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SPACE MEDICINE

*Complete Interstellar
Novel*

THE GODMEN

By Edmond Hamilton



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Space Travel

NOVEMBER 1958

FACT & FICTION

- THE GODMEN 8
Interplanetary science fiction novel by Edmond Hamilton
- ★ SPACE MEDICINE 58
Special Science Progress Report by Henry Bott, Research Engineer
- HIS FIRST DAY AT WAR 68
Science fiction short story by Harlan Ellison
- CAPTAIN'S CHOICE 78
Science fiction short story by Tom W. Harris
- NINE SHADOWS AT DOOMSDAY 90
Science fiction short story by S. M. Tenneshaw
- GATEWAY TO TERROR 104
Science fiction short story by Robert Silverberg
- THE MAN WHO WOULD NOT DIE 118
Science fiction short story by Darius John Granger

FEATURES

- THE EDITORIAL 4
JET TRANSPORT 88
GYROSCOPIC REFERENCE 116

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The Editorial

It's pretty hard to visualize the awesomeness of outer space, the literal infinity that exists in every direction beyond Earth's atmosphere. Indeed, it's staggering to the imagination. Consider that if we achieve the speed of light—roughly 186,000 miles per second—the *closest* star would be several years travel time away. But that's nothing. Not even scratching the surface. There are stars visible only to the giant telescopes, stars whose light is just now reaching our optical perimeter—stars which may have been dead for ages before the light of their birth becomes apparent. And beyond these, countless billions of stars whose light will conceivably never reach us if we consider *never* as future ages of time as we measure it.

Yes, it's a big universe we're tapping. Like children putting our first foot outside the protective walls of a cradle. We've first got to learn to stand up, then walk, and finally run. And even when we run we'll be getting nowhere at a snail's pace. That's how big space is.

Science fiction authors have often tried to paint a picture of this utter vastness. But only once in awhile are they successful. This month we present a novel by the old "world wrecker," Edmond Hamilton, which imparts some of that feeling.

In THE GODMEN, Ed shows you the universe as men may one day be privileged to view it. Not as flesh-bound mortals with a limited life-span, but as entities of pure thought-force, able to project parsecs of space in a fraction of a second. It's a staggering concept, but within the realm of possibility since science fiction erects no theoretical limits. You'll enjoy THE GODMEN, and perhaps it will set you thinking . . .

Getting back to a more earthly view of things cosmic, we've been enjoying our 4 inch reflecting telescope quite a bit in recent months. The surface of the Moon is a fascinating sight always, particularly when we know that men will set foot on it within a relatively short time. But of even more dramatic impact is a look at the various planets. Jupiter, for example, which appears as a star to the naked eye. To see it hanging as a ball in space, with at least four of its Moons in orbit, that's something. And if your eyes are accustomed to telescopic viewing, you can even make out the fabled "red spot." We heartily recommend all space-minded readers (and who isn't!) secure a good telescope—available at under a hundred dollars—and have a ball. Which about winds things up for this issue.with

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Legends whispered across the galaxy of a race which traveled the eternal cosmos without ships — or any mortal form. Was it legend? Or —

THE GODMEN

by

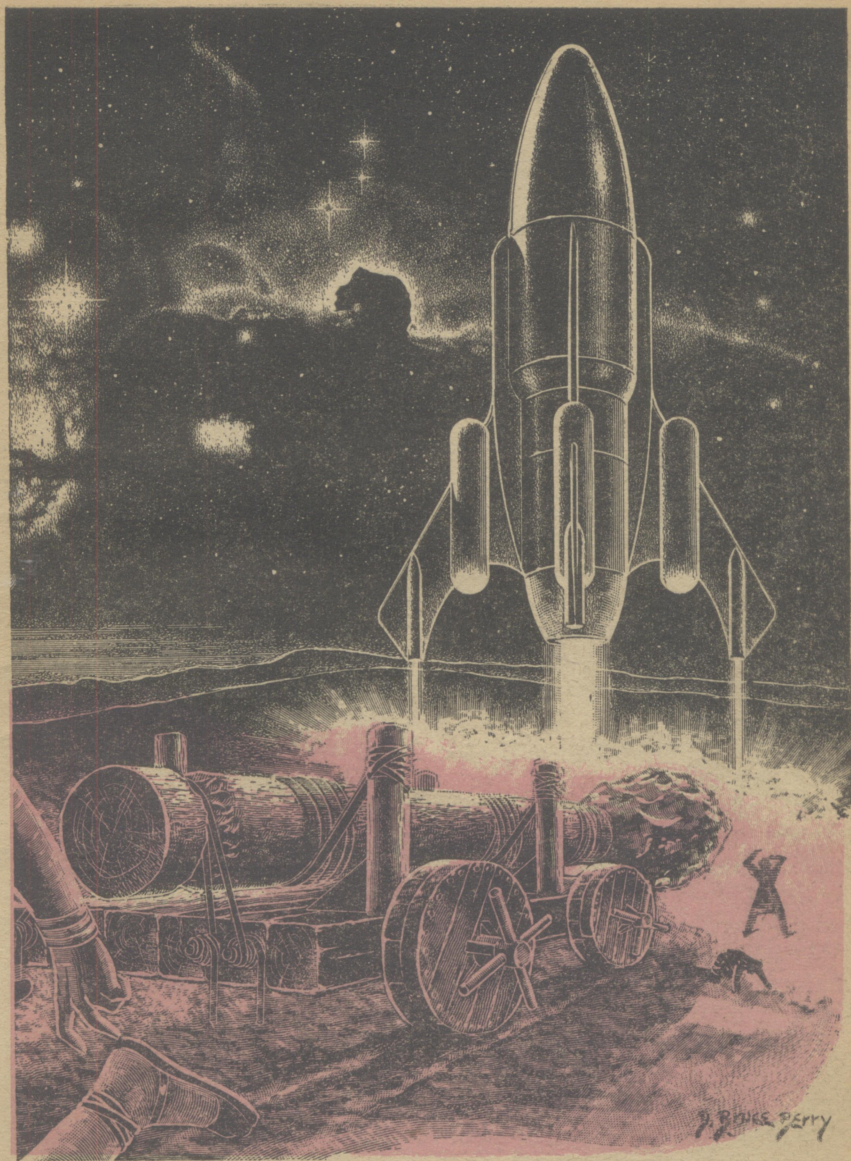
Edmond Hamilton

BLACK, BLACK, the infinite meadows of God that were named deep space, and he was plunging out into them and Sol was a dwindling spark behind him and the far stars called.

*Break free, little Earthmen,
break free of Sol and Earth!*

He had broken free. Forgotten and petty now were the first feeble attempts, the Sputniks of decades before, the moon and Mars rockets





J. BERRY

that had followed them, all those stumbling baby steps. Now, with the star-drive, man had broken free and for the first time the stars were conquered—

And suddenly it seemed to Mark Harlow that all the universe was laughing at him, at the vanity of man, a cosmic laughter ringing across the galaxies.

But you are not the first, little Earthmen! The Vorn did it long ago!

And the gargantuan laughter of that jest rocked and shook the constellations, and Harlow cried out in disappointment and shame.

He cried out, and awoke.

He was not in space. He was in his bunk in the *Thetis*, and he was sweating, and Kwolek, his second officer, was looking down at him in wonder.

"I came to wake you, sir—and you gave a yell."

The fading echoes of that cosmic laughter still rang mockingly in Harlow's ears. He got out of the bunk and stood on the plastic deck and he was thinking,

"If it's true, it *is* a joke on all of us. And the joke may have cost Dundonald his life."

The *Thetis* rested quietly upon the soil of an alien planet, and alien pink sunlight came through the ports of his little cabin. The small star-ship was a thing of Earth, and the nineteen men aboard it were

men of Earth, and men had come a long way in the eighty-odd years since Suptnik. They had come far, and worked hard, and the feeling that it had never been done before had sparked them all the way, and now if they found out they had been anticipated, how would they feel?

Harlow told himself to forget that; there was no use dwelling upon it. Dundonald had brooded too much on that cosmic mystery, had gone forth to solve it, and where was Dundonald now? Where, indeed? It was up to him to find out, and that was why he was here at ML-441, and he was getting exactly nowhere in his search.

He stretched wearily, a stocky, broad-shouldered man in jacket slacks, looking more rumped than a Star Survey captain should look. He asked,

"What is it, Kwolek?"

Kwolek's round red face was worried. "Nothing's happened. But that's what makes me uneasy. Not one of those people have come near us all day, but they keep watching us from the edge of their town."

Harlow came alert. "N'Kann hasn't sent any word?"

"No." And Kwolek added, "You ask me, those saffron so-and-sos have just been stalling you."

Harlow grunted. "You may be right. But I'll wait till sunset. If he doesn't send a message, I'll go

back in and have it out with him again."

"It's your neck," said Kwolek, with a characteristic fine, free lack of respect. "But they look kind of ugly to me."

Harlow went through the narrow metal corridors and out of the lock, stepping onto withered, orange-colored grass. The heat and glare, reflected by the shining metal flank of the *Thetis*, hit him like a blow.

A dull-red sun glared from low in the rosy sky. It was not a very big or important star. It had no name, only a number in the Star Survey catalogues. But it had two planets, of which this was the innermost, and it was a big enough sun to make this world hot and humid and slightly unbearable.

The orange-colored grassy plain on which the *Thetis* had landed ten days before rolled gently away to hills crowned by yellow forests. But only a mile away upon the plain rose the strange crimson stone town of the people who called themselves the Ktashas in their own language. The red light of the setting sun painted their weird monolithic city an even deeper crimson.

Harlow could see the gay-colored short robes of the golden-skinned people who stood in irregular rows at the edge of the town, and stared toward the *Thetis*.

"What gets me," said Kwolek, "is that they're so blasted much

like us."

He had followed Harlow out of the ship, and so had Garcia, the Third Officer, a young Mexican whose trimness was a constant reproach to Harlow and Kwolek. The Star Survey was strictly UN, and the *Thetis* had a dozen different nations represented in its crew.

"I should have thought you would have got over your surprise at that, by now," said Garcia.

Kwolek shrugged. "I don't believe I'll ever get over it. It was too big a shock."

Yes, thought Harlow, that had been the first surprise men had got when, after the first trips to the disappointingly lifeless nearer planets, they had got to other stars. The discovery that an Earth-type world would usually have human and animal life reasonably close to the Terran had been unexpected. But then the quick-following discovery that the old Arrhenius theory had been correct, that there were spores of life in deep space, had explained it. Wherever those spores had come from, whatever faraway fountainhead of life, they were identical and when they fell upon a world like Earth they had quite naturally developed the same general types of life.

A big surprise, yes, but not a dismaying one. Earthmen were still ahead, sometimes far ahead, of these other human and humanoid

races in achievement. After all, they had said, *we* were the first race of all to conquer space, to invent the ion-drive and then the spacewarp, and travel between the stars. We men of Earth—the pioneers.

And that, thought Harlow, was where the second surprise had come. As ships of the Star Survey landed on far-separated star-worlds, as their linguists learned alien languages and spoke with these peoples, they gradually got the surprise. Almost all these peoples of the stars had a common belief, a legend.

"You Earthmen are not the first. Others have travelled the stars for a long time and still do. The Vorn."

THE NAME WAS DIFFERENT on different worlds, but the legend was always the same. Earthmen were not first. The Vorn had been first. They had been, and still were, star-travellers. And—

"The Vorn use no ships like yours. They come and go, but not in ships."

Small wonder that scientists of the Star Survey, like Edwin Dundonald, had felt a feverish curiosity to get at the bottom of this legend of the Vorn. There had to be something behind it. Peoples forever separated by light-years could not make it up in their own heads simultaneously.

And Dundonald's party had set out in their *Starquest*, and that had been the start of it, for Harlow. For no communic-message could come back from Dundonald at these vast distances. And when Dundonald himself had not come back, after months, the Survey became worried. Which was why the Survey had sent Harlow to find Dundonald, who was his friend and also a valuable scientist. Since his plans had included this star-system, they had come to ML-441 to find his trail.

"We've been here all this time," Kwolek was saying pessimistically, as they stared at the silent, distant figures and the town. "We've learned their language, and that's all we *have* learned. It's a wash-out. And now I think they want us off their world."

"We're not leaving," Harlow said, "until we talk to that man Brai."

Brave words, he thought. What had he been doing here all this time but trying to find Brai, and failing. Failing in the very first step of his search for Dundonald.

As they stood there, the sun touched the horizon and washed lurid light over everything. Harlow turned.

"I'm going in to see N'Kann. I'm going to have this out with him."

"I'll go with you," said Kwolek, but Harlow shook his head.

"No. And I don't want you coming after me, either. Wait."

As Harlow walked forward, he was conscious of the sullen hostility in the gay-robed, immobile, silent group at the edge of the monolithic town. The very first Star Survey ship to touch here had accurately estimated the half-civilized state of the Ktashan culture, and it was the Survey's policy to deal with all such peoples with a careful^o absence of patronage or domination.

That, Harlow thought, was what had made it difficult for him all along. He didn't think it would be any easier now, when his persistent questions about Dundonald and the Vorn had roused superstitions.

The sun went out like a lamp and the moonless dark clapped down. Torches flared as he walked across the plain, and he headed toward them. And there in the torchlight amid other tall, impassive, golden-skinned men stood N'Kann. His powerful face was hostile, and his voice rolled harshly in the slurred language that Harlow had learned.

"There is nothing for you here. Take your ship and go!"

Harlow walked up to him, his hands hanging loosely at his sides. He kept his voice carefully calm and casual.

"We will go. But it is as I have said before. We seek the Earthman,

Dundonald, who was here. We must know where he went from here."

"I have told you that we do not know," retorted the Chief Councillor.

Harlow nodded. "But there is someone here who does know. A man of your people named Brai. Dundonald talked to him."

He remembered very well the garrulous old man of the Ktashas who had told him—cackling the meanwhile at Harlow's mispronunciations—that the last Earthman here had talked of the Vorn with young Brai. He had not found Brai. He had not even found the old man again.

Harlow said, "Where is Brai?"

"Who knows that name?" retorted N'Kann. The faces of all the Councillors were blank. "No one."

"Yet Dundonald spoke with him," persisted Harlow. "He spoke with him of the Vorn."

The ruddy torches flared steady and unshaken but it was as though a cold wind swept through the group of golden men when they heard that name.

And N'Kann threw up an arm free of his barbaric bright robe, and gestured with it toward the black sky, spangled by stars across which the dark blot of the mighty Horsehead Cloud sprawled like a brooding cosmic octopus.

"My people do not talk of the

Wanderers—no!”

So the Vorn were also called the Wanderers here? Harlow filed that fact mentally, and pressed another question.

“Why? Are you afraid of them?”

The flash in N’Kann’s eyes was dangerous. “We do not fear any men. Certainly not Earthmen.”

“Then the Vorn are not men?”

“I will not talk of them.”

N’Kann’s voice rose, heavy with rage. “They come and they go from star to star as they wish, and it is their right, and it is not for us to speak of them. Nor for you, Earthman—nor for you!”

The little group muttered agreement, and from all along the torchlit row of men there was a movement toward Harlow. Hands were under their short robes now, and he knew they had weapons in their grasp.

He had no weapon, nor if he had could he have used one. The law of the Star Survey was iron on that point. If you went to another people’s world and flashed Earth weapons, court-martial awaited you.

“I say again that we wish no more talk of the Vorn!” cried N’Kann. “And that by tomorrow’s sunrise, your ship must be gone.”

Harlow knew that he had failed. He had not found even the first clue to Dundonald’s trail, and if

he left ML-441 now, he would never find one. Yet they were not going to let him into the town again to look for Brai, that was clear.

He turned and walked back into the darkness of the plain. He heard low, fierce voices behind him, and the timbre of them made him think that he had been lucky to get away from them unscathed.

But had he got away yet? The torches were soon well behind him, and the lights of the *Thetis* a half-mile ahead, when Harlow’s ears picked up a stealthy sound from behind. A sound of quiet running.

He turned quickly. He could see nothing. Whoever came was being careful not to show himself against the distant torches.

So they had decided not to wait out their own ultimatum, and had sent someone after him? Harlow felt anger rise in him. He had no weapon. But they were not going to hunt down an Earthman in the dark like this.

Too far, to call to the *Thetis*. His only chance was in counter-surprise. He went down on one knee and poised waiting, listening.

He heard the soft, fast footsteps come closer, and just glimpsed a flitting darker shadow against the dark.

Harlow lunged and crashed into the runner, hard.

CHAPTER II

THEY ROLLED OVER and over together in the dark. Then Harlow, grabbing fiercely for his antagonist, got a surprise. It was a girl.

He held onto her by her smooth bare shoulders, but now she managed to speak in a quick, panting whisper.

"I am not your enemy. Please!"

It took him a moment to speak; he had to think of the Ktashan words he had learned, and for that moment he stood gripping her. Back at the edge of the town the torches were moving, and they struck a fitful gleam that showed Harlow the short-robed figure and clear, golden young face of the girl.

"Who are you and why did you follow me?" he demanded.

"You look for Brai?" she said breathlessly.

Harlow was instantly alert. "I want to talk to him, that's all. Do you know him?"

"I am Yrra," said the girl. "I am Brai's sister."

Harlow took his hands off her. He glanced back toward the moving torches, but they were moving into the town, not toward him. Yet he was sure there were still watchers there, and he kept his voice down when he spoke.

"I was beginning to doubt

whether there *was* a Brai. Where is he?"

Yrra talked in a rush that he could hardly understand. "They are holding him a prisoner. N'Kann and the Council. He was already under disapproval, and when your ship came they seized him and hid him away."

"For God's sake, why?"

"So that he could not talk to you of the Vorn, as he had talked to the other Earthman," she answered.

"To Dundonald?" Harlow felt a kindling excitement. "Listen, Yrra—what did your brother tell Dundonald? About the Vorn, I mean."

She was silent a moment. "There are only legends. That is all Brai knew, all any of us know."

"But the legends? Do they speak of where the Vorn come from, where their native star is?"

"Yes. They do," she said. "It is said that long ago some of the Vorn who came to our world spoke—in their own way—with some of our people, and told them things."

"Then you know as much as your brother on that point!" Harlow said. "Good. You can tell me what he told Dundonald, about the origin-world of the Vorn."

"I will not tell you," said Yrra flatly.

"Why not? You mean you're

superstitious too about the Vorn?"

Her reply was edged with pride. "We are not all as backward here as N'Kann. My brother is a student and a thinker. He would like to see our world become more civilized. That is why he talked so eagerly to the other Earthman—Dundonald."

"All right, so you're not superstitious," Harlow said impatiently. "Then why won't you tell me?"

She caught his arm. "Listen, Earthman—"

"The name is Harlow," he interrupted. "Go ahead."

"It is this, Harlow. I am afraid for my brother. They said—N'Kann and the others—that he was only locked up to keep him from talking with you, that he would be released when you left. But I fear that in their superstitious anger, they may kill him."

"Go on," said Harlow.

"Help me set Brai free," said Yrra coolly. "Then he and I will tell you all that is known about the Vorn."

Harlow felt his momentary hopes wither. "It's no good," he said. "It can't be done; we're not allowed to interfere with local law and justice. Anyway, where would your brother go? They'd just grab him again when we left."

"There are other towns and people on this world beside Ktasha," said the girl. "Brai and

I will go to one of them. Our parents are dead, there's only the two of us."

Harlow shook his head. "I don't blame you for trying to break him out but it's no deal. We can't use force, it's against our orders and anyway, we're about to be run out as it is."

"There would be no need of fighting!" Yrra said earnestly. "I know where he is, all I need is help to slip him out of there." She added, "Unless you do so you will learn nothing."

Harlow felt trapped. The rules of the Star Survey were rigid. Its men were allowed to defend themselves but not to barge into other peoples' worlds and throw their weight around. From the very start, it had been a basic tenet that Earth's sudden leap into space was not to be used for crude imperialism.

And yet if he left ML-441 without a single clue to Dundonald's trail, without an inkling of where Dundonald had gone in his search for the Vorn, he would have to go home and report failure. It was a long way back to Sol, for that.

"I just don't see how—" Harlow began, and then was stricken dumb by a startling interruption.

From the moonless sky of stars came a faraway shriek that in a heartbeat of time became a thunderous roar. Yrra cried out and

pointed upward at a black bulk blazing with rows of lights that was rushing down upon them like a falling meteor. But Harlow had already recognized that sound, and it was the last sound he had expected to hear.

"Another ship!" he exclaimed. "Now why—" Then his hopes bounded. "By Heaven, maybe it's Dundonald come back here!"

"They have seen, in the town," Yrra said swiftly. "Look!"

Back in the Ktashan town the torches were tossing wildly as men ran back out onto the dark plain. Over the dull, steady roar of riven atmosphere from the descending ship, Harlow could hear far-away cries of anger and alarm. He could well imagine the state of mind of N'Kann and the others when, right after ordering his own ship away, they saw another one arrive.

"They are coming," Yrra said. "And if they find me talking secretly with you here, I will be imprisoned like Brai."

He took her arm. "Come with me. It's all you can do, until they calm down."

HE RAN WITH HER toward the lights of the *Thetis*, glancing up warily to make sure he did not get under the descending ship. But the newcomer was dropping to a position on the plain a little be-

yond the *Thetis*.

Men were running out of the *Thetis*, as he and Yrra ran up. He darted a glance backward and saw the torches streaming out over the plain. Now the newly-arrived ship was landing on the ground, its keel tubes spuming ghostly clouds of ions, and he made out its outlines as those of a twenty-man star-cruiser like his own ship.

Kwolek came running up to him, as he and Yrra reached the *Thetis*. "It's another Star Survey cruiser! Do you suppose it'—" Then he broke off, looked at Yrra, and whistled. "Where'd you pick her up?"

"Get the men back into the ship," snapped Harlow. "There's liable to be trouble. And take her with you. Garcia, you'll come with me."

To Yrra he spoke as rapidly as he could in the Ktashan tongue. "Go with him. Your people are coming and they must not see you with us."

She flashed a look of understanding at him, and went with Kwolek without a word.

The torches were coming across the plain in ragged order, still some distance away. Harlow glanced at them worriedly and then with Garcia beside him he hotfooted it around the stern of the *Thetis*.

His first close look at the newly-landed ship shattered his hopes.

Dundonald's cruiser had been the *Starquest*, but the name on the bows of this one, beneath the Survey emblem, was *Sunfire*.

"Not Dundonald," said Garcia. "But I didn't know another Survey ship was anywhere near here."

The lock of the *Sunfire* opened as a square of glowing light in the dark flank. A tall figure shouldered out, glanced around, and then came toward Harlow and Garcia.

By the light streaming from the lock, from which other men in the standard uniform were now emerging, Harlow saw a big young man with close-cropped red hair and keen, light blue eyes in a rawboned face.

"Taggart, commanding the *Sunfire*," he said, extending his hand. "You'll be Harlow? I'm from Sector Three Division, I don't think we ever met. What the devil's going on here?"

"The people here are not happy about your coming," Harlow said dryly. "If I may make a suggestion, I'd confine your men aboard ship for the present."

Taggart looked at the oncoming torches and swore, then turned and rapped out an order to the men in the lock. Then he turned back to Harlow.

"Service courtesy demands that I visit your ship first, but shall we get a move on?" he said.

Harlow thought they had bet-

ter. The torches were uncomfortably close, and he could hear the angry voices of the men who carried them.

With Garcia following them, he and Taggart went back around the *Thetis* on the double. As they reached its lock, he saw that the Ktashans had stopped a pistol-shot away, but a shout that he knew was from N'Kann rolled loudly.

"I warn you again, be gone by sunrise! All of you!"

Inside the *Thetis*, Taggart turned to Harlow with a perplexed look on his face.

"What's got into these people? They were listed as quite friendly."

"They were—until Dundonald got to talking with one of them about the Vorn," said Harlow.

Taggart's face lengthened. "So that's it. I wish no one had ever heard this cursed myth about the Vorn. It's kicked up trouble from here to Earth and it's still kicking. It's why I'm here."

Harlow didn't like the sound of that, but kept from asking questions as they went toward his cabin. He passed Yrra standing uncertainly in a companionway with Kwolek. Taggart looked at the girl admiringly as Harlow said,

"Wait here for a little, Yrra. They mustn't see you come out of our ship."

She nodded, looking very young

and more than a little unhappy, and he went on.

When Taggart was sprawled in a chair in his little cabin, with a drink, Harlow said,

"Let's have it."

Taggart set the drink down. "We were pulled out of Sector Three survey work to come here on special service. Our orders—to report to you, and assist under your command to find Dundonald and the *Starquest*."

Harlow stared. "Meaning no discourtesy to you, but why in the world would they send another ship? If one can't find Dundonald, two can't."

"There's more to it than that," said Taggart. He looked keenly at Harlow. "Ever hear of the Cartel?"

Harlow was about to say he hadn't, but then checked himself. He remembered something. He said slowly,

"That was years ago, back in the time when the star-drive was first invented, wasn't it? A bunch of tycoons on Earth who decided the star-drive was too profitable a thing to let the UN have, and tried to grab it. They got slapped down hard."

Taggart nodded. "That was the bunch. Now it's happening again, according to what the Survey just heard. There's a new Cartel operating—a group of tough mag-

nates on Earth who are after something as big as the star-drive."

"After what?" demanded Harlow.

Taggart picked up his glass and drained it. "After the Vorn."

"The Vorn?" repeated Harlow. "I'll be— Why, nobody even knows who or what or where the Vorn are!"

"Right," said Taggart. "But one thing people do know. They know that ever since the Survey started exploring the star-worlds, at world after world we've heard the stories about the mysterious Vorn, and how they can travel between the stars—without using ships like ours. It's why your friend Dundonald is hunting for them. It's why some very rich men on Earth are also extremely interested in finding them."

He hunched forward, speaking earnestly. "Lots of people think these Vorn may have some method of instantaneous transmission of matter across interstellar distances. If they do, it would make starships obsolete. All right. A new Cartel, so the Survey just learned, is out to find that secret."

HARLOW STARED at him troubledly. It made sense. There was a type who felt that nothing must be discovered, invented or made that did not make them richer than they already

were.

Taggart leaned back, stretching tiredly. "When Survey Center heard that the Cartel has ships out hunting for Dundonald too, they thought you'd better have reinforcements. I was available, so they shoved me here. I've brought some weapons, by order, in case of trouble."

He added, almost cheerfully, "Well, that's it and I'm reporting for orders. When do we start looking for Dundonald, and where?"

"I wish I knew," Harlow said gloomily. "There's one man here who knows where Dundonald went, but I can't even get to him."

He told Taggart about Brai, and what Yrra had said. The redhaired captain listened attentively. Then he exclaimed,

"Why, there's no big problem in that. We'll help the girl get her brother out and this Brai can tell us what we want to know."

"But Survey regulations forbid intrusions into local law and justice—" Harlow began.

Taggart snorted, and got to his feet. "Listen, Harlow. I'm fresh from Survey Center and I can tell you this: Survey is in such a sweat over the possibility of this Cartel getting to the Vorn and their secret that they'll overlook any minor infraction of rules. But they *won't* overlook failure on your part."

That, too, made sense, Harlow

knew. He had realized from the first that he couldn't leave ML-441 without finding out anything.

"What we ought to do is take this wench and spank the information out of her," he growled.

Taggart grinned. "I'd sure enjoy it. But she may not really know much, so we have to get her brother. I'll take on the job of doing it."

Harlow said, "*We* will. We can't send men into danger on a mission that's against the rules, but we can go ourselves."

He touched the intercom and spoke into it and presently Yrra came into the cabin. Taggart whistled softly in appreciation, much as Kwolek had done. But she looked anxiously at Harlow, and her fine brown eyes lit up when he told her.

"It has to be tonight, your people will be at our throats by tomorrow," he finished. "The question is, can you lead two of us to where your brother's locked up without our being seen?"

"I'm almost sure I can!" Yrra said.

"Confidence is a wonderful thing," grunted Harlow. "All right, Taggart, we'll start our jail-breaking mission in an hour. We'll have to circle out in a big curve to come at the town from the other side."

Two hours later, he and Taggart and Yrra had made most of their

big detour and were approaching the Ktashan city from the far side. They walked quietly in the darkness on the grass, and the wind brought them a heavy fragrance from flowering trees outside the town, mingled with a smell of acrid smoke from the crude vegetable-oil lamps these people used. Beyond the trees the monolithic town was a blacker bulk dotted with softly-lighted windows, looking for all the world like a single rambling stone castle that went on and on.

Yrra's warm fingers closed on Harlow's wrist. "From here I must lead."

Harlow nodded, and he heard Taggart murmur, "All seems quiet enough."

"Too quiet," Harlow muttered. "Most of the people are out watching our ships and waiting for sunrise. Then it'll blow off."

He and Taggart went forward in the dark, and Yrra led the way as silently as a shadow. From the sky the unfamiliar stars looked down incuriously, a spangled canopy made even more strange to Earthly eyes by the vast, brooding black blot of the Horsehead. Harlow looked up at that alien sky and wished that nobody had ever heard of the Vorn. We wished that the first sputniks and rockets had never happened and that man had had sense enough to stay on his own world.

He did not know just how desperately he would wish that before morning.

CHAPTER III

THEY WALKED in a dark, narrow street that was no more than a corridor cut out of the rock. On either side rose walls of the same stone, with here and there a door or shuttered windows. The doors and shutters were of metal, and no light came from them. Nor was there any sound except the clump of their boots, which seemed to Harlow's strained ears loud enough to wake the dead. He thought that this stone city would make a fine trap.

The makers of this place had been a patient folk. They had found a great solid outcrop of red sandstone and they had set to work to carve it into a city. How many centuries they had chiselled away at the soft stone, he could not guess. But rooms and walls and streets and narrow ways like this one had taken shape under the chisels, and as the people had grown they had worked ever farther and deeper into the outcrop until this staggering monolith town was the result.

"These are the ways between the grain warehouses," whispered Yrra. "Now we must cross a street, and we must not be seen."

Harlow was grateful that there was no street lighting, when they came to the wider crossway. The only illumination was lamplight from windows along it, but that was enough to show a number of the Ktashan men and women. They were hurrying along the street, calling to each other in excited tones.

"They're talking about the arrival of your ship," muttered Harlow to Taggart.

"Yes, I got it," said Taggart unexpectedly, and then explained. "I studied copies of some of the language-tapes the first Survey party here made—the one before Dundonald. Nothing else to do on the way here."

Harlow waited until there were no passersby within a block, then whispered the word. They skipped across the shadowy street into another narrow stone way.

As Yrra led deeper into the dark, monolithic maze, Harlow felt the whole weight of the place on his spirits.

How long until sunrise?

Why did Dundonald have to go Vorn-hunting anyway?

Why—

"Just ahead," came Yrra's whisper. "There is a guard. You see him?"

They were in a stone alley so narrow that Harlow would have called it a hallway if it were not

open to the stars. The vague light showed a Ktashan man, tall in his skimpy robe, standing in front of a metal door with a thing in his hand that looked like a metal bar ending in a blade.

Harlow said, "If we rush him, he'll let out a yell. Yrra, can you circle around and approach him from the other side—get him to turn his back on us?"

For answer, she slipped away the way they had come. Harlow heard Taggart move uneasily, and then glimpsed a gun in his hand.

"Oh, no," he whispered. "No shooting. We could never explain that away to Survey Center, and anyway it would rouse the whole place."

"All right, but it's going to make it tougher," said Taggart. "That bar-sword looks like a mean weapon."

Yrra's voice now came out of the dark from ahead. She was speaking to the guard, and Harlow gathered that she was asking to see her brother.

The Ktashan man turned toward her as she approached, and grunted a gruff refusal.

"Now," said Harlow.

He led the way, walking on tip-toes like a child playing a game. Then he jumped on the guard's back.

He got one hand over the man's mouth to prevent an outcry. But

he hadn't bargained that this Ktashan would be as strong as a bull, and he was. The man tore at Harlow's wrist, and reached around with his other hand to get hold of Harlow anywhere he could.

It was humiliating to realize that while you were reasonably young and strong, you were up against someone a lot stronger. Harlow realized it, and clung frantically, and then there was a thumping sound and the man collapsed. He fell so suddenly that Harlow fell with him, and then he saw that the Ktashan was out cold. He scrambled up.

Taggart chuckled. "More ways to use a gun than firing it," he said. He had rapped the guard over the head with the barrel.

Yrra was already at the metal door, tugging vainly at the catch. She turned and said swiftly,

"It's locked."

"I expected that," said Harlow. "Stand back a little."

He put on the heavy gloves he had in one pocket, and drew out from another pocket the compact little cutting-torch he had brought. He touched the stud and drew the thin, crackling tongue of flame around the lock.

A piece of the door that included the lock fell out. Harlow grabbed it just in time to keep it from clanging on the stone.

Taggart reached out and pulled

the door open by the cut-out notch, and then let go of it and cursed feelingly and blew upon his burned fingers.

Yrra darted through into the dark beyond the door. They heard her call softly.

"Brai!"

Harlow went in after her. Taggart had a pocket-light and flashed it on.

IN A BARE LITTLE stone room without windows and with no furniture but a wooden cot, a young Ktashan man was babbling excitedly. He turned an eager, good-looking golden face toward Harlow and Taggart.

"I have told him," Yrra said rapidly. "He will tell you everything he told Dundonald, if we get away."

"Dundonald was my friend," Brai said proudly, in imperfect English. "I learned many things from him. I learned your language—"

"That's fine," said Harlow hastily, "but the main thing is to get out of this rat-trap quick. We can talk when we get back to the *Thetis*."

They went out, and Taggart examined the stunned guard and then hauled him into the cell he had guarded.

"He'll come to in an hour or less," said Taggart. "But if we're

not back to the ships by then, we'll never be."

Within fifteen minutes they had slipped back through the dark streets and were hurrying out onto the starlit plain.

Harlow could not believe it. He had felt a dismal certainty that they would be found and trapped in that labyrinthine monolith, and it still seemed impossible to him that they had gone in and got Brai and got out again without even a challenge. The fact that most of the Ktashans were out on the plain watching the Earth ships was all that had made it possible.

They went back in their wide circle to avoid the Ktashans on the plain, moving fast and not talking. In less than the hour Taggart had mentioned, they had circled clear around and were approaching the two star-ships from the side farthest away from the town.

The lights of Taggart's ship, the *Sunfire*, which was nearest to them, now shone brightly in the night. As they came toward it, Taggart uttered a low whistle. Next moment a half-dozen men appeared between them and the *Sunfire*, coming toward them.

"There was no need to post men out here," said Harlow, irritated.

"Oh, yes, there was," Taggart said.

There was a mocking quality in

his voice that Harlow had not heard before, and he turned quickly. The light from the *Sunfire* fell on Taggart's rawboned face, and he was smiling, and the gun in his hand was pointing at Harlow.

"I don't want to kill you but I don't particularly mind if I have to," said Taggart. "Stand still."

Harlow stared, too shocked for the moment to get it. "What the hell kind of a Survey captain are you—" he began, and then he got it. "You're no Star Survey man, and I was stupid enough to fall for it!"

"That's right," said Taggart lightly. "But I told you the truth about one thing. The Cartel *does* have ships out hunting for Dundonald and the Vorn. And the *Sunfire*, for all that we pasted a Survey emblem on it, is one of those ships."

The catastrophic implications of it hit Harlow. The Cartel who were after the Vorn and their secret had an efficient agent in Taggart. The man had followed him to ML-441 in his hoaxed-up ship, had boldly gone in with him after Brai when he learned that Brai was the key to Dundonald and the Vorn, and now he would—

"Brai—Yrra—*run!*" yelled Harlow, and plunged straight at Taggart.

He was so mad right down to his roots that the gun facing him

didn't matter. All that mattered was his raging resolution that Taggart's clever trick was not going to succeed.

Taggart hadn't quite expected that crazy lunge. He fired, but a moment too late, and the gun roared close beside Harlow's ear as he hit Taggart.

They went over onto the grass and rolled struggling, and in one of the moments he could see, Harlow glimpsed Yrra running like a deer with men after her, while other men had hold of Brai and were beating him into submission.

There were distant yells of alarm and Harlow knew the gun must have been heard by some of his own men at the *Thetis*. He struggled furiously in the grass with Taggart, to keep a second gunshot from tearing through his middle.

Then the world caved in on him.

The blow didn't feel like a blow, it felt like the sky falling. No, it was he who was falling, down through infinities of darkness and pain. One of Taggart's men had run up and hit him with something and his nerveless hands could no longer hold onto anything.

He heard a voice saying hoarsely "These Survey men are coming!"

He heard Taggart's voice saying, "We've got to jump fast."

Then he heard nothing and felt

nothing for a time that seemed very long though later he knew he had only blacked out for a few moments. He struggled fiercely back to consciousness. He was lying in the grass and voices somewhere were yelling louder and the *Sunfire* loomed dark and big and still only a few hundred feet from him.

As Harlow tried to get up, the slim projecting ion-drive tubes along the keel and stern of the *Sunfire* shot forth their ghostly spume of light. Under the impetus of the drive, the ship rushed upward and a shock-wave of air hit Harlow and rocked him back off his feet.

The *Sunfire* was gone.

It had happened so fast, from the moment when Taggart's men had come out of the darkness, that Harlow still could not quite take it in.

Then his own men were around him, Kwolek and Garcia and the others, yelling to know what had happened. But Yrra clung to his arm and made herself heard above them.

"Brai! Where is Brai?"

Harlow looked around, his head aching and everything still in a fog. He spoke thickly, in her language.

"Brai's gone? Then they took him with them. They would, of course. He knows where Dundonald went and that's what Taggart is

after."

"What the devil is the Survey coming to anyway?" cried Kwolek, in tones of pure outrage. "One captain knocking out another and shooting and—"

"Taggart's not Survey, he was a fake and his ship was a fake," Harlow said. He added bitterly, "And I fell for it, he fooled me one hundred percent."

He pushed aside Kwolek's steadying hand. "I'm all right. We've got to take off fast. We're going to run down Taggart, and we mustn't let him get out of radar range. Move!"

They moved, running back to the *Thetis*, Kwolek bawling orders. But Yrra still clung fiercely to Harlow.

"I am going with you," she said. "After Brai."

He was about to tell her that she couldn't and then he thought better of it. She had helped Brai break out of his cell, and when her people found that out he didn't know what they would do to her.

"All right, but we've got to take off fast," he said. "Come on."

He ran, stumbling a little, toward the *Thetis*. Kwolek came running to meet them, and there was rage on his round red face.

"No take-off—not for a while," Kwolek said. "They were clever, blast them. Take a look at this."

"This" was one of the *Thetis'*

projecting stern ion-tubes. Someone with a cutting-torch had cut halfway through it where it came out of the hull.

"That tube has to be replaced," said Kwolek, "or it'll blow high and handsome the minute we turn on the drive."

Harlow thought that Taggart hadn't overlooked a thing.

As they stood, stricken into silence, they heard a distant roar of voices. It came from out on the dark plain. Torches, very many of them now, were moving out there, and they were moving fast toward the *Thetis*. The shouting of the men who carried them swelled louder.

"My people have found out that Brai escaped," said Yrra. "They'll think we have Brai here, and—"

She did not need to finish. The intentions of the infuriated Ktashans were very clear.

CHAPTER IV

IT WAS VERY NOISY inside the *Thetis*. Part of the noise was being made by Kwolek and his crew down in the bowels of the drive-room, but only a small part. Most of it came from outside.

Harlow felt as though he were standing in the interior of a great iron-sided drum. Yrra, beside him, had her hands over her ears. He could feel her flinch at the loudest

crashings, and he knew she was frightened—not of the noises, but of what they could mean to her.

The screen in front of them showed the ground around the ship. It swarmed with Ktashans. The sun was high now, and between its heat and their own activities most of the men had thrown off their short robes, leaving only loose drawers that did not hamper their movements. Their golden bodies gleamed, glowing with energy and sweat. They had hammered tirelessly on the *Thetis'* hull for more than three hours now and they showed no signs of flagging. So far the durametal hull had resisted everything they had from stones to crude drills and wrecking bars. But the stubborn methodical battering was getting on Harlow's nerves.

He leaned over to the intercom. "How's it going?"

Kwolek's voice answered him in a rasping snarl. "It won't go at all if you don't quit pestering me. Some fool question every five minutes!"

"Okay," said Harlow. "Okay."

He didn't blame Kwolek. The boys were doing the best they could. They could have replaced the damaged tube in half the time from outside, but the Ktashans out there made that impractical. So it was being done under emergency-in-space procedure, from inside, with only one difference, which

help some. They didn't have to wear vac-suits.

"It won't be long now," he said to Yrra, having to shout to make himself heard but trying to make it a comforting shout. He knew what she was thinking. He was thinking the same thing himself. If the Ktashans ever managed to break their way inside, their chances for living long were poor. They didn't have Brai now, but they had committed their sin against custom and tabu when they got Brai out of his prison. And what had happened afterward would probably only make N'Kann more determined than ever to punish them for having set loose no one knew what menaces connected with the Vorn.

He took Yrra by the shoulders and turned her away from the screen. He said,

"I want to know about the Vorn—everything that your brother told Dundonald."

She was scared, but after a moment she answered him.

"He told Dundonald all that he knew, all that my people know. It is all legend, for it was two generations ago." She thought a moment, then went on. "The Vorn came to this world—"

Harlow interrupted. "*How* did they come? What did they look like?"

Yrra stared. "It was not known

how they came. They had no ship like this one—no ship at all. They suddenly were just here.”

And that, Harlow thought, was the same story that the Survey had heard on several worlds about the Vorn. They did not use ships, they just appeared. Some method of instantaneous transmission of matter seemed the only answer to that riddle. It was small wonder that the Cartel back on Earth was grabbing for such a secret.

“As to how they looked,” Yrra was continuing, “the stories are strange. It is said that they were human, but not human like us—that they were of force and flame, not of flesh. Is such a thing possible?”

That, too, was the cryptic description that other worlds had given the Survey. It could mean anything, or nothing.

“I don’t know,” said Harlow. “Go on.”

“It is said,” Yrra told him, “that the Vorn spoke to our people in some way. Our people were very afraid. But the Vorn said they had not come to harm them, that they were star-rovers who visited many worlds and were merely visiting this one. They said they would go back to their own world, but might come here again some day.”

“Where did the Vorn say their home-world was?” asked Harlow.

It was the crucial question and

he waited tensely for the answer.

“In the Great Blackness,” said Yrra, using the name given by the Ktashans to the Horsehead that was such a big feature of their night sky. “The Vorn said that beyond two blue stars that burn at the edge of the Blackness there is a bay that runs deep into it, and that a green star far in that bay was their native star.”

Harlow’s hopes leaped up. He had noted the twin blue stars on the fringe of the Horsehead—and this sounded like a clear clue.

“Is that what Brai told Dundonald?” he asked, and Yrra nodded.

“Yes. And that is why my people condemned Brai. For when Dundonald left here he said he would search for the world of the Vorn, and so great is my people’s reverence for the Vorn that they thought that sacrilege.”

The banging upon the hull of the *Thetis* suddenly stopped. In the abrupt silence, Harlow thought hard. He said,

“Whether or not the Vorn are really there, that’s where Dundonald went so we have to go there. And that’s where Taggart will have headed, as soon as he got this information out of Brai.”

“Brai would never tell a treacherous enemy like that anything—not even under torture!” Yrra declared proudly.

Harlow looked at her a little pityingly. "You don't know Earthmen. They're too clever to use torture any more. They use a process called narco-synthesis, and other things. Brai will tell all he knows."

Yrra did not answer. She had turned to look at the screen and now her eyes were wide and bright with a new terror.

Harlow followed her gaze, and his own nerves tightened with a shock. He saw now why the Ktashans had stopped hammering on the *Thetis'* hull.

THE GOLDEN MEN were all running out onto the plain to meet something that was coming slowly from the city. It trundled ponderously on wooden wheels, pushed by a gang of sweating men. It was a massive ram made of a colossal tree-trunk tipped with stone.

Harlow jumped to the intercom. "Kwolek, we've got maybe ten minutes! They're coming with a nutcracker that'll spring our plates for sure."

"Ten minutes? We need an hour more!" answered Kwolek's voice. "We've unshipped the damaged tube but it'll take that long to install a new one."

Harlow thought a moment, then made decision. There was only one thing to be done.

"Suspend work," he said. "Seal

the tube-mounting and come up here. We'll take off as is."

"Are you crazy?" Kwolek howled, but Harlow snapped off the intercom.

Kwolek and Garcia came into the bridge a minute later. Kwolek's red face was smeared with dirt and he was badly upset.

"You ought to know that a take-off on unbalanced tubes will sun-fish the *Thetis* all over," he said. Then he saw the screen and the sweating, triumphant Ktashan men on the plain, all pushing their massive ram faster and faster toward the ship. He said, "Oh." He bent over the intercom and spoke into it loud urgent words, ending up with a profane order to get it done fast. Harlow took Yrra by the arm and pulled her away from the screen, where she was still watching with fascinated horror the ponderous approach of the ram.

"This is going to be rough," he told her. "You'll probably be scared to death, but it won't last long."

Either way, he thought, it won't last long. If we make it, or if we don't.

He strapped her into his own bunk, making her as secure and comfortable as possible, and when he got through she looked so small and patient and scared and too proud to show it that he kissed her. Then he ran back to the control

room.

Kwolek and Garcia were already strapped in, Kwolek with his ear glued to the intercom and both of them watching the screen. The ram was much closer now. Its massive head of red stone looked and was heavy enough to batter down the stone walls of a city.

Kwolek said, "Another couple of minutes. We don't want to take any chances of the seal blowing out when we hit vacuum."

He was sweating visibly. So was Garcia, but more neatly, refraining somehow from staining his tunic collar. Harlow said,

"Give me the outside speaker. Fast."

He strapped himself into his own recoil chair while Garcia flipped switches and made connections on the communic board. He too watched the screen. He could see the scars of combat on the barrel of the ram, the histories of old battles written in the chips and cracks in the stone warhead. He could see the faces of the Ktashans, quite clearly. They were the faces of fanatics, uniform across the galaxy no matter where you found them. The men who knew they were right, the men without mercy.

Garcia handed him the mike. "Here." He looked at the great red head of the ram and folded himself as small as he could in the confines of his chair, as though he

wanted to compact his atomic structure as solid as possible against the coming shock.

Harlow roared into the mike. Amplifiers picked up his voice and magnified it a thousand-fold and hurled it forth from the ship's exterior speaker system.

"N'Kann!" he cried. "Get your men out of there. We're taking off." In the screen he could see the startled faces upturned toward the gigantic sound of his voice, the bodies arrested in motion. "We're taking off! Run, or you die. N'Kann, you hear me? Leave the ram and run!"

Kwolek turned from the intercom and said, "All ready."

Harlow stared at the screen. Some of the Ktashans had turned to run. Others still stood undecided. Still others, the hard core of violence, shouted and waved their arms toward the ship, urging on the ram.

Harlow groaned. "The fools," he said. "I don't want to kill them. I can't—"

The ram inched ponderously forward.

"Get away!" he yelled at them with a note of desperation, and touched a stud on the central control board.

The *Thetis* quivered and began to hum to herself, a deep bass note of anticipation.

The ram stopped. The men stood

by it, staring up. Behind them the larger crowd was melting away, slowly at first and then with increasing speed.

Harlow touched the stud again, advancing it a notch. The hum became a growling, a wordless song. The *Thetis* gathered herself for the upward leap.

"Get away!" screamed Harlow into the mike, but his voice was almost drowned in the iron voice of the ship, and then suddenly the men turned from the ram and fled away across the plain.

Harlow set his teeth and slammed the firing key all the way down.

THE THETIS WENT UP in a great wobbling surge, like a bird with an injured wing. But she was an awfully big bird, and terribly strong, and the violence of her thrashings about nearly snapped the eye-teeth out of Harlow's head. He fought through a deepening haze to keep her from flopping over out of the control of her gyros and crashing back to the ground, feeling the contents of his skull wash back and forth like water in a swinging kettle, feeling the straps cut into him when he went forward and the bolts of the chair prod him through all the padding when he was flung back, hearing strange rasping grunting whistling noises that he knew was

himself trying to breathe. The control panel dimmed and at last disappeared beyond the red mist that filled the cabin, or his own head. His pawings at the keys became blind and unsure. Panic swept over him. *I'm blacking out*, he thought, *I can't hold her, she's going down*. He tried to scream, in anger and protest against this sudden end, in fear and regret. The contraction of his diaphragm forced blood into his head and held it there for a moment, and the mists cleared a little and the wild gyrations of his insides steadied down just enough for him to get hold of reality, if only by its thinnest edge.

He hung on, forcing himself to breathe deeply, slowly. One. Two. Three. The indicator lights winked peacefully on the board. The furious thrashings of the unbalanced drive had settled to a sort of regular lurch-and-spin no worse than that of a ship in a beam sea. The *Thetis* was in space. She was not going to crash.

He looked around at Kwolek and Garcia. Both of them were bleeding at the nose—he found that he was too—and their eyes were reddened and bulging, but they managed to grin back at him.

"That's a devil of a way to treat a good ship," croaked Kwolek. "If I ever get hold of that Taggart—"

"You and me both," said Harlow. "Let's get that tube fixed."

Kwolek was already unstrapping. He went staggering out of the control room. Harlow gave the controls to Garcia and staggered after him, heading toward his own quarters.

He found Yrra almost unconscious in the bunk, her flesh already showing some cruel bruises from the straps. He unbuckled them and wetted a towel in cold water and wiped her face, smoothing the thick tumbled hair back from her forehead. Presently she opened her eyes and looked up at him, and he smiled.

"It's all right now," he said. "Everything's all right."

She whispered, "Brai?"

"We're going after him. We'll get him back."

"From the world of the Vorn." She was silent a moment, her gaze moving about the unfamiliar cabin. The tiny viewport was open. She looked through it at her first view of deep space, the stars burning all naked and glorious in their immensities of gloom, and Harlow saw the thrill of awe and terror go through her. Her fingers tightened on his wrist, and they were cold.

"On my own world I was not afraid of the Vorn," she whispered. "I laughed at N'Kann and the old men. But now—" She stared out the viewport. "Now I am in the country of the Vorn, and I am afraid." She turned suddenly and

buried her face against him like a child. "I am afraid!"

Harlow looked over the top of her head to the viewport. The country of the Vorn. The black and tideless sea through which they voyaged at will between the island stars. Harlow had never been afraid of the Vorn, either. He had hardly believed in their existence. But now, when he looked at space and thought of the brooding Horsehead and the two blue suns that burned in its shadow, he felt a cold prickling chill run down his spine.

Dundonald had gone that way and he had not come back.

THAT PRICKLING of fear did not leave Harlow in the long days that followed — arbitrary "days" marked out of the timeless night through which the *Thetis* fled. With the damaged tube replaced, she built up velocities rapidly on a course that took her straight toward the Horsehead. There was no sign of Taggart's *Sunfire* on the radar. He was too far ahead for that. In fact, he was so far ahead that there was no hope of overtaking him or forestalling any action he might take on the world of the Vorn, which he would reach long before Harlow. Any sensible man would have said the pursuit was hopeless, but the men of the *Thetis* were not sensible. If they had been they would never

have signed up with Survey. Also, they were angry. They had been made fools of, and they had almost died of their foolishness, and now they were determined to catch up with Taggart if it took them the rest of their lives.

Which might not be very long, Harlow thought. He looked gloomily at the screen that showed the panorama of space ahead of the *Thetis*. It was one of the most magnificent sights in the galaxy. You sat stunned and wordless before it, and no matter how often or how long you stared at it the wonder and the glory did not depart. There was the whole vast canvas of the universe for a backdrop, and all across it, arrogant, coal-black, and light-years vast, the Horsehead reared against a bursting blaze of suns. Magnificent, yes. Splendid and beautiful, yes. But there was another word that came to Harlow's mind, an old word not much used any more. The word was sinister.

Yrra spent as much time as she could with him in the control room, watching the screen, straining her eyes for some glimpse of the ship that carried her brother. Harlow noticed that the Horsehead had the same effect on her. There was a sign she made toward it, furtive and quick as though she were ashamed of it, and he knew that it was a Ktashan sign to ward off

evil.

For a long time the relative positions of the tiny ship and the great black nebula seemed not to change. Then gradually the blazing fringe of stars passed off the screen and the blackness grew and swallowed the whole viewfield, lost its shape, and then finally produced a defined edge outlined against the light of distant suns, and eventually that black coastlike showed the marker-lights of two blue sullen stars.

The *Thetis* decelerated and felt her way between the beacon suns.

Beyond them was a bay, a bight in that incredible coastline. And now fear really caught the men of the *Thetis*—a fear much greater than any they might have felt for the deeds of men or the legendary Vorn. This was something absolutely elemental, and it had to do with the terror of darkness and alienage and unhuman might that go back to the beginnings of the race.

None of them had ever been near a black nebula before. They were deathtraps, blind areas where radar was useless, where a ship was helpless to protect herself against drifting stellar debris, where you might ram yourself full on into a drowned dark star before you ever knew it was there. Now they were creeping antlike into the very flanks of the Horsehead. The bay was relatively narrow, and it wound and twisted

around great shoulders of blackness, past upflung cliffs of dust that lifted a million miles to crests that blazed with the fires of hidden stars, over crevasses that plunged a million miles to break in a ragged cleft through which stars showed as faint and distant as those of Earth on a cloudy night. Everywhere you looked, up, down, ahead or on both sides, those incredibly vast clouds enclosed you in their eternal blackness, like the shrouding draperies of a funeral couch made ready for some god.

Kwolek shook his head. "For God's sake," he said. "If the Vorn lived in here, no wonder they found a way to conquer space. They had to!"

The *Thetis* crept on and on in that nighted cleft, and presently there was light ahead, the blaze of a green sun that touched the looming clouds around it with a lurid glow.

They crept closer and saw a planet.

"That must be it," said Garcia. "The world of the Vorn."

"If there's anything in the Ktashan legends," said Harlow. "Anyway, it's the world where Dundonald went, and where Taggart is. We're going to have to be damned careful going in—"

Yrra, who was sitting at the back of the control room, suddenly made a small sound of exhaled breath.

It was a very curious sound, suggesting a fear too great for mere screaming. Harlow's skin turned cold as though from a sluice of ice-water. He turned his head. He saw Kwolek and Garcia, both frozen, staring at something still behind him. He saw Yrra. A sickness grew in him, a fatal feeling that something totally beyond human experience as he knew it was already confronting him. He continued to turn, slowly, until he could see.

He was not wrong. From out of the blackness of the Horsehead and the fire of an alien star, silently, with no need for clumsy armor or the sealing of locks, something had come to join them in the ship.

Yrra whispered a word. She whispered it so faintly that under ordinary conditions he might not have heard it, but now it rang in his ears with a sound like the last trump. She said,

"*The Vorn!*"

CHAPTER V

THERE WAS NOTHING monstrous or terrible about the Vorn as far as looks went—no crude grotesqueries to shock the eye. It hung in the still air of the cabin, a patch of radiance like a star-cloud seen from far off so that the individual points of light are no more than infinitesimal sparks. The Vorn's component motes seem-

ed at first to be motionless and constant, but as Harlow stared he became aware of a rippling, a fluctuation of intensity that was as regular and natural as breathing, and this was the crowning touch that turned his blood to ice. The thing was *alive*. Creature and force and flame, as the legends said, not human but living, thinking, sensing, watching.

Watching him. This unhuman voyager between the stars, watching him and pondering his fate.

Kwolek had picked up something and was holding it with his arm drawn back for a throw, but he was just holding it. Garcia just sat. His lips were moving, as though he prayed hastily under his breath. Yrra slid very slowly and quietly onto the floor in an attitude of abasement.

Harlow spoke. Some automatic reflex set his tongue in motion, and words came off it, sounding so stiff and ridiculous that he was ashamed, but he could not think of any others. These words came easy, straight out of the Manual. He had said them many times before.

"We belong to the Star Survey. We are on a peaceful mission. We have come to your world—"

Knock it off, Mark!

Harlow knocked it off, in mid-breath. He stared at Garcia and Kwolek. Neither one of them had

opened his mouth.

Yet somebody had spoken—

Kwolek started violently. "Who said that?"

"Nobody said anything," Garcia whispered.

"They did, too. They said, 'Kwolek, put down that silly lump of iron before you get a cramp in your shoulder.'"

"You're crazy," said Garcia quietly, and seemed to go back to his praying.

"Mark," said the voice again to Harlow, "I seem very strange and frightening to you but that is only because you don't yet understand the scientific principles that make this changed form of mine possible. My atoms are in different order from that in which you last saw them, but I'm otherwise quite the same. Well, no. Not quite. But near enough so that I can truthfully say that I'm still Dundonald."

"*Dundonald*," said Harlow, staring at the patch of fluctuating radiance that hovered in the air before him. He added softly, "For God's sake!"

Kwolek and Garcia turned their heads and looked at him. They spoke almost together.

"Dundonald?"

"You heard him," Harlow muttered.

"They didn't hear me at all," the voice said to him. "Shake the

cobwebs out of your head, man. You can't afford to be stupid now, you haven't the time. This is telepathy, Mark. I'm communicating with you direct because it's the only way I have now. Unfortunately I haven't the energy to communicate with all of you at once. Now listen. I've been waiting for you—"

"What are you talking about?" Garcia said to Harlow. "What do you mean, Dundonald?"

"You better take the time to tell them," Harlow said to the patch of light. "I doubt if they'll believe me."

He put his hands over his face and trembled quietly for a moment, trying to understand that his quest for Dundonald was ended, that this amorphous cloud of energy-motes was his friend, his drinking companion, the flesh-and-blood Dundonald with the strong hands and ruffled brownish hair and the bright blue eyes that were always looking past the familiar to the distant veiled shadows of the undiscovered.

He could not believe it.

"That doesn't matter," said Dundonald's thought-voice in his mind. "Just accept it for the time being. What does matter is that Taggart is all ready for you. That ship of his carried heavy armaments. He has them set up, and the moment he catches your ship on his radar

the missiles will fly. Then you'll be dead and I'll never get back, so please mind what I say."

"You'll never get back?" repeated Harlow. "Back where?"

"To the old me. Solidity. Taggart has the Converter. It's guarded night and day and I'd be killed on sight if I stepped through. So would any of the Vorn, I suppose, though none of them have for centuries. So—"

"Wait," said Harlow. "Just wait a minute. I'm trying to understand, but you've lost me. Converter?"

"Of course, a converter. What did you think made us—me—like this?"

"I don't know," said Harlow numbly. "Just what *is* 'like this'?"

"Exactly as you see," said Dundonald. The patch of radiance bunched up, swirled, then shifted so quickly that Harlow thought it was gone. "Matter into energy, only the ancient Vorn solved the problem of achieving the conversion without losing either intelligence or personality. The individual remains unchanged. Only his body is free of the limiting shackles of the flesh."

THE PATCH OF RADIANCE moved toward the iron bulkhead. It glided right through the solid iron, and then came dancing back again.

"No more barriers. No more

death. No wonder the Vorn lost interest in the old planet-bound life. I tell you, Mark, even in my brief term as one of them, I've seen and done things—Have you any conception of what it is like to fly free as a bird between the stars, covering light-years at the flick of a thought, with no fear of anything? And not only the stars, Mark, but other galaxies. Time and distance are only words without meaning. The greatest secret ever discovered. Nothing so crude and clumsy as the transmission of matter, which would merely send you like a package from transmitter to receiver, leaving you as planet-bound as ever. No, the Vorn developed a mechanism that gave them the real freedom of the universe."

The radiance danced and floated, and Kwolek and Garcia and Yrra stared at it with naked fear, and the thoughts from it kept pouring into Harlow's mind and he did not think he could take any more. It was easy enough to talk of leaving off the shackles of flesh and wearing a body of pure energy, but it was too big for his brain to grasp as yet. He said,

"Dundonald."

"Yes?"

"I'm Mark Harlow, remember? I'm just a guy from Earth. You spring this on me all at once, you expect me to—" He broke off, and

then he clenched his hands and made himself go on again. He said,

"Listen. I'm talking to a patch of light. And I get a thought in my mind that this light-patch says it's Dundonald, a man I knew. It's hard to take. You know?"

Dundonald's thought came with a pitying quality in it. "Yes, Mark. I suppose it is."

"All right." Harlow felt sweat damp on his forehead, but he stared straight at the misty radiance and said, "Give it to me slow, then, will you?"

"All right, Mark, I'll give it to you slow. But not *too* slow, please, for time is running out."

Harlow asked, "You found the world of the Vorn from the legend Brai told you about?"

"Yes."

"You found the Vorn on it?"

"No. No, Mark—the Vorn have been gone from that world for a long, long time. Ever since they found out how to change and become—like me. I found their dead cities, and I found the Converter. Not them."

"The Converter that made you—this way. What made you do it, Dundonald?"

The answering thought was strong. "I had to. I had to *try* the thing, after I learned its secret. I went through. I was still like this—like the Vorn—when Taggart's ship came."

"Ah," said Harlow. "And then—?"

"My men, my ship, were waiting," Dundonald answered. "Taggart took them by surprise, easily. In the fight, three of my men were killed. He has the others locked up."

Harlow, in the anger he felt, almost forgot he was not talking to Dundonald in the flesh. He said, between his teeth,

"He's very good at trick surprises, is Taggart."

"He learned," said Dundonald, "that I was—on the other side. He has armed men watching the Converter. If I try to come back through, he'll have me."

"But what's he doing—just sitting there?" demanded Harlow.

"He's waiting, Harlow. He sent out communic messages, to someone named Frayne. Frayne, I gathered, commands another of the secret ships that the Cartel sent to find me and the Vorn. Taggart messaged him to come to the world of the Vorn, to help him take the Converter away."

The appalling picture began to come clear to Harlow. If the Cartel ships got this Converter away, the ultimate freedom of the universe would be in the hands of a group of greedy men who could exploit the greatest of all discoveries for their own power and profit.

"Oh, no," said Harlow. "We've

got to stop that. Can we reach that world before this other ship—Frayne's ship—does?"

"I don't know," said Dundonald. "Frayne can't be too far away or he'd be out of range of communic. That's why you've got to hurry, to get there first. Yet you can't land right where Taggart is, his ship-radar will spot you coming and his missiles will get you before you're even close. The only way you can get to him is through *that*."

And the patch of radiance became a round ball and moved to the visiscreen, touching the black outward bulge of a looming cloud-cliff.

"I can guide you through it, Harlow. But you'll have to come down beyond the curve of the planet and walk the rest of the way to Lurluun—that's that old Vorn city where the Converter is. After that—"

"After that," Harlow said, "we'll hit Taggart with everything we've got."

"Which isn't much," Dundonald said, "if all you have are the pop-guns prescribed by Regulation Six. Well, they'll have to do. Change your course now, and make it fast."

Harlow, as he moved, glimpsed the strained face of Yrra gazing in awe at the floating core of radiance. He said,

"Something else, Dundonald. 'The girl's brother, Brai. She came

after him. Is he still living?"

"He's with Taggart's prisoners—my men," came the answering thought. "How long any of them will live if Taggart pulls this off, you can guess."

Harlow told Yrra briefly, in her own language, and saw the tears start in her eyes.

"For God's sake, will you hurry!" prodded Dundonald's thought.

FEELING VERY STRANGE indeed, like a man dreaming or drunk or in partial shock, Harlow spun the *Thetis* around on her tail and sent her plunging toward the black cliff of dust.

He filled in Kwolek and Garcia as much as he could in a few words, and had Garcia get on the intercom to the crew. He tried not to look at the dust-cliff ahead. It was a million miles each way and it looked as solid as basalt. The green glare of the distant sun touched its edges with a poisonous light.

"Relax," said Dundonald. "It only looks that way. I've been through it a dozen times."

"Fine," said Harlow, "but we're still bound to our old fleshly selves, not at all impervious to floating hunks of rock."

"I'll take you through, Harlow. Don't worry."

Harlow worried.

The cliff was black and imminent

before them. Instinctively Harlow raised his arm before his face, flinching as they hit. There was no impact. Only suddenly it was dark, as dark as Erebus, and the telltales on the board flopped crazily. The *Thetis* was blind and deaf, racing headlong through the stellar dust.

Kwolek muttered, "This is crazy. We just imagined we saw and heard—"

"Shut up," whispered Harlow. "I can't hear—" He looked around. Panic hit him. The patch of radiance was gone. Dundonald was gone. Dundonald? How did he know it was Dundonald and not a deceitful stranger, one of the old Vorn sent to lead him to destruction? He could wander forever in this cosmic night until the ship was hulled and they died, and still they would wander forever—

"Pull your nose up," came Dundonald's thought sharply. "Three degrees at least. What the hell, Mark! Pull it up. Now. Starboard ten degrees—forget the degrees. Keep turning until I tell you to stop. Good. Now keep her steady—there's some stuff ahead but we'll go under it. Steady—"

Harlow did as he was told, and presently he saw what he had not seen before—the misty brightness that was Dundonald's strange new being drawn thin as a filament and extending out of sight through the fabric of the ship. Harlow found

time to be ashamed.

The utter dark went on, not quite forever. There was no thinning, no diffusion. Or perhaps they went through the fringe area so swiftly that none was apparent. One moment the screens were dead black and in the next moment the green sunblaze burst painfully upon their eyes and they were out of the cloud, back in the vast, dark-walled bay of the Vorn. But their detour through the dark had now brought them out on the other side of the green star and its planet.

Dundonald's thought reached him, urgent. "Taggart expects you to come after him, straight in through the bay the way he came. He's got his ship cruising out in front of the planet to radar your approach."

"And we've got the planet between us and his ship, masking us," Harlow said. "If we keep it between, we can land secretly."

"That's it, Harlow. But you've got to hurry! I'll guide you in."

Strange pilot for the strangest landing a man ever made, thought Harlow. *Don't think about it, don't think about what Dundonald has become, play it as it comes, take her in.*

He took her in. The *Thetis* hit the atmosphere and it was like plunging into a green well.

"I'm trying to land you as near Lurluun as I can," said Dundonald.

"But this planet rotates, and Lurluun is rolling toward the picket-ship out there, and you have to keep the curve of the planet hiding you."

The ship plunged downward, and now weird-colored forests rolled beneath them, vast deserts of greenish sand, mountains of black rock stained with verdigris like old copper, a strange, unearthly landscape under the light of the emerald sun that was setting as this side of the planet turned away from it.

A low black range rose ahead of them and Dundonald urged him toward it, and the *Thetis* went down on a long slant with the screeching roar of riven atmosphere about them. And Harlow, his hands tense on the controls, thought that he saw scattered cities fly past beneath them.

"All dead," came Dundonald's thought. "More and more of the Vorn took to star-roving and fewer and fewer came back, until gradually the race here died out. And now hardly any of the Vorn are left in even this part of the galaxy. They've moved on and out."

An instant later he warned, "Drop her! This side of the ridge!"

They landed in a desert where a river had cut a deep fantastic gorge down through the sand and the layers of many-colored rock. The tawny waters ran toward the rocky ridge, and through a canyon

in it.

Dundonald said, "Don't waste time on atmosphere-check, the air's breathable. I lived here for months, and the Vorn lived here for ages, and they were as human as us."

Harlow went to the intercom and gave an order. "Crack the lock. All hands out."

When they went outside, it was into air that was dry and warm and faintly metallic in smell. The green desert stretched around them, and the light of the viridescent sun struck brilliantly across it and painted the looming black rock of the ridge with poisonous colors. There was a silence, except for the murmur of the river in its gorge.

The men looked dumbly at each other and then at Harlow. And then, as a little dancing star of radiance flicked past them and bobbed close to Harlow, the tough Earth faces changed. Harlow had tried to explain but it was no use, all they knew was that the dancing star was supposed to have been human once and they did not like it, they were afraid and they showed it. All of them, and that included Kwolek and Garcia and Yrra too, kept looking at the floating radiance that had been Dundonald.

"Don't speak aloud to me, they're getting panicky," came Dundonald's thought. "Think it strongly, and I'll get it."

"Which way to Lurluun?"

thought Harlow.

"The way the river flows. But you can't follow the river, Harlow, the gorge is too deep. You'll have to go over the ridge."

"How many men has Taggart got there?"

"Fourteen," Dundonald answered. "All heavily armed. Plus eight more out in his ship."

Harlow spoke aloud to Kwolek. "Serve out the sidearms."

THE LITTLE STUNNERS were duly handed out—purely defensive weapons to be used only to save the lives of personnel. They did not have an effective range of more than a few feet, and they did not carry a lethal charge—Star Survey was very tender of native feelings. The light feel of the thing in his hand did not give Harlow much confidence.

He said aloud to the men, "You know what Taggart did to us back at ML-441. Here's our chance to get back at him. He's over that ridge. We're going over and hit him."

"All of us, sir?" said Garcia. "Don't you want a guard left on the *Thetis*?"

Harlow shook his head. "Unless we overpower that bunch, we won't be coming back to the *Thetis*. We're twenty to their fourteen, but they've got weapons that make ours look like water-pistols."

Yrra's face flamed with eagerness in the fading green light. "Then I go with you too."

Harlow looked at her dubiously. "I suppose you have to. Stay close to me, and obey orders."

He turned toward the patch of radiance hovering in the air beside him, shining brighter now that the green sun was setting and the light lessening. He thought,

"Dundonald, can you go ahead and find out where Taggart has his sentries posted in that city? I must know exactly before we go in."

"Yes. I can do that."

And then men of the *Thetis* flinched back as the radiance whirled and spun and then flashed away through the gathering twilight. A shining feather, a shooting star, an incredible will-of-the-wisp, darting toward the looming black ridge and disappearing.

Harlow raised his voice. "We're moving out right now. Pick them up and keep them going."

And in a compact column they started across the sand, keeping a little away from the river-gorge. As the last rays of the green star lit the rock rampart ahead, Harley surveyed it dubiously. He thought he saw a way over it but was not yet sure.

Then he found that they were following an ancient roadway, one so drifted over by sand that he

would have strayed from it had there not been stone markers along it. Back from the road rose dark, low, rambling structures that looked like scattered villas. The wind had piled the sand in drifts around them. And in the deepening twilight, there was no sound but the wind and the river. Nobody had lived in those villas for thousands of years.

Yrra, marching beside him, shivered. "It is evil," she said. "Men were meant to live like men. Suppose everyone were to become like the Vorn? All the worlds of the galaxy would be like this."

It was a frightening thought. Harlow's mind leaped ahead, in imagination, to a time in the future when the human race might vanish utterly and only creatures like Dundonald would be left, immortal, sterile, building nothing, creating nothing, existing only for the thrill of pure knowledge, lovely bits of force and flame wandering forever through the reaches of space, universes without end.

Was that the ultimate goal of a race who went to space, their final evolution? Had the first sputniks and rockets of decades before been only the first steps of an evolution that would take man and make something more than human and less than human of him?

He forced that eery thought from his mind. They were nearing

the ridge and he saw now that the ancient roadway climbed along its face in an easy grade.

"This way," he called.

The darkness was becoming absolute. There were no stars in the sky, nothing but the blackness of the mighty Horsehead in which this world was embayed. The tiny flash of his pocket-light was drowned.

But as they climbed higher, Harlow thought that he saw a steady pulsing of light from the other side of the ridge. It grew stronger in the sky. They reached the crest of the ridge.

They stood and stared, all their faces bewildered and strange in the light that now struck upon them.

"What is it?" whispered Yrra.

A few miles from them, on the other side of the ridge, a great column of opalescent light rose skyward. It was most intense at its base, fading as it ascended. It seethed and coruscated uncannily, yet it maintained itself and sent a strange glow out to touch everything around it.

By that glow, Harlow saw that the opalescent pillar rose from the center of a city. Dark roofs, walls, towers, quivered in the unearthly glow, and shadows clotted the ways between them. There was no other light at all in the silent place, and no visible movement.

"That's the city of the Vorn," he said. "Lurluun. It's dead, all

right."

"But the light?"

"I don't know, I—" Then Harlow broke off in relief as he saw a flying, shining star that came rushing up toward them. "Dundonald can tell us."

Dundonald had something to tell them, but it was not that. From that hovering star of radiance, his thoughts beat at Harlow frantically.

"It may be too late, Harlow. They've had a message from Frayne. Frayne's ship has entered the Horsehead and is coming on to this world right now!"

CHAPTER VI

THE SUDDEN IMMINENCE of complete defeat had a curiously numbing effect upon Harlow. He had come a long way, they all had, and they were tired, and it seemed that they were too late and it had all been for nothing. And what was he doing so far from Earth, standing in the night of an alien world and looking across a dead, dark city at a pillar of glory while a floating radiance that had once been human whispered in his mind?

Then Harlow's momentary despair was swept away by good, strong rage. His anger had nothing to do with his mission, important as that was. It was ordinary human

anger at being beaten, out-thought, bested, by someone cleverer than himself. He would not let Taggart get away with this!

"Then we've got to hit Taggart before Frayne's ship arrives," he said.

He spoke aloud, so that Kwolek and the others could understand as well as Dundonald. He asked Dundonald,

"Where are Taggart and his sentries?"

"You see that pillar of light, Harlow?"

"I see it. What is it?"

"It's the operative beam of the Converter. It's perpetual, undying. It springs from the mechanism of the Converter itself. Enter the base of the beam and its forces take the atoms of your body, the very electrons, and rearrange them so that you become like me—like the Vorn. But if, as a Vorn, you enter the upper part of the beam, it triggers the reverse process and the beam draws you down and re-arranges your electrons into solidity, into ordinary humanity, again."

"You can tell me how it works later—right now I've got to know about those sentries!" pressed Harlow.

"I'm trying to tell you," thought Dundonald. "Up on the rim of the Converter itself are two guards with auto-rifles—in case I try to emerge. They also can cover every

foot of the big plaza in which the Converter stands. Taggart and his men have their base in a large building on the south side of the plaza. They've got a communic there and their prisoners—my men and Brai—are locked up in a windowless room of the building."

"Taggart's awake?"

"Yes. He was talking by communic with his ship out there. Telling them to hit your ship with missiles the moment you show up, but not to mistake Frayne's ship for yours."

Harlow tried to think fast. This was a soldier's job and he was not a soldier, Star Survey didn't teach strategy. Nor was there time to evolve elaborate plans. He said,

"We'll have to knock out the two outside sentries before we can hit Taggart, then. We'll see what the set-up is. Let's move."

They went forward on the double, down the descending roadway toward the dark city that brooded under the loom of the ridge. For light they had the opalescent rays of the great column of brilliance ahead.

Their hurrying feet shuffled the dust and sand of thousands of years' drifting, and made echoes that whispered in the starless night. The echoes became louder when they came down into one of the wide streets that led straight away between low black buildings to-

ward the vertical beam.

Fast and far had Earthmen come from their little world, thought Harlow. His own grandfather had been a man grown when the first sputnik satellite rushed up from Earth. The swift snowballing of technical progress had made one breakthrough after another and now a score of Earthmen were hurrying through the night of an alien star-world toward something that could be the biggest breakthrough of all.

A deep shiver shook Harlow as he looked at the shining will-of-the-wisp gliding beside him, and then at the dark and silent buildings. Men had once lived here as men. Now they were all gone, dispersed as the radiant Vorn far across the galaxies, and had that breakthrough been good? He thought of a secret like that in the hands of ambitious men, and looked again at the gliding, dancing star beside him, and he quickened his pace.

They came to where the street debouched into the plaza. They kept close against the side of a building, and Harlow motioned his men to stay there in the shadow. He and Kwolek and Garcia with the fitting gleam of Dundonald, moved forward until they could peer out into the open space.

Plaza, park, shrine—what would you call it? Harlow wondered.

Whatever it had been called, this smoothly-paved space was vast. So vast that far away around its curving rim, a parked star-cruiser as large as his own looked small.

"My *Starquest*," murmured Dundonald's thought.

Harlow spared it only a glance. His eyes flew to the thing that dominated the plaza, the city, the whole planet.

The Converter. The ultimate triumph of an alien science, the machine that had made men into—the Vorn.

IT DID NOT LOOK like a machine. At the center of the great paved area there rose a massive, flat-topped cement pedestal. Whatever apparatus there was, whatever perpetual power-source of nuclear or other nature, was hidden inside that. A flight of steps on each side of it led up to the summit of the eminence.

From the center of this flat summit, the opalescent beam sprang upward into the night. At its base, the beam was a curdled, seething luminescence that was dazzling to the eyes, flinging quaking aurora-rays in a twitching brilliance all around the plaza. Higher up, the beam imperceptibly lessened in intensity until far up in the night it was only a vague shining. The Converter. The ultimate step in space travel, the gateway to the freedom

of the cosmos.

"The guards—see!" rang Dundonald's thought, urgently.

With an effort, Harlow wrenched his mind from the hypnotic fascination of the beam. Now he saw the two men.

They stood on the unrailed ledge or balcony that surrounded the beam, and the beam itself was between them. Their backs were to the beam as they could not stand its brilliance for too long, but they looked alertly upward and around them every few moments. Each of them carried a heavy, old-fashioned auto-rifle, cradled for instant use.

"They watch in case I try to come back out through the beam," thought Dundonald. "Always, two watch. And they can see the whole plaza."

"Where are Taggart and the others?" whispered Harlow.

"See there—away to your left, not far from the *Starquest*. That square building with the domed roof."

Harlow saw it. It was not hard to identify, for light shone out through the windows of that building and all the others were dark.

He dropped back a little to where Kwolek was looking ahead with wide, wondering eyes.

"You'll take all the men except Garcia and me," he told Kwolek. "Circle around and approach that

building from behind. Wait near its front door until Garcia and I have got the two sentries up there on the Converter. Then, when Taggart and the rest come out, jump them fast."

"Okay," said Kwolek, but Yrra had pressed forward and now was asking Harlow anxiously,

"What of Brai?"

"If we overpower Taggart and his bunch we can release the prisoners easily," Harlow told her. "But that has to come first." He added, "You're to stay right here where you are, Yrra. No arguments! All right, Kwolek, get them going."

Kwolek did. They made a considerable-looking little body of dark figures as they slipped away across the street and disappeared among the buildings. But Harlow thought of their little short-range stunners, and of Taggart's old-fashioned lethal rifles, and he did not feel too happy.

He and Garcia were left, with Dundonald hovering beside them and Yrra a little behind them. Her face was both scared and mutinous.

"Listen, Harlow," came Dundonald's rapid thought. "You and Garcia will be seen and shot if you just barge out onto the plaza. Let me distract those two sentries first."

"You? How?"

"You'll see. Wait till they turn

their backs toward you."

With that thought, Dundonald suddenly flashed away from them. Like a little shooting-star he sped out and upward across the plaza, toward the upper reaches of the towering beam.

Harlow, watching tensely with Garcia, saw the two sentries up on the rim of the Converter suddenly point upward and call to each other. They were looking up at the eery, shining star that was Dundonald, as it flitted high up around the beam. They had their rifles ready for instant use now, and they were facing the beam.

"They think Dundonald's going to come through the beam—they're getting set to shoot if he does!" muttered Harlow. "That gives us a chance—you take the farther guard, I'll take the nearest."

"Luck," whispered Garcia, and went out across the plaza in a swift run, looking miraculously neat after all they had been through, his little stunner glistening in his hand.

Harlow was right after him, taking a slightly different course. The two guards up there still had their backs to him, facing toward the beam and looking tensely up at Dundonald's firefly circlings.

Harlow reached the base of the steps on his side of the Converter. They were wide steps, their cement worn by the wind and weather of thousands of years.

He went quietly up them, his stunner in his hand. He had to get close, the little shocker-gadget had almost no range. He hoped he would get close enough.

And how many other men have gone up these steps toward the beam of the Converter, never to return? How many men and women have left their humanity behind them here to break through into the wider cosmos?

HE REACHED THE TOP of the steps, and crouched a moment. The guard on this side of the Converter ledge was fifteen feet away, his back to Harlow.

Harlow waited, his eyes searching for the other guard part way around the beam. He and Garcia must make their play at the same time. But he could see the man only vaguely, through that brilliance. The beam sprang up from what seemed a transparent plate, twenty feet in diameter, and at this close distance it was utterly dazzling.

He was scared, and he was sweating, he wanted to jump forward and act but he mustn't compromise Garcia's chances, he had to wait . . .

He waited too long, and everything happened at once.

The other guard, partway around the beam, suddenly crumpled down onto the cement ledge. Garcia

had come up close behind and had used his stunner.

Instantly, Harlow jumped forward toward his own man. But this guard had seen his comrade fall and he was whirling around, opening his mouth to shout.

He saw Harlow coming and threw up his rifle to fire. Harlow triggered the stunner. But he was running and he was not too used to weapons, and the invisible conical electric field of the stunner only brushed against the guard. The man staggered, but he did not fall.

Desperately, Harlow ran in. The stunner's charge was exhausted until it re-cycled, and he had to get in past that rifle. He hit the guard in the mouth as he started to yell an alarm, and then grabbed him.

"Harlow!" rang a wild thought in his mind. "No time now, Frayne's coming in—"

Harlow staggered, wrestling clumsily with the guard on the wide stone ledge, with the shining star that was Dundonald dancing in a frantic way close to him. The blood was roaring in his ears, and—

No. The roaring was in the sky, it was getting louder and louder, a great dark bulk was sinking on plumes of flame toward the plaza.

Garcia reached him just as Harlow swung again and hit the guard's chin. The man collapsed and fell, his rifle clanging on the cement.

"Harlow! Run!"

The radiance that was Dundonald was whirling with wild urgency beside him yet, and Harlow heard his frantic thought. Had it been a voice he could not have heard, for the roar of the descending cruiser drowned everything.

Harlow cried, "Come through, Dundonald—through the beam!"

"Too late!" was the answering, agonized thought. "Look!"

The star-cruiser landed on the plaza, and instantly its lock opened. At the same moment over in front of the domed square building, shots rang out as Kwolek and the *Thetis* crew rushed Taggart's men, just emerging from the building.

Out of the newly-landed cruiser, men came running. They had auto-rifles too, and Kwolek and the *Thetis* men were caught in a cross-fire.

Harlow was starting to run for the steps when Garcia crumpled.

He caught him. The Mexican's neat tunic was drilled right through over the heart, and his face was lax and lifeless.

Bullets screamed off the cement beside Harlow and he turned and saw men from the cruiser—two—now three—of them, shooting at him.

Dundonald was a star beside him and the star was screaming in his mind.

"You can't run now! The beam,

Harlow—it's that or death!"

The little battle was over and they had lost it, and Kwolek and the *Thetis* survivors were helplessly surrendering, and the rifles out there were levelled to rip through Harlow as he stood silhouetted against the blazing beam.

He had a choice, of dying right there or not dying.

He chose. He threw himself into the beam.

CHAPTER VII

THE IMPACT was incredible.

It was birth and death and resurrection all happening instantaneously and all together, with the violence of a whirlwind. Harlow knew fear for a brief instant, and then the very concept of fear as he knew it was overwhelmed and lost in an emotion so new and vast that he had no word for it.

He never really knew whether or not he lost consciousness. Perhaps that was because his whole concept of "consciousness" changed too, out of all recognition. There was a brilliant flare of light all through him when he entered the misty glowing pillar of force. The light was inside him as well as out, exploding in every cell of his flesh and bone, brain and marrow. It was as though for an instant his whole corporeal being had achieved a strange state of glory. But after

that instant he was not sure of light or dark, time or place, being or not-being. Something unbelievably weird was happening to his body. He tried to see what it was but all he could achieve was a blurring of color like a kaleidoscope run mad. He could only feel and that did not tell him much because he had never felt anything like this before and so had no frame of reference whatever.

Only he knew that all at once he felt free.

It was a feeling so joyous, so poignant, that it was almost unbearable.

Free.

Free of weight and weariness, the dragging limitations of the flesh. Free of want and need, free of duty, free of responsibility, free forever of the haunting fear of death. Never in his life before, even in its most supreme moments, had he felt truly free, truly at one with the universe. It was revelation. It was life.

He leapt forward, impelled by the joy that was in him, and then he sensed that Dundonald was there waiting for him. It did not seem at all strange now that Dundonald should be a hovering cloud of sparks, a hazy patch of sheer energy. It seemed natural and right, the only sort of form for a sensible man to have. His thought-contact with him was clear and in-

stantaneous, infinitely better than speech.

Well, now you've done it, Dundonald thought. How do you feel?

Free! cried Harlow. Free! Free!

Yes, said Dundonald. But look there.

Harlow looked, not with eyes any more but with a far clearer sense that had replaced them.

The men with rifles—Taggart's men and Frayne's men—stood looking baffledly toward the Converter, the gateway through which he, Harlow, had plunged. The change, then, had been very swift, almost instantaneous. Kwolek and the other surviving men of the *Thetis* were being disarmed, surrounded by more of Taggart's men.

One of them held Yrra. She was staring at the glowing misty beam of the Converter with anguished eyes and she was crying out a word. The word was Harlow. It was his name. He could read her thoughts, very dimly compared to Dundonald's, but clear enough. He was astounded by what he read in them.

"I could have told you how she thought of you," Dundonald thought. "But I didn't think I should."

Some vestiges of Harlow's recent humanity still remained. He dropped down close to Yrra and she saw him, her face mirroring shock and pain but no fear now. There was another emotion in her far

stronger than fear. The man who was holding her saw Harlow too and flinched away, raising his gun.

Harlow ignored him. He spoke to Yrra's mind. *I'm safe, he said. Don't worry, I'll come back. I love you.*

Stupid words. Human words. Everything had failed and he could not come back any more than Dundonald.

The watch over the Converter would be doubled now, to guard against any possibility of his and Dundonald's return during the time it would take the technicians from the Cartel ships to find a way of dismantling and removing the Converter. And once that was done, the way would be closed to them forever.

Yrra's voice—or was it her thoughts?—hurt him with sorrow and longing. He was not so free as he had thought. And then he saw Taggart talking to a neat efficient pleasant-looking chap with eyes like two brown marbles, and he knew that it must be Frayne. He felt their thoughts, cold, quick, clear, perfectly ruthless. For the first time he understood what it was that set men like that apart from the bulk of the human race. Their minds were like cold wells into which no light or warmth had ever penetrated. They might counterfeit friendship or even love, but the capacity for them was not real-

ly there. All the emotions were turned inward, bound tightly around the core of Self.

And these were the men who had beaten him, the men who were robbing the galaxy of its mightiest possession.

Harlow became aware that he could still feel hate.

He sprang at the men. He reached out to strike them, and the substance of his being passed through them like bright smoke. They were startled, but that was all. And Taggart smiled.

"Is that you, Harlow? I thought so. There are disadvantages in not having a body, aren't there?" He gestured toward the Converter. "You can have yours back any time. Just come through."

And get killed? No use to lie, Taggart. I can read your mind.

"Well, then, you'll have to wait and hope that some day I'll get curious about your kind of life and come through where we can meet on equal ground. Though I wonder just what you could do to me even so."

Dundonald was close beside Harlow now. "Come on, you can't do any good here. As he says, there are disadvantages."

The fingers Harlow no longer had itched for a weapon. "I'm going back through."

"They'll kill you the instant you appear. You know that."

"But if the two of us came together—if we came fast and went for both the guards—"

"Then there'd be two of us dead instead of one."

"But if there were more of us, Dundonald. If there were ten, twenty, a hundred, all at once, pouring out through the Converter—" The idea grew in Harlow's mind. The cloud of energy that was his being pulsed and brightened, contracting into a ball of radiance. "The Vorn, Dundonald! That's our answer. The Vorn. This is their fight as much as it is ours. They built the Converter. It belongs to them, and if the Cartel takes it they'll be cut off too."

He sensed a doubt in Dundonald's mind.

"It's true, isn't it?" he cried, wild with impatience. "You know it's true. What's the matter?"

"They're so far away," Dundonald said. "I've hardly met any of them—only one, really, and there was one other I sensed a long way off. Most of them, I think, have left this galaxy."

The rest of Dundonald's thought was clear in his mind for Harlow to read. The thought was, *I doubt very much if the Vorn will care.*

"Then we'll have to make them," Harlow said. "There isn't anything else to try!"

Dundonald sighed mentally. "I suppose we might as well be doing

that as hanging around here watching, as helpless as two shadows." He shot away. "Come on then. I'll take you to where I spoke with one of them. He may still be in that sector—he was studying Cepheid variables, and there were two clusters there that were unusually well supplied."

Harlow cried. "Wait! How can I do it, how can I move—?"

"How did you move before, when you didn't think of it?" said Dundonald. "Exert your will. By will the polarity of your new electronic body is changed, so that it can grip and ride the great magnetic tides. Will it!"

Harlow did so. And a great wind between the stars seemed instantly to grip him and to carry him away with Dundonald, faster and faster.

HE WAS FIRST APPALLED, then exhilarated by it. He kept Dundonald in close contact, and the world of the Vorn, the green star, the black-walled bay, all simply vanished. There was a flick of darkness like the wink of an eyelid and they were through the Horsehead, skimming above it like swallows with their wings borne on the forces of a million suns that shone around the edges of the great dark.

This could not be happening to him. He was Mark Harlow and he was a man of Earth, not a pattern

of electrons rushing faster than thought upon the magnetic millrace currents of infinity. But it was happening, and he went on and on.

At a speed compared to which light crawled, they two flashed past many-colored sparks that he knew were stars, and then before them rose up a globular cluster shaped like a swarm of hiving bees, only all the bees were suns. The swarm revolved with splendid glitterings in the blackness of space, moving onward and ever onward in a kind of grand and stately dance, while within this larger motion the component suns worked out their own complicated designs. The Cepheids waxed and waned, living their own intense inner lives, beyond understanding.

"He's not here," said Dundonald, and sped on.

"How do you know?"

"Open your mind. Spread it wide. Feel with it."

They plunged through the cluster. The magneto-gravitational tides must have been enough to wrench a ship apart, but to Harlow they were only something stimulating. The blaze of the sun-swarm was like thunder, overpowering, stunning, magnificent. He could strangely sense the colors that shifted and changed. White, gold, blue, scarlet, green, the flashing of a cosmic prism where every facet was a sun. It passed and they were in the out-

er darkness again, the cluster dwindling like a lamp behind them.

And ahead was a curtain of golden fire hung half across the universe.

"The other cluster is beyond the nebula," Dundonald thought. "Come on—"

Going into the Horsehead had been like diving against a solid basalt cliff. This was like plunging into a furnace, into living flame. And they were both illusion. The fires of this bright nebula were as cold as the dust-laden blackness of the dark one. But they were infinitely more beautiful. The more diffuse gaseous clouds blazed with the light of their captive suns instead of blotting them out. Harlow sped with Dundonald along golden rivers, over cataracts of fire a million miles high, through coils and plumes and great still lakes of light with the stars glowing in them like phosphorescent fish.

Then there was darkness again, and another cluster growing in it, another hive of stars patched with the sick radiance of the Cepheids. And Dundonald was sending out a silent cry, and suddenly there was an answering thought, a third mind in that vastness of space and stars.

Who calls?

They followed that thought-voice, arrowing in toward a pallid star that throbbed like the heart of a dying man. And in the sullen

glare of its corona they met a tiny flicker of radiance like themselves, a minute living star—one of the old Vorn.

"Who comes?" he said. "Who disturbs me at my work?"

Harlow sensed the strong annoyance in this strange mind, too lofty and remote for anger. He kept silent while Dundonald explained, and the mind of the Vorn kept that remoteness, that lofty detachment, and Harlow began to understand that humanity and the ant-like affairs of men had been left too far behind for this one to care now what happened to anything that wore perishable, planet-bound flesh.

He was not surprised when the Vorn answered Dundonald. "This is no concern of mine."

Harlow's thought burst out. "But the Converter! You'll never be able to come back—"

The Vorn regarded him for an instant with a sort of curiosity. "You are very new. Both of you. Go range the stars for a thousand years and then tell me that these things matter. Now go—leave me to my studies."

Dundonald said wearily to Harlow, "I told you they wouldn't care." "But they have to," Harlow said. "Listen," he shouted mentally at the Vorn, who was already drifting away above the curdled furnace-light of the Cepheid. "Listen,

you think of this, the whole wide universe, as your country. Well, it won't be your country any longer if these men gain control of the Converter. You reprove us for disturbing you. We're only two. Millions will come through the Converter, in time. The Vorn will no longer be alone, or in any way unique. Where will your solitude be then, and your peace?"

The Vorn hesitated. "Millions?" he repeated.

"You better than I should know how many inhabited worlds there are in this galaxy. And you should remember how men fear death and try in every way to cheat it. The promise of a physical immortality will draw whole populations through the Converter. You know that this is so."

"Yes," said the Vorn. "I remember. I know."

"Then you'll help us? You'll lead us to others of your kind?"

The Vorn hovered for what seemed to Harlow an anxious eternity, the pallid fires coiling around him, his mind closed in so that neither Harlow nor Dundonald could read it.

Then the Vorn said, "Come."

He rose and darted away from the cluster, and Harlow followed with Dundonald, and the star-stream of the Milky Way whipped by like smoke and was gone, and there was blackness like the night

before creation and emptiness beyond the power of the mind to know.

Gradually, as his new and untried senses adjusted, Harlow began to be aware of little flecks of brightness floating in the black nothing, and he understood that these were galaxies. So small, he thought, so terribly far apart, these wandering companies of stars banded together like pilgrims for their tremendous journey. Here and there it seemed that several galaxies had joined in a cluster, traveling all together from dark beginning to darker ending, but even these seemed lost and lonely, their hosts of bright companions dwarfed to single sparks in that incredible vastness, like sequins scattered thinly on a black robe.

The thought-voice of the Vorn reached him, athrob with hunger and excitement.

"In all this time, we have never reached the end—"

The hands of the ape, thought Harlow, and the eyes of man. They had never been filled and they never would be, and this was good. He looked at the distant galaxies with the same hunger and excitement he had felt in the Vorn. What was man for, what was intelligence for, if not to learn? To see, to know, to explore, to range over creations to its uttermost boundaries, always learning, until you and

the universe ran down together and found the ultimate answer to the greatest mystery of all.

No wonder the Vorn had no interest in going back. With something of a shock, Harlow realized that he himself was rapidly losing it.

Dundonald laughed, the silent laughter of the mind, edged with sadness. "Cling hard to your purpose, Harlow. Otherwise we too will be Vorn."

THE PACE QUICKENED. Or perhaps that was only an illusion. They fled at unthinkable speeds, cross-cutting time, their bodiless beings making nothing of space and the limitations of matter. They plunged toward a fleck of brightness and it grew, spreading misty spiral arms, and the mists separated into stars, and a galaxy was there all blazing bright and turning like a great wheel. They swept through its billions of suns as a breeze through grains of sand, and the Vorn called, and others answered. There was swift talk back and forth, and Harlow knew that some of the minds broke contact and withdrew again into their privacy, but others did not and now their little company was larger.

They burst free of the spiral nebula. The Vorn scattered away and were gone, to speed the hunt

and spread it wider. Harlow, Dundonald and their guide raced on.

There was no time. There was no distance. Like a drunken angel, Harlow plunged and reeled among the island universes, dizzy with the wheeling of stars beyond counting, dazed with the dark immensities between, exalted, humbled, afraid and yet in a very real sense, for the first time, not afraid at all. Several times he strayed, forgetting everything, and Dundonald called him back. And then there was a long last swooping plunge, and a galaxy, and a flickering darkness that was somehow familiar, and Harlow was in a bay on the coast of a great black nebula, and there was a green star burning like a baleful lamp—

Home-star of the Vorn. And from across the universe the Vorn were gathering.

They danced against the black cloud-cliffs like fireflies on a summer night, and there were very many of them. They coalesced in a bright cloud and went streaming down toward the planet of the green star in a comet-like rush, carrying Harlow with them, and at the last moment he cried out in sudden terror and regret, "No—no—"

But there was a pillar of fire in the night and they streamed toward it, filling the air with their eerie brightness. They brushed the

upturned faces of Taggart's men as they passed, and Harlow saw the faces go white and staring with panic.

Then they all vanished in a blur as Harlow spun high, high into the air and flung himself into the shaking glorious pillar.

Moth into flame. And his wings were shorn and crumpled and the glory died, and the lightness, and the freedom, as he fell inside that pillar of force. For as he fell, the subtle pattern of its forces was transforming, rearranging, his electrons and atoms back into solidity. He stumbled out of the pillar, and he was a man, he was Mark Harlow again, moving heavily on cement and not knowing why.

He was not alone. Dundonald was beside him—the old fleshly solid Dundonald—and all around them there were others. Tall men whose lean, spare flesh seemed even now to have a certain glow, almost a transparency, as though the long ages in another form had wrought some permanent, subtle change. Their eyes were strange, too—as remote and brilliant as the stars they had followed across the endless void. There was one taller, sterner, more commanding than the rest, and he seemed to be the leader, as perhaps he had been.

"Heavy, slow, mortal," muttered Dundonald beside him. "Why did we have to come back?"

Dim memory, struggling to return, warned Harlow of danger. He cringed in the expectation of bullets tearing into his now-vulnerable solid body. But there were no shots, and the whole plaza held a confusion of outcries that expressed only fear.

Suddenly he realized that he could not see the plaza. It was obscured in a bright fog, a mad whirling coruscation through which the tall Vorn men moved with calm certainty. Harlow and Dundonald faltered, confused, and then they realized that not all the Vorn had come through the Converter.

By hundreds, by thousands, they had settled upon the plaza in a glowing cloud that blinded and terrified the men who were there on guard, and the others who had run out at the first cry of alarm. They carried weapons, but they could not see to shoot them. Bright mists clotted around them, and the tall quiet men from the Converter moved among them quickly, with a frightening air of efficiency. They had come back a long way to do a certain thing, and they wanted it done and over without delay. The terrified Earthmen were disarmed, swept up, herded together, and held with their own weapons in the hands of the human Vorn.

Dundonald caught Harlow's arm and pointed suddenly. "Taggart!"
He appeared through a thinning

of the bright mist, with a heavy rifle in his hands and a cobra look of fury on his face. He levelled the rifle at the dim shadows of the human Vorn in the mist, where they herded the Earthmen. He was bound to hit some of his own men if he fired, but Harlow sensed that he did not care. Harlow shouted a warning and ran forward.

Taggart heard him and wheeled. He smiled. "This was your idea, wasn't it, Harlow? Well—" He brought the rifle to bear.

Harlow launched himself in a low dive for Taggart's knees.

He heard the rifle go off. He felt the impact as he hit Taggart, and a second jarring crash as Taggart fell backward and they both landed on the pavement. But there was no fight. Hands lifted him up, while other hands hoisted Taggart less gently to his feet.

The voice of a Vorn spoke inside his mind. "That was rash and needless. We were ready for him."

Harlow turned and saw the tall leader beside him. He knew the man was speaking to him as he would have spoken before he returned through the Converter, and it dawned on Harlow that none of the re-created Vorn had spoken a word aloud, which was one reason for the weird silence in which all this had been done.

The Vorn leader smiled. "But it was brave, and we thank you. We

are glad that we deflected the weapon in time."

Harlow whispered, "So am I." He wiped his forehead.

The tall men led Taggart away. And the bright mist began to lift as the Vorn withdrew a little.

The strange, silent battle was over. Taggart, Frayne and their crews were captive. Dundonald's and Harlow's crews had been released, and now the tall Vorn men relinquished their weapons and their captives to the men of the Star Survey.

Yrra was running out across the plaza, calling his name.

Harlow ran to meet her, catching her in his arms. He kissed her, and overhead the glowing, dancing stars that were the Vorn hung in the deepening twilight of their ancient world, as though they were waiting.

He said to Dundonald, "Your ship can take word to the Survey. We'll need more ships here, more men to guard the Converter permanently—"

The voice of the Vorn leader spoke again in his mind.

"There will be no need. Before we leave, we will make very sure that the Converter is not used again."

NIGHT HAD FALLEN, and the Vorn were leaving. Eagerly the tall, strange men crowded up

the steps of the Converter. Joyously, they stepped into the blazing beam, and light, free, and joyful they sped out of the upper beam as radiant stars to join the hosts of other firefly stars that waited.

Harlow stood with Yrra and Dundonald and watched them. There were tears in Dundonald's eyes, and he took a half-step toward the stairs.

"No," said Harlow. "No, you can't, you mustn't."

Dundonald looked at him. "You weren't free as long as I was, you don't know. And yet you're right. I can't."

A door in the cement side of the Converter—a hidden door they had not known before existed—opened and out of it came that tall Vorn man who had been their guide. His thought came to them.

"You will be wise to remove yourselves from the Converter, before the last of us depart."

Harlow understood, and a great sadness took him. "The greatest secret of the galaxy—to be destroyed. Yet it's better."

"It will exist again," came the Vorn's thought.

Startled, Harlow looked at him. "Again? How—?"

"You too, you men of Earth, will someday build a Converter. When you first stepped off your planet, you set yourself upon a road that has no turning-back.

You will go farther and farther, as we did, until you hunger for the farthest shores of the universe, and those you can only reach as we did."

Harlow wondered. Would it be so? Or would Earthmen take a different road altogether?

Yrra tugged fearfully at his arm and spoke to him, and he looked up to find they were alone. The last of the Vorn was climbing the steps toward the beam.

He awoke to their danger, and turned and took Dundonald's arm. Dundonald seemed mazed with his own thoughts, his face pale and drawn by a wild regret, and Harlow had to drag him back with them across the plaza.

They turned by the ships, and looked back. No human figure now was visible by the Converter. But out of the upper beam sped a last radiant Vorn to join the hosts of others that swirled in the darkness.

A dull red spark appeared in the side of the massive cement pedestal that held the Converter. It was not flame, but a force unleashed by whatever fusing device the Vorn had left. It spread, and devoured, and the supernal beam that had been a gateway to the infinite for thousands of years flickered and dimmed and went out. The hungry redness ate all the Converter, and it too went out, and all was dark. Except—

"Look!" cried Yrra, in awe.

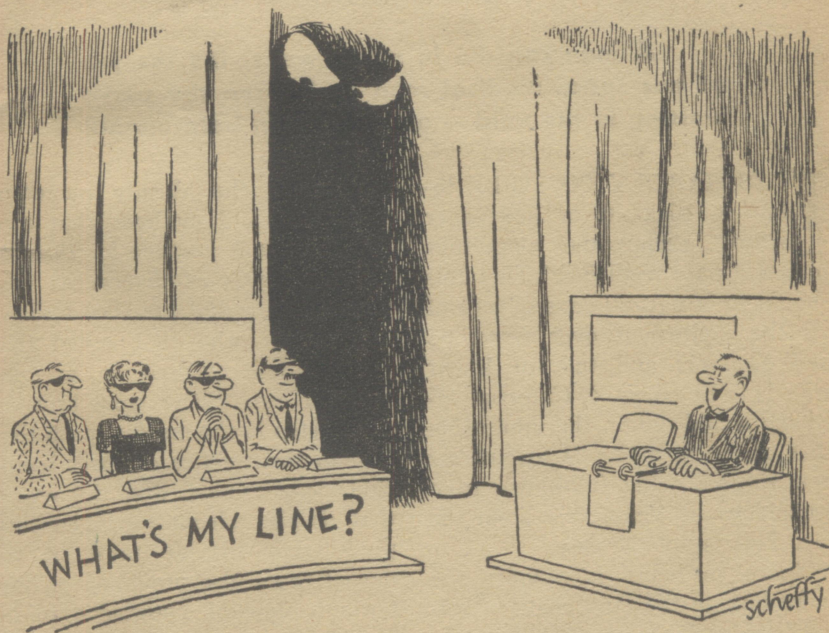
Overhead the Vorn were circling, a radiant will-of-the-wisp host, a maelstrom of misty shooting-stars as though they bade farewell forever to the world of their birth.

And then they shot skyward, joyously, a great plume of rushing little stars outward bound for the

farthest shores of creation, for the freedom and wonder of all the universe, time without end.

It was not for Earthmen, Harlow thought. They had their own road, and must follow it. And yet, as he looked up, he felt that his own eyes held tears.

THE END



"And now for our mystery guest . . ."

SPECIAL SCIENCE FEATURE

Progress Report On
SPACE MEDICINE

by

Henry Bott

Research Engineer

A man can die in many ways; it's the job of our space medical men to foresee the perils waiting in the void — and lick them beforehand!

IT IS HARDLY POSSIBLE today to pick up a newspaper without seeing the ubiquitous phrase "space medicine." That this should be a natural consequence of all the excitement over *Explorers* and *Sputniks* and talk of Lunar trips is to be expected. Unfortunately one would obtain the impression that space medicine is an utterly new subject rising full-blown from technology as Venus rose from the sea. This is not the case.

Space medicine is simply one more link in the long chain of scientific development that has accompanied men in their irrepressible urge to change their environment. For space medicine is simply an ex-

tension of the already numerous techniques and methods that men use to make it possible for them to enter domains as diverse as coal mines, oceans and the stratosphere. Those men who first noted that asphyxiation resulted in an unchanged atmosphere were learning a first step in the medical path that lead to the practice of space medicine. Submariners who discovered that despite adequate oxygen supply, carbon dioxide must be removed, were also providing an important piece of knowledge to be used in the path to the stars.

And so it is possible to select thousands of discoveries at random to show that the technique of what

we call space medicine, is nothing new, but a continuous growth and extension of medical, scientific knowledge.

There is almost no region so inhospitable to human habitation that it has not been visited by human beings. The Arctic, icily hostile, the fiery desert, the silent depths of the sea, the airless loftiness of the stratosphere—these regions have been probed.

Thus the tender, fragile combination of flesh and bone which constitute a human being has been exposed to conditions which in no sense can be called "natural environment." Man's planned probing of space differs only in degree, not in kind, from his probing of the Earth. It is true that the problems are seemingly exaggerated, that emptiness and zero-gravity are unlike anything he has encountered before. But he has never conquered fiercely inimical environments by adapting to them, by changing his skin or eyes or body temperature to match them. Instead, he has, in one way or another, surrounded his body with his natural habitat, air and warmth, and gone on from there. A submarine is a cocoon housing men in relative comfort despite the fierce pressures and icy temperatures outside of the vessel. A stratospheric air-liner too, wraps its passengers in heat and air and

light.

It is evident then from these examples that the problems of outer atmosphere, of "fringe-space," and of space itself, are not very different from those of more familiar domains. They are only harder and more intransigent.

Schools of Space Medicine, such as those of Randolph Air Base in Texas, or the Wright Aeromedical Laboratory, are the offspring of conventional aviation schools concerned with aero-medical problems. Their dimensions have been vastly enlarged however. Twenty and thirty years ago there were pioneer schools of space medicine in England, Germany, France and Russia. Far-seeing American doctors of the time were writing obscure little papers, often laughed at by their colleagues.

All of these efforts, each adding an infinitesimal but important scrap of knowledge, led to the solution of many problems. For example, the question of food, of air, of water to be supplied to the inhabitants of an artificial satellite or of a spaceship, really no longer belong to the domain of space medicine. We can think of these problems as being basically solved, and the hardware to supply these vital necessities already exists somewhere in the "top secret" files of the world, probably—certainly—on both sides

of the Iron Curtain.

Many newspaper accounts have been given recently about experimenters isolating themselves for long periods of time in absolutely synthetic environments, their every need being supplied automatically, artificially, remotely and mechanically. Invariably these men have emerged from their ordeal in sound shape. Bottled oxygen and water and food can supply the human calorimeter.

What then, are the real problems confronting the practitioners of space medicine?

If doctors are not concerned with supplying men with air and food and water and not concerned with keeping them warm or cool as the case may be, what then is the need of space medicine? In a phrase, if the problems have been solved, why space medicine?

By now of course the answers to these rhetorical questions are familiar to everyone. Tough, thick-skinned man is going to be confronted in space by an environment drastically changed in three ways, three ways which have never before been encountered. For long periods of time men will be in "free-fall" or a state of weightlessness; for long periods of time they will be exposed to cosmic radiation of the rawest, most intense kind, and last but not least, they will be ex-

posed to a more recently discovered menace—strong, incredibly intense x-radiation. It is not yet clear whether this latter radiation is directly from the sun or whether it is secondary radiation caused by cosmic ray or electron bombardment of the metal of the space vessel. This latter discovery is a product of the American satellite program.

Space medicine, strangely enough, is dealing in a sense with problems it cannot solve until it encounters them. We are speaking of course of the problem of gravitationlessness. Lethal radiation can be simulated—that is hardly the word!—by the fierce atomic radiations we can create on Earth.

LET US CONSIDER the problem of "free-fall," since this is of great concern to medical people. In recent years, "free-fall" has been experienced for brief periods of time by parachutists, pilots under certain conditions, and even partially by ordinary folk on roller coasters. Almost universally, no serious ill-effects have been reported except for minor nausea, and some have even gone so far as to laud the effect for the exuberant sense of freedom it induces. But medical men, more familiar with the sensitivity of the human body, are not satisfied with these brief excursions

and even briefer reports.

Except when swimming—and partially then—men are continually aware of the gravitational field of our planet. This gravitational field which is of course directed toward the center of the Earth provides a continual frame of reference for the position of the human body. So important is the frame, that Nature has built into us special sensory organs, delicate liquid chambers in the inner ear, the function of which is to sense deviation of the body from the vertical, and through corrective action of muscles actuated by signals consisting of nervous impulses sent along motor nerves, so to maintain us bifurcated bipeds erect. The nausea and dizziness accompanying sea or airsickness, or damage to these sensory organs, are Nature's way of assuring verticality—and hence readiness.

As has so clearly and often been pointed out, space flight will require that human beings remain in a state of "free-fall" for long periods of time. Nothing in their experience on Earth has prepared them for this state. One of the problems of space medicine, one of the most important problems, is to make sure that men are prepared to meet this condition. Perhaps it should be explained that medicine is less worried about the ability of men to adapt

for long periods of time to this condition than it is about the short-term effects. It is concerned that during crucial maneuvering and controlling periods, rapid conditions of free-fall alternating with "g" or multiple "g" conditions will so affect human beings that they will be unable to remain masters of their control panels.

There are medical men who will dispute the possibility of men adapting for long periods to free-fall. They say that men will be unable to stand this state or endure its discomforts. The view however of the larger number of the fraternity is different. It feels that while some persons may not adapt for inherent physiological or psychological reasons, those selected for the space journeys will have little trouble once they are familiar with the condition.

Why argue? you ask. Put the question to the only neutral arbiter—test. This would be fine, except that so far no one has found a satisfactory way to simulate free-fall. You can do it for very short periods in ways we have mentioned. The classic current technique is to put a high speed rocket or jet plane in a trajectory which for a matter of seconds permits its occupants to be truly in free-fall. Most of you have seen motion pictures of the interior of such planes,

filled with "floating" objects.

Unfortunately, these times are so short, no real answer as to how the human frame will behave, can be formulated. Ingenious suggestions to circumvent this barrier to creating a state of no-gravity here on Earth—suspending subjects in water tanks etc.—really provide no satisfactory information.

Doctors of space medicine are awaiting what will amount to their most important source of information on this subject—the launching of the rocket plane X-15. This half-breed of rocket and airplane will probably expose its pilot to the longest time in free-fall that has ever been recorded. Unfortunately the event is a year or so away.

The combined studies however of both "no-g" and "high-g" frames of reference conditions for human beings, tend to indicate that human beings will endure them. Critics who like to point out the near-impossibility of controlling a spaceship when nauseated or de-oriented by "no-g", are failing to consider the fact that a rocket, man-carrying or inert, does not require any other kind of guidance but that of automatic controls. Admittedly these controls must be sophisticated, but by the time men are ready to take the space trip, those controls will be robots of the first order.

In all fairness, it must be admit-

ted that the medical problem least known about from the standpoint of actual test, is that of free-fall. Only a limited experience buttresses our hypotheses. Fortunately however there is nothing in our physiology that indicates we cannot endure—and eventually perhaps enjoy—weightlessness.

The other major medical problems—cosmic radiation and secondary x-rays—are of a different stripe. Medicine is well equipped to cope with these questions. Science merely needs data on their intensity. That is an over-simplification of course, but the recent years of the nuclear bomb tests have told us a great deal about the effects of high intensity atomic beams on the chemistry of the body.

We knew—although this information seemingly is not as widely distributed as it should be—down to the last milli-roentgen-second, how much cell-shattering radiation the human body can endure. By that I mean, how much of such radiation is required for death, or incapacitating injury, and how long we can endure exposure. The debate about the subject rages—just as it does about nuclear tests—around the question of how much radiation the body can sustain without damage and by the phrase "without damage" is meant genetic injury and cancer (severe) culpa-

bility. These questions are naturally being resolved at this very moment. The probe-rockets of the *Explorers* and the *Vanguard* are radiating back to Earth the necessary, vital data concerning the intensity of cosmic radiation in space. Armed with this information and with the knowledge being gleaned in the laboratories on Earth, very accurate estimates of the time men can spend in space will be obtained.

A RECENT and terrifying addition to this picture has been announced. It is a discouraging, but not despairing piece of information. Several scientists pointed this out many years ago, but apparently this is first confirmation of the condition. We refer to the fact that the shell of a rocket when struck by sufficiently intense or penetrating cosmic radiation or sun-electrons, produces secondary radiation—"hard x-rays". These rays are the multiplied effect of cosmic radiation. Being struck by a particle of cosmic radiation is bad enough, but the cell damage it might do is not necessarily great. On the other hand that same particle striking a piece of metal and producing a dense shower of secondary x-rays can destroy large numbers of cells. The effect is much that of an exploding shell which is capable of spreading its destruction over a

larger volume than that of a shell which is solid and which must hit directly what it is to injure.

Present crude estimates by medical experts suggest that each human being in a hypothetical rocket might require an additional shielding of as much as a hundred pounds of lead, a heart-breaking handicap where every gram of excess weight penalizes the rocketeers. It might be added that this estimate could be too conservative and that much greater shielding might be required, because it is possible for thin lead barriers to act as sources of secondary x-radiation also.

Because of exploratory work done by the medical teams of nuclear physics a very clear picture has been established of the level of tolerance to radiation that a human being is subject to. This information, in the hands of the space medicine people is of the utmost use since they can insist that potential man-carrying rockets meet "the specs".

Another danger, thoroughly evaluated by the space medicine groups, is that of explosive decompression. This ogre, beloved of early science fiction writers, is probably one of the least threatening of all of the worries of space travel, not because it is incapable of damaging a person, but because it is so improbable statistically. To

begin with, the probability of a rocket being struck by a meteor is remarkably small. The *Explorers* have confirmed this. But should this almost unthinkable event occur, that is, should a small meteor "hole" a space ship sufficiently to cause the rapid loss of its air, the space medical people have an answer. The answer is of course that the ship will not be pressurized to Terran standards of fourteen and seven-tenths pounds per square inch. Instead it will be pressurized only to about three p-s-i of pure oxygen—after all, of what use is the extra nitrogen? This much lower pressure means of course that the escape of air is much less rapid and the presumption is that very rapid repairs can easily be affected. Just one of the little products of space medicine, this knowing that the human respiratory system can exist and flourish under the most amazing of circumstances.

Space medicine is also concerned with much more prosaic matters than these. For example, what about sun burn? Intense solar radiation can inflict painful burns, and above all it can damage the retina severely—to blindness—if looked at directly. In space the merciful filter of atmosphere is missing. Any ports or portholes will have to be suitably shielded and the appropriate materials have already been

weighed.

An aspect of space medicine which receives altogether too much attention in some respects, is the psychological, at least in the newspapers which make much of the problems of living amicably in a group aboard confined quarters such as those of a spaceship or a submarine. Previous articles of this kind have emphasized the noble aspect of an endeavor of this type, and stressed the honor and glory that will be associated with it. Perhaps when space travel becomes comparatively commonplace, we might fear the psychopath or the mentally incompetent or disturbed who somehow finds his way aboard. But the stringent weeding-out and selection that will cover the choosing of a space crew precludes any real worry over this remote situation. Nevertheless, it is interesting to note with what elan the experimenters have emerged from their closed capsules after weeks in confinement, sustained by the sense of honor and participation. Eventually one can foresee however a role for psychological investigation. Its present one is primarily concerned with the possible disturbance in judgment, especially visual, that the remarkable situation of being truly space-borne might induce in an impressionable pilot.

ONE OF THE MOST frustrating aspects of space medicine is that it is not concerned really with a new environment and man's reaction to it, save in very specialized ways. Thus, a man must be in either a space ship, or a space suit, that is, he must carry a portion of his Terran environment with him no matter if he is on the Moon, in deep space, or contemplating a landing on Titan. The opportunity for medicine to observe a man contesting a totally alien situation is lacking. So far as can presently be discerned there is almost no probability at all of any planet or satellite in the Solar System being habitable in the ordinary sense of that word. That means, that although there is likely no spot in the Solar System which will not ultimately be visited by men, there is no place where they will go without a harness of space-suit or spaceship. You cannot step into a vacuum or an atmosphere of liquid methane!

The sad truth is that we seem to be doomed forever, so far as the Solar System goes, to staying within our terrallas, to the disgust of medical people who would like to see a planet with a rich, oxygen-laden atmosphere against which man could test his lungs and metabolism. The more optimistic will wait for the interstellar trips and

hope for the best.

Can you imagine the interest with which space medical researchers would greet the presentation for study of an alien strain of bacteria, perhaps even the flora and fauna of another time and place? Alas, this seems impossible save on the most modest of scales, such as, say, lichens from Mars, trace-plants from Luna, and perhaps some—at present inconceivable—remarkable animal life from Venus.

To watch the scientists of the space medicine effort is not a very exciting experience unless you see their efforts through the eyes of your imagination. Scientific laboratories for almost any purpose look alike. Only when you realize what the goal is, do you feel impressed by what is going on in say, the Department of Space Medicine at Randolph Air Base. As an example of this, consider the program being conducted by several scientists working under contract to the Air Force.

This effort is dedicated to the proposition that a biological approach to the study of air—and to a certain extent food—supply, as well as the complete utilization of body wastes, is superior to the purely mechanical and chemical. In particular, elaborate studies are being undertaken of species of algae capable not only of consuming

carbon dioxide and releasing oxygen, but also of converting urine and other body wastes directly into potable liquids! This cannibalization of excreta may sound unpleasant from an aesthetic point of view, but it is of vital importance to the technology of approaching space flight. As a matter of fact, the astonishing efficiency of biological organisms lend themselves more easily to "closed-cycle" regenerative systems than do the complexes of chemical engineering. If a complete man-algae-bacteria-chemical ecology can be evolved by the students of space medicine, it is likely that the system can be packaged into much less space than any equivalent chemical apparatus.

Another and extremely important concern of space medicine is the space suit. As previous articles have pointed out, a space suit is a much more sophisticated apparatus than the simple diving suit with which it is so often compared. A space suit is a terella not very different in its requirements than a space ship or a space station in terms of what it must do to support the precious life it encases.

Space medicine of course, is medicine first. Consequently discoveries and developments that furnish information of any kind about the workings of the human body in both stress, and at ease,

are of value. An important operation of space medicine is simply the study and awareness of what is going on in general medicine. For example, it is not likely that persons with weak hearts will be able to endure high accelerations such as are encountered in rocket ascensions.

How can you make sure that latent heart trouble in apparently perfectly healthy spacemen, won't suddenly appear to plague the expeditions to the satellites? Naturally medicine will be relied upon to provide the tests necessary to detect incipient or latent illness of any kind. This is but straight medicine, yet an important part of the total space medical effort.

ANOTHER PROBLEM of space travel which rarely disturbs the novelists but which is of real significance even today, is the question of exercise. Of all human activities it is hard to imagine one which requires more alertness, yet less physical effort, than that of piloting or controlling a space vessel. Because every gram of excess weight must be dispensed with, the volume of a space ship cannot be very great. In fact we have seen pictures of proposed spaceships which allot little more space to the pilot than the volume his body occupies. The rest is instrumenta-

tion. How do you prevent a relatively motionless human body from going "dead", from succumbing to the familiar prickly pains of shut-off blood circulation? If you've ever been forced into a cramped position for any length of time you can appreciate this enervating experience. To counter this trouble, space medical scientists are working on massaging mechanisms which can simulate exercises. The classic approach has been to consider a close fitting suit, which, under pulsations of air pressure, can offer the muscles forces against which they can work. Even so this seems unsatisfactory. Special training of pilots, not unlike the practices of the Indian Yogis, may be required to prevent actual degeneration of the body through failure to exercise.

Similarly, it has been found that living in sealed environments tends to induce skin disorders and to some extent nervous disorders. To cope with these problems you must know their causes. This is one of the reasons that the most useful, important and common piece of scientific equipment in the schools of space medicine, is the terella or sealed chamber which simulates the atmosphere of a space ship.

An important branch of medicine concerned with space effects, is that which emphasizes drugs—

drugs for every purpose from relieving a headache or inducing euphoric sleep to curing a rabid infection. In a spaceship or a satellite—at least for a long time—a full-fledged hospital will be a long way off.

The development of emergency escape equipment for use in the upper atmosphere and its attendant problems of protecting the escapee, is also a current problem of space medicine. Circumstances can be imagined under which a ferry rocket pilot can parachute to Earth if he is sufficiently far into the upper air. Medical spacemen provide this man with a chance to parachute to Earth! Automatically this requires environmental protection, suitable parachuting, and some guarantee of landing alive. This is the proper province of space medicine.

The work of the "doctors of space" will not end when the first men go into space. On the contrary, it will continue even more intensively. It will go on with much more data than is now available. We cannot even imagine what problems will confront the medical men who talk with the crews who settle the space stations and land on the Moon. But one thing is certain, space medicine is not a passing activity. Someday there will be a hospital on the Moon! . . .

He was scared and he was mad. He didn't mind killing, but he didn't like murder. There was a place for one but not the other. It was —

His First Day At War

by

Harlan Ellison

THE FIRST NEEDLE of the "day" came over Copernicus Sector at 0545 . . . and seven seconds. The battery commander on White's line was an eager-beaver. His bombardment cut short the coffee-pause Black's men had planned to enjoy till at least 0550. When the hi-fi in the ready dome screeched—a vocal transformation of the sonorad blip indicating a projectile coming through—the Black men looked at one another in undisguised annoyance, and banged their bulbs onto the counters.

Someone muttered, "Spoil sport!" and his companions looked at him and laughed; obviously a repple officer, fresh from the Academy.

One of the veterans, who had been with the outfit when Black had been Black. One and Black Two—*before* the service merger—chuckled deep in his throat. He began to dog down the bubble of the pressure suit. But before the

plasteel bowl was settled in place, he gibed, "Cookie-boy, you shoulda been up here when White rung in a full-blooded Cherokee named Grindbones or somethin'. You'da been on the line a'reddy at 0500. He was lobbin' 'em in solid by this time . . . had a hell of a job gettin' him croaked." He chuckled again, and several other officers nodded in remembrance.

The young lieutenant addressed as "Cookie-boy" turned an interested glance on the older man. "How did you manage to kill him? Full-day batteries at double strength? Spearhead through the craters?"

The veteran winked at his friends, and said levelly, "Nope. Easier'n that."

The young lieutenant's attention was trapped.

"Waited till he went down, and had a goon squad put a blade into his neck. Real quick. Next day, had our coffee without sweat."



The young lieutenant was still. His face gradually became a mask of disbelief and horror. "You . . . you mean you . . . oh, come *on*, you aren't *serious!*"

The veteran stared at him coldly. "Sonny, you *know* I'm serious." He dogged down the pork-bolts on his helmet. He was out of the conversation.

Yet the lieutenant continued to protest. He stood in the center of

the ready dome, his helmet under his arm, his other arm thrown toward the rounded ceiling in a theatrical pose, and blurted, "But—but that's illegal! When they declared the Moon a battlefield, that was the reason, I mean, what's the sense of using up here to fight, if we still kill each other down there, I mean—"

"Oh, shut up, will you, for Christ's sake!" It was a lean, angu-

lar-faced Major with a thread-scar from a single-beam across the brutal cut of his jaw. "This wasn't war, you young clown. This was a matter of a man who fought, and stuck too closely to the rules. What you learned in the Academy was all floss and fine, man, but grow up! Use your noodle. What they taught you there doesn't always apply out here.

"When someone crosses too many wheat fields, he's bound to find a gopher hole. This Indian stepped in one of those, that's all."

The Major turned away, dogged down, and joined the rest of the line company's officers at the exitport. The young lieutenant stood alone, watching them, still muttering to himself. For with the other men on intercom only, they could not hear what he was saying:

"But the war. The—the war. They said we wouldn't chew up the Earth any more. The war . . . up here it's so much cleaner, a man can fight or die or . . . but—but they *said* they killed him on his way down.

"He was going home, to Earth, and they *killed* him—"

The Major turned with sluggish movement in the pressurized dome, and waved a metal-tooled gauntlet at the lieutenant. It was time to move to the units.

The lieutenant hurriedly dogged down, and joined the group. The

veteran officer who had first spoken, turned the younger man around with rough good humor, checking the pork-bolts. Then he slapped the lieutenant on his shoulder with a comradely gesture, and they went into the exitport together.

The hi-fi had been screeching constantly for a full three minutes.

Outside, the Blacks and the Whites went into the five thousand and fifty-eighth day of the war. That particular war.

THE NEEDLES CAME across all that early morning. In the dead black of the Darkside, their tails winked briefly as vector rockets shifted them on course. No sound broke across the airless cratered surface, but the tremors as each missile struck rang through the bowels of the dead satellite like so many gong-beaters gone mad.

Where they struck great gouts were ripped from the grey, cadaverous dust of the surface. Brilliant flashes lived for microinstants and then were gone, for without air there could be no flames. Where the needles struck, and the face of the moon tore apart, new craters glared blindly up at space.

At 0830 on the dot, the first waves of armored units spread out from the ragged White line near Sepulchre Crater and advanced across the edge of the Darkside,

into the blinding glare of the Light-side. Vision ports sphinctered down into narrow slits; filters that dimmed the blaze of light clicked over the glassene ports; men donned special equipment, and snapped switches that cut in conditioning units and coolant chambers—and turned off the feverishly working heaters.

The armored crabs came first, sliding along, hugging the contours of the moon's face, raising and lowering themselves on stalk-like plassteel rods.

The Black batteries detected their coming, but not their nature, and the first barrages were low-level missiles that zoomed silently through the glaring sunlight, passed completely over the crabs, and *shussssed* off into the Darkside, and space, where they would circle aimlessly till the men from Ordnance Reclamation went out with their dampening nets and sucked the missiles into the cargo hatches of the ships.

But as the crabs flopped and skittered their way toward the Black line, the sonorad was able to distinguish more easily what they were. The cry went up in the tracking cells buried deep under the pumicè of the planet, and new batteries were readied/launched! Doggie-interceptors screamed silently from their tubes, broke the surface of the moon like skin divers

reaching water's surface, and began to follow the line of terrain, humping over rises, slipping into craters, always moving out.

The first ones made contact.

Within the crabs, the shriek of rending metal was a split microsecond ahead of the roar and flash of the doggie exploding. Great gouts of flame roared out angrily . . . and were gone as quickly, leaving in their place a twisted, bloody scrapheap where the crab had been. Another doggie struck. It caught the crab and lifted it backward and up on its stiltegs, and then it exploded violently. Pieces of bodies were thrown two hundred feet into the airless nothing above the moon, and fell back soddenly.

All along the line the doggie's were tracking their prey and demolishing them. On the far right flank, one crab managed to train its twenty-thread on an incoming doggie, and exploded the missile before it hit. But it was a short-lived victory, for two others, coming on collision courses, zeroed in and struck simultaneously. The flash was seen fifteen miles away, the roar trembled the ground for thirty miles.

But White's offensive for the day was just beginning. In streaming waves the foot-soldiers were coming up behind the crabs. They were small pips on the sonorad units in Black GHQ, and though they could

SPACE TRAVEL

not tell if what was coming was human or mechanical, Black continued to send out the doggies.

It was a waste of missiles; precisely what White had been counting on. The doggies homed in, and exploded, hundreds of them, each finding a lone man and atomizing him so quickly, no bit of pressure suit, weapon or flesh could be found. The missiles came down like hail, and where each struck, a man died horribly, without time to scream, with his body exploding inward in a frightful implosion of power and fire. Hundreds died all along the line, and as the doomed foot-soldiers drew the fire, the jato teams soared up from White Central and streaked before little gouts of flame, toward the Black perimeter.

Each man wore a harness over his pressure suit, with a jet unit, to drive him across the airlessness.

While their brothers died in flaming hell below them, the jato units soared through the empty sky, above the level of the terrain-skimming doggies, and dropped down like hunting falcons on the batteries.

Each man carried in a drop-pouch a charge of ferro-atomic explosive on a time fuse. As they whipped over the batteries, the men released their deadly cargos, directly into the barrels of the thread-disruptors, and sped up and

away, back for their own lines. It was futile, of course, for sonorad had caught them, and trackbeams snaked out across the sky, picking each man off like moths caught in a flame. The jato units were snuffed out in mid-air, even as the ferro-atomics went off inside the disruptor barrels.

Great sheets of metal exploded outward, ripping apart the bunkers into which they had been set. The disruptors shattered their linings, throwing their own damping rods out, and in one hell's holocaust of exploding ferro-atomics, the entire battery went skyward. Three hundred men died at once, faces burned off, arms ripped loose from sockets, legs broken and shredded. Bodies cascaded from the sky and the steel ran with blood.

It was a typical day in the war.

THE TRACKBEAMS probed outward, scouring the ground for landmines planted by the foot-soldiers, and exploded them on contact, then moved on. Eventually, they probed at the firm outer shell off the White perimeter.

Then the charged trackbeams of White met the Black beams, and they locked. They locked in a deadly struggle, and at opposite ends of those beams, men at control panels, in shock helmets, poured power to their beams, in a visible struggle to beat down the

strength of the other.

A surge, a slight edge, a nudge of force, and White was dominant. The beam raced back the length of the weakened Black beam, and in a dome two hundred miles away, a man leaped from his bucket seat and clawed at his helmet . . . even as his eyes spouted flame, and his mouth crawled open in a ghastly scream. His charred body—burnt black inside—turned half-around, writhing, as the man beat at his dead face, and then he fell across his console.

The trackbeam was loose inside the bunker. In a matter of moments, no living thing moved in the bunker dome. But it was a double-edged weapon, for associate trackbeams of the doomed White had centered in, and now five of them joined in racing back along the Black's length. The scene in the White bunker dome was repeated. This time a woman had been under the helmet.

So it went. All day. One skirmish of foot-soldiers with ensnaring nets who stumbled across a Black detonation team, near Auchulous Crater ended strangely, and terribly.

The detonation team was wrapped in the gooey meshes, but had barely enough time to toss their charges. The charges exploded, killing the ensnaring outfit, but also served to shatter their own hel-

metts. They lay there for minutes, those whose helmets had merely crackled, until their air ran out, and then they strangled to death. The ones who died initially were lucky.

At day's end, at 1630 hours, the death toll was slightly below average for a weekend. Dead: 5,886. Wounded: 4. Damages: twelve billion dollars, rounded off by the Finance & Reclamation Clerk. The batteries were silent, the crabs back in their depots and pools, the airless dead face of the moon left to the reclamation teams, who worked through the "night," preparing for Monday morning, when the war would resume.

The commuters were racked, and as the Blacks filed into their ships, as the Whites boarded theirs, the humming of great atomic motors rolled through the shining corridors of the commuters. Inside, men read newspapers and clung to the acceleration straps for the ride down.

Down to Earth.

For a quiet evening at home, and a quiet Sunday . . . before the war started again.

Almost as one, they roared free of the slight gravity, and plunged down toward the serene, carefully-tended face of the Earth. The young lieutenant hung from his strap and tried to block out the memory of what had happened that day. Not the fighting. God, that

had been just fine. It had been good. The fighting. But what the older men had said. That was like saying there was no God. The moon was for war, the Earth was for peace.

They had knifed a battery sergeant on his way down? He looked about him, but all faces were turned into newspapers. He tried to put it from his mind forcefully.

Behind the commuters, the blasted, crushed and death-sprayed face of the Moon glowed in sharp relief against the black of space.

What had the Major said later:

War is good, but we have to retain our perspective.

SUNDAY

Yolande was in the kitchen dialing dinner when the chimes crooned at her. She turned from the difficult task of dictating dinner to the robochef, and wiped a stray lock of ebony hair from her forehead.

"Bill! Bill, will you answer it . . . it's probably Wayne and Lotus."

In the living room, 2/Lt. William Larkspur Donnough uncrossed his long legs, sighed as he turned off the tri-V, and yelled back softly, "Okay, hon. I'll get it."

He walked down the long pastel-tiled hall and flipped up the force screen dial, releasing the wall into nothingness. As the wall flicked out and was gone, the outside took form, and standing on Bill and

Yolande Donnough's front breezeway were 2/Lt. and Mrs. Wayne M'Kuba Massaro.

"Come on in, come on in," Bill chuckled to them. "Yo's in the kitch fixing dinner. Here, Lotus, let me have your hood."

He took the brightly-tinted hood and cape offered by the girl, a striking Melanesian with an upturned Irish nose and flaming red hair.

He accepted Wayne Massaro's service cap in the other hand and stuck the apparel to the rack, which turned into the wall, holding the clothing magnetically.

"What'll you have, Wayne, Lotus?"

Lotus raised a hand to signify none for her, but Wayne Massaro made a T with his hands. He wanted a tea-ball with a shot of herrocoke.

When Bill had jiggered the mixture together, warmed it and chilled it again, when they settled down in the formfit chairs, Donnough looked across at the other lieutenant and sighed. "Well, how'd it go your first day up there?"

Lotus broke in before her husband could answer. "Well, if you two are going to talk shop, I'm going in to see if Yo needs help." She got up, smoothed the sheath across her thighs, and walked into the kitchen.

"She'll never get used to my making the war a career," Wayne Massaro shook his head in affectionate exasperation. "She just can't understand it."

"She'll get used to it," Bill replied, sipping his own hi-skotch. "Lotus still has a lot of that Irish blood in her . . . Yo was the same way when I came in."

"It's so different, Bill. So very different. What they taught us in the Academy doesn't seem quite true up there. I mean—" he struggled to form the right phrase, "—it's not that they're going against doctrine . . . it's just that things aren't black and white up there—as they said they'd be when I was in the Academy—they're grey now. They don't start the morning bombardments on time, they drink coff when they should be posting, and—and—"

He stopped abruptly, and a hardness came into the set of his head. He jerked quickly, and bent to his drink. "N-nothing," he murmured, principally to himself.

Donnough looked disturbed.

"What happened, Wayne? You flinch-out when the barrage came over?"

Massaro lifted his eyes in a shocked and startled expression. "You aren't kidding, are you?"

Donnough leaned back further, and the formfit closed about him like a womb. "No, I suppose I

wasn't. I know you better than that, known you too long."

There was a great deal of respect and friendship in his words. Each man sat silently, holding his drink to his lips, as a barricade to conversation for the moment. Filtered memories of shared boyhoods came to them, and talk was not right at that moment.

Then Massaro lowered the glass and said, "That jato raid came off pretty badly didn't it?" The subject had been altered.

Donnough nodded ruefully, "Yeah, wouldn't you know it. Oh, hell, it was all the fault of that gravel-brained Colonel Levinson. He didn't even send over a force battery cover. It was suicide. But then, what the hell, that's what they're paid for."

Massaro agreed silently and took a final pull at the tea-laced highball. "Uh. Good. More, daddy, more!"

Donnough waved a hand at the circle-dial of the robot bartender set into the recreation unit against the wall. "Dial away, brother frat man. I'm too comfortable to move."

A gaggle of female giggles erupted from the kitchen, and Yolande Donnough's voice came through the grille in the ceiling. "Okay you two heroes . . . dinner's on. Let's go." Then: "Bill, will you call the kids from downstairs?"

"Okay, Yo."

Bill Donnough walked to the dropshaft at one corner of the living room, and slid his fingernail across the grille set into the wall beside the empty pit. Downstairs, in the lower levels of the house—sunk fifty feet into the Earth—the Donnough children heard the rasp over their own speakers, and waited for their father's words.

"Chow's on, monsters. Updecks on the double!"

The children came tumbling from their rooms and the playarea, and threw themselves into the sucking force of the invisible riser-beam that lived in the dropshaft. In a second they were whisked up the shaft and stepped out in the living room:

First came Polly with her golden braids tied atop her round little head in the Swedish style. Her hands were clean. Then Bartholemew-Aaron, whose nose was running again, and whose sleeves showed it. Polikushka (who had been named after a Gorky heroine) came next, her little face frozen with tears for Toby had bitten her calf on the way upshaft, and Toby himself, clutching his side where Polikushka had kicked him in reflex.

Donnough shook his head in mock severity, and slapped Polly on the behind as he urged them to the table for dinner. "Go on you beasts, roust!"

All but Polikushka, the children ran laughing to the dining hall which ran parallel to the tiled front hall of the house. The dark-haired Polikushka clung to her daddy's hand and walked slowly with him. "Daddy, are you goin' to the moon tomorra'?"

"That's right, baby. Why?"

"Cause Stacy Garmonde down the block says her old ma—"

"*Father*, not old man!" he corrected her.

"—her *father's* gonna shoot you good tomorra'. He says all Blacks is bad, and he's gonna shoot you dead. Tha's what Stacy says, an' she's a big old stink!"

Donnough stopped walking and kneeled beside the wide, dark eyes. "Honey, you remember one thing, no matter what *anybody* tells you:

"Blacks are good. Whites are bad. That's the truth, sweetie. And nobody's going to kill daddy, because he's going to rip it up come tomorrow. Now do you believe that?"

She bobbed her head very quickly.

"Blacks is good, an' Whites is big stinks."

He patted her head with affection. "The grammar is lousy, baby, but the sentiment is correct. Now. Let's eat."

They went in, and the children were silent with heads only half-bowed—half staring at the hot

dishes that o-popped out of the egress slot in the long table—while Donnough said the prayer:

"Dear God above, thank you for this glorious repast, and watch over these people, and insure a victory where a victory is deserved. Preserve us and our state of existence . . . Amen."

"Amen." Massaro.

"Amen." Lotus Massaro.

"Aye-men!" the children.

Then the forks went into the food, and mouths opened, and dinner was underway. As they sat and discussed what was what, and who had gotten his, and wasn't it wonderful how the moon was the battlefield, while the Earth was saved from more destruction like those 20th Century barbarians had dealt it.

"Listen, Bill," Massaro jabbed the fork into the air, punctuating his words, "next Sunday you and Yo and the kids come on over to *our* hovel. It'll cost *you* for a robot-sitter next week. *We're* sick of laying out the credits."

They smiled and nodded and the dinner date for next Sunday was firmed up.

MONDAY

The commuter platforms. The ships racked one past another, pointed toward the faint light they could not see. The light of the dead battlefield. Moon. The Blacks in

their regal uniforms queuing up to enter the vessels, the Whites in splendid array, about to board ship.

A Black ship lay beside a White one.

Bill Donnough boarded one as he caught a glance at the ship beside. Massaro was in line there.

"Go to hell, you White bastard!" he yelled. There was no friendliness there. No camaraderie.

"Die, you slob-creepin' Black! Drop!" he was answered.

THEY BOARDED the ships.

The flight was short. Batteries opened that day—the five thousand and fifty-ninth day of the war—at 0550. Someone had chopped down the eager-beaver.

At 1149 precisely, a blindbomb with a snooper attachment was launched by 2/Lt William Larkspur Donnough, BB XO in charge of strafing and collision, which managed to worm its devious way through the White defense perimeter force screens. The blindbomb—BB—fell with a skit-course on the bunkerdom housing a firebeam control center, and exploded the dome into fragments.

Later that evening, Bill Donnough would start looking for another home to attend, the following Sunday.

Who said war was hell? It had been a good day on the line.

Captain's Choice

by

Tom W. Harris

There were four on the ship and only two would be able to leave it alive — if they were lucky. The problem was to decide which two . .

Torin knows, thought Captain Sherman, leaning wearily against the control console of the *Star Prince* while the sweat ran down his chest. *The big slob knows what's happened and what it means to the four of us on this ship. But he wants to force me to say it myself. He wants to force the issue.*

Torin Coyle stood rugged as a stump on the other side of the cabin, a pile of beef dumped solidly on chunky, widespread legs. Shella Mayne's hand rested lightly on his arm, and her face was white and tearstained. They were looking at the captain, waiting for him to speak. Young Jim Lowndes was not looking at anybody. He sat huddled on the deck, his head bowed in shame at his fear and failure, his hands hiding his face.

"All right," said the captain, "May as well face it. The Earth,

Mars, Venus, even the asteroids, maybe Jupiter, they're gone, burned up, all the colonies, all the people. We may as well face that."

"Yeah," said Torin. "But that's not quite what I asked you. I'll repeat it, old man. We're the only ones left, aren't we?" He jutted out his bulky chin, "Aren't we?" He shifted toward the right, and Captain Sherman read the movement. The ship's one blaster was in the locker over there. The other blasters were stowed somewhere in the escape glider.

You're smart and dumb, Coyle, thought the Captain with contempt. *I see you so clear.*

He wished that Coyle would let him alone, let him rest. He had fought the controls of the *Star Prince* for eleven hours, alone, because Coyle didn't know anything about flying and Jim's nerves had split like sticks and become a



J. BRUCE BETTY

crackling bonfire of hysteria and fear. The captain had fought the *Star Prince* through the death of the solar system, lurching through magnetic storms, dodging berserk meteors and exploding moons, panting as the heat inside the ship throbbed at a hundred and ten, a hundred and twenty, wondering if the heat outside would melt her down and turn them into cinders inside an ingot. He had been a middle-aged man, and now he knew he was an old man. In eleven hours.

Nobody knew, the scientists had no warning the sun was going to do what it had done. It had sucked in on itself like a man sucking in his cheeks and then it had exploded, bursting without warning into an all-consuming ball that swelled out to engulf Mercury, then Venus and her cities, then Earth, then Mars and then the asteroids. They had melted, probably, then vaporized, becoming hot gasses in the flaring ball that finally began to collapse.

"Aren't we?" Torin said again. "We're the only people left."

He had moved closer to the blaster.

"We probably are," said Sherman. "There were no other ships out so far as us—and we were barely out far enough."

Torin's fiancee looked at him, her eyes asking for something to

reassure her, but Torin looked only at the captain. "Yeah," he said. "Now, one other thing. You said the ship was crippled. Is it?" Coyle's eyes gave the merest flick toward the little locker where the blaster hung, and again he shifted slightly to the right.

"Did I say that?" asked Captain Sherman.

For the first time, Jim Lowndes raised his face. "If I'd stayed with you. . ."

"Forget it," the captain said. "I've seen older men act worse."

"IS IT?" roared Coyle. "IS THE SHIP CRIPPLED?"

His hand now rested on the locker.

Oh, hell, thought Sherman wearily. *Get it over with.*

"It is," he said. "A mass of molten matter grazed us along the starboard side. The hull is probably warped, and we can't project the starboard airfoil. It's probably fused. That means. . ."

"Yeah," bit in Coyle, "I know what it means." His hand snaked open the little locker and flicked inside. "It means we're okay to travel in space—no air to make friction—but we can't land anywhere. To land anywhere we need them airfoils to glide in slow and not burn up with friction. Ain't I right?"

His hand came out of the locker

with the blaster.

"That's correct," said Sherman, as calmly as though the blaster were not there.

"I went to school too," said Coyle, glancing at Jim. "And something else I know—the escape glider can get down. It'll carry two people. That's going to be me and Shella."

He swung the blaster in a little arc, flicking it to cover both the captain and Jim, and Shella gave a gasp.

"You wouldn't. . ." she said.

"Shut up," Torin said.

"No, he wouldn't," said Captain Sherman calmly. "If he killed me you'd all die. There wouldn't be anyone to fly you to a habitable planet."

"You'll fly us or I'll blast you," said Torin. "Simple as that."

"You'd better give me the blaster, Torin. Just toss it over, please. I prefer to remain in command of my own ship."

"Old man, knocking you off wouldn't bother me a bit."

Jim spoke. "He means what he says!"

"That's right, Jimmy boy. If I have to knock off the old man, I'll just let you do the flying instead of him. Come on, skipper, let's move."

Sherman's tone had nothing in it but tiredness with Coyle. "You damn fool," he said, "we only have

fuel enough to get us to one planet—New Venus. Jim doesn't know how to find New Venus. He can't navigate. Nobody can but me." He shut his eyes as a wave of tiredness swept over him. "If you want to shoot now, blast and be damned to you. I wouldn't live long anyway. I'll have radiation sickness soon, Coyle. When I had to go into the stern tube shaft, while we were fighting out of that furnace, I got a dose of rays that'd kill a Martian mule."

Coyle raised the blaster and pointed it directly into the Captain's face. Sherman looked into the muzzle without a tremor. Coyle held it steady, his thumb curling down on the knob.

"There are two healthy men aboard this ship," said the Captain, "and one woman. Shella and one of the men have a serious thing ahead of them. They'll be the last representatives of the human race; they'll have to start it over again from scratch. Who should decide which man? The person with the least personal emotional involvement. Me. I promise you a judgment without bias, Coyle. Killing me will doom you. Give me the blaster."

Coyle's thumb curled tighter on the knob, then stopped, but he still kept the blaster pointed at the Captain. "How are you going to de-

cide? Toss a coin? Duel? I suggest a duel."

"I'll let you know when we get to New Venus," said Sherman tiredly. "Now—if you don't mind—either shoot me or hand me the blaster."

Coyle knew when he was beaten. He handed the captain the gun.

THE TRIP to New Venus would take ten days. Every fifteen hours Captain Sherman locked the others into the two compartments, the girl and Coyle in one, Jim Lowndes in the other. Sherman had designed the *Star Prince* himself, after he'd reached retirement age and left the space service, and he knew those compartments were rugged. He had built them to hold the animals he planned to trap in other galaxies for zoos and circuses. That was before the wars with the Mars and Venus colonies had caused the ban on travel outside the system, and Sherman had to convert his ship to a tourist craft. Travel was controlled tightly even within the system, which was why his ship, carrying Coyle and Shella Mayne on a sightseeing trip of the outer planets, was the only one far enough out to escape when the disaster came to the sun. And who should the final survivors be? Shella and Coyle? Or Shella and Jim Lowndes?

The *Star Prince* had driven toward their destination for six days when the girl slipped a note into the captain's hand.

"Must tell vital information," read the tight scrawl. "Open when I tap. He'll be asleep. Vital."

It was two hours after he had locked them up for sleeping that Sherman heard a breath-faint tapping on the door of Shella and Torin's compartment. Very quietly, blaster in hand, he unlocked the door. Shella slipped out and Sherman locked the door behind her. She seemed tense and firmly in control of herself.

They moved away from the locked door and Sherman spoke in a low voice. "What did you want to say?"

"Torin is going to kill Jim," she said. "That will leave him the only healthy male and you'll have to let him go to the new planet."

"So he wants to begin the human race on the foundation of murder. And why are you telling me?"

The question surprised her, as Sherman had intended. He wanted to learn about her.

"Because you've got to stop him," she said.

"Coyle's the man you'd planned to marry. Suppose this decides me against him and in favor of Jim?"

"I thought of that."

"Mmm. Maybe you prefer Jim

and this is a lie to influence me against Coyle."

"You don't trust anybody, do you?" she blazed.

He smiled. "After all, I don't know you very well. Would you be pleased or disappointed if you wound up on New Venus with Jim instead of Torin?"

She blushed and bit her lip. "That's none of your business!" she said.

"Interesting," he said. "If you'd preferred Coyle, I think you'd have told me. You'd better get back to bed now. I'll take care of this."

Just before she slipped into the compartment, she paused and whispered. "Tell me—who do you think you'll choose?"

"I'll decide when I have to."

"Shouldn't I have a say?"

"Maybe so. What would you say?"

"Like you—perhaps I'd decide when I had to. I've learned Torin Coyle is a brute. But Jim's a weakling."

"That," said Sherman, waving her in and locking the door, "is precisely my delimma."

Sherman moved to Jim's compartment and unlocked it.

Jim was curled in his blanket. Even in sleep his angular face was not relaxed. I've never seen him relaxed for ten years, thought Sherman. Not since he was eleven years

old, when the thing happened to him.

He shook Jim gently. "Shella," Lowndes muttered. The captain shook him again and his eyes opened.

"I've got news for you," said Sherman. "Wake up, boy."

Jim sat up. "If you're going to choose me, forget it," he said bitterly. "I know what New Venus is like—heat, jungle, desert, electricity beasts, mud-wolves, volcanoes, brain-vines. I wouldn't last long enough to gender a baby. If I did, what kind of a new race would I begin? Kids pattern themselves from their parents. A race of neurotic cowards."

"And Coyle would found a race of brutes!" said Sherman. The words leaped out of him. He hadn't meant to say them.

"Brutes can survive," said Jim. "It's going to take a real man to survive down there. Coyle's a man. Now get out of here and let me sleep."

"I didn't come to talk about that," said Sherman roughly. "Shella told me tonight that Coyle plans to kill you."

"Thanks. Can I go back to sleep now?"

Sherman glared at him and stood to go. He was very tired and for two days the radiation sickness had been stirring in him. *It's like Jim's*

sickness, he thought. *Something he was exposed to and entered him and destroyed something. The kids who had locked him into a satellite chamber, for a joke, only the joke went sour because the chamber was fired off with Jim inside it and he was trapped in there for twenty hours, alone dark, out in space, while something was gnawed out of him that might never grow back again.*

Jim spoke. "I'm sorry that I was sarcastic," he said. "You've tried to help me lick my problem, gave me the job with the *Star Prince*, and I thought I was beating it until this trip, I cracked up in the big emergency. You were a good friend to my father and you kept your promise to him—but don't you see I can't be the man he was? It's too late."

SHERMAN LOST HIS TEM-
per. "You fool!" he yelled. "There's more than just you at stake here! You're a decent man, educated, honest, the best things the race has worked out for thousands of years have gone into you and you owe it to them to pass it along! And you're forcing me to choose a man who won't pass it along—who'll pass along the dark things—a man who's less a man than you are except for one thing, and that one thing is vital!"

He bit of his speech abruptly. Jim rolled over in his blankets, facing the wall. Captain Sherman left and locked the door.

I told him the truth he thought. *I'll have to choose Coyle. One slight chance. Maybe. For Jim there's one ace in the hole.*

Sherman filed away the main events of each day in his mind, like a log book. The next day was the seventh day of the ten-day trip, and tight with tension. Jim kept an eye on Coyle and kept out of his way. Sherman kept an eye on them all. Shella twitched whenever Coyle moved, and her eyes followed Jim. When their eyes met he glanced away.

On the eighth day Coyle realized that Jim was keeping away from him. He began to taunt the younger man. No insult seemed to make Jim angry enough to fight. He became more moody. Once the girl spoke up in his defense. Captain Sherman was weak and had spells of dizziness, his sickness worsened.

On the ninth day Sherman asked Shella if she preferred to sleep at a different time than Coyle. She hesitated a long time, then answered that the present arrangement was satisfactory. Coyle continued to bait Jim. In the afternoon the captain began to cough blood.

On the morning of the tenth day Sherman felt a little better. At

lunch Coyle leaped across the table and got Jim by the throat. Sherman's blaster at the back of his skull made him loose his hold. Torin accused the Captain of planning a crooked decision. Sherman told him with exasperation that he was not planning a decision based on personal feelings but the good of the human race.

Toward evening Shella requested an arrangement so she could be confined separately. Sherman gave her Jim's compartment, leaving Jim to sleep free in the main cabin. Sherman announced they would arrive soon at New Venus, and he would issue his decision. He slept that night with the blaster under his head. He was weak and slept long and feverishly and had bad dreams.

He was awakened by the low burping of the proximity teller. They were there. He forced himself to get up; he felt as though his blood had turned to water. He woke Jim and they worked for a half hour at the control console. Sherman lay down and rested, then took up the blaster and unlocked the compartments.

They gathered in the main room. "The ship is in orbit," said Sherman. "She's as close in as I dare. The glider is stocked; get in, push a button, and the whole trip down is automatic. I won't keep you in

suspense. When we started this trip, Torin made a suggestion. A duel. I can't think of anything more fair. Whoever goes down there will *have* to fight a savage environment. Jim and Coyle will fight to see who goes."

An ugly grin spread over Coyle's face, a red spot appeared on each of Jim's cheekbones, and the girl went pale. Then Torin scowled.

"And you'll stand by with the blaster. You don't like me, old man. How do I know. . ."

"You don't," bit in Sherman. "You'll have to take my word I won't interfere."

"Suppose I don't fight?" said Jim.

"Coyle wins by default, of course," said Sherman. He looked at the two men. Coyle, heavy, strong, but a little clumsy; Jim younger, lighter, smarter and quicker. Jim could win if he wanted to. If he had the courage. If the ace in the hole was really an ace, and if it came to be played at all.

"You can't let them do this," said Shella. "I won't stand by and . . ."

"And see your pretty boy get splattered?" snarled Coyle. "By God, the little woman snitcher has got it coming!" He grinned. "The skipper's a good-o after all. What's the weapons, old man?"

"Bare hands, anything you can

get hold of. No holds barred. Shella, you'll stay out of it. I'm putting you in the compartment."

"You can't do this," she said vehemently.

"It's the only way," he said. "I've thought about it for ten days. Now, if you'll just go back into the compartment. . ."

She went, because he had the blaster.

When Sherman locked the door he turned his back on the main room and Coyle hit him like an avalanche. Sherman went down rolling, Coyle on top of him, grabbing at the blaster. They rolled in a tangle across the deck and Jim leaped into the melee. Torin got the captain's gun hand and the blaster fired in a great orange flash. The console came ripping down and pinned the captain across the legs. In the stern space flames began. Thoughts flashed through Sherman's mind.

Didn't count on this. Maybe I can play the ace anyway.

Coyle swung the blaster toward Jim and squeezed the knob. There was nothing but a feeble buzzing.

"Only one shot in it," panted Sherman from the deck. "All I'd have needed for trouble. You fooled yourself, Coyle. **GET HIM JIM!**"

JIM MOVED toward Coyle. *Get him fast,* thought Sherman.

Keep him off balance. You can't slow down, he's heavier than you.

But Jim's motions were uncertain and defensive. Coyle took the offensive, moved in, and Jim began to dodge. He picked up a jagged scrap of metal from the wrecked console, and as he stooped Coyle's boot hit him in the face. He staggered up and back and Coyle plunged toward him, swinging with the blaster, hitting him in the face. Jim's hands went over his face protectively and his eyes roved the cabin desperately. The blaster smashed down on him again and again. Suddenly Jim dropped to the deck and rolled into the tunnel-like shaft that led to the loading port.

In the stern storage space the flames were growing.

Torin dropped to his knees with an ugly howl. Jim was huddled out of sight, at the far end of the shaft, and Torin reached in after him. He yanked his hands back, bleeding where Jim had stabbed him with the metal.

"Torin!" yelled Sherman. "Never mind that. Get the girl and get out of here. That fire's going to reach the tanks!"

"I'll kill 'im," panted Torin, reaching in again and snatching back his torn hands.

"He won't fight you—he's given up! Get Shella and go. The key's in

my pocket."

Torin left the shaft, got the key, and unlocked the compartment. *Now, thought Sherman, I've got to play the ace. I only hope the ace is there.*

Torin dragged the girl from the compartment. She was sobbing wildly. He dragged her to the glider hatch and opened it.

"Torin!" yelled Sherman. "One thing. Lowndes was in love with Shella. Can't you let them say goodbye?"

If it works, thought Sherman. The first part and the second part.

Torin laughed with a contorted mouth. "Yeah—I'll let 'em say goodbye. She was standing me off all those nights in the compartment—for that scrawny thing? She'll give him a goodbye to remember!"

It looks like an ace so far. Now if I've played it right.

Jim, looking out from the shaft, could see them clearly. Torin slapped Shella twice with the blaster, ripping across the left cheek, the right cheek. He twisted his fist in her hair and turned her to face the hole. "Say 'goodbye, honey,'" he gritted. "Say: 'We're going to miss you, but Torin will help me get over it.'"

"I love you, Jim," said Shella.

If it makes him mad enough, thought Sherman. And if it doesn't he hasn't the stuff anyway.

There was a stirring in the hole and Jim's face appeared, his eyes bulging. Torin twisted Shella's hair. "Say what I told you to!"

Back aft there was a splutter and sizzle. The flames were into the first tank.

Jim was out of the hole and upon Torin before the big man could let go of the girl's hair. He came through the air and his knees thudded into Torin's chest and sent him sprawling. He ripped at Torin's throat with the metal, and missed, raking him across the jaw. Torin reached up to bear-hug him and he wasn't there. The big man staggered up and Jim kicked him in the groin, Torin shrieked and went down again, grabbed Jim's foot

Jim kicked savagely but couldn't break the hold. Torin pulled him closer and swung the blaster at his head. Jim ducked and his hand flew up. The metal ripped Torin's wrist and the blaster fell from his hand.

Shella stood still dazed with Torin's treatment. The flames in the after compartment were higher.

Torin got to his feet, holding to Jim's foot, out of reach of his hand, and keeping Jim's leg straight, twisted. Jim was flopped over on his stomach, outstretched and out-weighted. Torin reached behind him for the metal bar wrench that hung by the glider port. His hand groped

blindly. The bar-wrench wasn't there.

Shella brought the tool down across his skull. He grunted, let go of Jim, and swung toward her. He caught her by the throat.

Jim was up, one leg trailing. He hopped on the other leg, and almost fell on Torin's back. The hand with the metal stabbed toward Torin's throat, then again.

Torin went down slowly.

"Get going!" yelled Sherman. "The ship is going to blow and you can't help me anyway."

They dropped into the slings inside the glider. "You're a man, Jim! Happy landings!" Sherman half coughed it. His breath was weak

and his lungs were full of fumes.

The hood of the glider was nearly closed. "And you're a man," called Jim. "We'll name our first baby after you!"

The hood snapped shut, the hatch thudded down, the automatic control took over and the blazing *Star Prince* shuddered with the thump of the blastoff. Captain Sherman dropped his head on the deck. *Adam and Eve*, he thought. *And I kept my promise to Jim's dad after all.*

And then there was a sound like an immense gong and the deck was gone and there were no more thoughts, but only a restful feeling in spangled blackness.



Jet Transport



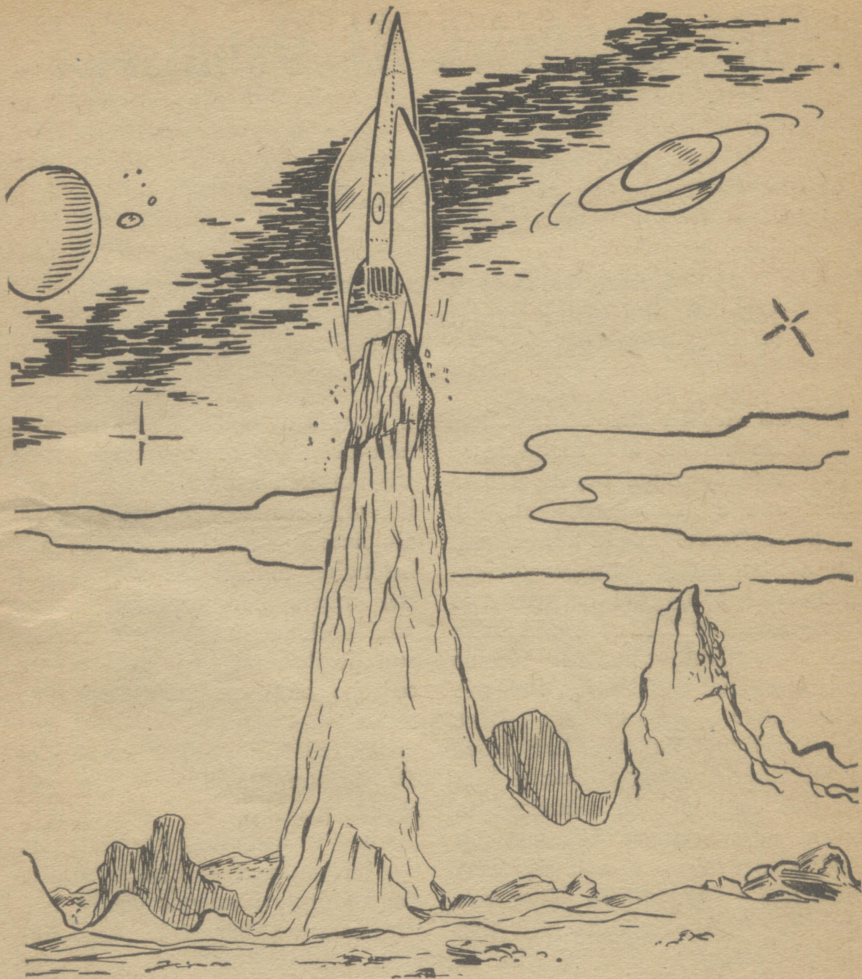
THE major airlines are entering the field of jet transport so rapidly that the old reciprocating engine soon will be a novelty to transcontinental and ocean fliers. The steam engine lasted a hundred years—you can bet that the reciprocating piston engine won't. Straight jets and gas turbines are already invading their province.

To those who predict the demise of the jets and turbines to pure trans-oceanic rockets, a more subtle question arises—simple economics. It's profit and loss that change transportation — and jets and rockets are no exceptions. The latter are just too costly for the transcontinental type of travel.

The new jets are incredibly powerful machines compared with their predecessors and their luxuriousness befits them. Power gives them speed and as larger jet engines are developed they may replace lesser engines.

They have introduced problems among the major airports. So fast are these planes that absolute control must be exercised as to their coming and going. They can't sit over an airport for hours waiting for the landing signal.

Perhaps more than anything else the rapid burgeoning of trans-oceanic travel has spurred the airlines to make use of these marvels of modern technology.



Bill Reid

"Wait! As Captain of this ship I insist on being the first to set foot on this world!"

Nine Shadows At Doomsday

by

S. M. Jenneshaw

Centuries before something had destroyed life in the solar system. That portion of space was now off limits — but not for a hunted man . . .

HIS NAME was Mark Chan. He was a tall rough-jawed vaguely almond-eyed man, a thief and a hunted criminal. Son of an Anglo-Polynesian mother and an Alphan father, born in the inhospitable half-world between two recognized stratas of society, he had drifted into crime and become so expert that half the law forces in the Alphan system did not believe he existed and the other half drove itself frantic trying to locate him so that he could be sentenced to social reconditioning. His last job had been a big one, and the legal heat had grown intense. That was the only reason he'd tackled this offer—because it enabled him to get so far away that no one could find him for awhile. Now, expertly handling the controls of the D-Class Explorer rocket he wondered whether reconditioning would have been half bad . . .

It was a stellar boneyard, this nine-planet system through which the battered explorer shot. A million-mile cemetery hung with stars. He hated to admit it but he was beginning to feel the same terror the others had expressed. Here was nothing but silence. Silence and death. And they had to land on one of these empty spinning rocks.

"Watch it!" came the voice of Dr. Wilton Wallace. "The red signal is on!"

Chan turned. Wallace, seated in the bucket next to Chan's, was a slender dryly academic young man with glasses. One of his thin fingers was pointed to a scarlet blinker on the control board. The other occupant of the control cabin, an attractive brunette with severly straight hair and no make-up on her lips, reached for the head plug.

D. BRUCE BERRY



"Who is it, June?" Wallace asked. "The Foundation?"

"Just a minute," Dr. June Simmonds answered. "The code signal's weak . . ."

Chan eyed her obliquely. She was intensely good-looking, though she worked hard to conceal the fact as did most females associated with scholarly institutions these days. So far on the trip he had been unable to break her reserve, unable even to get her to smile once. This irritated him because he had always been more than successful with women. She noticed him scowling at her, turned away coolly and stared out through the thick view plate at the misty red planet toward which the ship was sweeping.

"Yes, it's the Foundation code, right enough," she said at last, hanging up the plug. "On the alarm frequency. That means trouble, Will."

Wallace's face was cut with a frown. "What could have happened? We took so many precautions! And if the law has somehow discovered that we've come into this system illegally there'll be enforcement ships after us in no time. We'll never get a chance to take a look inside Thor Peak . . ." Wallace gave a weary, dejected sigh.

"I don't understand the private

code you have rigged up with that museum of yours," Chan said a bit sharply, "but whatever the message, you won't receive it until we've jettied down on the planet there. I've set the pilot tapes for your exact reference points and we'll be sitting at the foot of your Thor Peak in precisely one hour and ten minutes. Because of the message warp lag you'll be lucky to get the actual decoded transmission for an hour and a half. So at least you'll have twenty glorious moments in which to advance science."

Dr. June Simmonds retorted: "Your manner has become increasingly more offensive on each day of the trip, Chan. You're being paid handsomely to pilot for us, in addition to the fact that you needed to get out of the Alphanus system *much* more than we did."

A cynical smile touched Chan's features. "Sure, oh sure. But I didn't bargain for a trip into the bottom of a grave. There's nothing alive out there for more miles than I can count. Why not admit it? You need me and I need you, so why not bare our little neuroses and be friends? You keep yours hidden pretty well, Dr. Simmonds. What is it? Frustration or just plain arrogance?"

JUNE SIMMONDS flushed, stifled a retort and bit her lip.

Suddenly Wallace grunted softly, for he had been staring through the view plate at the swelling red ball of the planet which was their destination and as through hypnotized by the sight he had evidently paid no attention to their conversation. Wallace spoke:

"I understand how you feel, Chan. It affects me the same way. The Sol system has been dead for three thousand years. We're perhaps the first humans to penetrate it since the cataclysm—whatever it was—swept out from Thor Peak down there on Mars. We wouldn't even be here today I suppose, if those few thousand ships hadn't gotten off the outer moons while the inner planets were going through the agonies of death. What was it like, I wonder? What'll we find there, if anything?" He smiled wanly. "I seem to be running to cliches, so here's another. We haven't yet beaten Nature. The Sol system lived thousands of years—and was wiped out in one day. And we don't know why."

"But perhaps we'll find out!" June Simmonds breathed suddenly. "That's the whole reason for—"

Chan interrupted: "For risking imprisonment, maybe even reconditioning, plus sure abolition of your beloved Alphanus Historical Foundation, all because you couldn't resist poking around in a

system that has been off limits since our ancestors were sucklings. You people are almost as dedicated about breaking the law as I am."

"I'm sorry Dr. Greentree couldn't see this," Wallace said.

"That's *another* thing," Chan replied. "I'm not used to having a corpse in the zero compartment when I pilot a ship. That man shouldn't have come if he knew his heart was weak. The first serious grav field snapped him like a toothpick." Chan shook his head to indicate that he did not understand the ways of intellectuals. "Who was he, anyhow?"

Wallace explained that the dead passenger, one Dr. Amos Greentree, was an histoarchaeologist who had presented himself at the Alphanus Historical Foundation one day with a staggering sum of money—just the sum needed by Doctors Wallace and Simmonds to finish the last location charts of Thor Peak. The source of the natural cataclysm which had stripped the Sol system of its life had been the subject of a lifetime search by the fathers of the two scientists. At last the key to the old writings had been broken, just before the two researchers died. Since the whole project was highly illegal, considering that no one knew what peril still lurked in the Sol system and that exploration was con-

centrated on moving outward, beyond the Alphanus system, rather, than inward, there had been no funds to complete the details of the work.

Then the little man, Dr. Greentree, had appeared, unknown to any of the staff of the Foundation but with valid credentials which withstood a rigorous checking. He had been working independently on the problem of Sol's destruction, and though he had accumulated considerable money—how, he declined to say—he had concluded that one man just couldn't complete the task alone. So he had volunteered to join forces with the large institution, and he had been a passenger on this completely illegal return trip to the source of one of the holocausts which had plagued man at regular intervals through recorded history.

"Isn't even decent," Chan muttered. "Not giving him a burial."

"I must say you're hardly in a position to talk of morals, Chan," June Simmonds snapped.

Chan scowled. "Lady, I'm losing my patience . . ."

"Stop that, both of you!" Wallace broke in. "We may have enough trouble on our hands when the message comes through from the Foundation. If we're at one another's throats every moment, we'll defeat our whole purpose—

which is to gain time to get inside Thor Peak. Now, Chan, you say the tapes are set? They should be locked in for the west slope of the peak."

"They are," Chan grumbled. "You said the records showed an entrance there."

"How about the bore charge?"

"Ready, and targeted in. We'll let her go from one mile. It should leave a straight, clean opening right down to the center of the peak."

Wallace stared out through the view plate. The red and gnarly face of Mars filled the entire screen now, bulking huge like a vast scarlet curtain folded many times. Chan checked one of his gauges, whistled sharply and set about manipulating levers. The whine and roar of the Explorer's tubes modulated, and the descent rate indicators readjusted sharply. All of a sudden the surface of the red world seemed to be rushing up at them, and it continued to do so for several minutes. Chan worked the controls expertly. There were tight cords of muscle standing out in his neck now, because the combination of a ticklish job and the total dead emptiness of the shining land below the ship worked ruthlessly on his nerves.

"Get on the magnascope if you want," he announced suddenly.

"Center it on thirty-eight four plus nine and you'll have Thor Peak." He gave a short grunt of effort, pulled a blazing green lever sharply. "There goes the bore charge . . ."

ON THE CRYSTAL panel along one side of the compartment a magnified view of the terrain below slowly blurred into focus. Thor Peak, tallest crag of an artificially created mountain chain blasted onto the face of Mars when man first colonized it, towered up in a swirling reddish twilight. Abruptly, in the side of the peak, there was a thin whirling column of smoke. When it diminished a reddish-black circular opening could be seen on the side of the mountain. Wallace and June Simmonds watched the screen with something close to religious fervor, while Chan savagely manipulated the ship's controls in the last, most difficult stages of descent.

"Hurry!" Wallace breathed involuntarily. "Hurry! If they're after us from Alphanus, when the message comes, we'll have to jet off . . . hide . . ."

"Hide where?" Chan growled. "They'll send enough dread noughts to catch fifty ships like this one. And I've got a feeling that's exactly what's going to happen. *All right, strap in. Be quick about it!*

We're going down."

Through the shifting sand-blown red sky the Explorer plunged. Mechanical psychoblackout equipment blanked the screens to prevent mild cases of the Landing Syndrome. At last there was a muffled scrunching sound, and though none of them felt a jar, they knew the Explorer had settled. Wallace and Dr. Simmonds scrambled for the companionway, donning air sets as a precautionary measure. No telling what the cataclysm had done to the atmosphere. Chan studied the spectro-checkers. Everything seemed all right. Still . . . He shivered and moved after them, having attached the message plug to his belt for instant reception of the danger signal when it came.

As he passed the zero compartment he suddenly remembered little innocuous Dr. Amos Greentree lying there inside in a bath of cataleptic fluid. Again the shiver passed down Chan's spine. He snagged a heatgun from the locker along with his own air set. Wallace was already manipulating the lock wheels, and in a second more they were outside, in the silica dust up to their knees. The reddish haze of twilight hung over the endless miles of dead, windblown desert on one hand, dripped down over the faultlessly wild and magnificent man-

made crags on the other. Perhaps a quarter of a mile up the slope of the tallest conical peak, a blackish crater ten yards across gaped wide.

Wallace was already moving swiftly along, crashing through the dust in his eagerness to penetrate the center of Thor Peak. There, so the scientists believed, the nature of the cataclysm might be apparent. Dr. June Simmonds carried along a small, compact gray metal case which contained a multi-unit analysis device which could readily isolate the chemical or structural residues left within the mountain by whatever natural force had produced the destruction. Chan had heard them express the belief that the cataclysm was probably produced by a combination of sonic vibrations and cosmic rays which, through wild chance, had been re-focused and diffused through what they called the prismatic quartz interstices of the peak. It was pretty much Greek to him anyway. At the moment all he cared about—suddenly and inexplicably—was that the gray case in June Simmonds' hand looked exceedingly heavy. He wanted to catch up to her, God alone knew why.

Chan snatched the bulky handle of the instrument case. June Simmonds turned sharply, refusing to relinquish her grip, her gray eyes snapping with anger. "Hands off,

Chan! There's no need to play gallant at this stage of . . . oh!"

He had wrenched the case away, and he glowered at her now, mockingly. She massaged her wrist with her other hand. Her scowl darkened. They trudged along, following Wallace's footsteps up the slope through the silica dust. "My question still stands, Doctor," Chan mocked. "Do you get a bang out of the haughty pose, or does it come from the glands?"

For the first time during the entire trip she responded with a sign of emotion. A faint reddish flush rose along her throat from the collar of her tunic.

"You're completely wrong," she began. "What utter nonsense . . ."

"I wonder. I may be a pretty physical type, *Doctor*, but I can see into people fairly well. Why not be honest?" Chan grinned crookedly. "Wallace is plenty far ahead. He can't hear."

SOMETHING TOUCHED her, there—perhaps Chan's sensing that the presence of another calm and academic mind restricted her speech. And since, in all probability, she'd never been *out* of the company of academic minds, her reserve was even more natural. Averting her eyes for a moment, but still with a note of disdain, she said: "You *are* physical, Chan. You

have all the characteristics which my father taught me to know ninety-nine percent of all men possess. I worshipped my father, you see—his mind, his talent, his dedication to knowledge. I've learned the lesson well. Now and again—I'll be truthful—I wonder if he wasn't wrong." The barrier rose again, and her coolness deepened: "Then I run up against a man like you and I become convinced he was right."

They had neared the edge of the bomb-bored tunnel which led down into the center of the peak. Wallace was on his knees at the lip of the crater. Putting the final adjustments on a maximum power thermotorch, one of the hand models. Chan hated himself suddenly for exposing his feelings for June Simmonds. *Feelings?* That was a laugh. Here in this red-lighted boneyard, for the first time in years, he'd thought of himself as having feelings. Queer . . .

"I'm ready," Wallace called, springing to his feet and thumbing the thermotorch control. A wide white swath of brilliance cut down the tunnel, the motes of light automatically analyzing each material the beam touched. Wallace could hardly control his eagerness as they started down the mouth of the opening. Chan asked as they tramped along: "How did this—

this ray or whatever it was—escape from the mountain in the first place?"

"Years ago, so the records read," Wallace explained, "Thor Peak was honeycombed with tunnels. It was, of all things, a spelunking resort back in the days when people lived on Mars. All those tunnels are choked with silica now, but when the cataclysm struck the rays swept straight out to the sky, to the ends of the system."

"Sweet old Mother Nature," Chan said cynically. "She . . . wait!"

There was a signal beeping insistently from the message plug at his belt. He handed the plug to June Simmonds, who screwed it into the jack on her air set. Wallace breathed hard in the white-lit darkness, and Chan saw the girl's face drain till it matched the color of the beam. Her eyes met those of Wallace, panic-filled. Moments passed, and then the small pilot light on the plug pulsed one last time and blacked out.

"What's wrong?" Wallace cried. "Are they after us?"

June Simmonds nodded. "A double strength law fleet. The man who fitted our ship evidently had a pang of conscience. Reported us. But that's not all. There's another ship on our trail. And do you know who the Foundation thinks is in

it? Brill!"

"*Brill!*" Chan exclaimed. "The hatchet man for the Elite Party? I thought he was dead."

"I thought so too," June replied.

"Why in the devil would he follow us?" Wallace demanded. "Of what earthly use could we be in bringing the goose-steppers in his political party back in power again?"

Chan said, "Beyond me, friends. I'd suggest we go back to the Explorer, but fast."

"No," Wallace shook his head. "We'll go on."

"But we'll be caught! . . ." Chan shouted.

"Perhaps not," June Simmonds replied. "In any case, we've come this far and we won't go back. You're outvoted, Chan. And you won't leave us behind, will you? I don't think you're that depraved. Yet." She stepped past Wallace, and Chan said:

"Damn you!"

But he followed them, on down the straight, cleanly-blasted tunnel. For fifteen minutes they descended toward the heart of Thor Peak. Now and then the torch picked out tunnel mouths and branches clogged with silica dust. The bore charge had been accurately placed, for clearly they were following a natural route

downward into the earth toward some central point at the center of the mountain. All the branches led in that direction.

Wallace raced at the head of the group. They were below the surface of Mars now, for the tunnel walls seeped a pungent gray ichor which shone in the beam of the thermotorch. At last Wallace cried: "The tunnel is widening!" Chan caught June Simmonds' arm and they raced in pursuit. Abruptly the walls and ceiling of the tunnel vanished, and their voices coming through the air set-phones took on a hollow quality. Wallace flashed the torch along the walls, caught something dark in the periphery of the glow, passed on, then jerked the beam back. "Shield your eyes for a second," he called. "I'm stepping up the power."

Without warning the vast cavern was illuminated. When the first blinding flash had died, they all saw the dark stains on the distant wall. June Simmonds clutched Chan's arm. Chan himself, deeply frightened for a moment, said:

"God in heaven . . ."

PERFECTLY ETCHED into the sandy-colored wall were the silhouettes of nine human figures, caught in unbearable postures of agony. It was as if nine human beings had been hurled against the

stone, their flesh and their atoms forced into the pores of the hard surface until their two-dimensional remains were left like shadowgraph pictures to testify to the horror of their deaths. Wallace ran his hand across the smooth surface where the nine figures were burned. Chan and June Simmonds peered at them. Chan breathed:

"What could have caused . . .?"

"There, *there!*" June shrieked softly, pointing. "Is . . . that?"

Chan whirled around. In a naturally formed alcove of the cavern's vast curving wall, resting on top of a carven dais of stone, sat a spherical metal object on a rectangular base of similar material. It was perforated with tiny openings and adorned with a few barbed spines. Obviously of human origin, but what the devil *was* it? Chan puzzled. He asked his companions. Neither seemed to hear. Wallace, almost fainted, wheezed: "It can't possibly . . . it can't possibly . . ."

"I'm sure of it, Will," June Simmonds echoed. "I saw a picture once."

"They were outlawed, long before . . ."

Disgusted, Chan strode forward. "Ah, hell, let's have a look at the thing."

June Simmonds' shrill scream cut him off: "*Don't, don't touch it!*"

"You stupid idiot!" Wallace cried, seizing Chan's arm. "Those things stay armed for centuries." Chan gaped in amazement. He had never seen two human beings gripped by such sheer, unreasoning terror.

June Simmonds whispered: "Chan, that is a constant conversion ray generator. Only a few were ever perfected, because they were so terrible. Supposedly all of them were found and dismantled—that alone takes two years because they're so dangerous—long before Sol was destroyed. They were weapons of infinite power, Chan. And . . ." She pointed, shuddering at the shadows. ". . . and the evidence seems to point to those nine. Whoever they were, they had this one last unit, and they tinkered with it, and made a mistake. They burned their tortured souls into the wall." Her eyes were bleak. "They destroyed a whole solar system in the process."

Chan felt a wild crawl of fear on his own spine. "You said . . . it was still armed."

"Of course," Wallace answered. "The emanation lasts three months, then stops. It can be activated again at any time, as long as there are humans left to work the controls." His voice was strained as he fought for sanity. "Don't you see, Chan? It makes this whole solar

system a timebomb. *That's* why it's illegal to return here. That must be the answer. The lawmakers know of this thing . . . perhaps a few dozen men in each generation, down through the years, living with the knowledge. Not daring to reveal it. There are people who would be foolish enough to try to get the machine, to work it . . ."

"*Quite correct.*" said a new voice. "*I, for instance.*"

Chan turned . . . and thought he was losing his mind. Approaching across the cavern's oozing floor, a massive heatgun in one fist, was what appeared to be the walking corpse of Dr. Amos Greentree. The corpse smiled.

"I was quite pleased that my little medical trick fooled you all so well. It took me a number of years to develop my pseudo-thrombosis alkaloid. Of course I had all the Elite Party funds at my disposal. The same funds which I offered to the Foundation, in return for the last bits of knowledge I needed to locate the conversion generator, my friends. I have worked seventeen years to locate it. I have it now. Thank you so much."

Chan, June Simmonds, Wilton Wallace, all stood still, still as the tortured shadows on the wall. Greentree-Brill advanced further, smiling.

"I promise to execute you pain-

lessly. Then I shall set to work modifying the generator, giving it a remote control which can be manipulated from Alphanus, and tripling its range, so that our system can be effectively encompassed by its rays. Then I shall return and my party will place itself before the people. With an unquestionable right to rule."

"The law ships . . ." Wallace choked.

Brill's dry little mouth quirked. "Followed by a gang of our black-leg suicide jets. Wiped out of the heavens, by now. Many people are expendable when the stakes are high enough."

CHAN KNEW what must be done. All his muscles tightening, he listened to Greentree-Brill's voice chuckle dryly on:

". . . realize, dear friends, that most technicians are unable to manipulate the generator without inducing the type of result depicted in those rather ghastly human murals on the wall. I, however, devoting myself for years to the pursuit of this tiny and peculiar looking machine have developed techniques for shortening its arming time, and doing so in perfect safe . . . *watch out!*"

"No, oh no!" Chan's hand, palm down, hung inches above the generator sphere. In a cat crouch, his

lips peeled away from his teeth, Chan grinned at the political agent. Brill's eyebrows shifted upward and a film of sweat popped out on his temples. Chan said softly, "I'm a thug, Mr. Brill, but the two doctors were very precise in their explanations. I also know a lot about heatguns. Before the beam of yours can melt me down, my hand'll drop, and while I won't get out alive, you won't either."

Chan hoped Wilton Wallace would be taking advantage of Brill's moment of pop-eyed terror. Hesitating, thinking what to say next, Chan heard Wallace move without seeing him do so . . .

Brill spun around, his legs getting a little tangled as he fired the heatgun. Wallace had heaved a rock which struck Brill's neck. Brill cried out. Wallace took the heatgun beam full on and his flesh began to smoke. In a spasm of hatred and frustration Chan burned Brill with his own heatgun, advancing the throttle cam to ash position. Brill began to scream with agony as the extra thermal units reduced him to a small heap of gray dust.

Uttering dry sobs, Chan knelt by Wallace's ruined body, then looked up at June Simmonds. "I never cried before. I want to now. I didn't mean for him to take it like that. I didn't think Brill would

shoot . . ."

Her voice was oddly soft, her eyes understanding. "I know, I know."

Chan arose, wiped his hands on his trousers, wishing he could erase the stench from his nostrils. He gazed at the sphere on the dais, and at the living shadows of the nine plotters fused forever into the stone. "What do we do now?" he asked thickly.

"That *thing* has to be disarmed," June Simmonds said. "If we can believe Brill, and its output can be tripled, it could eliminate Alphanus one day, too. That mustn't happen."

"That would mean," Chan said slowly, "going back, and turning ourselves over to the law, and trying to persuade the Technical Cabinet to believe our story, and send technicians out here to disarm the thing." A sour grin broke Chan's features. "Lady, it would take a lot to save me from reconditioning if I went back. A hell of a lot. How much pull can you muster? What about this foundation of yours?"

June Simmonds shook her head wearily. "Locked. Everyone arrested. They said it was coming, in the last message . . ."

"Then, baby, no dice. There's no third vote. Just you and me. And the balance of power." He hefted the heatgun significantly.

SPACE TRAVEL

Dr. June Simmonds threw him a deep, penetrating stare. Then she shrugged as if she did not care.

"It's up to you, Chan. The law fleet was destroyed, but that doesn't mean they will stop hunting us. We might elude them for a year, or two. Or ten. Meanwhile the Elite Party will send out someone else to replace Brill. Someone else to tinker with that fiendish thing." She paused. "I expect too much of people, Chan. That's it, I guess. I expect too much of human nature." Her mouth curled. Her voice was flat. "Why should I give a damn?"

And retrieving Wallace's ther-

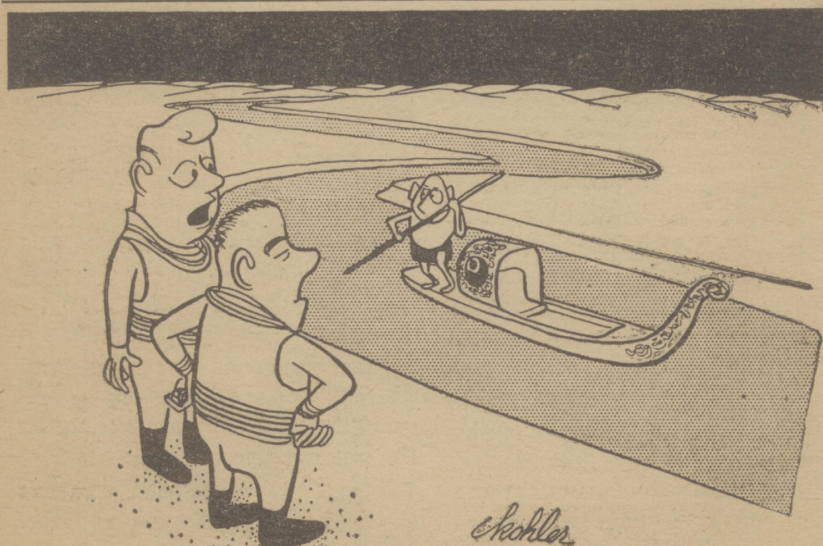
motorch, she started off up the tunnel. Thirty seconds later, Chan ran after her.

"All right," he said. "Let's go back. Let's take our chances."

She did not speak until they reached the tunnel's mouth, opening onto the night desert spreading out around Thor Peak. The twin moons rode high, shining whitely on the clouds of silica blown by the wind. Dr. June Simmonds said:

"Why, Chan?"

"I'll tell you when we're better acquainted. Just about the time I make you realize your father wasn't so smart in *every* respect. Come on."



Heckler

"Remember all that controversy back home about Mars . . . and who would've thought . . ."

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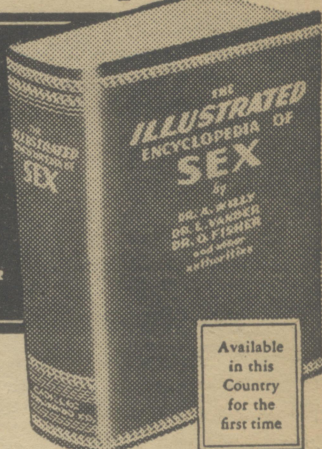
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- Husband and wife attaining mutual climax
- How male organs function in intercourse
- How female sex organs function in intercourse
- How sexual urge in woman differs from man
- Woman's perfect complete sexual satisfaction
- How to derive perfection in sexual act
- Reactions of man and woman during sexual relations compared
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- Natural birth control
- New discoveries in birth control
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- Causes of sex drive in women
- Female frigidity, its causes and cures
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GATEWAY TO TERROR

by

Robert Silverberg

Holstein's equations proved that a body could be hurled through time. The catcher was that nothing could guarantee its safe return!

LEE WESTLY SWITCHED on the light and entered the Project Tomorrow lab. He had a few minor tests to run—half an hour's work. He wanted to

make sure the apparatus was in top shape. Tomorrow, when the Brass would be here to see the unveiling of the time machine, everything would have to be perfect.



There was a man with a gun in the room.

It took Westly a moment to adjust to the idea. The lab was such a *safe* place—aside from the brooding vastness of the machinery itself—free from the conflicts of the mundane world. Men with guns just didn't fit into the picture.

Especially when they happened to be fellow scientists.

Frowning, Westly said, "Hello, John. What brings you here—and what's the artillery for? Afraid of burglars?"

John Murdoch shook his head. "No. No burglars around here, Westly. The gun's for you. If you

don't do as I tell you, I mean."

For the first time Westly began to be upset. "What in blazes are you talking about?"

"I'm going to run a preliminary test on the time machine," said Murdoch. "Perfectly legitimate scientific practice—especially with the big boys coming here tomorrow to see how well we've spent their money."

"I know. That's what I'm doing here. You—"

"Quiet," Murdoch said. "The records will show that I was the engineer in charge of giving her the last run-through, not you. And you, my friend, will be my guinea

pig."

"Murdoch!"

"If you're going to inform me that the time-field is irreversible and that I'm therefore casting you out of the 20th Century forever, save your breath. I know the field equations as well as you do." The lean scientist grinned unpleasantly. "I know they're irreversible. You'll never be found. And, in time, when Katherine gets over the shock of your sudden disappearance—"

"No."

"Yes. When Katherine recovers from the blow, when rumors are starting to get around that missing engineer Lee Westly was actually a Red spy and is now somewhere behind the Iron Curtain working on a Soviet time machine—why, I imagine the field will be clear for me to marry Katherine. Neat?"

"Admirable," Westly said bitterly. "Your mind was never functioning better."

"Get over to the departure stage of the machine, then." Murdoch wiggled the gun meaningfully. "And be proud of your opportunity. You'll be the first human being ever to venture into the time-space distorter."

There was no arguing with the snout of a gun. Slowly, Westly crossed the spacious lab, climbed the little metal railing he had climbed so often, stepped over the

induction barrier, and out onto the burnished platinum circle which was the departure stage.

Murdoch strode to the control console keeping the gun trained on Westly. Westly wished there were something he could do, some trick he could play, anything to prevent Murdoch from hurling him through the time-space fold.

But there was no way to stop him. No way at all.

"I'm throwing the lever at the count of three," Murdoch said. "For my sake and yours don't go roaming around on the stage. I'd hate to transport half of you into the future and have the other half left behind. You know how I hate messes, Lee."

"Skip the byplay. Get it over with." Sweat coursed down Westly's face. He looked around the lab—the lab he had helped to build and which now would be the instrument of his irreversible separation from Katherine, from the world he knew—

"One," Murdoch said.

"Two."

"Hurry it up," Westly snapped.

"Goodbye, Lee. It's a pity we'll never meet again. Three."

He yanked down the lever. A flood of blinding radiation arced from the ceiling and swept down around Westly, sizzling and crackling.

He closed his eyes and staggered

back as the time-space distorter beat down at him. The floor seemed to yield and melt, became nonexistent.

The barrier of the time was shattered momentarily and Westly plunged through — on a one-way journey.

A WAKENING CAME SLOWLY. First there was the smell of fresh air instead of sizzling ozone in his nostrils. He sucked the air in greedily, gasping. There was a curious flavor to it that puzzled him.

The air was warm—warm and wet. Cautiously Westly opened his eyes and sat up.

The world before him was totally alien.

Hanging blue-leaved trees bowed before him, dripping with moisture. Puffs of clouds drifted across the sky, revealing the bright, too-big sun. Ahead of him a thick forest rose. Birds yawped overhead and one fluttered past him—a curious creature with jagged red-and-gold feathers and a deadly-looking toothed beak.

Where am I?

Elsewhere. That was all he knew.

Project Tomorrow had been built around Professor Holstein's force-stress postulates—a set of equations that predicted, in a vague and tentative manner, what would happen if a force-field of a certain

potential were allowed to distort an area of space.

The machine had been built to test the theory. But the theory was just that—a theory. It stated that a body placed within the effective distortion field would be hurled into the future—hurled longitudinally along the time-axis of the fourspace continuum, in Holstein's words—for a duration proportional to mass. A mouse might be thrown a week ahead; a man of Westly's 180 pounds would, according to Holstein's equations, be hurled some 20,000 years forward.

All that was theoretical. For all he or Holstein or anyone else knew he had been thrown *backward* into the distant prehistoric past. The lush vegetation and warmth of the air and general primitive atmosphere seemed to imply that.

But one thing was certain: there was no returning. Katherine and all else of 1979 was permanently behind him. The temporal distortion field equations indicated that travel in the opposite direction was absolutely impossible.

He was here to stay.

V OICES REACHED HIM.

Harsh-sounding voices, whispering in an unfamiliar language.

Men?

No. Not men. He saw them now, approaching in single file through the forest, moving toward him.

Reptiles.

They stood about the height of a man; green, glossy-skinned, they wore no clothes but carried efficient-looking machetes slung from their waists. They were talking. They were intelligent.

The future? Westly wondered. *The past?* Or —

He poised himself for flight. The forest didn't look like a welcome place to hide but he'd done some pretty good broken-field running in college and he'd take his chances. First, though, he wanted to see what was going to happen. He got slowly to his feet and waited as the reptile-men advanced, moving quickly and sinuously on splayed four-taloned feet.

There were nine of them, all in a row. Machetes glittered in the too-bright sunlight. The leader of the group said, "What are you, strange pink thing?"

"You speak *English?*" Westly asked, astonished. "But —"

"English? A strange word. We speak The Tongue; what else could we speak but The Tongue? What are you, strange pink thing? And where are you from?"

Westly faced the nightmare creature squarely. "I'm a man. I'm from the United States, in the year 1979. Where am I and who are you — and how do you speak my language?"

"This is The Kingdom," said

the reptile. "I am Decalon Stollseq, and these are my men. We know no United States. And it is natural to speak The Tongue."

Westly shrugged. The language seemed to be English, but was it? He had no way of knowing. All he knew was that he spoke it and they understood. A side-effect of the time — space distortion, no doubt. But these intelligent reptiles . . . ?

He had no time for further speculation. Decalon Stollseq said, "I have lost one of my men in battle and my group is incomplete. Would you join us, pink one?"

"Join *what?*"

"The group of Decalon Stollseq. We seek the Gateway to Elsewhere."

Westly frowned. "The — Gateway, eh? All right. I'm with you." He had nothing to lose and if he gained a few friends in this bizarre world, all the better.

"Test him," Stollseq snapped to one of his men.

Before Westly knew what was happening the reptile had stepped forward and its thick, fleshy tail lashed out, knocking him to the ground. Stunned, he groped his way to his feet again only to have another lightning-like thrust of the creature's tail slam him to earth.

The reptile cackled. "You move slowly, pink one!"

"What the hell—" He got to

his feet a second time, edging warily out of reach of that tail. The reptile waited for him. Someone handed Westly a machete. His adversary drew his.

"Are we supposed to fight?" Westly asked.

The reptile gave him his answer — a swift, blinding surge of blows which Westly barely managed to parry. He struck back clumsily; the broad machete was heavy and not suited for the sort of wrist-maneuvering that was the only swordplay Westly understood.

The other reptiles cackled appreciatively as Westly gave ground. Suddenly his opponent brought his blade crashing down on Westly's with ferocious force.

Numbed, the human let his weapon drop. He glanced up, expecting to be hewn to pieces any moment and only half caring — when, unexpectedly, another lashing blow from that mighty tail knocked him sprawling again.

He did not get up immediately. He tasted mud.

"Enough," Decalon Stollseq said, barely able to retain his laughter. "We find you not suited for our company, pink one. But we need a slave. You may join us in that capacity, if in no other."

From the ground, Westly glared up angrily. It hadn't been fair. The reptile weighed a good 300 pounds, and had muscles and

sinews of pure beryllium steel. He shouldn't be judged by an encounter of that sort —

No. This is the way this world works.

"All right," he said in a beaten voice. "I'll be your slave."

WESTLY FOLLOWED THEM — at a respectful distance. They treated him like an interesting sort of dog.

Bitterly, he wished he could get his hands on John Murdoch. He could almost forgive Murdoch everything — the loss of Katherine, even—except for this. Murdoch had thrown him into a world where human intelligence meant nothing, where muscle and sword-skill were the highest determining values of life. He had robbed Westly of human dignity and Westly could never forgive him for that.

Westly firmed his lips, squared his shoulders. He promised himself that he'd fight his way back up. He wouldn't remain a slave, here in this weird world where reptiles seemed to rule.

He glanced ahead. Decalon Stollseq and his men were pausing, throwing down their swords, sprawling out at the side of a blue-green river.

Westly caught up with them. "Why are we stopping?" he asked.

"The midday sleep," said Stollseq, as if it should have been

self-evident. "It is the time."

"Oh," Westly said.

He sprawled down next to them and watched. One by one the glassy yellow eyes closed, the massive armored chests rose and fell more regularly. Westly glanced at the soundly sleeping reptiles and at their naked swords lying on the grass. He chuckled. For all their strength, all their sinew, he could slit their nine throats one by one now, kill them all while they slept.

But he had no desire to do that. Not yet.

The Gateway to Elsewhere — that was their goal, Stollseq had said. The term intrigued Westly. He had come through something that might be so termed; he was curious to see what the Gateway might be. And he depended on Stollseq and his men to get him there safely.

The reptiles were snoring peacefully. Above, the bloated sun blazed. Westly passed the time by inventing varied and more horrible revenges he could enact on Murdoch if he could ever return to 1979. It was impossible, of course, but it filled the time pleasantly.

Nearly an hour passed. Finally, Westly grew impatient. He thought of waking the reptiles up and rejected that idea. Instead, he decided to take a little stroll—prudently arming himself with one of the discarded swords.

Cautiously he walked through a fern-thick glade heavy with moisture. The forest was totally silent. It was as if this entire world lay down to sleep at mid day.

A hundred yards deeper into the forest he came upon an interesting sight—10 of the lizardmen, sprawled in a haphazard group like Stollseq's men. And, like Stollseq's men, they were thoroughly asleep.

A grim idea formed in Westly's mind. Slowly, with great care, he tightened his grip on his borrowed weapon and swung it aloft.

He brought the gleaming blade swishing down on the exposed throat of one of the sleeping reptiles. The machete parted the scaly throat with ease; the reptile quivered once and was still. That was one lizard, thought Westly, that would live to take no more mid-day sleeps.

Quickly, with cold-blooded efficiency, he proceeded through the group, hacking with sharp two-handed blows. Nine alien corpses lay in the forest.

He approached the tenth sleeper, the lone survivor, and taking care that the reptile had no way of reaching a weapon, nudged the creature with the toe of his foot. The reptile stirred uneasily, rolled over, refused to awaken. Westly kicked it.

This time it awoke—slowly, with

little comprehension of anything around it.

Westly said, "get up and come with me."

The alien's eyes flashed as it took in the sight of its nine dead comrades. Without replying it lashed out with its fearsome tail. But Westly was prepared.

He sidestepped the killing blow neatly and struck a heavy one of his own with the flat of his sword against the reptilian skull. The alien staggered.

"The next swing takes your head off," Westly said. "Come with me—and watch what you do with your tail."

"Who. . . what are you?" the thoroughly frightened reptile asked. "What sort of demon is awake during the midday sleep?"

"I'm a recruiting officer for Decalon Stollseq. He needs a man to fill out his complement—and you're elected. Come along."

He led the reptile back through the thick glade to where Stollseq and his men lay, still asleep. He nudged Stollseq heavily with his shoe.

The reptile leader was awake instantly and grasping for his sword. Westly leaped back hastily and said, "Not so fast, Stollseq!"

"Why do you disturb me?"

Westly gestured to his captive. "I bring you the tenth member of your squadron. Since I'm not

good enough to make the grade myself, I went out and found you your man."

Stollseq glanced at the other. "Who are you, and where are you from?"

"Kulnok, of Decalon Thorswid's squadron."

"And where is Decalon Thorswid?" Stollseq demanded.

"Dead, with all his men but this," Westly said. "I encountered them over yonder hill." Westly held his breath. Here was where he might have miscalculated. Perhaps the dead decalon was an ally of Stollseq's; perhaps Stollseq would kill Westly to prevent the same thing from happening to his group as had happened to Thorswid's.

But there was unconcealed admiration in Stollseq's eyes. "You have done well, pink one." He turned to the captive. "Will you enter our group, and serve me loyalty?"

"I will," Kulnok swore.

IT WAS THE first step upward, Westly thought, as they continued to the forest. He had begun to demonstrate his usefulness to Stollseq and the reptiles treated him with new respect.

From their conversation Westly learned a little about the world he was in. The reptiles were dominant — there seemed to be no mammalian life whatsoever. They

were chiefly warriors, divided into independent groups of 10 ranging through the woods doing battle.

There was no government, or organized society. It was a purely cold-blooded civilization. Westly did not relish spending the rest of his life here. This was a world for someone like Murdoch, he thought — a ruthless, conscienceless man who could claw his way to the top and enjoy the process. Westly had not enjoyed killing nine sleepers but it had been necessary. Murdoch would have gloried in it.

But Murdoch was back in 1979, probably consoling Westly's weeping ex-fiance at this very moment. And Westly was — *where?*

At nightfall he found out one thing: he *hadn't* gone in the direction the Holstein equations foretold. That was when the three moons rose in the sky.

They were small moons and seemed not too distant. One was smooth-faced and bright; the other two were smaller, pitted and ragged, and had a retrograde motion. Startled, Westly watched them spiralling across the black curtain of the sky.

There were constellations, too. None that he had ever seen before. The universe had a different shape.

A sudden wild thought grew in him. Earth did not have three

moons. It never had three moons nor was it ever likely to have three moons. He was, then, not on Earth — past, present, or future.

Suppose, he thought excitedly, the time-space distorter had thrust him not longitudinally but *laterally*. Sidewise. Into another continuum, another fourspace, another and parallel universe. It was far-fetched but in view of the evidence, conceivable.

And that meant there was a way back.

Equations showed conclusively that the time-flow was irreversible; there was no way back from the future. But those equations did not necessarily hold in this situation. He had gotten here.

Why could he not return?

Suddenly, the Gateway to Elsewhere took on massive importance for him. He began asking questions.

"This Gateway you seek," he said to Stollseq. "What is it?"

The reptile leader said, "It is a brightness that leads to other places. It exists to the north, at the peak of a mighty mountain. Those who control it control the world."

"How?"

"They enter its field — and it takes them anywhere by power of thought. No walls are closed to them, no ocean too wide."

Westly's pulse pounded. "This

Gateway, then — it offers unlimited power to those who hold it. How can you hope to defeat them?"

The reptile gave his version of a smile. "Those who now hold sway grow fat and lazy. I think we can overthrow them. I *know* it, pink one!"

NIGHTFALL but no darkness. The cold light of three moons lit the forest — and one other light.

It glimmered brightly ahead, a gleaming pyre deep in the forest, shining high on a bare purple crest of a swelling mountain.

"There it is," Stollseq breathed. "The Gateway!"

The 10 reptiles gathered in a tense little group in the forest, Westly with them. In urgent whispers Stollseq sketched out his strategy.

"We advance from 10 different points; each man cuts down the man in his way. We converge on the Gateway. The pink one, then, draws near and catches the attention of the guardians of the Gateway. While they pursue him we strike — and the Gateway is ours!"

Stollseq dispersed his men in all directions. "You come with me," he said to Westly.

Together, they plunged into the forest.

It was a hard trek up the side

of the mountain. Westly's laboratory-softened muscles complained but he forced himself to keep pace with the tireless reptile leader. Halfway up, in a cove of thick-boled red trees, they came across the first of the enemy scouts.

He was standing against a tree. Stollseq saw him first and nudged Westly. "There," he said.

Westly squinted into the dim darkness. "I don't see anything," he said.

But Stollseq had already gone into action.

The reptile plunged forward, sword flashing, and brought the startled enemy to immediate attention. Stollseq aimed a vicious blow at the side of the other's throat. It was parried. Swords rang in the forest.

Westly edged back, out of sight. Weaponless, he would stand little chance if Stollseq fell.

Stollseq had little thought of falling, though. The burly reptile hewed his way forward, putting on a dazzling display of swordsmanship. Finally he thrust his blade deep into the other's throat. Fluid bubbled forth.

"Come on," Stollseq grunted. "Let's get moving."

They reached the peak of the mountain about 15 minutes later. Westly glanced ahead curiously. It had been a bold stroke of luck that had brought him this far; it

would take even more luck to get him back to his own world again. But he knew his driving hatred of John Murdoch would carry him a long way.

The Gateway flickered and flared. The night was quiet. Stollseq said, "There are three guardians of the Gateway itself. We've disposed of all the others. If the guardians ever get into the Gateway we're all dead men— but if you can distract them long enough for us to get into position everything will be fine."

"I'll do my best."

Without fear he stepped out of the forest and strode toward the Gateway.

Three of the reptilian creatures squatted before the mouth of the cave from whence came the light. In the eerie glow of the Gateway their swords shone brilliantly.

"Greetings, Guardians!"

They stared at him. "What are you, pink one?"

"I come from afar — from a world called Earth. I bring a gift for you — a gift of infinite value, of power greater than your Gateway!"

It was sheer bluff, all the way. He fumbled in his breast pocket and was relieved to find his cigarette lighter still there. Drawing it out he cupped it in his hands, pressed down the top, and let the little flame flicker for a moment

before extinguishing it.

"*Magic!*" breathed one of the reptiles.

"Sorcery," said Westly. "I bring this gift for you. Which of you three is worthy of it?"

"I!" the three said at once.

"You all speak," said Westly. "Which outdoes the rest in valor?"

"I," yelled a broad-snouted one. "I'll take that fire-maker away from you, pink one!" He rose from his squatting position and came charging out of the cave mouth toward Westly.

The Earthman sidestepped nimbly — and saw that the other two Guardians were not to be outdone. They, too, were coming forth in quest of the magic fire-maker.

He glanced quickly in both directions. It was working; he was drawing the reptiles away from the cavemouth. If only Stollseq and his men would attack in time!

Suddenly shouts filled the air. Swords waved. Westly tossed his cigarette lighter high overhead and as the three confused Guardians charged for it, Stollseq's squadron swept down over them. Swords rang; cries of pain and anger could be heard.

But Westly did not stay to see the outcome of the battle. He dashed inside the cave.

The Gateway flared brilliantly before him. It was but an unbearably bright hole in space, a fault

in the time-space matrix perhaps. He stood hesitantly before it, peering at its radiance.

Suddenly he heard a shout behind him.

"Ho, pink one! Would you use the Gateway yourself, and steal what we have won?"

It was Stollseq.

There was no choice now. Westly glanced at the advancing reptile, then leaped forward.

He felt the warm radiance lick about him, without causing pain. At the last moment he thought, *Earth*. 1979. He visualized his laboratory . . .

"WESTLY! YOU'RE BACK!" The gasp escaped Murdoch almost involuntarily. Westly experienced one blinding moment of disorientation and then saw he had indeed crossed the dimensional gulf. He had returned from nowhere to the lab.

And it seemed as if no time at all had elapsed. The wall clock showed 10:30; it had been past 10 when he entered the lab and encountered Murdoch. The two universes evidently had different time-rates.

"Yes. I'm back," Westly said. He crossed the lab in a few quick bounds and, before Murdoch could get out the gun, he had knocked the lean man sprawling.

"I'll take the gun," Westly said.

He did.

Murdoch smiled evenly. "What's the meaning of this sudden attack, Lee? Why'd you jump on me?"

"Don't try to brazen out of it!"

"Out of what? I was standing here minding my own business. You don't have any proof of what happened, do you? It's just your word against mine!"

Startled, Westly realized that was so. No one would believe his wild story. And the forged records would show that Murdoch was on duty tonight and Westly an interloper.

"All right," Westly said. "You've got me there. But I can still take it out on you in other ways!" He advanced on Murdoch, fists clenched. This was going to be fun.

But Murdoch suddenly charged around him and made a wild dash past —

Right into a glowing oval of light.

There was a scream and that was all. Westly watched as the Gateway, which had been open, faded.

His scientist's mind realized what had happened: the Gateway required balancing. Once it was opened it would not close again until an equivalent mass had travelled back through it. Murdoch's blind dash had taken him back through the Gateway. Now it was

closed.

Westly smiled. Stollseq would be surprised to see the "pink one" return — but the reptile leader would probably make sure the pink one played no more treacherous games. Probably Stollseq would not be able to distinguish Murdoch from Westly.

Poor Murdoch, Westly thought.

He realized he was dead tired, hungry, and had a two-day beard. His once-neat lab outfit hung in tatters. Wearily he picked up the lab phone and dialed Katherine's number. He had quite a story to tell her.

THE END



Gyroscopic Reference



EVERYONE WHO HAS ever been lost, be it in a plane, a boat, or on foot, can never forget those panicky moments when the *feeling* of being unattached to any reference point, fastens him with irrational terror.

No man has built within him a reference system which can orient him under those conditions. The famous "balancing canals" of the inner ear can only respond to such violent gyrations with nausea and dis-orientation.

Man, however, produces a surprisingly amazing "inertial reference frame" - - the gyroscope. A new emphasis has been laid on this familiar instrument because of the demands of the modern rocket age. Speeds - - velocities are so great that the nearest thing to an absolute reference is still none too good for the missile, or vehicle. It is impossible to guide a rocket with radio or radar indefinitely. It is then that the "inertial reference frame" comes into play.

This phrase really describes the superbly refined gyroscope and in-

strumentation accompanying it, which is a part and parcel of almost everything that flies.

The principle is familiar. So long as a high speed spinning disc (high moment of inertia as well) is kept spinning it will strongly resist any torques or forces which tend to change its axis of rotation. In fact, if it is mounted on double gymbals, it will preserve that axis no matter what the framework around it does - - save for the minute frictional losses in the mountings - - and with magnetic suspensions these amount to little.

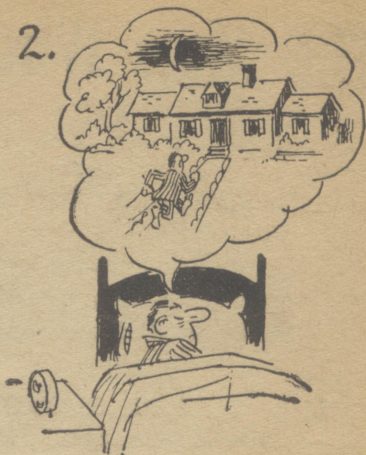
This permits rockets to be set into paths built-in; deviations from the right position are detected by the deviation between the gyro and the frame.

Modern gyros are really "thinking mechanisms" in the best sense of that abused word. They are the computer which tells the machine which way home was - - which way the target is. These rough and sturdy instruments now resist any accelerations - - good for Moon-flights too!

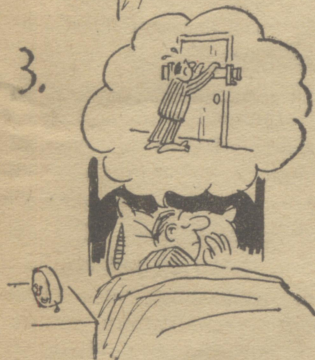
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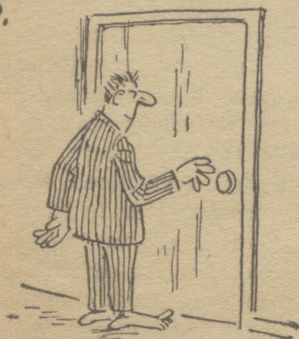
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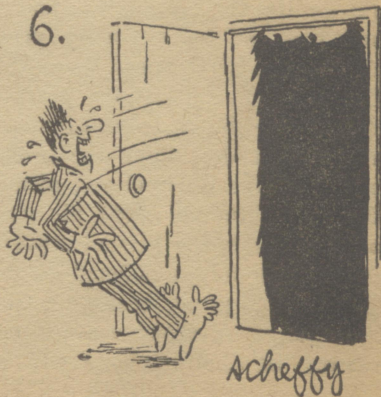
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6.



The Man Who Would Not Die

by

Darius John Granger

He came out of space, a man from the dim past. And they questioned him — tortured him — trying to find out something he didn't know . . .

THE GREAT METEOR-pocked Light Speed star ship dipped into the thin upper atmosphere of Centaurus One, and its plates began to burn cherry-red. It arrowed down in a scream of jets on the last plunging miles of its voyage to the end of the starry universe. There was one man left alive aboard, a tall, angular-jawed man whose eyes did not seem especially old, but whose hair was white. He was thirty-eight years old by his own reckoning, and he had been in space twenty years, aboard this Light Speed vessel *The Destiny*. For the last ten years of the voyage he had been entirely alone, after destroying the broken bodies of the other eleven men in the crew. He had slept for years on end under the kiss of soporific drugs, and only awakened to find *The Destiny* plunging down toward a strange greenish-gray world where, he half-remembered, his

mother and father had lived once in the great city.

This was Centaurus One. He was coming home. But he was falling like a roman candle out of the sky. Death slammed up from below with the rising of the planet's curve. The man, called Ian Dane, strapped himself into a grav platform, tightened the buckles till they bit his flesh, then took out an old gold amulet which hung on a chain around his neck. Within the amulet were photos of strange faces, lined, gray-haired. His parents. He took one final glance at them, then tucked the amulet away beneath his shirt, listened to the growing shriek of the starship's tortured hull through the atmosphere, and waited. Waited, eyes closed, for death.

He was powerless to tamper with the controls of the mechanically propelled ship. He lay with a pushing pain against his chest, breathing, wondering how many Centau-



rus years had passed since the Light Speed craft entered warp on its course to the end of the universe. Sixty? Eighty? He would never know . . .

With a crash the weight was lifted from his chest. The Destiny rocked and righted horizontally and the shrieking stopped. Ian Dane unstrapped and rushed to one of the view plates. Far below he could see antlike figures of men in a brightly-lighted field, and wide

glowing beams of force rose up from that field to cradle the vessel and set it gently down in the midst of a grassy wasteland on the planet's night side. Then he knew: someone had been waiting for the ship.

Dane was waiting for the horde of men who converged on the ship once it settled. They blasted the doors with atom torches and two of them, wearing long dress capes, called orders to the others who

swarmed into the ship and funneled out along its labyrinthine corridors. The two in command ordered others to seize Dane, and before he knew it he had been hauled into a two-wheeled vehicle that sang along a rail through dark fields toward the glitter of a distant city.

Both of the men who had ordered him seized had thin, unpleasant faces. Their dress seemed strangely foreign to Dane as he sat between them. "What happened to the other eleven members of the crew?" asked one of the pair. His companion was busy at a control wheel, eyes on the glowing city.

Dane tried to keep steady. "They . . . they were killed. In an accident, I think. Blasting off from Vegamax. I must have been unconscious when it happened. I woke to find their bodies, and the ship lurching along in space. But . . ." His thin laugh did not win the response he wanted. "But this isn't exactly the kind of welcome I'd pictured. The *Destiny* was the second Light Speed vessel ever sent out from here, wasn't it?"

"That is correct," said the figure at the controls, coldly. "What Matter?"

"Well . . . damn it," Dane stumbled, growing angry, "I've been out there twenty years, and . . ."

"Eighty-four years," said the

other, hollowly. "Centaurus One time. You were in warp."

Dane fingered the amulet sadly. "Then my parents . . . and everyone . . . dead?"

"Dane," the figure at the wheel responded with even colder tones, "what did you find on Vegamax? The survivors of the first Light Speed ship?"

"No," Dane replied. "Nothing but the ruins of the ship."

"What about the inhabitants?" said the other.

"There were no inhabitants," Dane replied. Without warning one of the dark-cloaked figures whipped out a hand and smashed him cuttingly across the cheek. Dane reeled, angering. He struggled up in the seat. "What the hell . . .! I come back after riding twenty years in a floating coffin and get *this* . . . man-handling, and a landing in the center of nowhere, and secrecy. Damn you, who are you? Not from the Rocket Foundation. I remember the people from The Foundation. They sent *The Destiny* up, but they didn't act like you act . . ."

"The Foundation is gone," said the figure at the wheel. "Destroyed. It only served as a blind. Dane, we are not the men to whom you must answer, but we were instructed to ask one more question: what did you bring back from Vegamax?" The man's eyes gleamed in the

rising glow of the city, gleamed narrow and lustful. Dane peered back at him, sorting his thoughts, thinking, trying to sift memories of twenty years, and feeling incredibly tired and angry. He knew what they wanted:

"Nothing. There was nothing on Vegamax . . ."

WITH A CURSE one struck him again. He fought, but the other set the controls of the vehicle and the two outweighed him, pounding him to the floor in a spasm of frustration and fury. The vehicle suddenly shot up a long incline onto an elevated highway, and the vehicle's cowl was criss-crossed with the play of colored lights from the bright, towering buildings. Dane moaned on the floor of the speeding vehicle, moaned and tried to roll with the blows they rained on him . . .

He awakened to feel his arms being held and head lolling. When he opened his eyes he saw his face reflected in a twisted way in polished flooring. He raised his aching head. The floor seemed to continue forever into the distance. But at last his eyes struck a pair of shining boots, and a pair of wheels, and then things swam into focus: a long, imposing chamber with transparent walls looking down upon the night city. The boots belonged to a sword-thin man in tight

trousers and tunic who wore several small medals on his chest. The wheels belonged to a wheelchair in which crouched an obese toad-like creature with flabby cheeks and eyeglasses. Both men seemed well into their sixties; both had white hair. The one in the wheelchair had a diseased, unhealthy pallor, while the one with medals was thin with the wasting of age.

Pudgy hands turned the wheels and the chair hissed forward. The thin man came forward and peered into Dane's eyes. He had a cruel, smiling face.

"Don't you recognize me, Dane?" he wanted to know. "Surely there must be a family resemblance."

Dane shook his head, cursing and struggling in the grip of two guards. The slender man snapped his fingers and the guards released their hold. Dane massaged his aching arms as the slender man exchanged a glance with his obese companion, then said:

"What does the name Caddis mean to you, my friend? St. George Caddis?"

Dane blinked. "Wait . . . it's been twenty years . . . but . . . there was a Caddis ruling Centaurus One when The Destiny took off. But you can't be the same man . . ."

"Of course not," Caddis answer-

ed lightly. "I am his flesh, though. His son. And you'll recall that the Caddis of eighty-four years ago had as his chief adviser a Vorshilov. May I present Victor Vorshilov, also bearing his father's blood." The obese man inclined his toad-like head. Caddis struck a cigarette and inserted it between his lips, exhaling exquisitely. He smelled, thought Dane, faintly of rotten perfume . . .

"My father and his father," Caddis purred, "bludgeoned The Rocket Foundation to launch a second ship in pursuit of the secret of the planet Vegamax at the other end of the galaxy. They then proceeded to exterminate The Foundation. You've been away some time, though you hardly look older than your pictures except for your gray hair. In any case, the rule of Caddis and his councilor Vorshilov has grown . . . ah . . . tenuous, shall we say, during the interim. Even today we, as it were, teeter on the brink of removal. But our system of government is a weak one, and the people are fickle. Now and again they become aroused, wrathful . . . as they have been, off and on, for the past four years. Yet you, my dear navigator of the stars, shall place in our hands the panacea to insure the rule of a Caddis for a few more generations, at least."

The fat hands of Victor Vor-

shilov crawled restlessly on the wheels of his chair. "That is why," he said thickly, "our fathers sent The Destiny in pursuit of the first rocket which went to Vegamax and sent back a message. That is why we're displeased to learn of the report of our agents who met you when The Destiny crashed." Little pads of fat enfolded his malicious eyes. "We do not for one moment believe the story that you found nothing on Vegamax except a wrecked ship."

Quick as lighting a slender knife twinkled in the hand of St. George Caddis, and his supple wrist moved. Dane cried out in pain and anger, a vicious cut drolling blood down his cheek.

"Not for one moment do we believe that, Dane," he echoed.

Dane spat suddenly on Caddis' boots, red with fury. "Believe as you damned please! It's true!"

"Liar!" Vorshilov shrieked, stomping his feet on the floorboards of the chair. "Filthy liar!"

"I warn you!" St. George Caddis called sharply. "Try no shabby tricks, no extortion! You are a stranger on Centaurus One! Your friends are dead. Your parents are dead. The world has changed while you were gone in time warp, though you have aged but a fraction. We control you, Dane, even more surely than our fathers controlled your

parents, because now you are alone. Utterly alone among billions. And we are very jealous of our privilege of rule."

Dane wiped the trickling cheek with the back of his hand. "What's the use? You won't believe anything I tell you. You won't believe that the messages from the first ship were frauds. They must have been frauds, because there was nothing on Vegamax except dust and one wrecked rocket."

Victor Vorshilov said wetly, earnestly, "There was a civilization on Vegamax."

"No," Dane shook his head. "There wasn't."

"There were cities," Vorshilov pushed on dumbly bleating the words. "Great shining cities which make the cities of Centaurus One look like shoddy villages. And creatures whose minds could open the secrets of the whole universe . . ."

Identify "That's a lie," Dane repeated wearily. "There was nothing. I travelled twenty years of time. I *Said* saw it. You didn't see it. I know. I *was* was on Vegamax."

St. George Caddis turned a darker color, and a blue vein stuck on his forehead. "Damn you!" he cried. "Damn you, Dane! What's the use? We can destroy you, beat you into submission, tear it out of your brain if we must. You're alone.

You can't hold out against us." He waited then, biting his lips. Suddenly the vein throbbed harder when Dane gave a tired shrug that said he simply didn't care. Vorshilov flew into a rage but Caddis placed a bony hand on his shoulder and calmed him. Insinuatingly he lowered his voice.

"We'll share, Dane. We'll share handsomely for what you know. A fortune. You're still young. Not more than forty. You can be powerful on Centaurus One, if you'll just help us. After all, you're the only survivor, our only link with the thing The Destiny was sent after. Come, Dane. Be a reasonable man. We'll pay you more than you dreamed, in exchange for what you know."

BY THIS TIME Dane began to feel lost, abandoned, but furiously reckless. He threw back his head and laughed. "Pay me now, then. Give me robes and make me one of your nobles. Because all I know is this, Caddis: there was nothing on Vegamax but one ruined Light Speed ship, and the rotting bones of the men who took it there."

It happened quickly, then. St. George Caddis howled like a madman for his guards, and they hustled Ian Dane below into the pit of the building, far from the lights, far from any kind of human com-

panionship. As time had stopped when *The Destiny* had conquered it with its speed of 99.9999 percent of light, so time stopped when Caddis' crew of psychological torturers went to work on Dane in darkened rooms locked far below the city.

There were hours of red pain, and hours of cool white pain, and hours when his nerves glowed like copper wires charged with a million volts. He was surprised at his own stamina: something made him fight, something made him cling to the last, to a dumb, stupid grunt of resistance that was supposed to be, "*No!*"

Finally he blacked out . . . and awakened freshly bathed, his wounds dressed, in a sealed room with a couch and a small bowl of fruit. He wolfed some of the fruit, wondering what he could possibly do to escape them, when suddenly a rectangular crack appeared in one of the walls. Dane whirled around, expecting Caddis. He saw instead a woman of perhaps his own age, with streaks of gray in her brown hair; a woman with a still-hand-some figure and with cool amber eyes. Her gown rustled as she approached, she smelled faintly of wintergreen. For some reason Dane liked the aroma.

"You lived through it," she said to him. "Somehow I didn't believe you would."

The woman leaned forward gent-

ly and touched cool fingertips to one of the broken-vesselled blotches on his cheek. Dane blinked vaguely, suspiciously, noticing in her manner an abrupt shift from sympathy to tight-reined but furious anger. He drew away from her across the couch until it dawned in his mind that her anger was directed not at him but at someone else. He knew he was housed in the citadel of his enemies, yet she did not seem an enemy. A clever trick, his mind warned. They are applying beauty now, rather than pain. Dane glowered at her.

Speculatively she said, "I really don't understand it at all. Have you any idea of the variety of tortures through which they put you? Every machine in the hellish basement of this place . . . and you never broke, not once. They kept going at you for three days running. Did you know that?"

"I knew it must have been quite a long time," Dane said warily. "But three days . . . And why do you say I didn't break down? I cried. I remember crying several times."

"But you didn't tell them what they wanted to hear." Her amber eyes were approving. "You only screamed a little 'no' when they asked about Vegamax. I watched, you see. There's sort of an amphitheatre down there, and I watched part of the treatment." An evil

memory of horror made her gown stir with a shudder. "Dane, I believe they're beginning to be afraid of you."

He stood suddenly, grasping her wrist, and she uttered a tiny cry. "Look," he ripped out, "I don't know who you are except that you're probably another variation of their little inquisition. Well, I haven't got anything to say to you either. There was nothing on Vegamax. Nothing but a ruined ship." His fingers cut her wrist, digging deep. "Damn you, go back to them and tell them again! Tell them until they believe you! *There was nothing on Vegamax! Nothing!*"

Only when she cried out sharply and bit her lip did Dane release her, wondering quickly whether he were going a trifle mad: for if she belonged to them, she should have fled, and yet she didn't. She collapsed to the edge of the couch, chafing her gouged wrist, staring up sorrowfully at him from her cool amber eyes. Thickly Dane said, "Tell me who you are. Tell me the truth . . ."

"Nela Caddis," she returned quietly, averting her gaze. "His sister."

He knotted a fist in her hair and jerked her head back ruthlessly. "Then they *did* send you!"

"No, no, they have no idea I've come."

Dane laughed in weary contempt. "Oh? I suppose you're offering me a way to escape, eh? In return for what they want to hear about Vegamax?"

Sadly she shook her head. "There's no way for you to escape, Dane. I'm his sister, and I have certain authority, but not that much." Her hand appeared from a fold of the gown. In it gleamed a cold, slender shard of steel. She pressed it into his fist. "I can only offer you this, as a way of release when they come to kill you. And I'm sure they will. You'll be taken below a final time, and put under the machines, and if you don't answer, they'll leave you under the machines until there is nothing left of you except a jerking heap of jelly dancing in the rays." The amber eyes were pleading now: "Be easy on yourself. You've come back to a world that doesn't know you. You took off in The Destiny long before I was born. It's hopeless."

Dane cocked a scarred eyebrow. "Is it? Suddenly I wonder."

"What do you mean? You can't stand against them. They rule Centaurus One. They rule *me* . . . everyone. And even if you can't

"What do you want? Why are you here asking me the same questions about Vegamax?"

"I . . . I felt sorry for you. I wanted to help you."

give them the secret of Vegamax, they'll still rule, even if for a shorter time. Make your peace, Dane. Take the dagger and use it before they hurt you again."

FURIOUSLY Dane paced the featureless room. "You could do me a great service, Nela Caddis. You could persuade your brother and that Vorshilov that the messages which came back from the first rocket—before it crashed—were false. There are *no* cities. There are *no* intelligent beings. Most especially, there are no beings who possess the supposed secret those messages talked about—the secret of human regeneration. Whoever beamed that message back must have been out of his mind at the end of a long voyage. It was a madman's prank, that' all." Dane's eyes met hers levelly. "Tell them there is no secret of life-generation. They'll have to find another trick to perpetuate themselves and their system of rule. I can't help."

Nela Caddis held her hands in her lap, twisting them. "You're a fool."

"I suppose I am," Dane said, in a strangely hollow, introspective voice. "I can't understand why I was able to survive the machines. Or why I won't use this." He raised the dagger before his eyes and stared long at it. "Clearly it's the sane thing to do. Suddenly I'm

quite brave." A jagged laugh contorted his mouth. "Isn't that the damndest thing? I'm not afraid of them."

"Then you are a fool, as I said."

Dane shook his head slowly. "No, there's a reason. But I can't grasp it." The frown deepened on his face. "Somewhere, back in my mind, there's something . . ." His voice died away and his thoughts turned inward. At last he jerked himself from his reverie. "I believe you were trying to help me and I thank you. But you'd better go."

Nela Caddis rose, gazing at Dane wordlessly as if the sorrow she felt could not be expressed. She gave a tiny nod. "Yes, you're right. But please, Dane. Use the knife." One hand touched his arm for a moment, warm and faintly winter-greened. "Be kind to yourself." Then she whirled on one small jeweled slipper. Whispering over her shoulder, "I'll say no more. Goodbye, Dane . . ."

"*Bravo, bravo!*" cried a voice. "*Bravo, sister! You have already said quite enough!*"

Dane and the woman whirled in unison. One of the blank walls of the room blurred behind an odd filmy haze and suddenly was gone. St. George Caddis stood mockingly clapping, and in his wheelchair Vorshilov smacked his fat hands together too. Dane let out a bellow of rage and ran at them with the

dagger lifted. St. George Caddis did not flinch as Dane whipped the dagger down in a vicious arc. Too late, Dane saw the trap . . .

The dagger's point smashed against the invincible transparent wall, shattering and jolting pain along his arm. Behind the observation glass, his voice echoing tinnily over a loud-speaker, Caddis remarked, "Really Dane, my sister should be familiar with this building and its special rooms. Evidently she wasn't using her head. Ah, well. In any case, she was right." His face twisted into hateful lines. "You *shall* go to the machines a final time. And my sister, I think, shall go with you." Nela Caddis screamed and her brother laughed. "Dear Nela, I won't *kill* you, of course, but I do think it was time you learned a lesson. Perhaps twenty-five percent of the treatment which we gave Dane will suffice to correct your deviations. I'm really getting rather bored with your insane sentimentalist ideals." And Caddis swept up a hand and snapped the fingers.

The woman was frightened: she sobbed wildly as the thickshouldered guards carried her, along with Dane, down to the pits of the building. Dane heard her crying dimly, shrieking in terror, as the red pain and the cool white pain began again. Yet strangely once more, he endured, hearing distantly his voice

shouting "*No!*" in response to the questions that never reached to the still-living center of his mind. Slowly numbness and dark crept through him, until only one tiny, cold center back in his brain still clung to consciousness. The screams of Nela Caddis came to his ears as tiny squeaks. He suspected, wearily, that they were letting him hear those outcries, in the hope that he would at last relent, would at last tell the truth . . .

But there was nothing on Vegamax, *that* was the truth. What difference did it make? The creeping paralysis, the shutting off, one by one, of the nerve centers in his body, told him he was dying. He was oddly puzzled by his calm since this *was* death, useless death. Useless indeed. He'd been to Vegamax, hadn't he? He'd seen the wreckage and nothing else, hadn't he?

Then, in the infinitesimal fraction of time before he wholly died, the answer came.

You're with me, he called within himself. *You're with me in symbiosis, aren't you?* And he was answered as he *knew* he would be answered, for the secret had come out at last; he'd discovered it in the final moment before death, discovered it because it could no longer hide in these last elemental seconds of dark, pure being, and in the micro-instants left yet, his brain laughed without sound. He

said, *There were cities, but I never saw them, because you blanked my thoughts and hid, and you've travelled with me.* Again the answer came, as the last nerve center slowly went out, and the only consciousness left to him said; *And there was a secret, and you've brought it because it is part of you.* Very sure of himself, he commanded: *Use it. Use it with me. You must use it, because they deserve destruction . . .*

The last nerve center burned out, and Dane died.

IT WAS TERRIBLY odd to awaken as though he had just slept for a short time; awaken and find himself sprawled in wind-whipped grass under the deserted hull of The Destiny in the night-dark field. The technicians had all gone, defeated perhaps in their stripping of the vessel. Dane rolled over, chuckled, speaking with the thing inside him, asking why it had travelled with him, learning that it had been sent by its fellows to see what sort of existence was lived by these mauraunders who had come through time to strip Vegamax of its secrets. Dane suddenly saw the huddled form of Nela Caddis in the grass. He bent over her lifeless body, and held a conversation with what inhabited his body. His face was grim, for he commanded by virtue of irrefutable logic: his position was utterly right, and it

knew.

Dane and Nela Caddis spoke little on the long, foot-weary trek back to the city. Dane clasped her hand in his, trying to explain. She only said, "They . . . put me too far beneath the machines. My brother was furious. He ordered full power . . . and then suddenly, your face was there, against the stars, and . . . and . . ." Her voice broke. Dane touched a hand to her lips, to silence her gently. They trudged on toward the glowing pile of the city's lights. In Dane sang a new certainty, a new sense of victory and belonging. It would be his Centaurus One again.

They had no trouble at all entering the building. Guards ran from them, howling in fear.

Dane pushed open tall massive doors. Vorshilov screwed his head around from where he crouched in his wheelchair by the window which looked down on the glowing city. St. George Caddis, a jug in his hand and alcohol drooling from his mouth and spotting his tunic, lolled in a chair, his eyes focusing bleakly on the two figures that came toward him in the gloom.

Suddenly he sat bolt upright and dropped the jug with a crash. "Good evening," Dane said.

Caddis stared at Dane, then at his sister. His hand dropped uselessly to the weapon strapped on his side. A bolt, white-fiery, ripped

out and burned a smoky hole in Dane's chest. The hole closed and Dane laughed. St. George Caddis shot again and Dane's body smoked and re-formed. After the third attempt he flung away the weapon, eyes dilated with fear, and ran toward a door which led to a small balcony above the city. There, driven beyond reason by the past few moments, he leaped to the rail, turned his eyes glowing wild like lanterns, and then he jumped. He arched like some odd bird, black and angular against the lights, and then dropped, two miles straight down into the boiling lighted heart of the city.

Dane took Nela's hand and walked forward.

Victor Vorshilov's eyes popped hideously. He gagged once, then slumped forward when his heart stopped beating. Dane took a deep breath. Just so simply had the victory been won.

Then there is a secret on Vegamax, he said to the symbiotic agent, neither pure body nor pure train, which was lodged in him and had travelled across time. The answer came back. I could call on you because you're good, Dane thought, and you were afraid when the first rocket came, and was wrecked, that we would despoil you, and take the secret away, eh? The secret of life regeneration?

Well we won't. You saved me when I needed you, but only because you knew I was right and they were wrong, wasn't that it? The answer came back. You helped me, but I knew you would, once I knew where you were and what you were. There'll be a change, now, I suppose, so you'll have little to fear from us. Those two men are gone. I'll see that the secret is kept.

"By blood lines," Nela spoke softly, "I am my brother's heir for six years to come."

Dane turned, his face wondering in the reflection of the city's glow. "You . . . hear it too?"

"Yes, it's with me. With both of us."

"Then there is surely nothing to be afraid of," Dane said aloud. "You can go back to Vegamax to your cities. You trusted those first men on the first ship didn't you? And their messages were true. Well, just the two of us know anymore. We'll keep the secret well. And . . ." Dane smiled wearily. ". . . and in case we should ever decide to send another rocket, why, you can reach out and kill us, can't you?"

The answer came back. And against the lights of the city, a momentary shadow blurred.

"It's gone," Dane said, his face peaceful at last. He put his arm around Nela.

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