbs, adjectives, etc., in the natural languages. Loglan's phonetic structure is the same in both spoken and written forms. Its pronoun structure eschews ambiguity.

The first I read about Loglan, interestingly enough, was in *The Moon is a Harsh Mistress,* by Robert Heinlein. I had no idea the language was *real,* though, until a chance remark by a friend several months ago. I wrote off for the Loglan grammar, and became fascinated.

Many of us in SF circles have wondered from time to time, what if someone were to take the rudimentary principles of reasoning that science has formulated to date, and incorporate them in the basic structure of a language? What could the human race accomplish, were it able to bypass the millennia of superstition built into the very foundations of the languages we now speak?

Loglan is primarily an experimental tool. Yet it is more than that. Loglan may just be the forerunner of that most legendary SF beast, the *rational* language.

What is needed now is a fairly large mass of people who speak the language. It occurred to me that the best place to look for people who would be interested in learning Loglan might be among the readership of a science fiction magazine, particularly Analog.

Those of you who are interested in finding out more about the language can contact The Loglan Institute, P.O. Box 1785, Palm Springs, Calif., 92262. The grammar costs $4.80 in paperback, the dictionary $5.80 (add $1 for postage and handling).

And please, by all means, write me—in Loglan.

ROBERT LEVIN
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Would a logical language make people behave more rationally?

Dear Mr. Bova:

During the past year, it has been my privilege to witness the reawakening of an idea that, as far as my colleagues and I are able to determine, was first presented in the U.S. as a nonfictional article in *Astounding Science Fiction.*

The idea is solar sailing and the article was "Clipper Ships of Space" by Carl A. Wiley (under pseudonym Russell Saunders) in the May 1951 issue of *Astounding.* I am certain Mr. Campbell would be delighted to know that his policy of presenting fiction along with speculative fact may have had a considerable influence on the ability of man to carry out the exploration of the solar system

It is easy to verify that many important ideas are accepted only after a long and often turbulent period of gestation and evaluation. Science fiction, and your magazine in particular, provides a valuable forum for the presentation of ideas that need extra long incubation.

Solar sailing appears to be one of the "sleepers" that has come to fruition only recently because of technological advances in materials and large space structures, and because of the advent of the Space Shuttle that can carry men into orbit to help with the deployment of very large pieces of super-thin aluminized film to form giant mirrors in space. Solar sails get their propulsive power from the simple, and nearly unhindered reversal of the momentum of light rays as they bounce off highly reflective layers of aluminum or silver only a few hundred Angstroms thick. According to Mr. Newton, if there is a change in momentum, there is a force; if there is a force, there must be a reaction and the sail must gain or lose momentum according as the sail is set to reflect some light opposite or along the spacecraft velocity vector.

But the reaction force is so small as to cause chuckles from most of us who are accustomed to thinking in terms of the megapound thrust levels required to get large payloads from the surface of a planet into close orbit. Once a sail is deployed in space, however, it is possible to trade time for energy by allowing the tiny radiation pressure forces to build up over several months of low but very persistent thrust.

The big swinger in sailing, though, is the lack of need for fuel. Every conventional rocket must carry along much more mass to throw away than it can deliver to its destination. The sail can wait; it can use the equivalent mass of the impinging photons as a reaction mechanism instead of taking its own heavy reaction mass all the way to its celestial target. When a rocket runs out of fuel in deep space, it's all through. When a sail completes its mission, it can turn around and come home.

The concept is simple, but that doesn't mean it's easy to apply. The technological problems of building, deploying, and controlling a sailing

spacecraft are not so trivial as the early enthusiast might think. There are problems associated with deterioration of the thin-film backings under the intense ultraviolet radiation in space. But there are clear coatings that can protect the film. How much mass must we add to the sail to ensure its reliability? Effective sails are enormous, several hundred meters across. How much energy is required, for a several-ton sail, to horse it around from the orientation required for maximum acceleration to the angle required to change the plane of its orbit? How long does it take? What are the stresses in the "spars" and how many attitude maneuvers can be made before the "stays" break? These and a half hundred other questions must be answered before the first solar sail can fly.

It is significant that NASA has recently reevaluated the potential of solar sailing for future space missions and it is important that the evaluation has shown performance advantages that are now becoming cost effective. For today's space missions the sailing concept looks quite useful. For tomorrow's missions, with long flights and heavy payloads, the idea smacks of one whose time has come.

It would be wrong to praise Carl A. Wiley for his foresight without giving primary credit to the Russian authors who seem to have first suggested the concept of solar sailing. The first references to solar sailing we have found are by Tsiolkovskiy in 1921 and by his friend Tsander in 1924 but, so far, we have only the references and not the substance of what they wrote. Wiley's article is, with a few minor exceptions, technically sound and so full of the ideas we are just now "discovering" that, in my opinion, he should be considered a true prophet. . . .

In the near term, the excitement will center around the development and testing of sail designs and, if things work out well, a test mission to rendezvous with Halley's comet in 1986. The ability of the sail to achieve such a rendezvous (Halley's comet is retrograde) was discovered by J. Wright. Mr. Wright is now leading an extensive mission study to evaluate a sail that can be used as an interplanetary shuttle to haul scientific payloads to Mercury, Venus and Mars, and then return to Earth for more cargo. These activities are parts of a substantial new NASA effort to develop the sailing concept for practical application.

Credit for the recent reevaluation of sailing goes to R. Garwin who suggested the idea in the technical literature in 1958. Garwin's persistence, along with the foresight of several NASA scientists, has opened up the way to an inexpensive and elegant means of solar system exploration. If, as I suspect, the sail helps make it feasible for men to live and work in space, it will have been a major step toward the long-term survival of the species.

CHAUNCEY UPHOFF
Jet Propulsion Laboratory
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While science fiction stories are not intended to predict the future, and our science fact articles are speculative rather than predictive, it is good

to realize that the open-minded, "wild card" kind of thinking represented by SF at its best is not only valid, but even useful!

Dear Mr. Bova,

It was surprising and interesting to see the Guest Editorial by Rinehart Potts, "Economic Scofflaws," in the November issue. Potts is right; SF writers, editors, fans, and readers often are careless with the laws of economics to a degree that they would not tolerate in dealing with physics or any "hard" science.

One example is the L-5 Project. The people proposing it are talking about an expenditure of $130-200 billion, to be spent over the next twenty years. This works out to $6.5-10 billion per year. Now this can either be gotten from the government (or from more than one) or privately. As Norman Spinrad pointed out in the July issue, such a program would be difficult to get through Congress. Also, it is a long-range program, and you have to face the fact that congressmen tend not to think beyond the next election. Of course, some do, however.

Private funding has other problems. The project is *so* visionary that those who accept it on its stated merits do not have enough money to finance it (how many SF writers, besides Larry Niven, are rich?). Therefore, other incentives must be used. The examples given in "The Man Who Sold the Moon" are suggestive, but someone with experience in finance, or PR, or both, and interest in the project, could think of some. At the L-5 panel at MidAmeriCon, I asked the above question, and received an unsatisfactory answer. Is there any other reader of Analog who can help?

JOSEPH T. MAJOR
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Try this scenario: Show the Congress and the Pentagon that laser-armed satellites in low Earth-orbit can effectively shoot down even the most massive of ICBM attacks. But you need hundreds of satellites to provide full-Earth, full-time coverage. The satellites would be built, of course, at an L5 facility . . . for about one-tenth of the existing Department of Defense annual budget.

Dear Mr. Bova,

My thanks to Mr. Peter Peel for his letter. Although such was not his intent, he has brought home to me the distressing fact that this society has not yet reached a stage where racists are ashamed to spread their filth.

Mr. Peel is doubtless convulsed at his own wit. After all, if one uses "Kim Upchuck, Ram Dhamdirti or M'Bugga M'Bugga", one is certainly not degrading an entire people. After all, it is not like calling them gooks, wogs or niggers, is it? And if a Korean were to take advantage of the possibilities for ridicule available in a name like "Peter Peel," he certainly couldn't do as good a job as a white man. I just hope to be around to enjoy the spectacle when Peel condescends to inform a (hopefully large) group of his "inferiors" of their status. The results should be delightful.

As to Latin America, cross-cultural researcher Peel seems to have solved the question of the sources of poverty. Unlike those above "the Rio Grande

del Norte" who are naturally energetic and bright, Latin Americans are naturally lazy and stupid. Peel knows this because South America has as much in the way of natural resources as North America. Of course, such things as differing modes of colonization, incidence of slavery, and geography are nothing. I don't know of an analog (pardon me) to the conditions and problems of mining in Bolivia which can be found in the United States. There are not many jungles in the U.S. as well. Perhaps Mr. Peel has noticed this.

Yet Peel has other pearls of wisdom to bestow. Famine and epidemics are the fault of those who suffer them. The United States owes nothing to these people. After all, just because American capital more or less owns these countries does not mean that the U.S. has any responsibility. I would like Mr. Peel to peek at two illustrative examples when he is not out cross-burning. I would be most interested in his comments on the change in relative rates and incidence of starvation and disease in India and South America before and after the introduction of British and American economic control in these regions. In case he doesn't catch my drift, they went up.

Peel's concept of genetics is of some interest. That is, it is of historical interest. It is about fifty years outdated. Before Mr. Peel presents his drivel about "culling-out of scrub stock" in the human race, he should define his terms. And he probably will, but he will be careful to exclude himself from such a definition.

However, when he does make his definition, Mr. Peel should let us know what value escaping appendicitis, being fortunate enough not to be born in a famine-risk country or being indifferent to other human beings has for the maintenance of a civilized, technical society. Further, Peel should incorporate such basic concepts of genetics as reaction range and behavior scale into his definition. It may save him future embarrassment.

To finish with Peter Peel, I wish him a long and outspoken life. Such anachronisms should be kept around to teach our children what not to be . . .

Finally, despite all, I like your magazine covers.

TIMOTHY STOCKS
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One of the basic problems uncovered by this dialogue is: Who, or what, controls U.S. foreign policy? Is it our political needs in the international arena? Is it the demands of our major corporations for profit and protection? Is it the moral desires of our people? Or a mixture of all of the above (or none of them)?

Dear Mr. Bova,

Congratulations! Your December editorial "Proxmired" was one of the best I have read in Analog (I have been reading Analog since '70). That is the kind of hard-hitting, informative editorial that we need to see more of in America.

All I can say to Sen. Proxmire is that I hope his hair falls out and he has to borrow six million dollars in the very near future. It is not surprising that his fellow clowns, Edward Kennedy and Jacob Javits, would urge the President . . . to have the federal government take over DNA research.

They are the two who have pushed such socialist "goodies" as national health insurance and the full-employment bill. It is politicians like that who are the real Frankensteins.

I think it would be good if Analog provided the Senator with a copy of that editorial and the readers with his address in Washington.

THOMAS P. CAREY
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"Socialist goodies" are not always bad, and the Federal Government should have some influence over research that affects us. Influence, but not control. As for Senator Proxmire, his address is: Dirksen Office Building, Suite 5241, Washington D.C. 20510.

Dear Mr. Bova,

In reaction to Thomas A. Easton's article on *Sociobiology*, "Altruism, Evolution, and Society," and your editorial in the October, 1976, issue of Analog, I would like to make a few comments.

First, I agree with your stand on the ethics of name calling in science, science fiction, or elsewhere. It does little more than stimulate emotions, negative emotions, wasting energy and increasing entropy. But I guess we must all obey the second law of thermodynamics.

However low the efficiency factor is in the heredity-environment argument or the predetermination-free will argument there is a work-energy component that has been stimulating my mind for a long time and leads me to my second point, argument perspectives.

Every argument favoring determinism takes its perspective from the past. The evidence is that all evidence is from the past, and the past is determining. There is no way for you and me to go back there and change things.

Free will arguments center on the possibility of making choices. A choice can be made only in the present or the future. A choice will affect only the future because once it is made it becomes part of the past and determining. So free will is basically a future perspective.

Heredity arguments take the past perspective being based on past evidence. Environmental ones take the future in hopes that we can change things for the better. It is interesting to note that the Easton article presents the arguments for heredity, for predetermination, yet ends with a plea for change, for population control, steady state economics, K-strategy rituals. Plea or suggestion, it has no meaning unless there is more than one possible future waiting for us, unless we have a choice.

The true conflict leading to these arguments seems to be a conflict between the past and the future. Yet nature seems to be coping with both ends of the timeline without difficulty. How?

Could it be that the physical laws governing the past are causal ones and that the physical laws governing the future are statistical ones? Could it be that these conflicts arise when we try to impose statistical laws on the past or causal ones on the future?

JANET S. HAFFLEY
219 Branded Ct.
Kokomo, IN 46901

Dead yesterday and unborn tomorrow . . . scientifically verified?

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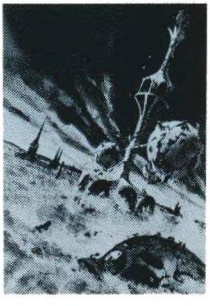

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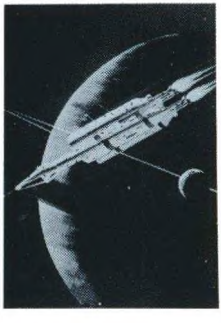

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