

Galaxy NOVEL NO. 25

The Last Spaceship

MURRAY LEINSTER



M U R R A Y L E I N S T E R

*The
Last
Space Ship*

*A Breathtaking Power Packed
Full Length Novel*

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1

Victim of Tyrants

KIM RENDELL STOOD BY THE PROPPED-UP *Starshine* in the transport hall of the primary museum on Alphin III. He regarded a placard under the space-ship with a grim and entirely mirthless amusement. He was unshaven and hollow-cheeked. He was even ragged. He was a pariah because he had tried to strike at the very foundation of civilization. He stood beside the hundred-foot, tapering hull, his appearance marking him as a blocked man. And he re-read the loan-placard within the railing about the exhibit:

Citizens, be grateful to Kim Rendell, who shares with you the pleasure of contemplating this heirloom.

This is a space-ship, like those which for ten thousand years were the only means of travel between planets and solar systems. Even after matter-transmitters were devised, space-ships continued to be used for exploration for many years. Since exploration of the Galaxy has been completed and all useful planets colonized and equipped with matter-transmitters, space-ships are no longer in use.

This very vessel, however, was used by Sten Rendell when the first human colonists came in it to Alphin III, bringing with them the matter-transmitter which enabled civilization to enter upon and occupy the planet on which you stand.

This ship is private property, lent to the people of Alphin III by Kim Rendell, great-grandson of Sten Rendell.

Kim Rendell read it again. He was haggard and hungry. He had been guilty of the most horrifying crime imaginable to a man of his time. But the law would not, of course, allow him or any other man to be coerced by any violence or threat to his personal liberty.

Freedom was the law on Alphin III, a wryly humorous law. No man could be punished. No man could have any violence offered him. Theoretically, the individual was free as men had never been free before in all of human history. Despite Kim's crime, this spaceship still belonged to him and it could not be taken from him.

Yet he was hungry, and he would remain hungry. He was shabby and he would grow shabbier. This was the only root on Alphin III which would shelter him, and this solely because the law would not permit any man to be excluded from his rightful possessions.

A lector came up to him and bowed politely.

"Citizen," he said apologetically, "may I speak to you?"

"Why not?" asked Kim grimly. "I am not proud."

The lector said uncomfortably:

"I see that you are in difficulty. Your clothes are threadbare." Then he added with unhappy courtesy, "You are a criminal, are you not?"

"I am blocked," said Kim in a hard voice. "I was advised by the Prime Board to leave Alphin Three for my own benefit. I refused. They put on the first block. Automatically, after that, the other blocks came on one each day. I have not eaten for three days. I suppose you would call me a criminal."

"I sympathize deeply," the lector answered unhappily. "I hope that soon you will concede the wisdom of the advised action and be civilized again. But may I ask how you entered the museum? The third block prevents entrance to all places of study."

Kim pointed to the loan-card.

"I am Kim Rendell," he said drily. "The law does not allow me to be prevented access to my own property. I insisted on my right to visit this ship, and the Disciplinary Circuit for this building had to be turned off at the door so I could enter." He shivered. "It is very cold out-of-doors today, and I could not enter any other building."

The lector looked relieved.

"I am glad to know these things," he said gratefully. "Thank you." He glanced at Kim with a sort of fluttered curiosity. "It is most interesting to meet a criminal. What was your crime?"

Kim looked at him under scowling brows.

"I tried to nullify the Disciplinary Circuit."

The lector blinked at him, fascinated, then walked hastily away as if frightened. Kim Rendell stooped under the railing and approached the *Starshine*.

The entrance-port was open, and a flush ladder led up to it. Kim, hollow-cheeked and ragged and defiant, climbed the steps and entered. The entry-port gave upon a vestibule which Kim knew from his grandfather's tales to be an airlock. Kim's grandfather had once gone off into space in the *Starshine* with his father. It was, possibly, the last space-flight ever made.

For a hundred years, now, the ship had been a museum-piece, open to public inspection. But parts had been sealed off as uninteresting. Kim broke the seals. This was his property, but if he had not already been a criminal under block, the breaking of the seals would have made him one. At least, it would have had to be ex-

plained to a lector who, at discretion, could accept the explanation or refer it to a second-degree counsellor.

The counsellor might deplore the matter and dismiss it, or suggest corrective self-discipline.

If the seal-breaker did not accept the suggestion the matter would go to a social board whose suggestion, in turn, could be rejected. But when it reached the Prime Board—and any matter from the breaking of a seal to mass murder would go there if suggested self-discipline was refused—there was no more nonsense.

Kim's case had reached the Prime Board instantly, and he had been advised to leave Alphin III for his own good. His crime was monstrous, but he had ironically refused exile.

Now he was under block. His psychogram had been placed in the Disciplinary Circuit.*

On the first day he was blocked from the customary complete outfit of new garments, clean, sterile, and of his own choice. These garments normally arrived by his bedside in the carrier which took away the old ones to be converted back to raw material for the

* *Disciplinary Circuit*: The principal instrument of government during the so-called Era of Perfection in the First Galaxy. In early ages, all the functions of government were performed by human beings in person. The Electric Chair (q.v.) was possibly the first mechanical device to perform a governmental act, that of the execution of criminals.

The Disciplinary Circuit was a device based upon the discovery of the psychographic patterns of human beings, which permitted the exact identification of any person passing through a neuron field of the type IX2H. . . . A development which permitted the induction of alternative electric currents in any identified person, made the Disciplinary Circuit possible . . . It was first used in prisons, permitting much less supervision of prisoners (See Prisons and Prisoners) with equal security.

Later, because it allowed of an enormous reduction in the personnel of government, all citizens were psychographed. Circuits were set up in all cities of the First Galaxy. When a broadcast adaptation became possible, the system was complete. Every citizen was liable to discipline at any time.

No offender could hide from government. Wherever he might be, he was subject to punishment focused upon him because of his completely individual psychographic pattern . . . Worship of efficiency and the obvious reduction in taxes (See Taxes) at first obscured the possibilities of tyranny inherent in such a governmental system. . . .

[See (1) Era of Perfection, (2) Revolts, (3) Ades, (4) First Galaxy, Reconquest of. For typical developments of government based upon the Disciplinary Circuit, see articles on Sirius VIII, Algol II, Norten V and the almost unbelievable but authenticated history of government on Voorten II.]

Encyclopaedia of History, Vol. XXIV. Cosmopolis, 2nd Galaxy.

garment machines.

On the second day he could enter no place of public recreation. An attempt to pass the door of any sport-field; theatre, or concert stadium caused the Disciplinary Circuit to act. His body began to tingle. He could turn back then. If he persisted, the tingling became more severe. If he was obstinate, it became agony, which continued until he turned back.

On the third day he found it impossible to enter any place of study or labor. The fourth day blocked him from any place where food or drink was served. On the fifth day his own quarters were barred to him.

After seven days the city and the planet would be barred. Anywhere he went, his body would tingle, gently in the morning, more and more strongly as the day wore on, until the torment became unbearable. Then he would go to the matter-transmitter, name his chosen place of exile, and walk off the planet which was Alphin III.

But it happened that Kim was a matter-transmitter technician. It happened that he knew that the Disciplinary Circuit was tied in to the matter-transmitter, and blocked men were not sent to destinations of their own choosing.

Blocked men automatically went to Ades. And they did not come back. Ever.

Behind the sealed-off parts of the space-ship, Kim searched hungrily and worked desperately, not for food, of course. He had determined to attempt the impossible. He had accomplished only the first step toward it when he felt an infinitesimal tingling all over his body. He stood rigid for a second, and then smiled grimly. He closed the casing of the catalyzer he had examined and worked on.

"Just in time," he said. "The merciless brutes!"

He moved from the catalyzer. A moment later he heard footsteps. Someone came up the flush ladder and into the space-ship. Kim Rendell turned his head. Then he bent over the fuel-register, which amazingly showed the tanks to be almost one-twelfth full of fuel, and stood motionless.

The footsteps moved here and there. Presently they came cautiously to the engine-room. Kim did not stir. A man made an indescribable sound of satisfaction. Kim, not moving even his eyes, saw that it was the lector who had spoken to him outside the ship. He did not address Kim now. With a quite extraordinary air of someone about to pick up an inanimate object, the lector laid

hands upon Kim to lift him off his feet.

"Citizen!" Kim said severely. "What does this mean?"

The lector gasped. He fell back. His mouth dropped open and his face went white.

"I—I thought you were paralyzed."

"I do not care what you thought," Kim said. "It is against the law for any citizen to lay violent hands upon another."

By an effort the lector babbled regained his self-control.

"You—you . . . The Circuit failed to work!"

"You reported that I had entered this ship," Kim said drily. "There is some uneasiness about what I do, because of my crime. So the Circuit was applied to paralyze me, and you were ordered to bring me quietly to the matter-transmitter. As you observe, it is not practical. Go back and report it."

The lector said something incoherent, turned and fled. Kim followed him leisurely to the entry-port. He turned the hand-power wheels which put a barrier across the entrance. He went back to his examination of the ship. The first part of the impossible had been achieved, but there was much more, too much more, which must be done. He worked feverishly.

His grandfather had told him many tales of the *Starshine*. She had made voyages of as long as two years in emptiness, at full acceleration, during which she had covered four hundred light-years of space, had purified her air, and fed her crew. Her tanks could hold fuel for six years' drive at full acceleration and her food-synthesizers, primitive as they were by modern standards, could yet produce some four hundred foodstuffs from the carbon, hydrogen, nitrogen, and traces of other elements into which almost any organic raw material could be resolved.

She was, in fact, one of the last and most useful space-ships ever constructed at the last space-ship yard in existence. She was almost certainly the last ever to be used. But she was only a museum-piece now and her switches were opened and her control-cables severed lest visitors to the museum injure her. But Kim's grandfather had lectured him at great length upon her qualities. The old gentleman had had an elderly man's distaste for modern perfectionism.

Kim threw switches here and there. He spliced cables wherever he found them cut. He was hungry and he was gaunt, and he worked with a bitter anticipation of failure. He had been in the museum for almost an hour, and in the ship for half of that, when

voices called politely through the barrier-grille.

"Citizen Kim Rendell, may we enter?"

He made sure it was safe, then opened the way.

"Enter and welcome, citizens," he said ironically, in the prescribed formula. But his hands were clenched and he was all ready to fight for his life.

2

Break for Freedom

SLOWLY THE PRIME BOARD OF ALPHIN III filed up the flush ladder and into the cabin of the *Starshine*. There was Malby, who looked like an elderly sheep. There was Ponter, who rather resembled an immature frog. There was Shimlo, who did not look like anything but an advanced case of benevolent imbecility, and Burt, who at least looked intelligent and whom Kim Rendell hated with a corrosive hatred.

"Greeting, citizen," Malby said. Even his voice had a bleating quality. "Despite your crime, we have broken all precedent to come and reason with you. You are not mad, yet you act like a madman."

Kim grinned savagely at him.

"Come, now! I found a material that changes a man's psychogram, so he's immune to the Disciplinary Circuit. I was immune to discipline. So you four had me seized and my little amulet taken away from me. And then you sealed up every other bit of that material on the planet. Not so?"

"Naturally," Burt said pleasantly. "The Disciplinary Circuit is the basis of civilization nowadays. All discipline and hence all civilization would cease if the Circuit were nullified. Naturally, you must be disposed of."

"But carefully, so if there is anyone who shares my secret, he'll be betrayed by trying to help me!" said Kim. "And quietly, too, so those amiable sheep, my fellow-citizens, won't suspect there's anything wrong. They don't realize that they're slaves. They don't know of your pleasure-palaces on the other side of the planet. They don't realize that, when you take a fancy to a woman and she's blocked in her quarters until she's hysterical with fear and loneliness, you advise her to take psychological treatments which make her a submissive inmate of the harems you keep there. They don't know what happens to men you put under block for being too in-

quisitive about those women and who enter the matter-transmitter for exile."

Burt looked mildly inquiring. "What does happen to them?"

"Ades!" Kim said furiously. "They go to the transmitter and name their chosen place of exile, and the transmitter-clerk dutifully pushes the proper buttons, but the Circuit takes over. They go to Ades! And no man has ever come back."

There was a sudden tension in the air. Burt looked at his fellows. Shimlo was the picture of benevolent indignation, but his eyes were ugly. Ponter opened his mouth and closed it absurdly, looking more than ever like a frog.

"This is monstrous!" Malby bleated. "This is monstrous!"

Burt held up his hand.

"How did you get this strange idea?" he asked.

"I'm a matter-transmitter technician, fourth grade," Kim said coldly. "I worked on the transmitter when it gave trouble. I found the Disciplinary Circuit tie-in. I traced it. So I knew there was something wrong about all personal freedom on Alphin III and I started to look for more things wrong. I found them. I started to do something about them. Then I got caught."

Burt nodded.

"So!" he said thoughtfully. "We underestimated you, Kim Rendell. It is much pleasanter to rule Alphin Three as beloved citizens than as admitted tyrants. There are times when we have to protect ourselves. Naturally, we would rather not show our hands. It is clear that you must be sent into exile. Frankly, to Ades—whatever it may be like there. Apparently you did not have any friends."

"I dared not trust any of the sheep you rule," Kim said angrily. "But I did know there was more hafnium on this ship. I didn't dare come at first, or you'd have guessed. But after I'd starved a bit and was convincingly cold, I risked the venture. You guessed my intention too late. I can defy you again, even if you did take away my first protection from the Circuit. You know that?"

Burt nodded again.

"Of course," he admitted. "Yet we do not want a scandal. We will make a bargain within limits. You must be disposed of, but we will promise that you can go wherever you choose via the matter-transmitter."

"Your word's no good," Kim snapped.

"You will starve," Burt said mildly. "Of course you can seal

yourself in the ship, but we will have lecturers, special lecturers, waiting for you when you come out again."

Kim scowled. "Yes?" he said. "I've been here half an hour. The ship's circuits were cut, but I've put the communicator back in working order. I can broadcast over the entire planet, telling the truth. I won't destroy your power, but I'll make your slaves begin to realize what they are. Sooner or later, one of them will kill you."

Malby bleated. It was not necessarily panic, but there are some minds to whom public admiration is necessary. Such persons will commit any crime to get admiration which they crave with a passionate desire. Burt held up his hand again.

"But why tell us?" he asked pleasantly. "Why didn't you simply broadcast what you've learned? Possibly it was because you wished to bargain with us first? You have terms?"

Kim ground his teeth.

"That's right," he said. "There is a girl, Dona Brett. She was to marry me, but one of you saw her, I think you, Burt. She is now blocked in her quarters to grow hysterical and terrified. It was on account of her that I acted too soon, and got caught. I want her here."

Burt considered without perceptible emotion.

"She is quite pretty, but there are others," he said in his detached way. "If we send her, you will not broadcast?"

"I'll kill her and myself," Kim said. "It's apparently the only service I can do her. Get out, now. It will take your best technician at least forty minutes to make a scrambler which will keep me from broadcasting. I'll give you twenty minutes to get her to me. I'll talk to all the planet if she isn't here."

Burt shrugged.

"Almost, I overestimated you," he said mildly. "I thought you had an actual plan. Very well. She will come. But if I were you, I would not delay my suicide."

Burt's eyes gleamed for an instant. Then he went out, followed by the others. Kim worked the controls which sealed the ship. He got feverishly to work again.

From time to time he stared desperately out of the vision-ports, and then resumed his labors. His task seemingly was an impossible one. The *Starshine* had been made into a mere museum exhibit. It was complete, but Kim's knowledge was inadequate and his time far too short.

Eighteen minutes passed before he saw Dona. She stood quietly

beside the railing outside the spaceship, alone and quite pale. He opened the outer airlock door. She came up. He closed the outer door and opened the inner. She faced him. She was deathly white. As she saw him, hollow-cheeked and bitter, she managed to smile.

"My poor Kim! What did they do to you?"

"Blocked me!" Kim cried. "Took away my hafnium gadget and put me on the Circuit. They locked up every scrap of hafnium on the planet behind an all-citizen block. They just didn't know that it was used in space-ships in the fuel-catalyzers. I've found enough to make the two of us safe, though. Here!" He thrust a scrap of metal into her mind. "Hold it tightly. It has to touch your skin."

She caught her breath.

"I was blocked in my quarters, and I couldn't come out," she told him unsteadily. "I was going crazy with terror, because you'd told me what it might mean. I tried—so hard—to break through. But flesh and blood can't face the Circuit. I hadn't any reason to hope that you'd be able to do anything, but I did hope."

"I told them I'd kill both of us," he said fiercely. "Maybe I shall! But if I can only find the right cable, we'll have a chance!"

Suddenly, every muscle in his body went rigid and a screaming torment filled him. It lasted for part of a second. His face went gray. He wetted his lips.

"Burt!" he said thickly. "He had a psychometer under his robe. They came here, and he knew my psychogram was changed by the hafnium I'd found, so while they talked he stole the new pattern. It's taken them this long to get it ready for the Circuit. Now they're putting it in."

With a sudden, convulsive jerk, he went rigid once more. His muscles stood out in great knots. He was paralyzed, with every nerve and sinew in his body tensed to tetanic rigor. Agony filled him with an exquisite torment. It was the Disciplinary Circuit. It was those waves broadcast, focused upon him at full power. They would have found him anywhere upon the planet. And their torment was unspeakable.

Dona sobbed suddenly.

"Kim!" she cried desperately. "I know you can hear me! Listen! They must have me on the Circuit too, only what you gave me has thrown it off. They expect to hold us paralyzed while they cut in with torches and take us. But they mustn't! So I'm going to give you the thing you gave me. If it changed my pattern, it will change

yours again, to something they can't guess at." She sobbed again. "Please, Kim! Don't give it back. Go ahead and do what you planned, whatever it is. And if you don't win out, please kill me before you give up. Please! I don't want to be conditioned to do whatever they want in their pleasure-palaces."

She took the tiny sliver of metal in her shaking fingers. She pushed aside the flesh of her hand to put it in his grip. Courageously she released it.

The agonized paralysis left Kim Rendell. But now Dona was a pitiful figure of agony.

Kim groaned. Rage filled him. His anguish and fury was so terrible that he would have destroyed the whole planet, had he been able. But he could not permit her gift, which she had given at the price of such torment, to go without reward. He must struggle on to save them both, even though now he had no hope.

He sprang to the control-board. He stabbed at buttons almost at random, hoping for a response. He'd tried to get the ship into some sort of operating condition, but now there was no time. Frenziedly he attempted to find some combination of controls which would make something, anything happen. He slipped the second bit of hafnium into his mouth to have both hands free. In desperation he ripped the controlboard panel loose. He saw clipped wires everywhere behind it. Seizing the dangling ends, he struck them fiercely together. A lurid blue spark leaped. He cried out in triumph, and the morsel of metal Dona had sacrificed to him dropped from his lips.

His muscles contorted and agony filled him.

There was a roaring noise. The *Starshine* bucked violently. There were crashes and there was a feeling of intolerable weight which he could feel, despite his agony. The ship reeled crazily. It smashed through a wall. It battered into a roof. It spun like a mad thing and went skyward tail-first with Kim Rendell in frozen, helpless torment, holding two cables together with muscles utterly beyond his control.

It went up toward empty space, in which no other vessel was navigating anywhere.

3

Rays of Destruction

EVENTUALLY THE "STARSHINE," ALONE IN space as no other space-ship had been alone in twenty thousand years, behaved like a sentient thing. At first, of course, her actions were frenzied, almost insane, as if the Disciplinary Circuit waves which made Dona a statue of agony and kept Kim frozen with contorted muscles could affect the space-ship too.

Wildly the little vessel went upward through air which screamed as it parted for her passage. She yawed and swayed and ludicrously plunged backwards. The screaming of the air rose to a shriek, and then to a high thin whistle, and then ceased altogether. Finally she was free of the air of Alphin III.

After this she really made speed, backing away from the planet. Her meteor-detectors had been turned on in one of Kim's random splicings, and when current reached them they reported a monstrous obstruction in her path and shunted in the meteor-repelling beams. The obstacle was the planet itself, and the beams tried to push it away. Naturally, they pushed the ship itself away, out into the huge chasm of interplanetary space.

It kept up for a long time, too, because Kim was paralyzed by the broadcast waves. They were kept focused upon him by the psychographic locator. So long as those waves of the Disciplinary Circuit came up through the ionosphere, Kim's spasmodically contracted muscles kept together the two cables which had started everything. But the *Starshine* backed away at four gravities acceleration, faster and ever faster, and ordinary psychographic locators are not designed for use beyond planetary distances.

Ultimately the tormenting radio-beam lessened from sheer distance. At last the influence broke off suddenly and Kim's hands on the leads dropped away. The beam fumbled back to contact, and wavered away again, and presently was only a tingling sensation probing for a target the locators could no longer keep lined up.

Then the *Starshine* seemed to lose her frenzy and become merely a derelict. She sped on, giving no sign of life for a time. Then her vision-ports glowed abruptly. Kim Rendell, working desperately against time and with the chill of outer space creeping into the ship's unpowered hull, had found a severed cable which supplied light and heat.

An hour later still, the ship steadied in her motion. He had traced down the gyros' power-lead and set them to work.

Two hours later yet the *Starshine* paused in her flight. Her long, pointed nose turned about. A new element of motion entered the picture she made. She changed course.

At last, as if having her drive finally in operation gave her something of purposefulness, the slim space-ship cleared to look frenzied or frowsy or bemused, and swam through space with a serene competence, like something very much alive and knowing exactly what she was about.

She came to rest upon the almost but not quite airless bulk of Alphin II some thirty hours after her escape from Alphin III. Kim was desperately hungry. But for the lesser gravity of the smaller inner planet, which was responsible for its thinned-out atmosphere, he might have staggered as he walked. Certainly a normal space-suit would have been a heavy burden for a man who had starved for days. Dona, also, looked pale and worn-out when she took from him the things he brought back through the air-lock.

They put the great masses of spongy, woody stuff in the synthesizer. It was organic matter. Some of it, perhaps, could have been consumed as food in its original state. But the synthesizer received it, and hummed and buzzed quietly to itself, and presently the man and woman ate. The synthesizer was not the equivalent of those magnificently complex food-machines which in public dining-halls provide almost every dish the gourmets have ever invented from raw materials. But it did make a palatable meal from the tasteless vegetation of the small planet.

Kim said quietly, when they had finished eating, "Now we'll find out for certain what Burt intends to do about us." He grimaced. "He's dangerously intelligent. He underestimated me before. He may consider us dead, or he may overestimate us. I think he'll play it safe. I would, in his place."

"What does that mean?" Dona asked wistfully. "We will be able to go to some other planet, won't we, Kim? As we'd gone in the matter-transmitter in a perfectly normal fashion? Simply to take up residence on another world?"

Kim shook his head. "I'm beginning to doubt it," he said slowly. "The discovery that with a bit of hafnium a man can change his psychographic pattern is high explosive. If the Disciplinary Circuit can't pick him out as an individual, any man can defy any government which depends on the Circuit. Which means that no govern-

ment is safe. I've got to remove you for the sake of the government everywhere in the Galaxy."

"But they can't touch us here," said Dona. "We're safe now."

Kim shook his head.

"No. I was too hungry to think, before. We're not safe. I've got to work like the devil. Do you remember your Galactic History? Remember what the Disciplinary Circuit was built up to? Remember the Last War? It's not only the space-ships which went into museums. I'm suddenly scared stiff."

He stood up and abruptly began to put on the space-suit again. His face had become haggard.

"In the Last War there were no battles, only massacres," he said curtly as he snapped buckles. "There was no victory. They used a beam which was a stepped-up version of the Disciplinary Circuit. They called it a fighting-beam, then, and they thought they could fight with it. But they couldn't. It simply made war impossible. So ultimately they hooded over the projectors of the fighting-beams, and most of them probably fell to rust. But there are some in the museums. If Burt and the others want to play safe, they'll haul those projectors out of the museum and hook them up to find and kill us. And there's no question but that they can do it."

He stepped into the airlock and closed the door, still fumbling with the fast adjustments to his space-suit.

Dona was puzzled by his gloomy forebodings. She heard the outer door open. As she stood there bewildered, she heard him bringing more raw food-stuff to the air-lock with a feverish haste. He made two trips, three, and four.

She found herself screaming shrilly because of an agony already past.

It had been a bare flash of pain. It was gone in the fraction of a second, in the fraction of a millisecond. But it was such pain! It was the anguish of the Disciplinary Circuit a thousand times multiplied. It was such torment as the ancients tried vainly to picture as the lot of damned souls in hell. Had it lasted, any living creature would have died of sheer suffering.

But it flashed into being, and was gone, and Dona had cried out in a strangled voice. She was filled with a horrible weakness from the one instant of anguish, and she felt stark panic lest it come again.

The outer airlock door slammed shut. The inner opened. Kim came staggering within. He did not strip off the space-suit. He ran

clumsily toward the now-repaired control-panel, his face contorted.

"Lie down flat!" he shouted as he opened his face-plate. "I'm taking off."

The *Starshine* roared from the almost-barren world which was an inferior planet of the sun Alphin, not worth colonization by men. Acceleration built up and built up and built up to the very limit of what the human body could stand.

After twenty minutes, it dropped from four gravities to one.

"Dona!" Kim called hoarsely.

She answered faintly.

"They've got the ancient projectors hooked up," he said as hoarsely as before. "They're searching for us. We were so far away that the beam flashed past. It won't record finding us for minutes, as it'll take time for the response to get back. That's what will save us, but they're bound to touch us occasionally until we get out of range."

The *Starshine* swung about in space. The brutal acceleration began again, at an angle to the former line of motion.

Ten minutes later there was another moment of intolerable pain. Every nerve in their bodies jumped in a tetanic convulsion. Had it continued, their muscles would have torn loose from their bones and their hearts would have burst from the violence of the fearful contraction. The *Starshine* would have gone on senselessly as a speeding coffin. But again the searing torment lasted for only the fraction of a second.

Back on Alphin III, great projectors swept across the sky. They were ancient devices, those projectors. They were quaint, even primitive in appearance. But a thousand years before they had been the final word in armament. They represented an attack against which there was no defense. A defense which could not be breached. Those machines had ended wars.

They poured forth tight beams of the same wave-frequencies and forms of which the Disciplinary Circuit was a more ancient development still. But where the Circuit was an exquisitely sensitive device for the exquisitely graduated torment of individuals, these beams were murderers of men. They were not tuned to the psychographic patterns of single persons, but coarsely, in irresistible strength, to all living matter containing given amino-chain molecules. In short, to all men.

And they had made the Last War the last. There had been one battle in that war. It had taken place near Canis Major, where

there had been forty thousand warships of space lined up in hostile array. The two fleets were almost equally matched in numbers, and both possessed the fighting beams. They hurtled toward each other, the beams stabbing out ahead. They interpenetrated each other and went on, blindly.

It was a hundred years before the last of the run-away derelicts blundered to destruction or was picked up by other space-ships which then still roved the space-ways. Because there was no defense against the fighting-beams, which were aimed by electronic devices, a ship did not cease to fight when its crew was dead. And every crew had died when a fighting-beam lingered briefly on their ship. There was not one single survivor of the Battle of Canis Major. The fleets plunged at each other, and every living thing in both fleets had perished instantly. Thereafter the empty ships fought on as robots against all other ships. So there were no more wars.

For two hundred years after that battle, the planets of the Galaxy continued to mount their projectors and keep their detector-screens out. But war had defeated itself. There could be no victories, but only joint suicides. There could be no conquests, because even a depopulated planet's projectors would still destroy all life in any approaching space-ship for as many years as the projectors were powered for. But in time, more especially after matter-transmitters had made space-craft useless, they were forgotten. All but those which went into museums for the instruction of the young.

These resuscitated weapons were now at work to find and kill Kim and Dona. In a sense it was like trying to kill flies with a sixteen-inch gun. The difficulties of aiming were extreme. To set up a detector-field and neutralize it would take time and skill which were not available.

So the beams swept through great arcs, with operators watching for signs of contact. It was long minutes after the first contact before the instruments on the projectors recorded it, because the news could only go back at the speed of light. Then the projectors had to retrace their path, and the *Starshine* had moved. The beams had to fumble blindly for the fugitives, and they told of each touch, but only after it occurred. And Kim struggled to make his course unpredictable.

In ten hours the beam struck four times only, because Kim changed course and acceleration so fiercely and so frequently that a contact could only be a matter of chance.

Then for a long time there was no touch at all. In two days Alphin, the sun, had dwindled until it was merely the brightest of the stars, with a barely perceptible disk. On the third day the beam found them yet again, and Dona burst into hysterical sobs. But it was not really bad, this time. There is a limit to the distance to which a tight beam can be held together in space, by technicians who have no space-experience and instinctive know-how.

Within hours after this fifth contact, Kim Rendell found the last key break in the control-cables of the ship, and was able to throw on the overdrive, by which the *Starshine* fled from Alphin at two hundred times the speed of light. Then, of course, they were safe. Even had the beam of agony been trained directly upon the ship, it could not have overtaken them.

But Dona was a bundle of shrinking nerves when it was over, and Kim raged as he looked at her scared eyes.

"I know," she said unsteadily, when he had her in the control-room to look at the cosmos as it appeared at faster-than-light speed. "I know I'm silly, Kim. It can't hurt us any more. We're going to another solar system entirely. They won't know anything about us. We're all right. Quite all right. But I'm just all in little pieces."

With somber brow, Kim stared at the vision-plates about him. The Universe as seen at two hundred light-speeds was not a reassuring sight. All stars behind had vanished. All those on either hand were dimmed to near-invisibility. Ahead, where the very nose of the space-ship pointed, there were specks of light in a recognizable star-pattern, but the colors and the magnitudes were incredible.

"We're heading now for Cetus Alpha," Kim said slowly, after a long time. "It's the next nearest solar system. Our fuel-tanks are one-twelfth full. We have power to travel a distance of fifty light-years, no more, and it would take us three months to cover that. Cetus Alpha is seven light-years away, or it was."

"We're going to settle on one of the planets there?" Dona asked hopefully. "What are they like, Kim?"

"You might look them up in the Pilot," Kim said, rather glumly. "There are six inhabited ones."

"You sound worried," she said. "What is it?"

"I'm wondering," Kim admitted. "If Burt and the Prime Board should send word ahead of us by matter-transmitter, to these six planets and all the other inhabited planets within fifty or a hundred

light-years, it would be awkward for us. Transmission by matter-transmitter is instantaneous, and it wouldn't take too long for the governments on the Cetis Alpha planets to set up detectors and remount the projectors which could kill us. Burt would call us very dangerous criminals. He'd say we were so dangerous we had better be killed before we land." He paused, and added, "He's right."

"I don't see why they should do anything so cruel."

"We've struck at the foundation of government," Kim said savagely. "On Alphin Three there's a pretense that all men are free, and we know it's a lie. But on the other planets they don't even pretend. On Loré Four they have a king. On Markab Two the citizens wear collars of metal—slave-collars—and members of the aristocracy have the right to murder social inferiors at pleasure. On Andrometa Nine the Disciplinary Circuit, and so the government, is in the hands of a blood-thirsty lunatic. The Circuit backs all governments alike, the supposedly free and the frankly despotic governments impartially. We're a danger to all of them. Even a decent government, if there is one, would dread having its citizens able to defy the Circuit. Yet in ten words I can tell how to nullify the one instrument on which all government is based. Once that knowledge gets loose, nothing can suppress it."

Dona sighed.

"I was hoping we could go some place where we would be safe," she said. "Isn't there any such place?"

Kim's laugh was bitter.

"I wonder if there's any place where we can be free," he said. "I planned big, Dona, but it didn't work out. There wasn't another man on Alphin Three who wanted to be free as much as I did. I'd about decided that just the two of us would put on protectors and journey from one planet to another in search of freedom. But then Burt saw you, and you were locked up so you'd go frantic with fear and loneliness. Later they'd have given you a psychological conditioning to cure you of terror, and sent you away to Burt's pleasure-palace."

"Why didn't you take me away before Burt saw me?" she asked. "Why did you wait?"

Kim groaned. "Because I wasn't ready. When I realized the danger, I tried to get you, and I was caught. They found out what I had and everything became hopeless. They put me on block to see if anyone would try to befriend me, but I hadn't any friends.

I didn't know anyone else who wouldn't have been frightened if I'd told him he was a slave. I threatened the Prime Board with a broadcast, but I'm afraid nobody would have believed me."

"It all happened because of me," Dona said. "Forget what I said about wanting to be safe, Kim. I don't care any more, not if I'm with you."

Kim scowled at the weird pattern of strangely-colored stars upon the vision-plate.

"We're using a lot of our fuel in trying for Cetus Alpha's planets. I'd like to—well—have a marriage ceremony."

Despite her anxiety, Dona burst out laughing.

"It's about time, you big lug!" she cried. "I was beginning to lose hope."

Kim laughed too. "All right. I'll see if it can be managed. But if warnings have been sent ahead of us, marriage may be difficult."

4

Outcasts of Space

LIKE A SILVER ARROW, THE "STARSHINE" CONTINUED to bore on through a weird, synthetic Universe, two hundred times faster than light. In the space-ship Kim worked angrily, making desperate attempts to devise a method of nullifying the non-individualized fighting beams with which—now that he was in free space in a space-ship—any attempt to land upon an inhabited planet might be frustrated.

In the end he constructed two small wristlets, one for himself and one for Dona to wear. If tuned waves of the Circuit struck them, the wristlets might nullify them. But if the fighting-beams struck, that would be another story.

Twelve days after turning on the overdrive, which by changing the constants of space about the space-ship, made two hundred light-speeds possible, Kim turned it off. He had previously assured himself that Dona was wearing the little gadget he had built. As he snapped off the overdrive field, the look of the Universe changed with a startling suddenness. Stars leaped into being on every side, amazingly bright and astoundingly varicolored. Cetus Alpha loomed almost dead ahead, a glaring globe of fire with enormous streamers streaming out on every side.

There were planets, too. As the *Starshine* jogged on at a normal interplanetary—rather than interstellar—speed, Dona focused the

electron telescope upon the nearest. It was a great, round disk, with polar ice-caps and extraordinarily interconnected seas, so that there were innumerable small continents distributed everywhere. Green vegetation showed, and patches of cloud, and when Dona turned the magnification up to its very peak, they were certain that they saw the pattern of a magnificent metropolis.

She looked at it hungrily. Kim regarded it steadily. They did not speak for a long time.

"It would be nice there," Dona said longingly, at last. "Do you think we can land, Kim?"

"We're going to try," he told her.

But they didn't. They were forty million miles away when a sudden overwhelming anguish smote them both. All the Universe ceased to be. . . .

Six weeks later, Kim Rendell eased the *Starshine* to a landing on the solitary satellite of the red dwarf sun Phanis. It was about four thousand miles in diameter. Its atmosphere was about one-fourth the density needed to support human life. Such vegetation as it possessed was stunted and lichenous. The terrain was tumbled and upheaved, with raw rock showing in great masses which had apparently solidified in a condition of frenzied turmoil. It had been examined and dismissed as useless for human colonization many centuries since. That was why Kim and Dona could land upon it.

They had spent half their store of fuel in the desperate effort to find a planet on which they could land.

Their attempt to approach Cetus Alpha VI had been the exact type of all their fruitless efforts. They came in for a landing, and while yet millions of miles out, recently reinstalled detector-screens searched them out. Newly stepped-up long distance psychographic finders had identified the *Starshine* as containing living human beings. Then projectors, taken out of museums, had hurled at them the deadly pain-beams which had made war futile a thousand years before. They might have died within one second, from the bursting of their hearts and the convulsive rupture of every muscular anchorage to every bone, except for one thing.

Kim's contrived wristlets had saved them. The wristlets, plus a relay on a set of controls to throw the *Starshine* into overdrive travel through space. The wristlets contained a morsel of hafnium, so that any previous psychographic record of them as individuals would no longer check with the psychogram a searchbeam would

encounter. But also, on the first instant of convulsive contraction of muscles beneath the wristlets, they emitted a frantic, tiny signal. That signal kicked over the control-relay. The *Starshine* flung itself into overdrive escape, faster than light, faster than the pain-beams could follow.

They had suffered, of course. Horribly. But the pain-beams could not play upon them or more than the tenth of a millisecond before the *Starshine* vanished into faster-than-light escape. They had tried each of the six planets of Cetus Alpha. They had gone rather desperately to Cetus Gamma, with four inhabited planets, and Sorene, with three. Then the inroads on their scant fuel-supply and their dwindling store of vegetation from Alphin II made them accept defeat. The massed volumes of the Galactic Pilot for this sector, age-yellowed, brittle volumes now, had told them of vegetation on the useless planet of the dwarf star Phanis. They came to it. Kim was stunned and bitter. And they landed.

After the ship had settled down in a weird valley with fantastic overhanging cliffs and a frozen small waterfall nearby, the two of them went outside. They wore space-suits, of course, because of the extreme thinness of the air.

"I suppose we can call this home, now," Kim said bitterly.

It was night. The sky was cloudless, and all the stars of the Galaxy looked down upon them as they stood in the biting cold. His voice went by space-phone to the helmet of Dona, by his side.

"I guess I can stand it if you can, Kim," she said quietly.

"We've got fuel for six weeks' drive," he said ironically. "That means we can go to any place within twenty-five light-years. We've tried every solar system in that range. They're all warned against us. They all had their projectors in operation. We couldn't land. And we'd have starved unless we got to some new material for the synthesizer. This was the only place we could land on. So we have to stand it, if we stand anything."

Dona was silent for a little while.

"We've got each other, Kim," she said slowly.

"For a limited time," he said. "If we use our fuel only for heat and to run the synthesizer for food, it will probably last several years. But ultimately it will run out and we'll die."

"Are you sorry you threw away everything for me, Kim?" asked Dona. "I'm not sorry I'm with you. I'd rather be with you for a little while and then die. Certainly death is better than what I faced."

Kim made a furious gesture.

"It's recognized, everywhere, that the population of a planet has the right to make all the laws of that planet. We are the population here. We could be married by our own act. But suppose we had children? When our fuel gives out they'd die with us. I think we'd go mad anticipating that. We can't even have each other. We're imprisoned here as they used to imprison criminals. For life. We can have no hope. There is nothing we can work at. We can't even try to do anything."

He clenched his hands inside his space-gloves. Dona looked at him.

"Are you going to give up, Kim?"

"Give up what?" Then he said bitterly, "No, Dona. I'm going to find some excuse for hoping. Some lie I can tell myself. But I'll know I'm simply trying to deceive myself."

There was a long silence. Hopelessness. Futility.

"I've been thinking, Kim," Dona said softly, at last. "There are three hundred million inhabited planets. There are trillions and quintillions of people in the Galaxy. If they knew about us, some of them at least would want to help us. There are some, probably, who'd hope we could help them. If we were to think of a new approach to the problem we face, and reach the people who would want to help us, it might mean eventual rescue."

"Signals travel at the speed of light," Kim said. "We'd be dead long before even a tight-beam signal could reach another star-cluster, if there were anybody there to receive or act on it. But there aren't any space-ships except the *Starshine*. It was the last ship used in the Galaxy."

Dona said stoutly:

"We've been regarding our predicament as if it were unique, as if nobody else in the Universe wanted to be free. As if there was only one problem—ours! I heard a story once, Kim. It was about a man who had to carry a certain particular grain of dust to another place. A silly story, of course. But this was the top grain in a dust-pile. The man tried to find something that would pick up the one grain of dust, and something that would hold it quite safe. But he couldn't solve the problem. There wasn't any box that would hold a single grain of dust. He couldn't even pick up a solitary dust grain. And how could he carry it if he couldn't pick it up?"

"That's a fable," Kim said, harshly. "There's a moral?"

Dona smiled. "Yes," she said. "There is. He picked up the dust-grain. With a shovel. He picked up a lot of others, too, but that didn't matter. And he could find a box to hold a hundred thousand dust-grains, when he couldn't find a box to hold one."

Kim was silent. Dona nodded and smiled at him.

"If you want a new way to think, how about thinking not just of us and our problem, but the problem of all the people like us who have gone into revolt?" she said. "How about all the people who've been sent to Ades? How about all those who will go in years to come? I don't know the answer, Kim, but it's another way to think. Since we've failed to solve a little problem by itself, suppose we look at it as part of a big one? It's a new approach, anyhow."

There was silence. The bright, many-colored stars overhead moved perceptibly toward what would be called the west by age-old custom. Weird shapes of frozen rock loomed above the spaceship, and the starlight glimmered up on thin hoarfrost which settled everywhere upon this small planet in the dark hours.

Kim stirred suddenly, and was still again. Dona continued to watch him. She could not see his face, but it seemed to her that he stood straighter, somehow. Then, suddenly, he spoke gruffly.

"Let's go back in the ship," he said. "Space-suits are admirable inventions, Dona, but they have limitations. I can't kiss you through a space-helmet."

He did not wait until they were out of the airlock, and she clung to him. Then he grinned for the first time in many days.

"My dear," he said contentedly. "Not only are you the best-looking female I ever saw, but you've got brains. Now watch me!"

"What are you going to do?" she asked breathlessly.

"Too much to waste time talking about it," he told her. "Want to help? Look up Ades in the Pilot. I had completely forgotten I was a matter-transmitter technician."

He kissed her again, exuberantly, and strode for the *Starshine* record-room, shedding the parts of his space-suit as he went. He pulled down the microfilm reels covering the ship's construction and zestfully set to work to review them, making notes and sketches from time to time. The reels, of course, contained not only the complete working drawings of the entire ship, showing every bolt and rivet, but also every moving part in stereoscopic relationship to its fellows, with full data so that no possible breakdown could take place without full information being available for its repair.

Dona watched him furtively as she began the tedious task of hunting through the Galactic Pilot of this sector, two-hundred-odd volumes, for even a stray reference to the planet Ades.

Ultimately she did find Ades mentioned. Not in the bound volumes of the Pilot, but in the microfilm abbreviated Galactic Directory. Ades rated just three lines of type—its space-coördinates, the spectral type of its sun, a climate-atmosphere symbol which indicated that three-fourths of its surface experienced sub-Arctic conditions, and the memo:

"Its borderline habitability caused it to be chosen as a penal colony at a very early date. Landing upon it is forbidden under all circumstances. A patrol-ship is on guard."

The memorandum was quaint, now that no space-line had operated in five centuries, no exploring ship in nearly two, and the Space Patrol itself had been disbanded three hundred years since.

"Mmmm!" Kim said. "If we need it, not too bad. People could survive on Ades. People probably have. And they won't be sheep, anyhow."

"How far away is it?" Dona asked uneasily. "We have enough fuel for twenty-five light-years' travel, you said."

"Ades is just about halfway across the Galaxy," he told her. "We couldn't really get started there if our tanks were full. The only way to reach it is by matter-transmitter."

But he did not look disheartened. Dona watch his face.

"It's ruled out. What did you hope from it, Kim?"

"A wedding," he said, and grinned. "But it isn't ruled out, Dona. Nothing's ruled out, if an idea you gave me works. Your story about the dust-grain hit my mind just right. I was trying to figure out how to travel a hundred light-years on twenty-five light-years' fuel, even though the Prime Board may have sent warnings three times that far. But if you can't solve a little problem, make it a big one and tackle that. That's what your story meant. It's a nice trick!"

5

Super-Science

DONA WAS PUZZLED BY WHAT KIM HAD SAID. She stared at him, wide-eyed, trying to figure out his meaning. For a moment or two he made no attempt to explain. He just stood there, grinning at her.

"Listen, Dona," he said, finally. "Why did they stop making space-ships?"

"Matter-transmitters are quicker and space-ships aren't needed any more."

"Right!" Kim said. "But why was the *Starshine* used by my revered great-grandfather to bring the first colonists to Alphin Three?"

"Because—well—because you have to have a receiver for a matter-transmitter, and you have to carry it. Alphin Three was almost the last planet in the Galaxy to be colonized, wasn't it?"

"Yes. Why do you have to carry a receiver? No, don't bother. But do answer this one. If two places are both too far to get to, what's the difference?"

"Why, none."

"Oh, there's a lot!" he told her. "The next star-cluster is too far away for the *Starshine* with her present drive and fuel. To the next galaxy is no farther. But when I stopped trying to think of ways to stretch our fuel, and started trying to think of a way to get to the next galaxy, I got it."

She stared.

"Are we going there to live?" she said submissively. But her eyes were sparkling with mirth.

He kissed her exuberantly.

"My dear, I wouldn't put anything past the two of us together. But let me show you how it works."

He spread out the drawings he had made from the construction-records while she searched the Pilot. He expounded their meaning enthusiastically and she listened and made admiring comments, but it is rather doubtful if she really understood. She was too much occupied with the happy knowledge that he was again confident and hopeful.

But the idea was not particularly complicated. Every fact was familiar enough. Space-ships, in the old days, and the *Starshine*, in this, were able to exceed the speed of light by enclosing themselves in an overdrive field, which was space so stressed that in it the velocity of light was enormously increased. Therefore the inertia of matter, its resistance to acceleration, or its mass, was reduced by the same factor, y .

The kinetic energy of a moving space-ship, of course, had to remain the same when an overdrive field was formed about it. Thus when its inertia was decreased by the field, its velocity had

to increase. Mathematically, the relationship of mass to velocity with a given quantity of kinetic energy is, for normal space, $MV=E$. In an overdrive veld, where the factor y enters, the equation is $M/y, yV=E$. The value of y is such that speeds up to two hundred times that of light result from a space-ship at normal interplanetary speed going into an overdrive field.

A matter-transmitter field, as everyone knows now, simply raises the value of y to infinity. The formula then becomes $M/\text{infinity}$, $\text{infinity } V=E$. The mass is divided by infinity and the velocity multiplied by infinity. The velocity, in a planet-to-planet transmitter, is always directly toward the receiver to which the transmitter is tuned.

In theory, then, a man who enters such a transmitter passes through empty space unprotected, but his exposure is so exceedingly brief—across the whole First Galaxy transit was estimated to require .0001 second—that not one molecule of the air surrounding him has time to escape into emptiness.

Thus the one device is simply an extension of the principle of the other. A matter-transmitter is merely an enormously developed overdrive-field generator with a tuning device attached. But until this moment, apparently it had not happened that a matter-transmitter technician was in a predicament where the only way out was to put those facts together. Kim was such a technician, and on the *Starshine* he had probably the only overdrive field generator of space-ship pattern still in working order in the Universe.

"All I've got to do is to add two stages of coupling and rewind the exciter-secondary," he told her zestfully. "Doing it by hand may take a week. Then the *Starshine* will be a matter-transmitter which will transmit itself! The toughest part of the whole job will be the distance-gauge. And I've got that."

Worshipfully, Dona looked up at him. She probably hoped that he would kiss her again, but he mistook it for interest.

He explained at length. There could be, of course, no measure of distance traveled in emptiness. Astrogation has always been a matter of dead reckoning plus direct observation. But at such immeasurably high speeds there could be no direct observation. At matter-transmitter speeds, no manual control could stop a ship in motion within any given galaxy!

So Kim had planned a photo-gauge, which would throw off the transmitter-field when a specific amount of radiation had reached it. At thousands of light-speeds, the radiation impinging on the

bow of a ship, would equal in seconds the normal reception of years. When a specific total of radiation had struck it, a relay would cut off the drive field. Among other features, such a control would make it impossible for a speeding ship to venture too close to a sun.

Kim set joyously to work to make three changes in the over-drive circuit, and to build a radiation-operated relay.

Outside the space-ship the sky turned deep-purple. Presently the dull-red sun arose, and the white hoarfrost melted and glistened wetly, and most of it evaporated in a thin white mist. The frozen waterfall dripped and dripped, and presently flowed freely. The lichenous plants rippled and stirred in the thin chill winds that blew over the small planet, and even animals appeared, stupid and sluggish things, which lived upon the lichens.

Hours passed. The dull-red sun sank low and vanished. The little water-fall flowed more and more slowly, and at last ceased altogether. The sky became a deep dense black and multitudes of stars shone down on the grounded space-ship.

It was a small, starved world, this planet, swinging in lonely isolation around a burned-out sun. About it lay the Galaxy in which were three hundred million inhabited worlds, circling brighter, hotter, much more splendid stars. But the starveling little planet was the only place in all the Galaxy, save one, where no Disciplinary Circuit held the human race in slavery.

Nothing happened visibly upon the planet during many days. There were nights in which the hoarfrost glistened whitely, and days in which the frozen waterfall thawed and splashed valiantly. The sluggish, stupid animals ignored the space-ship. It was motionless and they took it for a rock. Only twice did its two occupants emerge, to gather the vegetation which was raw material for their food-synthesizer. On the second expedition, Kim seized upon an animal to add to the larder, but its helpless futile struggles somehow disgusted him. He let it go.

"I prefer test-tube meat," he said distastefully. "We've food enough anyhow for a long, long time. At worst we can always come back for more."

They went into the ship and stored the vegetable matter in the synthesizer-bins. They returned, then, to the control-room.

"I think it's right," Kim said soberly, as he took the seat before the control-panel. "But nobody ever knows. Maybe we have a space-ship now which makes matter-transmitters absurd. Maybe

we've something we can't control at all, which will land us hundreds of millions of light-years away, so that we'll never be able to find even this galaxy again."

"Maybe we might have something which will simply kill us instantly," Dona said quietly. "That's right, isn't it?"

He nodded.

"When I push this button we find out."

She put her hand over his. She bent over and kissed him. Then she pressed down his finger on the control-stud.

Incredible, glaring light burst into the viewports, blinding them. Relays clicked loudly. Alarms rang stridently. The *Starshine* bucked frantically, and the vision-screens flared with a searing light before the light-control reacted. . . .

There was a sun in view to the left. It was a blue-white giant which even at a distance which reduced its disk to the size of a water-drop, gave off a blistering heat. To the right, within a matter of a very few millions of miles, there was a cloud-veiled planet.

"At least we traveled," Kim said. "And a long way, too. Cosmography's hardly a living science since exploration stopped, but that star surely wasn't in the cluster we came from."

He cut off the alarms and the meteor-repeller beams which strove to sheer the *Starshine* away from the planet, as they had once driven it backward away from Alphin III. He touched a stud which activated the relay which would turn on overdrive should a fighting-beam touch its human occupants.

He waited, expectant, tense. The space-ship was no more than ten million miles from the surface of the cloud-wreathed world. If there were an alarm-system at work, the detectors on the planet should be setting up a terrific clamor, now, and a fighter-beam should be stabbing out at any instant to destroy the two occupants of the *Starshine*. Kim found himself almost cringing from anticipation of the unspeakable agony which only an instant's exposure to a pain-beam involved.

But nothing happened. They watched the clouds. Dona trained the electron-telescope upon them. They were not continuous. There were rifts through which solidity could be glimpsed, sometimes clearly, and sometimes as through mist.

She put in an infra-red filter and stepped up the illumination. The surface of the planet came into view on the telescope-screen. They saw cities. They saw patches of vegetation of unvarying texture, which could only be cultivated areas providing raw mate-

rial for the food-synthesizers. They saw one city of truly colossal size.

"We'll go in on planetary drive," Kim said quietly. "We must have gone beyond news of us, or they'd have stabbed at us before now. But we'll be careful. I think we'd better sneak in on the night-side. We'll turn on the communicator, by the way. We may get some idea of the identity of this sun."

He put the little ship into a power-orbit, slanting steeply inward in a curve which would make contact with the planet's atmosphere just beyond the sunset-line. He watched the hull-thermometers for their indications.

They touched air very high up, and went down and down, fumbling and cautious. The vision-screens were blank for a long time, but the instruments told of solidity two hundred miles below, then one hundred, then fifty, twenty-five, ten—

Suddenly the communicator-speaker spoke in a gabble of confusing voices. Dona tuned it down to one. All the Galaxy spoke the same language, of course, but this dialect was strangely accented. Presently they grew accustomed and could understand.

"We all take pride in the perfection of our life," the voice said unctuously. "Ten thousands years ago perfection was attained upon this planet, and it is for us to maintain that perfection. Unquestioningly, we obey our rulers, because obedience is a part of perfection. Sometimes our rulers give us orders which, to all appearances, are severe. It is not always easy to obey. But the more difficult obedience may be, the more necessary it is for perfection. The Disciplinary Circuit is a reminder of that need as it touches us once each day to spur us to perfection. The destruction of a family, even to first and second cousins, for the disobedience of a single member, is necessary that every seed of imperfection shall be eliminated from our life."

Kim and Dona looked at each other. Dona turned to another of the voices.

"People of Uvan!" The tones were harsh and arrogant. "I am your new lord. These are your orders. Your taxes are increased by one-tenth. I require absolute obedience not only to myself, but to my guards. If any man, woman or child shall so much as think a protest against my lightest command, he or she shall writhe in agony in a public place until death comes. and it will not come quickly! Before my guards you will kneel. Before my personal attendants you will prostrate yourselves, not daring to lift your

eyes. That is all for the present."

Dona cut it off quickly. A dry, crisp voice came in on a higher wave-length.

"This is Matix speaking. You will arrange at once to procure from Khamil Four a shipment of fighting animals for the Lord Sohn's festival four days hence. Fliers will arrive at the matter-transmitter to take them on board tomorrow afternoon two hours before sunset. Lord Sohn was most pleased with the gheets in the last shipment. They do not fight well against men, but against women they are fairly deadly. In addition—"

"Somehow, I don't think we'll land, Dona," Kim said very quietly. "But turn back to the first voice."

Her hand shook, but she obeyed. The unctuous voice had somehow the air of ending its speech.

"Before going on, I repeat we are grateful for the perfection of our way of life, and we resolve firmly that so long as our planet shall circle Altair, in no wise will we depart from it."

Kim turned the nose of the *Starshine* upward. The stars of the Galaxy seemed strangely bright and monstrously indifferent. The little space-ship drove back into the heavens.

After a pause, Kim turned to Dona.

"Look up Altair," he said. "We came a very long way indeed."

There was silence save for the rustling of the index-volume as Dona searched for Altair in the sun-index. Presently she read off the space-coördinates. Kim calculated, ruefully.

"That wasn't space-travel," he said drily. "That was matter-transmission. The *Starshine* is a matter-transmitter, Dona, transmitting itself and us. I wasn't aware of any interval between the time I pressed the stud and the time the altered field shut off. But we came almost a quarter across the Galaxy."

"It was—horrible," Dona said, shivering. "I thought Alphin Three was bad, but the tyranny here is ghastly."

"Alphin Three is a new planet," Kim told her grimly. "This one below us is old. Alphin Three has been occupied for barely two hundred years. Its people have relatively the vigor and the sturdy independence of pioneers, and still they're sheep! We're in an older part of the Galaxy now and the race back here has grown old and stupid and cruel. And I imagine it's ready to die."

He bent forward and made a careful adjustment of the light-operated distance-gauge. He cut it down enormously.

"We'll try it again," he said. He pressed the stud. . . .

6

Haven at Last

AN INCREASING SENSE OF FUTILITY AND DEPRESSION crept over Kim and Dona during the next few days.

They visited four solar-systems, separated by distances which would have seemed unthinkable before the alteration of the overdrive.

There was no longer any sensation of travel, because no distance required any appreciable period of time. Once, indeed, Kim commented curtly on the danger that would exist if they went too close to the Galaxy's edge. With only the amount of received light to work the cut-out switch, under other circumstances they might have plunged completely out of the Galaxy and to unimaginable distances before the switch could have acted.

"I'm going to have to put a limiting device of some sort on this thing," he observed. "With a limiting device, the transmitter-drive can't stay on longer than a few micro-seconds. If we don't, we might find ourselves lost from our own Galaxy and unable to find it again. Not that it would seem to matter so much."

His skepticism seemed justified. The *Starshine* was the only vessel now plying among the stars. It had been of the last and best type, though by no means the largest, ever constructed, and by three small changes in its overdrive mechanism Kim had made it into something of which other men had never dreamed.

For the first time in the history of the human race, other galaxies were open to the exploration and the colonization of men. It was probably possible for the cosmos itself to be circumnavigated in the *Starshine*. But its crew of two humans could find no planet of their own race on which they dared to land.

They approached Voorten II, and found a great planet seemingly empty of human beings. There were roads and cities, but the roads were empty and the cities full of human skeletons. Kim and Dona saw only three living beings of human form, and they were skin and bones and shook clenched fists and gibbered at the slim space-craft as it hovered overhead. The *Starshine* soared away.

It hovered over Makab VI, and there were towers which had been power-houses rusting into ruin, and human beings naked and chained, pulling ploughs while other human beings flourished whips behind them. The great metropolis where the matter-transmitter

should have been was ruins. Unquestionably the matter-transmitter here had been destroyed and the planet was cut off from the rest of civilization.

They came fearfully to rest above the planet center upon Moteh VII and saw decay. The people reveled in the streets, but listlessly, and the communicator brought only barbarous, sensual music and howled songs of a beastliness that was impossible to describe.

The vessel actually touched ground upon Xanin V. Kim and Dona actually talked to two citizens. But those folk were blank-faced and dull. Yet what they told Kim and Dona, apathetically, in response to questioning, was so disheartening that Dona impulsively offered to take them away. But the two citizens were frightened at the idea. They fled when Dona would have urged them.

Out in clear space again, on interplanetary drive, Kim looked at Dona with brooding eyes.

"It looks as if we can't find a home, Dona," he said quietly. "The human race is finished. We completed a job, we humans. We conquered a galaxy and we occupied it, and the job was done. Then we went downhill. You and I, we came from the newest planet of all, and we didn't fit. We're criminals there. But the older planets, like these, are indescribably horrible." He stopped, and asked wryly, "What shall we do, Dona? I'd have liked a wedding ceremony. But what are we going to do?"

Dona smiled at him.

"There's one place yet. The Prime Board called us criminals. Let's look up the criminals on Ades. Maybe—and it's just possible—people who have mustered energy and independence enough to commit political crimes would be bearable. If we don't find anything there, why, we'll go to another galaxy, choose a planet and settle down. And I promise I won't be sorry, Kim!"

Kim made his computations and swung the *Starshine* carefully. He was able to center the course of the space-ship with absolute precision upon the sun around which Ades circled slowly in lonely majesty. He pressed the matter-transmission stud, and the alarm-bells rang stridently, and there was the sun and the planet Ades barely half a million miles from their starting-point.

It was not a large planet, and there was much ice and snow. The electron-telescope showed no monster cities, either, but there were settlements of a size that could be picked out. Kim sent the *Starshine* toward it.

"Of course, I'm only head of this small city," said the man with the bearskin hat. "And my powers are limited here, but I think we'll find plenty to join us. I'll go, of course, if you'll take me."

Kim nodded in an odd grim satisfaction.

"We'll set up matter-transmitters," he suggested. "Then there'll be complete and continuous communication with this planet from the start."

"Right," said the man with the bearskin hat. He added candidly: "We've brains on Ades, my friend. We've got every technical device the rest of the Galaxy has, except the Disciplinary Circuit, and we won't allow that! If this is a scheme of some damned despot to add another planet to his empire, it won't work. There are three empires already started, you know, all taken by matter-transmitter. But that won't work here!"

"If you build the transmitters yourselves, you'll know there's nothing tricky about the circuits," Kim said. "My offer is to take a transmitter and an exploring party to the next nearest galaxy and pick out a planet there to start on. Ades isn't ideal."

"No," agreed the man with the bearskin hat. "It's too cold, and we're overcrowded. There are twenty million of us and more keep coming out of the transmitter every day. The Galaxy seems to be combing out all its brains and sending them all here. We're short of minerals, though—metals, especially. So we'll pick some good sound planets to start on over in a second galaxy. Hm! Come to the communicator and we'll talk to the other men we need to reach."

They went out of the small building which was the center of government of the quite small city. There was nothing impressive about it, anywhere. It was not even systematically planned. Each citizen, it appeared, had built as he chose. Each seemed to dress as he pleased, too.

To Kim and to Dona there was a startling novelty in the faces they saw about them. On Alphin III almost everybody had looked alike. At any rate their faces had worn the same expression of bovine contentment.

On other planets contentment had not been the prevailing sentiment. On some, despair had seemed to be universal.

But these people, these criminals, were individuals. Their manner was not the elaborate, cringing politeness of Alphin III. It was free and natural.

The communicator-station was rough and ready. It was not a

work of art, but a building put up by people who needed a building and built one for that purpose only. The vision-screens lighted up one by one and faces appeared, as variegated as the costumes beneath them. They had a common look for aliveness which was heartening to Kim.

The conference lasted for a long time. There was enthusiasm, and there was reserve. The *Starshine* would carry a matter-transmitter to the next galaxy and open a way for migration of the criminals of Ades to a new island universe for conquest.

Kim would turn over the construction-records of the space-ship so that others could be built. He would give the details of the matter-transmitter alteration. No space-ships had been attempted by the inhabitants of Ades, because fighting-beams would soon have been mounted on useful planets, against them, and all useful planets contained only enemies.

"What do you want?" asked a figure in one vision-plate. "We don't do things for nothing, here, and we don't take things without paying for them, either."

"Dona and I want only a place to live and a people to live among who are free," Kim answered sharply.

"You've got that," the man in the bearskin hat said. "All right? We'll all call public meetings and confirm these arrangements?"

The heads of other cities nodded.

"We'll pass on the news to other cities at once," another man said. He was one of those who had nodded. "Everybody will wish to come in on it, of course. If not now, then later."

"Wait!" Kim said suddenly. "How about the planets around us? Are we going to leave them enslaved?"

"Nobody can free a slave," a whiskered man in a vision-plate said drily. "We could only release prisoners. In time we may have to take them over, I suppose, but on the planet I come from there aren't a dozen men who'd know how to be free if we emancipated them. They don't want to be free. They're satisfied as they are. If any of them want to be free, they'll be sent here, eventually."

"I am reluctant to desert them," Kim answered slowly.

"Count, man," the man with bearskin hat cried. "There are three hundred million inhabited planets! All of them but Ades are ruled by Disciplinary Circuits. If we set out to liberate them, it would take one thousand years, and there are only twenty million of us. Designate just one of us to stay on each planet to teach the people to be free again. Otherwise we wouldn't do a tenth of the job and

we'd destroy ourselves by scattering. But, hang it all, we'd be tyrants! No! We go on and start on a new galaxy. That's a job worth doing. We'll keep a group of watchers here to receive the new ones who come here into exile and forward them. Some day, maybe, we'll come back and take over the old Galaxy if it seems worth while. But we've a job to do. How many galaxies are there, anyhow, for us and our children and our children's children to take over?"

"It's a job that will never be finished," another voice said. "That's good!"

There were trees visible from the window of the house that had been offered by a citizen for Kim's and Dona's use. The sun went down beyond those trees, with a glowing of many colors in the foliage. Kim had never watched a sunset before except upon the towers and pinnacles of a city. He had never noted quite this sharp tang in the air, either, which he learned was the smell of fresh growing things.

"I think I'm going to like living like this," he said to Dona. "Have you noticed the way people act? They don't behave as if I were important at all, in one way. They seem to think I'm commonplace. But I've never before felt so definitely that I matter."

"You do, Kim, darling," Dona said, wisely. She stood close beside him, watching the sunset too. She looked up at him. "You matter enormously, and they know it. But to themselves they matter, too, and when they listen to you and agree with you it's because they mean it, instead of just citizen-like politeness. It is good. I think it must be a part of what we've been looking for. It's a part of freedom, I suppose."

"And you," Kim said. "Do you feel important too?"

She laughed at him and pressed close.

"My dear!" she said. "Could I help it? Can any woman help feeling important on her wedding-day? Do you realize that we've been married two whole hours?"

PART TWO

THE MANLESS WORLDS

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1

Empires in the Making

THE SPEAKER INSIDE THE HOUSE SPOKE softly.

"Guests for Kim Rendell, asking permission to land."

Kim stared up at the unfamiliar stars of the Second Galaxy, and picked out a tiny winking light with his eyes. He moved to a speaker-disk.

"Land and be welcomed." To Dona he added, "It's a flier. I've been expecting something like this. We need fuel for the *Starshine* if we're not to be stuck on this one planet forever. My guess is that somebody has come through the matter-transmitter from Ades to argue about it."

He moved to the edge of the terrace to watch the landing. Dona came and stood beside him, her hand twisting into his. The night was very dark, and the two small moons of Terranova cast no more than enough light to outline nearby objects. The house behind Kim and Dona was low and sprawling and, on its polished outer surface, unnamed Second Galaxy constellations glinted faintly.

The flier came down, black and seemingly ungainly, with spinning rotors that guided and controlled its descent, rather than sustaining it against the planet's gravity. The extraordinarily flexible vegetation of Terranova bent away from the hovering object. It landed and the rotors ceased to spin. Figures got out.

"I'm here," said Kim Rendell into the darkness.

Two men came across the matted lawn to the terrace. One was the colony organizer for Terranova and the other was the definitely rough-and-ready mayor of Steadheim, a small settlement on Ades back in the First Galaxy.

"I am honored," said Kim in the stock phrase of greeting.

The two figures came heavily up on the terrace. Dona went indoors and came back with refreshments, according to the custom of Ades and Terranova. The visitors accepted the glasses, in which ice tinkled musically.

"You seem depressed," said Kim politely, another stock phrase. It was a way of getting immediately to business.

"There's trouble," growled the Mayor of Steadheim. "Bad trouble. It couldn't be worse. It looks like Ades is going to be wiped out. For lack of space-ships and fuel."

"Lack of space-ships and fuel?" protested Kim. "But you're making them!"

"We thought we were," growled the Mayor. "We've stopped. We're stuck. We're finished—and the ships aren't. The same with the fuel. There's not a drop for you and things look bad! But we can't make ships, and we couldn't make fuel for them if we could! That's why we've come to you. *We've got to have those ships!*"

"But why not?" demanded Kim. "What's preventing it? You've got the record-reels from the *Starshine*! They tell you everything, from the first steps in making a ship to the last least item of its outfitting! You know how to make fuel!"

"Space!" exploded the Mayor of Steadheim. "Of course we know how! We know all about it! There are fifty useless hulks in a neat row outside my city—every one unfinished. We're short of metal on Ades and we had to melt down tools to make them, but we did—as far as we could go. Now we're stuck and we're apt to be wiped out because of it!"

The Mayor of Steadheim wore a bearskin cap and his costume was appropriate to that part of Ades in which his municipality lay. He was dressed for a sub-arctic climate, not for the balmy warmth of Terranova, where Kim Rendell had made his home-
stead. He sweated as he gulped at his drink.

"Tell me the trouble," said Kim. "Maybe—"

"Hafnium!" barked the mayor. "There's no hafnium on Ades! The ships are done, all but the fuel-catalyzers. The fuel is ready—all but the first catalyzation that prepares it to be put in a ship's tanks. We have to have hafnium to make catalyzers for the ships. We have to have hafnium to make the fuel!"

"We haven't got it! There's not an atom of it on the planet! We're so short of heavy elements, anyhow, that we make hammers out of magnesium alloy and put stones in 'em to give them weight so they'll strike a real blow! We haven't got an atom of hafnium and we can't make ships or run them either without it!"

Kim blinked at the Colony Organizer for Terranova.

"Here—"

"No hafnium here either," said the Colony Organizer gloomily. "We analyzed a huge sample of ocean salts. If there were any on the planet there'd be a trace in the ocean. Naturally! So what do we do?"

Kim spoke unhappily.

"I wouldn't know. I'm a matter-transmitter technician. I can

do things with power and, of course, I understand the *Starshine's* engines. But there's no record of the early, primitive types that went before them—types that might work on other fuel. Maybe in some library on one of the older planets—But at that, the fuel the *Starshine* used was so perfect that it would be recorded thousands of years back."

"Take a year to find it," said the Mayor of Steadheim bitterly. "If we could search! And it might be no good then! We haven't got a year. Probably we haven't a month!"

"We're beaten," mourned the Colony Organizer. "All we can do is get as many through the Transmitter from Ades as possible and go on half rations. But we'll starve."

"We're *not* beaten!" roared the Mayor of Steadheim. "We'll get hafnium and have a fighting fleet and fuel to power it! There's plenty of the blasted stuff somewhere in the Galaxy! Kim Rendell, if I find out where it is, will you go get it?"

"The *Starshine*," said Kim grimly, "barely made it to port here. There's less than six hours' fuel left."

"And who'd sell us hafnium?" demanded the Colony Organizer bitterly. "We're the men of Ades—the rebels, the outlaws! We were sent to Ades to keep us from contaminating the sheep who live under governments with disciplinary circuits and think they're men! We'd be killed on sight for breaking our exile on any planet in the First Galaxy! Who'd sell us hafnium?"

"Who spoke of buying?" roared the mayor. "I was sent to Ades for murder! I'm not above killing again for the things I believe in! I've a wife on Ades, where there are ten men for every woman. I've four tall sons! D'you think I won't kill for them?"

"You speak of piracy," said the Colony Organizer, distastefully.

"Piracy! Murder! What's the difference? When my sons are in danger—"

"What's this danger?" Kim said sharply. "It's bad enough to be grounded, as we seem to be. But you said just now—"

"Sinab Two!" snorted the Mayor of Steadheim. "That's the danger! We know! When a man becomes a criminal anywhere he's sent to us. In the First Galaxy a man with brains usually becomes a criminal. A free man always does! So we've known for a long while there were empires in the making. You heard that, Kim Rendell!"

"Yes, I've heard that," agreed Kim.

So he had, but only vaguely. His own home planet, Alphin

Three, was ostensibly a technarchy, ruled by men chosen for their aptitude for public affairs by psychological tests and given power after long training.

Actually it was a tyranny, ruled by members of the Prime Council. Other planets were despotisms or oligarchies and many were kingdoms, these days. Every possible form of government was represented in the three hundred million inhabited planets of the First Galaxy.

But every planet was independent and in all—by virtue of the disciplinary circuit—the government was absolute and hence tyrannical. Empires, however, were something new. On Ades, Kim barely heard that three were in process of formation.

"One's the Empire of Greater Sinab," snorted the mayor, "and we've just heard how it grows!"

"Surprise attacks, no doubt," said Kim, "through matter-transmitters."

"We'd not worry if that were all!" snapped the mayor. "It's vastly worse! You know the old fighting-beams?"

"I know them!" said Kim grimly.

2

The Deadly Beams

HE DID. THEY WERE THE MOST TERRIBLE weapons ever created by men. They had ended war by making all battles mass suicide for both sides. They were beams of the same neuronics frequencies utilized in the disciplinary circuits which kept men enslaved.

But where the disciplinary circuits were used in place of police and prisons and merely tortured the individual citizen to whom they were tuned—wherever he might be upon a planet—the fighting-beams killed indiscriminately. They induced monstrous, murderous currents in any living tissue containing the amino-chains normally a part of human flesh.

They were death-rays. They killed men and women and children alike in instants of shrieking agony. But no planet could be attacked from space if it was defended by such beams. It was two thousand years since the last attempt at attack from space had been made.

That fleet had been detected far out and swept with fighting-beams and every living thing in the attacking ships died instantly.

So planets were independent of each other. But when space-ships ceased to be used the fighting-beams were needless and ultimately were scrapped or put into museums.

"Somebody," the mayor said wrathfully, "has changed those beams! They're not tuned to animal tissue in general any more! They're tuned to male tissue. To blood containing male hormones, perhaps! And Sinab Two is building an empire with 'em! We found out only two weeks ago!

"There's a planet near Ades—Thom Four. Four years ago its matter-transmitter ceased to operate. The Galaxy's going to pot anyhow. Nothing new about that! But we just learned the real reason. The real reason was that four years ago fighting-beams killed men and left women unharmed.

"Every man on Thom Four died as the planet rotated. The beams came from space. Every man and every boy and every male baby died! There were only girls and women left." He added curtly, "There were half a billion people on Thom Four!"

Kim stiffened. Dona, beside him, drew closer.

"Every man killed!" said Kim. "What—"

The Mayor of Steadheim swore angrily.

"Half the population! On Ades we're nine-tenths men! Women don't run to revolt or crime. There'd not be much left on Ades if those beams swept us! But I'm talking about Thom Four. The men died. All of them. So many that the women couldn't bury them all.

"One instant, the planet was going about its business as usual. The next, every man was dead, his heart burst and blood running from his nostrils. Lying in the streets, toppled in the baths and eating-halls, crumpled beside the machines.

"Boys in the schools dropped at their desks. Babes in arms, with their mothers shrieking at the sight! Only women left. A world of women! Cities and continents filled with dead men and women going mad with grief!"

Kim felt Dona's hand fumbling for his. She held it fast.

"Go on!" said Kim.

"When they thought to go to the matter-transmitter and ask for help from other planets the matter-transmitter was smashed. They didn't go at first. They couldn't believe it. They called from city to city before they realized theirs was a manless world. Then, when they'd have told the men of another planet what had happened—they couldn't.

"For four years there was not one man or boy on the planet Thom Four. Only women. The old ones grew older. The girls grew up. Some couldn't remember ever seeing a man. No communication with other worlds. Then, one day, there was a new matter-transmitter in the place of the smashed one. Men came out of it. The women crowded about them.

"The men were very friendly. They were from Sinab Two. Their employer had sent them to colonize. There were a thousand women to every man—ten thousand! Some of the women realized what had been done. They'd have killed the newcomers. But some women fell in love with them, of course!

"In a matter of days every man had women ready to fight all other women who would harm him. Their own men were dead four years. What else could they do? More and more men colonists came. Presently things settled down. The men were happy enough. They'd no need to work with all the women about.

"They established polygamy, naturally! Presently it was understood that Thom Four was part of the empire of Greater Sinab. So it was. What else? In a generation there'll be a new population, all its citizens descended from loyal subjects of the emperor.

"And why shouldn't they be loyal? A million colonists inherited the possessions and the women of a planet! It was developed. Everything was built. Every man was rich and with a harem. A darned clever way to build an empire! Who'd want to revolt—and who could?"

He stopped. The two moons of Terranova floated tranquilly, higher in the sky. The soft sweet unfamiliar smells of a Terranovan night came to the small group on the terrace of Kim Rendell's house.

"That's what's ahead on Ades!" raged the Mayor of Steadheim. "And I've four sons! A woman of Thom Four smashed the lock on the new matter-transmitter, which set it to send only to Sinab, and traveled to Khiv Five to warn them. But they laughed at her and when she begged to be sent to a distant planet they grinned—and sent her to Ades!"

He paused.

"Not long after, a criminal from Khiv Five—he'd struck a minor noble for spitting on him—came to Ades. There'd been inquiry for that woman. Spies, doubtless, from Thom Four, trying to trace her. It was clear enough she'd told the truth."

"So," said Kim slowly, "you think Ades will be next."

"I know it!" said the Mayor of Steadheim. "We've checked the planets that have cut communication in our star-cluster. Twenty one-inhabited planets have ceased to communicate in the past few years—the twenty planets nearest to Sinab. We figured Khiv Five would be next. Then we'd be in line for it.

"Khiv Five cut communications four days ago! Every man on Khiv Five is dead! We've had exiles from a dozen nearby planets. All know Khiv Five is cut off. It's inhabited only by women, going mad with grief!

"In a few years, when they grieve no longer, but despair instead, new colonists from Sinab will come out of a new matter-transmitter to let the women fall in love with them—and to breed new subjects for the Empire of Sinab! So we've got to have space-ships, man! We've got to!"

Kim was silent. His face was hard and grim.

"Twenty planets those so-and-so's have taken over!" roared the mayor. "They've murdered not less than four billion men already, and the weasels have a hundred wives apiece and the riches of generations for reward! D'you think I'll let that happen to Ades, with my four sons there? Space, no! I want ships to fight with!"

The two small moons rose higher. Strange sweet smells floated in the air. Dona pressed close to Kim. On Terranova, across the gulf between island universes, Kim was surely safe, but any woman can feel fear for her man on any excuse.

"It's a hard problem," said Kim evenly. "We barely made Terranova with the *Starshine*, and there's just about enough fuel left to take off with. Of course, on transmitter-drive she could go anywhere, but I doubt that we've fuel enough to land her.

"Here on Terranova we need supplies from Ades to live. If fighting-beams play on Ades we'll starve. And, even if we had fuel the *Starshine* isn't armed and they'll have a fleet prepared to fight anything."

Dona murmured in his ear.

"We're beaten, then," said the Colony Organizer bitterly. "Ades will be wiped out, we'll starve and the Sinabians will go through the First Galaxy, killing off the men on planet after planet and then moving in to take over."

Dona murmured again in Kim's ear. The Mayor of Steadheim growled profanely, furiously. Dona laughed softly. The two visitors stared at her suspiciously.

"What do we do, Kim Rendell?"

"I suppose," said Kim wryly, "we'll have to fight. We've no fuel and no weapons—but that ought to surprise them."

"Eh?"

"They'll be prepared," Kim explained, "to defend themselves against any conceivable resistance by any conceivable weapon. And a warship a fairly intelligent planet could build should be able to wipe out ten thousand *Starshines*. So when we attack them without any weapons at all they won't quite know what to do."

The two visitors simply stared at him.

"You've got to get hafnium! You've got to get fuel! You can't face a battleship!"

"But," said Kim, "battleships have fuel on board and they'll have hafnium too. It'll be risky—but convenient. . . ."

3

Contact!

ACTUALLY THERE WAS LESS THAN A QUART of fuel in the *Starshine's* tanks. Kim knew it ruefully well. It would run the little ship at interplanetary speed for perhaps six hours. On normal over-drive—two hundred light-speeds—it would send her just about one-seventh of a light-year, and star-systems averaged eight light-years apart in both the First and Second Galaxies.

Of course, on transmitter-drive—the practically infinite speed the *Starshine* alone in history had attained—the ship might circumnavigate the cosmos on a quart of fuel. But merely rising from Terranova would consume one-third of it, and landing on any other planet would take another third.

Actually the little ship was in the position of being able to go almost anywhere, but of having no hope at all of being able to come back.

It rose from Terranova though, just three days after the emergency was made clear. There were a few small gadgets on board—hastily made in the intervening seventy-two hours—but nothing deadly—nothing that could really be termed a weapon.

The *Starshine* climbed beyond the atmosphere of the Second Galaxy planet. It went on overdrive—at two hundred light-speeds—to a safe distance from Terranova's planetary system. Then it stopped in normal space, not stressed to allow for extra speed.

Kim jockeyed it with infinite care until it was aimed straight

at the tiny wisp of nebulous light which was the First Galaxy, unthinkable thousands of light-years away. At long last he was satisfied. He pressed the transmitter-field button—and all space seemed to reel about the ship.

At the moment the transmitter-field went on, the *Starshine* had a velocity of twenty miles per second and a mass of perhaps two hundred tons. The kinetic energy it possessed was fixed by those two facts.

But, when the transmitter-field enveloped it, its mass dropped—divided by a factor approaching infinity. And its speed necessarily increased in exact proportion because its kinetic energy was undiminished. It was enclosed in a stressed space in which an infinite speed was possible. It approached that infinite speed on its original course.

Instantly, it seemed, alarm-gongs rang and the cosmos reeled again. Suddenly there was a glaring light pouring in the forward vision-ports. There were uncountable millions of stars all about and, almost straight ahead, a monstrous, palpitating Cepheid sun swam angrily in emptiness.

The *Starshine* had leaped the gulf between galaxies in a time to be measured in heart-beats and the transmitter-field was thrown off when the total quantity of radiation impinging upon a sensitive plate before her had reached a certain total.

Dona watched absorbedly as Kim made his observations and approximately fixed his position. The Mayor of Steadheim looked on suspiciously.

“What’s this?”

“Locating ourselves,” Kim explained. “From the Second Galaxy the best we could hope for was to hit somewhere in the First. We did pretty well, at that. We’re about sixty light-centuries from Ades.”

“That’s good, eh?” The mayor mopped his face. “Will we have fuel to get there?”

Kim jockeyed the *Starshine* to a new line. He adjusted the radiation-operated switch to a new value, to throw off the field more quickly than before. He pressed the field-button again. Space reeled once more and the gongs rang and they were deep within the Galaxy. A lurid purple sun blazed balefully far to the left.

Kim began another jockeying for line.

“Khiv Five was beamed about a week ago,” he said reflectively. “We’re headed for there now. I think there’ll be a warship hanging

around, if only to drop into the stratosphere at night and pick up the broadcasts or to drop off a spy or two. Dona, you've got your wristlet on?"

Dona, unsmiling, held up her hand. A curious bracelet clung tightly to the flesh. She looked at his forearm, too. He wore a duplicate. The Mayor of Steadheim rumbled puzzledly.

"These will keep the fighting-beams from killing us," Kim told him wryly. "And you too. But they'll hurt like the dickens. When they hit, though, these wristlets trip a relay that throws us into transmitter-drives and we get away from there in the thousandth of a second. The beams simply won't have time to kill us. But they'll hurt!"

He made other adjustments—to a newly-installed switch on the instrument-board.

"Now—we see if we get back to Terranova."

He pressed the transmitter-drive button a third time. Stars swirled insanely, with all their colors changing. Then they were still. And there was the ringed sun Khiv with its family of planets about it.

Khiv Five was readily recognizable by the broad, straight bands of irrigated vegetation across its otherwise desert middle, where the water of the melted ice-caps was pumped to its winter hemisphere. It was on the far side of its orbit from the stopping-place of the *Starshine*, though, and Kim went on overdrive to reach it. This used as much fuel as all the journey from the Second Galaxy.

The three speed-ranges of the *Starshine* were—if Kim had but known it—quaintly like the three speeds of ancient internal-combustion land-cars. Interplanetary drive was a low speed, necessary for taking off and landing, but terribly wasteful of fuel.

Overdrive had been the triumph of space-navigation for thousands of years. It was like the second gear of the ancient land-cars. And the transmitter-drive of Kim's devising was high speed, almost infinite speed—but it could not be used within a solar system. It was too fast.

Kim drove to the farther orbit of Khiv Five and then went into a long, slow, free fall toward the banded planet below. In the old days it would have been changed to a landing-parabola at an appropriate moment.

"Now," said Kim grimly, "my guess is that we haven't enough fuel to make anything but a crash-landing. Which would mean that we should all get killed. So we will hope very earnestly that

a warship is still hanging about Khiv Five, and that it comes and tries to wipe us out."

Dona pointed to a tiny dial. Its needle quivered ever so slightly from its point of rest.

"Mmmmm," said Kim. "Right at the limit of the detector's range. Something using power. We should know how a worm on a fish-hook feels, right now. We're bait."

He waited—and waited—and waited.

The small hundred-foot hull of the space-ship seemed motionless, seen from without. The stars were infinitely far away. The great ringed sun was a hundred and twenty million miles distant. Even the belted planet Khiv Five was a good half-million miles below.

Such motion as the *Starshine* possessed was imperceptible. It floated with a vast leisureliness in what would be a parabolic semi-orbit. But it would take days to make sure. And meanwhile. . . .

Meanwhile the *Starshine* seemed to spawn. A small object appeared astern. Suddenly it writhed convulsively. Light glinted upon it. It whirled dizzily, then more dizzily still, and abruptly it was a shape. It was, in fact, the shape of a space-ship practically the size of the *Starshine* itself, but somehow it was not quite substantial. For minutes it shimmered and quivered.

"You'll find it instructive," said Kim drily to the Mayor of Steadheim, "to look out of a stern-port."

The Mayor lumbered toward a stern-port. A moment later they heard him shout. Minutes later, he lumbered back.

"What's that?" he said angrily. "I thought it was another ship! When I first saw it, I thought it was ramming us!"

"It's a gadget," said Kim abstractedly. His eyes were on the indicator of one of the detectors. The needle was definitely away from its point of rest. "There's something moving toward us. My guess is that it's a warship with fighting beams—and hafnium and fuel."

4

Encounter in the Void

THE MAYOR OF STEADHEIM LOOKED FROM one to the other of them. Dona was pale. She looked full of dread. Kim's lips were twisted wryly, but his eyes were intent on the dial. The mayor

opened his mouth, and closed it, then spoke wrathfully.

"I don't understand all this! Where'd that other ship come from?"

"It isn't a ship," said Kim, watching the dial that told of the approach of something that could only be an enemy—and it had been a matter of faith that only the *Starshine* roamed the spaceways. "I got it made back on Terranova.

"We took a big reel of metal spring-wire, and wound it round and round a shape like that of the *Starshine*. When it was in place we annealed and tempered it so it would always resume that shape. And then we wound it back on its reel. I just dumped it out in space from a special lock astern.

"It began to unroll, and of course to go back to the form it had been tempered in. Here, with no gravity to distort it, it went perfectly back into shape. Close-to, of course, you can see it's only a shell and a thin one. But a few miles away it would fool you."

The needle on the detector-dial crept over and over. Kim wet his lips. Dona's face was white.

Then Kim winced and the Mayor of Steadheim roared furiously and the Universe without the viewports swayed and dissolved into something else. Alarm-gongs rang and the *Starshine* was in a brand-new place, with a blue-white giant sun and a dwarf companion visible nearby. The ringed sun Khiv had vanished.

"K-kim!" said Dona, choking.

"I'm quite all right," he told her. But he wiped sweat off his face. "Those beams aren't pleasant, no matter how short the feeling is."

He turned back to the controls. The faint whine of the gyros began. The *Starshine* began to turn about. Kim applied power. But it took a long time for the ship's nose to be turned exactly and precisely back in the direction from which it had come.

"It's getting ticklish," he said abruptly. "There's less than a cupful of fuel left."

"Space!" said the Mayor of Steadheim. He looked sick and weak and frightened. "What happened?"

"We were in a sort of orbit about Khiv Five," said Kim, succinctly. "We had a decoy ship out behind us. A warship spotted our arrival. It sneaked up on us and let go a blast of its beams—the same beams that killed all the men on Khiv Five.

"They didn't bother Dona—she's a girl—but they would have

killed us had not a relay flung the *Starshine* away from there. The beams got left behind. So did the dummy ship. I think they'll clamp on to it to look it over. And if our engines keep turning over long enough, we'll be all right. Now, let's see!"

His jaw was set as the transmitter-drive came on and the familiar crazy gyration of all the stars again took place and the gongs rang once more. But his astrogation was perfect. There was the ringed sun Khiv again with its banded fifth planet and its polar ice-cap and its equatorial belt of desert with the wide bands of irrigated land crossing it. Kim drove for the planet. He looked at the fuel-gauge.

"Our tanks," he said evenly, "read empty. What fuel's left is in the catalyzer."

A needle stirred on the bank of indicators. Dona caught her breath. Kim sweated. The indication on the dial grew stronger. The electron-telescope field sparkled suddenly, where light glinted on glistening metal. Kim corrected course subtly.

There was the tiny form which looked so amazingly like a duplicate of the *Starshine*. It was actually a thin layer of innumerable turns of spring-wire. On any planet it would have collapsed of its own weight. Here in space it looked remarkably convincing.

But the three in the *Starshine* did not look at it. They looked at the shape that had come alongside it and made fast with magnetic grapples that distorted the thin decoy wildly—the shape that gave no sign of any activity or any motion or any life.

That shape was a monster space-ship a thousand feet long. It looked as if it bulged with apparatus of death. It was gigantic. It was deadly.

"Our trick worked," said Kim uneasily. "We should begin to feel uncomfortable, you and I, in minutes—if only our engines keep running!"

He spoke to the Mayor of Steadheim. Almost as he spoke, a tiny tingling began all over his body. As the ship went on, that tingling grew noticeably stronger.

"What—"

"We've no weapons," said Kim, "nor time to devise them. But when we were slaves on the planets we came from we were held enslaved by a circuit that could torture us or paralyze us at the will of our rulers. The Disciplinary Circuit. Remember?"

"I put a Disciplinary-Circuit generator in that little decoy ship. I took a suggestion from what our friends yonder did to the fight-

ing beams. I tuned the Disciplinary Circuit to affect any man—but no woman—within its range.

"The generator went on when she grappled the decoy. Every man in it should be helpless. If it stands like that, we'd be paralyzed too if we went near. But not Dona."

The tingling was quite strong. It was painful. Presently it would be excruciating. It would be completely impossible for any man within fifty miles of the decoy space-ship to move a muscle.

"However," said Kim, "I've arranged that. I had Disciplinary-Circuit projectors fitted on the *Starshine*. We turn them on that ship. Automatically, the generator on the decoy will cut off. Our friends will still be helpless, and we can go up and grapple—if our engines keep going!"

He threw a switch. A relay snapped over somewhere and a faint humming noise began. The tingling of Kim's body ceased. The decoy and the enemy space-ship grew large before them. The enemy was still motionless.

Its crew, formerly held immobile by the circuit in the decoy, was now held helpless by the beams from the *Starshine*. But neither Kim nor the Mayor of Steadheim could enter the enemy ship without becoming paralyzed too.

Dona slipped quietly from the control-room. She came back, clad in a space-suit with the helmet face-plate open.

"All ready, Kim," she said quietly.

Sweat stood out in droplets on Kim's face. The *Starshine* drifted ever so gently into position alongside the pair of motionless shapes—the one so solid and huge, the other so flimsy and insubstantial. Kim energized the grapples. There was a crushing impact as the *Starshine* anchored itself to the enemy.

Kim reached over and pulled out a switch.

"That's the wristlet relay switch," he told Dona. "We stay here until you come back—even if a fighting-beam hits us. You've got to go on board that monster and get some fuel and, if you can, a hafnium catalyzer. If another battleship's around and comes up—you drive the *Starshine* home with what fuel you can get. We'll be dead, but you do that. You hear?"

"I'll—hurry, Kim," Dona said.

"Be careful!" commanded Kim fiercely. "There shouldn't be a man on that ship who can move, but be careful!"

She kissed him quickly and closed the face-plate of her helmet. She went into the airlock and closed the inner door.

There was silence in the *Starshine*. Kim sweated. The outer airlock door opened. The two ships were actually touching. The clumping of the magnetic shoes of Dona's space-suit upon the other ship's hull was transmitted to the *Starshine*.

Kim and the Mayor of Steadheim heard the clankings as she opened the other ship's outer airlock door—the inner door. Then they heard nothing.

Dona was in an enemy space-ship, unarmed. Subjects of the Empire of Greater Sinab manned it. They or their fellows had murdered half the population of the banded planet below. They were helpless, now, to be sure, held immobile by fields maintained by the precariously turning engines of the *Starshine*.

But the fuel-gauge showed the fuel-tanks absolutely dry. The *Starshine* was running on fuel in the pipeline and catalyzers. It had been for an indefinite time. Its engines would cut off at any instant.

When the lights flickered Kim groaned. This meant that the last few molecules of fuel were going from the catalyzer. He feverishly cut off the heaters which kept the ship warm in space. He cut off the air-purifier.

He became desperately economical of every watt of energy. He used power for the Disciplinary-Circuit beams which kept the enemy crew helpless and for the grapples which kept the two ships in contact—for nothing else.

But still the lights flickered. The engines gasped for power. They started and checked and ran again, and again checked.

The second they failed finally, the immobile monster alongside would become a ravening engine of destruction. The two men in the *Starshine* would die in an instant of unspeakable torment. Dona—now fumbling desperately through unfamiliar passageways amid contorted, glaring figures—would be at the tender mercy of the crew.

And when the three of them were dead the drive of the *Starshine* would be at the disposal of the Empire of Greater Sinab if they only chose to look at it. The beastly scheme of conquest would spread and spread and spread throughout the Galaxy and enslave all women—and murder all human men not parties to the criminality.

The lights flickered again. They almost died and on the *Starshine*, Kim clenched his hands in absolute despair. On the enemy warship the immobile crew made agonized raging movements.

But the engine caught fugitively once more, and Dona worked desperately and then fled toward the airlock with her booty while the Disciplinary Circuit field which froze the Sinabian crew wavered, and tightened, and wavered once more.

And died!

Dona dragged open the enemy's inner airlock door as a howl rose behind her. She flung open the outer as murderous projectors warmed. She clattered along the outer hull of the Sinabian ship on her magnetic shoes, and saw the *Starshine* drifting helplessly away, even the grapples powerless to hold the two bodies together.

At that sight, Dona gasped. She leaped desperately, with star-filled nothingness above and below and on every hand. She caught the *Starshine's* airlock door.

And Kim cut out the Disciplinary-Circuit beams and the flow of current to the grapples and, with a complete absence of hope, pressed the transmitter-drive button. He had no shred of belief that it would work.

But it did. The equalizer-batteries from the engines gave out one last surge of feeble power—and were dead. But that was enough, since nothing else drew current at all. The stars reeled.

This was a test.

Almost anything could happen. Kim held his breath, anxiously watching and waiting for the worst, his senses attuned to the delicate mechanisms about him.

And then, slowly, the reaction was fully determined, and he smiled.

5

The Needed Fuel

THE "STARSHINE" HAD A MASS OF ABOUT two hundred tons and an intrinsic velocity of so many miles per second. When the field went on, her mast dropped almost to zero, but her kinetic energy remained the same. Her velocity went up almost to infinity. And the Universe went mad.

The vision-ports showed stark lunacy. There were stars, but they were the stars of a madman's dream. They formed and dissolved into nothingness in instants too brief for estimate. For fractions of micro-seconds they careered upon impossible trajectories across the vision-ports' field of view.

Now a monstrous blue-white sun glared in terribly, seemingly

almost touching the ship. An instant later there was utter blackness all about. Then colossal flaring globes ringed in the *Starshine*, and shriveling heat poured in.

Then there was a blue watery-seeming cosmos all around like the vision of an underwater world and dim shapes seemed to swim in it, and then stars again, and then. . . .

It was stark, gibbering madness!

But Kim reached the instrument-board. With the end of the last morsel of power he had ceased to have weight and had floated clear of the floor and everything else.

By the crazy, changing light he sighted himself and, when he touched a sidewall, flung himself toward the now-dark bank of instruments. He caught hold, fumbled desperately and threw the switch a radiation-relay should have thrown. And then the madness ended.

There was stillness. There was nothing anywhere. There was no weight within the ship, nor light, nor any sound save the heavy breathing of Kim and the Mayor of Steadheim. The vision-ports showed nothing.

Looking carefully, with eyes losing the dazzle of now-vanished suns, one could see infinitely faint, infinitely distant luminosities. The *Starshine* was somewhere between galaxies, somewhere in an unspeakable gulf between islands of space, in the dark voids which are the abomination of desolation.

There were small clankings aft. The outer airlock door went shut. A little later the inner door opened. And then Kim swam fiercely through weightlessness and clung to Dona, still in her space-suit, unable to speak for his emotion.

The voice of the Mayor of Steadheim arose in the darkness which was the interior of the *Starshine*—and the outer cosmos for tens of thousands of light years all about.

Dona now had the face-plate of her helmet open. She kissed Kim hungrily.

"—brought you something," she said unsteadily. "I'm not sure what, but—something. They've separate engines to power their generators on that ship, and there were tanks I thought were fuel-tanks."

"Space!" roared the Mayor of Steadheim, forward. "Who's that talking? Am I dead? Is this Hades?"

"You're not dead yet," Kim called to him. "I'll tell you in a minute if you will be."

There were no emergency-lights in the ship, but Dona's suit was necessarily so equipped. She turned on lights and Kim looked at the two objects she had brought.

"My dear," he told her, "you did it! A little fuel-tank with gallons in it and a complete catalyzer. By the size of it, one of their beams uses an engine big enough for fifty ships like this!"

Clutching at every projection, he made his way to the engine-room. Dona followed.

"I'm glad, Kim," she said unsteadily, "that I was able to do something important. You always do everything."

"The heck I do," he said. "But anyhow. . . ."

He worked on the tank. She'd sheared it off with a tiny atomic torch and the severed fuel-line had closed of itself, of course. He spliced it into the *Starshine's* fuel-line, and waited eagerly for the heavy, viscid fluid to reach the catalyzer and then the engines.

"We'll—be all right now?" asked Dona hopefully.

"We were on transmitter-drive for five minutes, at a guess. You know what that means!"

She caught her breath.

"*Kim!* We're lost!"

"To say that we're lost is a masterpiece of understatement," he said wryly. "At transmitter-speed we could cross the First Galaxy in a ten-thousandth of a second. Which means roughly a hundred thousand light-years in a ten-thousandth of a second. And we traveled for three hundred seconds or thereabouts. What are our chances of finding our way back?"

"Oh, Kim!" she cried softly. "It's unthinkable!"

He watched the meters. Suddenly, the engines caught. For the fraction of a second they ran irregularly. Then all was normal. There was light. There was weight. An indignant roar came from forward.

"If this is Hades—"

They went to the control-room. The Mayor of Steadheim sat on the floor, staring incredulously about him. As they entered he grinned sheepishly.

"I was floating in the air and couldn't see a thing, and then the lights came on and the floor smacked me! What happened and where are we?"

Kim went to the instrument-board and plugged in the heaters—already the vision-ports had begun to frost—and the air-purifier and the other normal devices of a space-ship.

"What happened is simple enough," said Kim. "The last atom of power on board the ship here threw us into transmitter-field drive. And when that field is established it doesn't take power to maintain it.

"So we started to move! There's a relay that should have stopped us, but there wasn't enough power left to work it. So we traveled for probably five minutes on transmitter-drive."

"We went a long way, eh?" said the mayor, comfortably.

"We did," said Kim grimly. "To Ades from its sun is ninety million miles—eight light-minutes. Minutes, remember! The First Galaxy is a hundred thousand light-years across. Light travels a hundred thousand years, going ninety million miles every eight minutes to cross it.

"The *Starshine* travels a hundred thousand light-years in the ten-thousandth part of a second. In one second—a billion light-years. The most powerful telescope in the Galaxy cannot gather light from so far away. But we went at least three hundred times farther.

"Three hundred billion light-years, plus or minus thirty billions more! We went beyond the farthest that men have ever seen, and kept on beyond the farthest that men have ever thought of!

"The light from the island universes we can see through the ports has never yet reached the First Galaxy since time began. It hasn't had time! We're not only beyond the limits that men have guessed at, we're beyond their wildest imagining!"

The Mayor of Steadheim blinked at him. Then he got up and peered out the vision-ports. Dim, remote luminosities were visible, each one a galaxy of a thousand million suns!

"Hah!" grunted the mayor, "Not much to look at, at that! Now what?"

Kim spread out his hands and looked at Dona.

"Turning about and trying to go back," he said, "would be like starting from an individual grain of sand on a desert, and flying a thousand miles, and then trying to fly back to that grain of sand again. That's how the First Galaxy stacks up."

Dona took a deep breath.

"You'll find a way, Kim! And—anyhow—"

She smiled at him shakily. Whether or not they ever saw another human being she was prepared to take what came, with him. The possibility of being lost amid the uncountable island universes of the cosmos had been known to them both from the beginning

of the use of the *Starshine*.

"We'll take some pictures," Kim told her, "and then sit down on a planet and figure things out."

He set to work making a map of all the island universes in view of the *Starshine's* current position, with due regard to the *Starshine's* course. On the relatively short jumps within a galaxy, and especially those of a few light-years only, he could simply turn the ship about and come very close to his original position—the line of it, anyhow.

But he did not know within many many billions of light-years how far he had come and he did know that an error of a hundredth of a second of arc would amount to millions of light-years at the distance of the First Galaxy.

The positions of galaxies about the First were plotted only within a radius of something like two million light-years. There had never been a point in even that! At fifteen hundred thousand times that distance he was not likely to strike the tiny mapped area by accident.

He set to work. Presently he was examining the photographs by enlarger for a sign of structure in one of the galaxies in view. One showed evidences of super-giant stars—which proved it the nearest. He aimed the *Starshine* for it. He threw the ship into transmitter-drive.

The galaxy was startlingly familiar when they reached it. The stellar types were normal ones and there were star-clusters and doubtless star-drifts too and Kim was wholly accustomed to astro-navigation now.

He simply chose a sol-type sun, set the radiation-switch to stop the little space-ship close by, aimed for it and pressed a button. Instantly they were there. They visited six solar systems.

They found a habitable planet in the last—a bit on the small side, but with good gravity, adequate atmosphere and polar ice-caps to assure its climate.

They landed and its atmosphere was good. The Mayor of Steadheim stepped out and blinked about him.

"Hah!" he said gruffly. "If we've come as far as you say it was hardly worth the trip!"

Kim grinned.

"It looks normal enough," he acknowledged. "But chemistry's the same everywhere and plants will use chlorophyll in sunlight from a sol-type sun. Stalks and leaves will grow anywhere, and

the most efficient animals will be warm-blooded. Given similar conditions you'll have parallel evolution everywhere."

"Hm—" said the Mayor of Steadheim. "A planet like this for each of my four sons to settle on, now—when we've settled with those rats from Sinab—"

The planet was a desirable one. The *Starshine* had come to rest where a mountain-range rose out of lush, strange, forest-covered hills, which reached away and away to a greenish sea. There was nothing in view which was altogether familiar and nothing which was altogether strange. The Mayor of Steadheim stamped away to a rocky out-crop where he would have an even better view.

"Poor man!" said Dona softly. "When he finds out that we can never go back, and there'll be only the three of us here while horrible things happen back—back home."

But Kim's expression had suddenly become strained.

"I think," he said softly, "I see a way to get back. I was thinking that a place as far away as this would be ideal for the Empire of Sinab to be moved to. True, they've murdered all the men on nineteen or twenty planets, but we couldn't repair anything by murdering all of them in return.

"If we moved them out here, though, there'd be no other people for them to prey on. They'd regret their lost opportunities for scoundrelism but their real penalty would be that they'd have to learn to be decent in order to survive. It's a very neat answer to the biggest problem of the war with Sinab—a post-war settlement."

"But we haven't any chance of getting back, have we?"

"If we wanted to send them here, how'd we do it?" asked Kim. "By matter-transmitter, of course. A receiver set up here—as there used to be one on Ades—to which a sender would be tuned.

"When a transmitter's tuned to a receiver you can't miss. But our transmitter-drive is just that—a transmitter which sends the ship and itself, with a part which is tuned to receive itself, too.

"I'll set up the receiving element here, for later use. And I'll tune the sender-element to Ades. We'll arrive at the station there and everyone will be surprised."

. He paused and spoke reflectively.

"A curious war, this. We've no weapons and we arrive at a post-war settlement before we start fighting. We've decided how to keep from killing our enemies before we're sure how we'll defeat them and I suspect that the men had better stay at home and let the women go out to battle. I'm not sure I like it."

He set to work. In twelve hours one-half of the transmitter-drive of the *Starshine* had been removed and set up on the unnamed planet of a galaxy not even imagined by human beings before.

In fifteen hours the *Starshine*, rather limpingly, went aloft.

An hour later Kim carefully tuned the transmitting part of the little ship's drive to the matter-receiving station on Ades. In that way, and only in that way, the ship would inevitably arrive at the home galaxy of humanity.

And he pushed a button.

It arrived at the matter station on Ades instead of descending from the skies. And the people on Ades were surprised.

6

Man-Made Meteor

NO OBVIOUS WARLIKE MOVE HAD BEEN MADE on either side, of course. Ades swam through space, a solitary planet circling its own small sun. About it glittered the thousands of millions of stars which were the suns of the First Galaxy.

Nearby, bright and unwinking, Sinab and Khiv and Phanis were the largest suns of the star-cluster which was becoming the Empire of Sinab. Twenty planets—twenty-one, with Khiv Five—were already cut off from the rest of the Galaxy, apparently by the failure of their matter-transmitters.

Actually those twenty planets were the cradles of a new and horrible type of civilization. On the other inhabited worlds every conceivable type of tyranny had come into being, sustained by the Disciplinary Circuit which put every citizen at the mercy of his government throughout every moment of his life.

On most worlds kings and oligarchs reveled in the primitive satisfaction of arbitrary power. There is an instinct still surviving among men which allows power, as such, to become an end in itself, and when it is attained to be exercised without purpose save for its own display. Some men use power to force abject submission or fawning servility or stark terror.

In the Empire of Greater Sinab there was merely the novelty that the rulers craved adulation—and got it. The rulers of Sinab were without doubt served by the most enthusiastic, most loyal, most ardently cooperative subjects ever known among men.

Every member of the male population of Sinab—where women were considered practically a lower species of animal—could look

forward confidently to a life of utter ease on one planet or another, served and caressed by solicitous females, with no particular obligation save to admire and revere his rulers and to breed more subjects for them.

It made for loyalty, but not for undue energy. There was no great worry about the progress of the splendid plan for a Greater Sinab. All went well. The planet Khiv Five had been beamed from space some nine days since.

Every man upon the planet had died in one instant of unholy anguish, during which tetanic convulsions of the muscles of his heart burst it while the ligaments and anchorages of other muscles were torn free of his skeleton by the terrific contraction of muscle fibres.

Every woman on Khiv Five was still in a state of frantic grief which would become despair only with the passage of time. It was strange that two guardships circling Khiv Five no longer reported to headquarters, but it was unthinkable that any harm could have come to them. Records showed that no other planet had practiced space travel for centuries or millennia.

Only the Empire of Sinab had revived the ancient art for purposes of conquest. There was no reason to be solicitous, so the Empire of Sinab waited somnolently for time to pass, when colonists would be called upon to take over the manless Khiv Five and all its cities and its women.

There was another small planet called Ades, next in order for absorption into the Empire. A squadron had been dispatched to beam it to manlessness—though volunteers for its chilly clime would not be numerous.

The failure of two guard-ships to report, of course, could have no meaning to that other squadron. Of course not! There were no space-ships save the fleet of Greater Sinab. There were no weapons mounted for use against space-craft anywhere.

There was nothing to hinder the expansion of Greater Sinab to include every one of the Galaxy's three hundred million inhabited planets. So nobody worried on Sinab.

On Ades it was different. That small planet hummed with activity. It was not the ordered, regimented-from-above sort of activity any other planet in the Galaxy would have shown. It was individual activity, often erratic and doubtless inefficient. But it made for progress.

First, of course, a steady stream of human beings filed into the

matter-transmitter which communicated with Terranova in the Second Galaxy. Gangling boys, mostly, and mothers with small boy-children made the journey, taking them to Terranova where the beams of Sinabian murder-craft could not cause their death.

The adults of Terranova were not anxious to flee from Ades. The men with wives—though there were only one-tenth as many women as men on Ades—savagely refused to abandon them. Those without wives labored furiously to complete the space-ships that waited for their finishing touches on the outskirts of every community on the planet.

The small drum of fuel taken by Dona from the warship off Khiv Five was depleted by Kim's use of it, but the rest was enormously useful. The catalyzer from the same warship was taken apart and its precious hafnium parts recovered. And then the values of individualism appeared.

A physicist who had been exiled from Muharram Two for the crime of criticizing a magistrate, presented himself as an expert on autocatalysis. With a sample of the catalyzed fuel to start the process he shortly had a small plant turning out space-fuel without hafnium at all. The catalyzed fuel itself acted as a catalyst to cause other fuel to take the desired molecular form.

A power-plant engineer from Hlond Three seized upon the principle and redesigned the catalyzers to be made for the ships. For safety's sake a particle of hafnium was included, but the new-type catalyzers required only a microscopic speck of the precious material.

Hafnium from the one bit of machinery from the one beam-generator of an enemy war-craft, was extended to supply the engine-rooms of a thousand space-craft of the *Starshine's* design.

In a myriad other ways individuals worked at their chosen problems. Hundreds undoubtedly toiled to contrive a shield for the fighting beams—tuned to kill men only—which were the means by which Ades was to be devastated. The scientists of half a galaxy had tried that five thousand years before without success.

But one man did come up with a plausible device. He proposed a shielding paint containing crystals of the hormone to which the fighting-beams were tuned. The crystalline material should absorb the deadly frequencies, so they could not pass on to murder men.

It would have been simple enough to synthesize any desired organic substance, but Kim pointed out grimly that the shield would be made useless by changing the tuning of the beams. Other

men devised horrific and generally impractical weapons.

But again, one man came up with a robot ship idea, a ship which could be fought without humans on board and controlled even at interstellar distances. Radio signals at the speed of light would be fantastically too slow.

He proposed miniature matter-transmitters automatically shuttling a magnetic element between ship and planet-station and back to the ship again, the solid object conveying all the information to be had from the ship's instruments to the planet station, and relaying commands to the ship's controls. The trick could have been made to work, and it would be vastly faster than any radiation-beam. But there was no time to manufacture them.

Actually, only four days after the return of the partly dismantled *Starshine* from the farther side of nowhere, Kim took off again from Ades with fifty other ships following him. There were twenty other similar squadrons ready to take space in days more.

But for a first operation he insisted on a small force to gain experience without too much risk. At transmitter-speeds there could be no such thing as cruising in fleet formation, nor of arriving at any destination in a unit. Guerilla warfare was inevitable.

The navy of the criminals of Ades, though, went swirling up through the atmosphere of that cold planet like a column of voyaging wild geese. It broke through the upper atmosphere and there were all the suns of the Galaxy shining coldly on every hand.

The ships headed first for Khiv Five, lining up for it with such precision as the separate astrogators—hurriedly trained by Kim—could manage. It was a brave small company of tiny ships, forging through space away from the sunlit little world behind them. The light of the local sun was bright upon their hulls.

Glinting reflections of many-colored stars shimmered on their shadowed sides. They drove on and on, on planetary drive, seemingly motionless in space. Then the *Starshine* winked out of existence. By ones and twos and half-dozens, the others vanished from space.

It was the transmitter-drive, of course. The repaired *Starshine* vanished from space near Ades because it went away from Ades at such speed that no light could possibly be reflected from it. It reappeared in space within the solar system of Khiv because it slowed enough to be visible.

But it seemed utterly alone. Yet presently an alarm-gong rang, and there was one of its sister-ships a bare ten thousand miles

away. The rest were scattered over parsecs.

Kim drove for the banded planet on which dead men still lay unburied. His fleet was to rendezvous above its summer pole, as shown by the size of the ice-cap. There had been two guard-ships circling Khiv Five to keep account of the development of grief into despair. Dona had robbed one of them while its crew was held helpless by projectors of the Disciplinary Circuit field.

A second had been on the way to its aid when the *Starshine* reeled away with the last morsel of energy in its equalizing-batteries. With fifty small ships, swift as gadflies though without a single weapon, Kim hoped to try out the tactics planned for his fleet, and perhaps to capture one or both of the giants.

He picked up a third member of his force on the way to the planet and the three drove on in company. Detectors indicated two others at extreme range. But as the three hovered over the polar cap of Khiv Five, others came from every direction.

Then a wheezing voice bellowed out of the newly-installed space-radio in the *Starshine's* control-room. It was the voice of the Mayor of Steadheim, grandly captaining a tiny ship with his four tall sons for crew.

"*Kim Rendell!*" he bellowed. "*Kim Rendell! Enemy ships in sight! We're closing with them and be da—*"

His voice stopped—utterly.

Kim snapped orders and his squadron came swarming after him. The direction of the message was clear. It had come from a point a bare two thousand miles above the surface of Khiv Five and with coördinates which made its location easy.

It was too close for the use of transmitter-drive, of course. Even over-drive at two hundred light-speeds was out of the question. On normal drive the little ships—bare specks in space—spread out and out. Their battle tactics had been agreed upon. They wove and darted erratically.

They had projectors of the Disciplinary Circuit field, which would paralyze any man they struck with sufficient intensity. But that was all—for the good and sufficient reason that such fields could be tested upon grimly resolute volunteers and adjusted to the utmost of efficiency.

On the prison world of Ades, to which criminals were sent from all over the Galaxy, there was no legal murder. Killing fighting beams could not be calibrated. There were no available victims.

The detectors picked up a single considerable mass. Electron

telescopes focussed upon it. Kim's lips tensed. He saw a giant war-craft, squat and ungainly—with no air-resistance in space there is no point in streamlining a space-ship—and with the look of a mass of crammed generators of deadly beams.

It turned slowly in its flight. It was not one space-ship, but two—two giant ships grappled together. It turned further and there was a shimmering, unsubstantial tiny shape clutched to one. . . .

"The dickens!" said Kim bitterly. He called into the space-phones; "Kim Rendell speaking! Don't attack! Those ships aren't driving, they're falling! They'll smash on Khiv Fiv and we can't do anything about it. Keep at least fifty miles away!"

A wheezing voice said furiously from the communicator.

"They tricked me! I went for 'em, and the transmitter drive went on. I'll get 'em this time!"

Kim barked at the Mayor of Steadheim, even as in the field of the electron telescope he saw a tiny mote of a space-ship charge valorously at the monsters. It plunged toward them—and vanished.

Dona spoke breathlessly.

"But what happened, Kim?"

"This," said Kim bitterly, "is the end of the battle we fought with one of those ships a week ago. We put out a decoy and that ship grappled it. A Disciplinary Circuit generator went on and paralyzed its crew.

"You remember that we went up to it and you went on board. I turned off its generator from a distance and held the crew paralyzed with beams from the *Starshine*. There was another ship coming when you got off and we got away to the other side of beyond."

"Yes, but—"

"We vanished," said Kim. "The other enemy ship came up. Its skipper must have decided to go on board the first for a conference, or perhaps to inspect the decoy. It grappled to the first—and the magnetic surge turned on the disciplinary field again in the gadget in the decoy!"

"Every man in both ships were paralyzed all over again! Both ships were drifting with power off! They've been falling toward Khiv Five! Every man of both crews must be dead by now, but the field's still on and it will stay on! They'll crash!"

"But can't we do anything?" demanded Dona anxiously. "I know you want a ship."

"It would be handy to have those beams modified so we could

paralyze a planet from a distance," said Kim grimly, "but these ships are gone."

"I could go on board again," said Dona.

"No! They'll hit atmosphere in minutes now. And even if we could cut off the paralyzing field and get to the control-room nobody could pull an unfamiliar ship out of that fall. I wouldn't let you try it anyhow. They're falling fast. Miles a second. They'll hit with the speed of a meteor!"

"But try, Kim!"

For answer he pulled her away from the electron telescope and pointed through the forward vision-port. The falling ships had seemed almost within reach on the electron-telescope screen. But through the vision-port one could see the whole vast bulk of Khiv Five.

Two thirds of it glowed brightly in sunlight, but night had fallen directly below. The falling ships were the barest specks the eye could possibly detect—too far for hope of overhauling on planetary drive, too close to risk any other. Any speed that would overtake the derelicts would mean a crash against the planet's disk.

"I think," said Kim, "they'll cross the sunset line and fall in the night area."

They did. They vanished, as specks against the sunlit disk. Then, minutes later, a little red spark appeared where the bulk of the banded planet faded into absolute black. The spark held and grew in brightness.

"They've hit atmosphere," Kim told her. "They're compressing the air before them until it's incandescent. They're a meteoric fall."

The spark flared terribly, minute though it was from this distance. It curved downward as the air slowed its forward speed. It was an infinitesimal comet, trailing a long tail of fire behind it. It swooped downward in a gracefully downward-curving arc. It crashed.

"Which," said Kim coldly in the *Starshine's* control-room, "means that two Sinabian warships are destroyed without cost to us. It's a victory. But it's very, very bad luck for us. With those two ships and transmitter-drive we could end the war in one day."

Ready for Action

INDIGNANTLY THE MAYOR OF STEADHEIM bellowed from the space-phone speaker and Kim answered him patiently.

"The decoy still had a Disciplinary-Circuit field on," he explained for the tenth time. "You know about it! When you tried to go galumphing in, the field grabbed you and paralyzed you. When your muscles went iron hard, the relay on your wrist—you wear it to protect you from the fighter-beams—threw your ship into transmitter-speed travel.

"So you were somewhere else. When you came back you charged in again and the same thing happened. The relay protected you against our field as well as the enemy fighter-beams. That's all."

The mayor wheezed and sputtered furiously. It was plain that he had meant to distinguish himself and his four sons by magnificent bravery.

"There's something that needs to be done," said Kim. "Those two ships are smashed but they hadn't time to melt. There'll be hafnium in the wreckage, anyhow—and metal is scarce on Ades. See what you can salvage and get it to Ades. It's important war work. Ask for other ships to volunteer to help you."

The Mayor of Steadheim roared indignantly—and then consented like a lamb. In the space-navy of Ades there would not yet be anything like iron discipline. Kim led his forces as a feudal baron might have led a motley assemblage of knights and men-at-arms in ancient days. He led by virtue of prestige and experience. He could not command.

The fleet grew minute by minute as lost ships came in. And Kim worked out a new plan of battle to meet the fact that he could not hope to appear over Sinab with gigantic generators able to pour out Disciplinary-Circuit beams over the whole planet.

He explained the plan painstakingly to his followers and presently set a course for Sinab. A surprising number of ships volunteered to go to ground on Khiv Five with the Mayor of Steadheim to save what could be retrieved of the shattered two warships.

No more than thirty little craft of Ades pointed their noses toward Sinab. They went speeding toward it in a close-knit group, matching courses to almost microscopic accuracy and keeping

their speed identical to a hair in hopes of arriving nearly in one group.

"So we'll try it again," said Kim into the space-phone. "Here we go!"

He pressed the transmitter-drive button and all the universe danced a momentary saraband—and far off to the left the giant sun Sinab glowed fiercely.

Five of the little ships from Ades were within detector-range. But there were four monstrous moving masses which by their motion and velocity were space-ships rising from the planet and setting out upon some errand of the murder-empire. The same thought must have come instantly to those upon each of the little ships. They charged.

There had been no war in space for five thousand years. The last space-battle was that of Canis Major, when forty thousand warships plunged toward each other with their fighting-beams stabbing out savagely, aimed and controlled by every device that human ingenuity could contrive.

That battle had ended wars for all time, the Galaxy believed, because there was no survivor on either side. In seconds every combatant ship was merely a mass of insensate metal, which fought on in a blind futility.

The fighting-beams killed in thousandths of seconds. The robot gunners aimed with absolute precision. The two fleets joined battle and the robots fixed their targets and every ship became a coffin in which all living things were living no longer, which yet fought on with beams which could do no further harm.

With every man in both fleets dead the warships raged through emptiness, pouring out destruction from their unmanned projectors. It was a hundred years before the last war-craft, its fuel gone and its crew mere dust, was captured and destroyed. But there had been no space-fight since—until now.

And this one was strangeness itself. Four huge, squat ships of war rose steadily from the planet Sinab Two. They were doubtless bound on a mission of massacre. The Empire of Sinab gave no warning of its purpose. It did not permit the option of submission.

Its ships headed heavily out into space, crammed with generators of the murder-frequency. They had no inkling of any ships other than those of their own empire as being in existence anywhere.

Suddenly, out of nowhere, a slim and slender space-craft winked

into being—a member of Kim's squadron, just arrived. Within a fraction of an instant it was plunging furiously for the Sinabian monster.

The *Starshine* also flung itself into head-long attack, though it was unarmed save for projectors of a field that would not kill anyone. The other ships—and more, as they appeared—darted valorously for the giants.

Meteor-repellers lashed out automatically. Scanners had detected the newcomers and instantly flung repeller-beams to thrust them aside. They had no effect. Meteor-repellers handle inert mass but, by the nature of its action, an interplanetary drive neutralizes their effect.

The small ships flashed on.

Kim found himself grinning sardonically. There would be alarms ringing frantically in the enemy ships and the officers would be paralyzed with astonishment at the sudden appearance and instant attack by the spacecraft which could not—to Sinabian knowledge—exist.

Four ships plunged upon one monster. Three dashed at another. Eight little motes streaked for a third and the fourth seemed surrounded by deadly mites of space-ships, flashing toward it with every indication of vengeful resolution.

The attacks were sudden, unexpected, and impossible. There was no time to put the murder-beams into operation. They took priceless seconds to warm up.

In stark panic the control-room officer of the ship at which the *Starshine* drove jammed his ship into overdrive travel. The Sinabian flashed into flight at two hundred times the speed of light. It fled into untraceable retreat, stressed space folded about it.

Kim spoke comfortably into the space-phone:

"Everything's fine! If the others do the same. . . ."

A second giant fled in the same fashion. The small ships of Ades were appearing on every hand and plunging toward their enemies. A third huge ship made a crazy, irresolute half-turn and also took the only possible course by darting away from its home planet on overdrive. Then the fourth!

"They'd no time to give an alarm," said Kim crisply. "Into atmosphere now and we do our stuff!"

The tiny craft plunged toward the planet below them. It swelled in the *Starshine's* forward vision-ports. It filled all the firmament. Kim changed course and aimed for the limb of the planet. The

ship went down and down.

A faint trembling went through all the fabric of the ship. It had touched atmosphere. There was a monstrous metropolis ahead and below. Kim touched a control, A little thing went tumbling down and down. He veered out into space again.

He watched by electron telescope. Like tiny insects, the fleet of Ades flashed over the surface of the planet. They seemed to have no purpose. They seemed to accomplish nothing. They darted here and there and fled for open space again, without ever touching more than the outermost reaches of the planet's atmosphere.

But it took time. They were just beginning to stream up into emptiness again when the first of the giant warships flashed back into view. This time it was ready for action.

Its beam-projectors flared thin streams of ions that were visible even in empty space. The ships of Ades plunged for it in masses. The fighting-beams flared terribly.

And the little ships vanished. Diving for it, plunging for it, raging toward it with every appearance of deadly assault, they flicked into transmitter-drive when the deadly beams touched them. Because the crews of every one were fitted with the wristlets and the relays which flung them into infinite speed when the fighting-beams struck.

In seconds, when the second and third and fourth Sinabian warships came back from the void prepared for battle, they found all of space about their home planet empty. They ragingly reported their encounter to headquarters.

Headquarters did not reply. The big ships went recklessly, alarmedly, down to ground to see what had happened. They feared annihilation had struck Sinab Two.

But it hadn't. The fleet of Ades had bombed the enemy planet, to be sure, but in a quite unprecedented fashion. They had simply dropped small round cases containing apparatus which was very easily made and to which not even the most conscientious of the exiles on Ades could object.

They were tiny broadcasting units, very much like one Kim had put in a decoy-ship, which gave off the neuron frequencies of the disciplinary circuit, tuned to men. The cases were seamless spheres, made of an alloy that could only be formed by powder metallurgy, and could not be melted or pierced at all.

It was the hardest substance developed in thirty thousand years of civilization. And at least one of those cases had been dropped

on every large city of Sinab Two, and when they struck they began to broadcast.

8

Pitched Battle

EVERY MAN IN EVERY CITY OF THE CAPITAL planet of the empire was instantly struck motionless. From the gross and corpulent emperor himself down to the least-considered scoundrel of each city's slums, every man felt his every muscle go terribly and impossibly rigid. Every man was helpless and convulsed. And the women were unaffected.

On Sinab Two, which was the capital of a civilization which considered women inferior animals, the women had not been encouraged to be intelligent. For a long time they were merely bewildered. They were afraid to try to do anything to assist their men.

Those with small boy-children doubtless were the first to dare to use their brains. It was unquestionably the mother of a small boy gone terribly motionless who desperately set out in search of help.

She reasoned fearfully that, since her own city was full of agonized statues which were men, perhaps in another city there might be aid. She tremblingly took a land-car and desperately essayed to convey her son to where something might be done for him.

And she found that, in the open space beyond the city, he recovered from immobility to a mere howling discomfort. As the city was left farther behind he became increasingly less unhappy and at last was perfectly normal.

But it must have been hours before that discovery became fully known, so that mothers took their boy-children beyond the range of the small cases dropped from the skies. And then wives dutifully loaded their helpless husbands upon land-cars or into freight-conveyors and so got them out to where they could rage in unbridled fury.

The emperor and his court were probably last of all to be released from the effects of the disciplinary-circuit broadcasts by mere distance. The Empire was reduced to chaos. For fifty miles about every bomb it was impossible for any man to move a muscle.

For seventy-five it was torment.

No man could go within a hundred miles of any of the small

objects dropped from the *Starshine* and her sister-ships without experiencing active discomfort.

Obviously, the cities housed the machinery of government and the matter-transmitters by which the Empire communicated with its subject worlds and the food-synthesizers and the shelters in which men were accustomed to live and the baths and lecture-halls and amusement-centers in which they diverted themselves.

Men were barred from such places absolutely. They could not govern nor read nor have food or drink or bathe or even sleep upon comfortable soft couches. For the very means of living they were dependent upon the favor of women—because women were free to go anywhere and do anything, while men had to stay in the open fields like cattle.

The foundation of the civilization of Greater Sinab was shattered because women abruptly ceased to be merely inferior animals. The defenses of that one planet were non-existent, and even the four ships just taken off went down recklessly to the seemingly unharmed cities—to land with monstrous crashes and every man in them helpless. The ships were out of action for as long as the broadcast should continue.

But the fleet of Ades rendezvoused at Ades, and again put out into space. They divided now and attacked the subjugated planets. They had no weapons save the devices which every government in the Galaxy used.

It was as if they fought a war with the night-sticks of policemen. But the disciplinary circuit which made governments absolute, by the most trivial of modifications became a device by which men were barred from cities, and therefore from government. All government ceased.

Active warfare by the Empire of Sinab became impossible. Space-yards, armories, space-ships grounded and space-ships as they landed from the void—every facility for war or rule in an empire of twenty planets became useless without the killing of a single man and without the least hope of resistance.

Only—a long while since, a squadron of Sinabian warships had headed out for Ades as a part of the program of expansion of the Empire. It had lifted from Sinab Two—then the thriving, comfortable capital of the Empire—and gone into overdrive on its mission.

The distance to be covered was something like thirty light-years. Overdrive gave a speed two hundred times that of light, which

was very high speed indeed, and had sufficed for the conquest of a galaxy, in the days when the human race was rising.

But even thirty light-years at that rate required six weeks of journeying in the stressed space of overdrive. During those six weeks, of course, there could be no communication with home base.

So the squadron bound for Ades had sped on all unknowing and unconscious, while Khiv Five was beamed and all its men killed and while the *Starshine* had essayed a return journey from the Second Galaxy and then sped crazily to universes beyond men's imagining and returned, and while the midget fleet of Ades wrecked the Empire in whose service the travelers set out to do murder.

The journeying squadron—every ship wrapped in the utter unapproachability of faster-than-light travel—was oblivious to all that had occurred. Its separate ships came out of overdrive some forty million miles from the solitary planet Ades, lonesomely circling its remote small sun.

The warships of Sinab had an easier task in keeping together on over-drive than ships of the *Starshine* class on transmitter-drive, but even so they went back to normal space forty million miles from their destination—two seconds' journey on over-drive—to group and take final counsel.

Kim Rendell in the *Starshine* flashed back from the last of the twenty planets of Sinab as six monster ships emerged from seeming nothingness. The *Starshine's* defectors flicked over to the "Danger" signal-strength.

Alarm-gongs clanged violently. The little ship hurtled past a monster at a bare two-hundred miles distance, and there was another giant a thousand miles off, and two others and fifth and sixth. . . .

The six ships drew together into battle formation. Their detectors, too, showed the *Starshine*. More, as other midgets flicked into being, returning from their raid upon the Empire, they also registered upon the detector-screens of the battle-fleet.

The fighter-beams of the ships flared into deadliness. They were astounded, no doubt, by the existence of other space-craft than those of Sinab. But as the little ships flung at them furiously, the fighting-beams raged among them.

Small, agile craft vanished utterly as the death-beams hit—thrown into transmitter-drive before their crews could die. But the Sinabians could not know that. They drove on. Grandly. Ruth-

lessly. This planet alone possessed space-craft and offered resistance.

It had appeared only normal that all the men on Ades should die. Now it became essential. The murder-fleet destroyed—apparently—the tiny things which flung themselves recklessly and went on splendidly to bathe the little planet in death.

The midgets performed prodigies of valor. They flung themselves at the giants, with the small hard objects that had destroyed an empire held loosely to the outside of their hulls.

When the death-beams struck and they vanished, the small hard objects went hurtling on.

They could have been missiles. They traveled at miles per second. But meteor-repellers flung them contemptuously aside, once they were no longer parts of space-craft with drive in action.

The little ships tried to ram, and that was impossible. They could do nothing but make threatening dashes. And the giants went on toward Ades.

From forty million miles to thirty millions the enemy squadron drove on with its tiny antagonists darting despairingly about it. At thirty millions, Kim commanded his followers to flee ahead to Ades, give warning, and take on board what refugees they could.

But there were nineteen million souls on Ades—at most a million had crowded through to Terranova in the Second Galaxy—and they could do next to nothing.

At twenty millions of miles, some of the midgets were back with cases of chemical explosive. They strewed them in the paths of the juggernaut ships. With no velocity of their own—almost stationary in space—someone had thought they might not activate the Sinabian repellers.

But that thought was futile. The repeller-beams stabbed at them with the force of collisions. The chemical explosives flashed luridly in emptiness and made swift expanding clouds of vapor, of the tenuity of comets' tails. The enemy ships came on.

At ten million miles two unmanned ships, guided by remote control, flashed furiously toward the leading war-craft. They, at least, should be able to ram.

Repeller-beams which focused upon them were neutralized by the space-torpedoes' drives. They drove in frenziedly. But as they drew closer the power of the repeller-beams rose to incredible heights and overwhelmed the power of the little ships' engines and shorted the field-generating coils and blew out the motors—and

the guided missiles were hurled away, broken hulks.

The fleet reached a mere five million miles from the planet Ades. Its separate members had come to realize their invincibility against all the assaults that could be made against them by the defending forces—unexpected as they were—of this small world.

The fleet divided, to take up appropriate stations above the planet and direct their projectors of annihilation downward. They would wipe out every living male upon the planet's surface. They would do it coldly, remorselessly, without emotion.

Presently the planet would become part of an empire which, in fact, had ceased to function. The action of the fleet would not only be horrible—it would be futile. But its personnel could not know that.

The giant ships took position and began to descend.

Odd little blue-white glows appeared in the atmosphere far below. They seemed quite useless, those blue-white glows. The only effect that could at once be ascribed to them was the sudden vanishing of a dozen little ships preparing to make, for the hundredth time, despairing dashes at the monsters. Those little ships winked out of existence—gone into transmitter-drive.

And then the big ships wavered in their flight. Automatic controls seemed to take hold. They checked in their descent, and presently were motionless. . . .

A roar of triumph came to Kim Rendell's ears from the space-phone speaker in the *Starshine's* control-room. The Mayor of Steadheim bellowed in exultation.

"We got 'em, by Space! We got 'em!"

"Something's happened to them," said Kim. "What?"

"I'm sending up a couple of shiploads of women," rumbled the Mayor of Steadheim zestfully. "Women from Khiv Five. They'll take over! Remember you had us go to ground to salvage the two ships that crashed there?"

"They bounced when they landed. They shook themselves apart and spilled themselves in little pieces instead of smashing to powder. We picked up half a dozen projectors that could be repaired—all neatly tuned to kill men and leave women unharmed.

"We brought 'em back to Ades and mounted 'em—brought 'em here with wives for my four sons and a promise of vengeance for the other women whose men were murdered. We just gave these devils a dose of the medicine they had for us!

"Those ships are coffins, Kim Rendell! Every man in the crews

is dead! But no man can go aboard until their beams are cut off! I'll send up the women from Khiv Five to board 'em. They'll attend to things! If any man's alive they'll slit his throat for him!"

9

Homecoming

A CONSIDERABLE TIME LATER, KIM RENDELL eased the *Starshine* down through the light of the two Terranovan moons to the matted lawn outside his homestead in the Second Galaxy. A figure started up from the terrace and hurried down to greet him as he opened the exit-port and helped Dona to the ground.

"Who's this?" asked Kim, blinking in the darkness after the lighted interior of the *Starshine*. "Who—"

"It's me, Kim Rendell," said the Colony Organizer for Terranova. He sounded unhappy and full of forebodings. "We've been doing all we can to take care of the crowds who came through the matter-transmitter, but it was a difficult task—a difficult task!"

"Now the crowd of new colonists has dropped to a bare trickle. Every one has a different story. I was told, though, that you were coming back in the *Starshine* and could advise me. I need your advice, Kim Rendell! The situation may be terrible!"

Kim led the way to the terrace of his house.

"I wouldn't say it will be terrible," he said cheerfully enough. "It's good to get back home. Dona—"

"I want to look inside," said Dona firmly.

She went within, to satisfy the instinct of every woman who has been away from home to examine all her dwelling jealously on her return. Kim stretched himself out in a chair.

The stars—unnamed, unexplored, and infinitely promising—of all the Second Galaxy twinkled overhead. Terranova's two moons floated serenely across the sky, and the strange soft scents of the night came to his nostrils. Kim sniffed luxuriously.

"Ah, this is good!" he said zestfully.

"But what's happened?" demanded the Colony Organizer anxiously. "In three weeks we had four hundred thousand new arrivals through the transmitter. Most of them were children and boys. Then the flood stopped—like that! What are we to do about them? Did you get fuel for your ship? I understand the danger from Sinab is over, but we find it hard to get information from Ades. Everyone there—"

"Everyone there is busy," said Kim comfortably. "You see, we smashed the Empire without killing more than a very few men. On Sinab Two where the Empire was started, we chased the men out of the cities and put them at the mercy of the women.

"So many men had emigrated to the planets whose men had been killed off, that there was a big disproportion even on Sinab. And the women were not pleased. They'd been badly treated too. We didn't approve of the men, though.

"We gave them their choice of emigrating to a brand new world, with only such women as chose to go with them, or of being wiped out. They chose to emigrate. So half the technical men on Ades have been busy supervising their emigration."

"Not to here?" asked the Colony Organizer in alarm. "We can't feed ourselves, yet!"

"No, not to here," said Kim drily. "They went to a place we scouted accidentally in the *Starshine*. They're not likely to come back. I left a matter-receiver there, and when they've all gone through it—all the men from twenty planets, with what women want to go with them—we'll smash that receiver and they'll be on their own.

"They're quite a long way off. Three hundred billion light-years, more or less. They're not likely to come in contact with our descendants for several million years yet. By that time they'll either be civilized or else."

The Colony Organizer asked questions in a worried tone. Kim answered them.

"But twenty-one planets with no men on them," said the Organizer worriedly, "These women will all want to come here!"

"Not quite all. There were ten men on Ades for every woman. A lot of them will settle on the twenty planets where the proportion is reversed. A surprising lot will want to move on to the Second Galaxy, though."

"But—"

"We'll be ready for them," said Kim. "We've space-ships enough for exploration now. The Mayor of Steadheim wants a planet for each of his four sons to colonize. They picked up wives on Khiv Five and want to get away from the old chap and indulge in a little domesticity.

"And there'll be plenty of others." He added, "We've some big warcraft to bring over too, in case there's any dangerous animals or—entities here."

"But—" said the Colony Organizer again.

"We're sending ships through the First Galaxy, too," said Kim, "to do a little missionary work. After all, twenty-one planets are without men!

"So the *Starshine's* sister-ships will drop down secretly on one planet after another to start whisperings that a man who's sent to Ades is a pretty lucky man. If he has courage and brains he's better off than living as a human sheep under kings or technarchs who'll clap the Disciplinary Circuit on him if he thinks for himself.

"There'll be more criminals and rebels than usual from now on. The flow of men who are not quite sheep will increase. With three hundred million planets to draw from and the way whispers pass from world to world, the adventurous spirits will start getting themselves sent to Ades.

"There'll be planets for them to move to and women to marry and a leaven of hardy souls to teach them that being a free man is pretty good fun. We won't make an empire of those twenty-one planets—just a refuge for every man with backbone in all the Galaxy."

The Colony Organizer looked worried.

"But there are Terranova and the Second Galaxy waiting to be explored and colonized. Maybe they'll be satisfied to stay there."

Kim laughed. When he ceased to laugh he chuckled.

"I'm here! I've got a wife. Do you suppose that any woman will want her husband to stay on one of those twenty-one planets for years to come? Where women outnumber men? Where—well—a man with a roving eye sees plenty of women about for his eyes to rove to?"

The Colony Organizer still worried, nevertheless, until Dona came out from the inside of the house. She had assured herself that everything was intact and her mind was at rest. She brought refreshments for Kim and their guest.

"I was just saying," said Kim, "that I thought there would still be plenty of people coming from Ades and the twenty-one planets to Terranova and to settle on the new worlds as they're opened up."

"Of course," said Dona. "I wouldn't live there! Any normal woman, when she has a husband, will want to move where he'll be safe!"

And she might have been referring to the holocausts on those planets caused by the death-beams of the dead Sinabian Empire. But even the Colony Organizer did not think so.

PART THREE

THE BOOMERANG CIRCUIT

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I

Damaged Transitter

KIM RENDELL HAD ALMOST FORGOTTEN THAT he was ever a matter-transmitter technician. But then the matter-transmitter on Terranova ceased to operate and they called on him.

It happened just like that. One instant the wavering, silvery film seemed to stretch across the arch in the public square of the principal but still small settlement on the first planet to be colonized in the Second Galaxy. The film bulged, and momentarily seemed to form the outline of a human figure as a totally-reflecting, pulsating cocoon about a moving object. Then it broke like a bubble-film and a walking figure stepped unconcernedly out. Instantly the silvery film was formed again behind it and another shape developed on the film's surface.

Only seconds before, these people and these objects had been on another planet in another island universe, across unthinkable parsecs of space. Now they were here. Bales and bundles and parcels of merchandise. Huge containers of foodstuffs—the colony on Terranova was still not completely self-sustaining—and drums of fuel for the space-ships busy mapping the new galaxy for the use of men, and more people, and a huge tank of viscous, opalescent plastic.

Then came a pretty girl, smiling brightly on her first appearance on a new planet in a new universe, and crates of castings for more spaceships, and a family group with a pet zorag on a leash behind them, and a batch of cryptic pieces of machinery, and a man.

Then nothing. Without fuss, the silvery film ceased to be. One could look completely through the archway which was the matter-transmitter. One could see what was on the other side instead of a wavering, pulsating reflection of objects nearby. The last man to come through spoke unconcernedly over his shoulder, to someone he evidently believed just behind, but who was actually now separated from him by the abyss between island universes and some thousands of parsecs beyond.

Nobody paid any attention to matter-transmitters ordinarily. They had been in use for ten thousand years. All the commerce of the First Galaxy now moved through them. Spaceships had become obsolete, and the little *Starshine*—which was the first handiwork of Man to cross the gulf to the Second Galaxy—had been a

museum exhibit for nearly two hundred years before Kim Rendell smashed out of the museum in it, with Dona, and the two of them went roaming hopelessly among the ancient, decaying civilizations of man's first home in quest of a world in which they could live in freedom.

But the matter-transmitter had ceased to operate. Five millions of human beings in the Second Galaxy were isolated from the First. Ades was the only planet in the home galaxy on which all men were criminals by definition, and hence were friendly to the people of the new settlements. Every single other planet—save the bewildered and almost manless planets which had been subject to Sinab—was a tyranny of one brutal variety or another.

Every other planet regarded the men of Ades as outlaws, rebels, and criminals. The people of Terranova, therefore, were not cut off from the immigrants and supplies and the technical skills of Ades. They were necessarily isolated from the rest of the human race. And then, besides that, there were sixteen millions of people left on Ades, cut off from the hope that Terranova represented.

Kim Rendell was called on immediately. The Colony Organizer of Terranova, himself, went in person to confer and to bewail.

Kim Rendell was peacefully puttering with an unimportant small gadget when the Colony Organizer arrived. The house was something of a gem of polished plastic—Dona had designed it—and it stood on a hill with a view which faced the morning sun and the rising twin moons of Terranova.

The atmosphere flier descended, and Dona led the Organizer to the workshop in which Kim puttered. The Organizer had had half an hour in which to think of catastrophe. He was in a deplorable state when Kim looked up from the thing with which he was tinkering.

"Enter and welcome," he said cheerfully in the formal greeting. "I'm only amusing myself. But you look disturbed."

The Colony Organizer bewailed the fact that there would be no more supplies from Ades. No more colonists. Technical information, urgently needed, could not be had. Supplies were necessary for exploring parties, and new building-machines were desperately in demand, and the storage-reserves were depleted and could last only so long if no more came through.

"But," said Kim blankly. "Why shouldn't they come through?"

"The matter-transmitter's stopped working!" The Colony Organizer wrung his hands. "If they're still transmitting on Ades, think

of the lives and the precious material that's being lost!"

"They aren't transmitting," said Kim. "A transmitter and a receiver are a unit. Both have to work for either one to operate—except in the very special case of a transmitter-drive ship. But it's queer. I'll come take a look."

He slipped into the conventional out-of-door garments. Dona had listened. Now she said a word or two to Kim, her expression concerned. Kim's expression darkened.

"That's what I'm afraid of," he told her. "A transmitter is too simple to break down. They can get detuned, but we made the pairs for Ades and Terranova especially. Their tuning elements are set in solid plastite. They couldn't get out of tune!"

He picked up a small box. He tucked it under his arm.

"I'll be back," he told Dona heavily. "But I suspect you'd better pack."

He went out to the grounded flier. The Colony Organizer took it up and across the green-clad hills of Terranova. The vegetation of Terranova is extraordinarily flexible, and the green stuff below the flier swayed elaborately in the wind. The top of the forests bowed and bent in the form of billows and waves. The effect was that of an ocean which complacently remained upraised in hillocks and had no normal surface. It was not easy to get used to such things.

"I'm terribly worried," said the Organizer anxiously. "There is a tremendous shortage of textiles, and the ores we usually send back to balance our account are piling up."

"You're badly worried, eh?" said Kim grimly.

"Of course! How can we keep our economic system now?"

Kim made an angry noise.

"I'm a lot more worried than you are," he snapped. "Nothing should have stopped this particular pair of transmitters from working but the destruction of one or the other! This box in my pocket might tell me the answer, but I'm afraid to find out. I assure you that temporary surpluses and shortages of ores and textiles are the least of the things we have to worry about."

The little flier sped on, with the great, waving billows of the forest beneath it. On one hillock there was a clearing with a group of four plastic houses shining in the sunlight. They looked horribly lonely in the sea of green, but the population on Terranova was spread thin. Far over at the horizon there was another clearing. Sunlight glinted on water. A pleasure-pool. There was a sizable

village about it. Half a dozen soarers spun and whirled lazily above. Kim said:

"The thing is that Ades and the planets left over after we handled Sinab are the only places in the whole First Galaxy where there are no disciplinary circuits. Ades is the only place where a man can spit in the eye of another man and the two of them settle it between themselves. There's a government of sorts, on Ades, as there is here, but there's no ruler. Also there's nobody who can strut around and make other men bow to him. A woman on Ades, and here, belongs to the man she wants to belong to. She can't be seized by some lordling for his own pleasure, and turned over to his guards and underlings when he's through with her."

"That's true," said the Colony Organizer, who was still worried. "But the transmitter—"

"Gossip of the admirable state of things on Ades has gone about," said Kim hardly. "Some of our young men appointed themselves missionaries and went roaming around the planets, spreading word that Ades wasn't a bad place. That if you were exiled to Ades you were lucky. They probably bragged that we whipped the Empire of Sinab in a fight."

At this the mouth of the Organizer dropped open in astonishment.

"Of course, of course! The number of exiles arriving at Ades increased. It was excellent. We need people for the Second Galaxy, and people who earn exile are usually people with courage, willing to take risks for the sake of hope."

"Don't you realize that such things have been dangerous? When people on Markab Two began to hope?" Kim said impatiently. "When peasants on the planets of Allioth began to imagine that things might be better? When slaves on Utbeg began to tell each other in murmurs that there was a place where people weren't slaves? Don't you see that such things would alarm the rulers of such planets? How can people be held as slaves unless you keep them in despair?"

The Colony Organizer corrected his course a trifle. Far away the walls of the capital city of Terranova glinted in the sunlight.

"And there are the twenty-one planets which fell into our laps when we had to smash Sinab," said Kim. "Ades became the subject of dreams. Peasants and commoners think of it yearningly, as a sort of paradise. But kings and tyrants dream of it either as a nightmare which threatens the tranquility of their realms, or else as

a very pretty bit of loot to be seized if possible. There are probably ten thousand royal courts where ambitious men rack their brains for some plausible way to wipe out Ades as a menace and take over our twenty-one planets for loot. Ades is already full of spies, sent there in the guise of exiles. There've been men found murdered after torture,—seized and tortured by spies hoping to find out the secrets by which we whipped Sinab. There's one bomb-crater on Ades already, where a bomb smuggled through the transmitter was set off in an effort to wipe out all the brains on the planet. It didn't, but it was bad."

2

Enemy Sabotage

SKILLFULLY THE COLONY ORGANIZER SENT THE flier into the long shallow glide that would land it in the planet capital city. There were only twenty thousand people in that city. It would rate as a village anywhere except on Ades, but it was the largest settlement on Terranova.

"Then you think," said the harassed Organizer, "that some outrage has been committed and the transmitter on Ades damaged—perhaps by another bomb?"

"I hope it's no worse than that," said Kim. "I don't know what I fear, but there are still sixteen million people on Ades, and some of them are very decent folk. In a little while I'll know if it's nothing important, or if it's bad. I could have found out back at home, but I wanted to hold on to hope."

His lips were tightly compressed. The flier landed. The two men got out and went along a yielding walk to the central square of the city.

Many persons had collected in the square, more people in that one spot than Kim had seen together for a long time. Now at least a thousand men and women and children had gathered, and were standing motionless, looking at the tall arch of the transmitter.

There would have been nothing extraordinary about the appearance of the arch to a man from past ages. It would have seemed to be quite commonplace—gracefully designed, to be sure, and with a smooth purity of line which the ancient artists only aspired to, but still not at all a remarkable object. But the throng of on-lookers who stared at it; did so because they could look through

it. That had never before been possible. It had been a matter-transmitter. Now it was only an arch. The people stared.

Kim went in the technician's door at the base of the arch. The local matter-technician greeted him with relief.

"I'm glad you have come, Kim Rendell," he said uneasily. "I can find nothing wrong. Every circuit is correct. Every contact is sound. But it simply does not work!"

"I'll see," said Kim. "I'm sure you are right, but I'll verify it. Yet I'm afraid I'm only postponing a test I should have made before."

He went over the test-panel, trying the various circuits. All checked up satisfactorily. He went behind the test-panel and switched a number of leads. He returned to the front and worked the panel again. The results were widely at variance with the original readings, but Kim regarded them with an angry acceptance.

"I reversed some leads, just in case a checking instrument was out by the same amount as a circuit," he told the technician. "To be frank about it, I made sure you hadn't knocked out the transmitter on purpose. Such things have been done." Then he said grimly, "This one is all right. The transmitter on Ades is out of action. It not only doesn't work, but they haven't been able to fix it in—how long?"

"Two hours now," said the technician unhappily.

"Too long!" said Kim.

He unpacked his box. It was very small, a foot by a foot by a foot. There was a cone-shaped hole in one end which diminished to a small hole at the other end. Kim sweated a little.

"I should have tried this before," he said. "But I wanted to hope. With all the First Galaxy fearing and hating Ades, somebody would think of a way to do us damage, even without space-ships!"

He turned a tiny knob on the box, and looked through the hole. His lips tautened. He began to make tests. His face grew more and more drawn and sombre. At last he turned the little knob again, and nothing happened. His face went quite white.

"What is it?" asked the Colony Organizer.

Kim sat down, looking rather sick.

"It's bad," he said. Then he gestured toward the box. "When we were fighting Sinab, somebody worked out an idea for the remote control of ships. Beam control would be too slow. At a

few million miles, the information the robot gathered would take seconds to get back to the control-board, and more seconds would be needed for the controlling signals to get back to the robot. In terms of light-years, communications that way would be impossible."

Kim glanced at the Organizer, who signified by a nod that he understood.

"If it took a year each way, there'd be two years between the robot's observation of something to be acted on," Kim continued. "And the signal that would make it act. So this man proposed very tiny matter-transmitters. One on the robot and one on the home planet. A solid object would receive all the information the robot's instruments gathered.

"The transmitter would send it back to the control-board at transmitter-speed, and the board would impress orders on it and send it to the robot again. It could shuttle across the width of a galaxy a hundred times a second, and make robot-control at any distance practical. A few of them were made, but not used. This is one of them.

"I had it for measuring the actual speed of transmitter-travel between here and Ades. We thought the distance would be enough for a good measurement. It wasn't. But this is a transmitter like the big one, and it has a mate on Ades, and its mate is a hemisphere away from Ades' main transmitter. And neither one works. Something's happened on Ades, that involves both hemispheres. And the transmitter couldn't have been knocked out by something that only killed people. It looks as if Ades may have been destroyed."

There was an instant's uncomprehending silence. Then the realization struck home. In all of human history no planet had ever been completely destroyed. Dozens, even hundreds, had been devastated, before wars came to an end by the discovery of a weapon too terrible to be used. Four had been depopulated by that weapon, the fighting beam. But never before had it even been imagined that a planet could be wiped out of existence.

"There are theoretic considerations," said Kim, dry-throated, "which make a material weapon like atomic explosive unthinkable. There are other considerations which make it certain that any immaterial weapon that could destroy a planet would have infinite speed and therefore infinite range. *If* Ades has been destroyed, all the human race, including us, must sooner or later be subject to

those who control such a weapon." Kim Rendell paused and cleared his throat. "If they start off by destroying the only world on which men are free, I don't think I like it. Now I must go back home. I'd better get over to the First Galaxy in the *Starshine* and find out what's happened."

The thousand million suns of the First Galaxy swam in space, attended by their families of planets. Three hundred million worlds had been populated by the human race. For thirty thousand years the descendants of the people of Earth—that almost mythical first home of humanity—had spread through the vastness of what once had seemed to them the very cosmos itself.

In the older, long-settled planets, civilization rose to incredible heights of luxury and of pride, and then took the long dive down into decadence and futility while newer, fresher worlds still struggled upward from the status of frontier settlements.

But at long last humanity's task in the First Galaxy was ended. The last planet suitable for human occupancy had been mapped and colonized. The race had reached the limit of its growth. It had reached, too—or so it seemed—its highest possible point of development. Matter-transmitters conveyed parcels and persons instantly and easily from rim to rim of the Galaxy.

Disciplinary Circuits enforced the laws of planetary governments beyond any hope of evasion or defiance. There were impregnable defenses against attacks from space. There could be no war, there could be no revolt, there could be no successful crime—save by those people who controlled governments—and there could be no hope. So humanity settled back toward barbarism.

• Perhaps it was inevitable that conquest should again become possible, revolt conceivable, and crime once more feasible even to individuals, so that hope could return to men. And perhaps it was the most natural thing imaginable that hope first sprang from the prison world of Ades.

Whispers spread from planet to planet. Ades, to which all rebels and nonconformists had been banished in hopeless exile, was no longer a symbol for isolation and despair. Its citizens—if criminals could be citizens anywhere—had revived the art of space-travel by means of ships.

The rest of the Galaxy had abandoned space-ships long ago as antiquities. Matter-transmitters far surpassed them. But Ades had revived them and fought a war with the Empire of Sinab, and

won it, and twenty-one planets with all their cities and machines had fallen to them. But the men of Sinab had been sent to an unimaginable fate, leaving wives and daughters behind. The fact that the women of the Sinabian Empire were mostly the widows of men massacred for the Empire's spread was not clearly told in the rumors which ran about among the world.

If you became a criminal and were exiled to Ades, you were lucky. There were not enough men on Ades to accomplish the high triumphs awaiting them on every hand. There was hope for any man who dared to become a rebel. Exile to Ades was the most fortunate of adventures instead of the most dreadful of fates.

Those whispers were fascinating, but they were seditious. The oligarchs and tyrants and despots and politicians who ruled their planets by the threat of the disciplinary circuit, found this new state of affairs deplorable. Populations grew restive. There was actually hope among the common people, who could be subjected to unbearable torment by the mere pressure of a button. And of course hope could not be permitted. Allow the populace to hope, and it would aspire to justice. Grant it justice and it might look for liberty! Something had to be done!

So something was done. Many things were done. Royal courts debated the question, alike of the danger and of possible loot in the empire to which Ades had fallen heir. And in consequence the despots had acted.

The *Starshine* winked into existence near the sun which had been the luminary of Ades. It was a small, cold sun, and Ades had been its only planet. The *Starshine* had made the journey from Terranova in four leaps, of which the first was the monstrous one from the Second Galaxy to the First. Accuracy of aim could not be expected over such an expanse.

The little ship had come out of its first leap near that preposterous group of the blue-white suns of Dheen, whose complicated orbits about each other still puzzled mathematicians. And Kim had come to the sector of the Galaxy he desired on his second leap, and to the star-cluster in the third, and the fourth brought him to the small sun he looked for.

But space was empty about it. A sun without planets is a rarity so strange that it is almost impossible. This sun had possessed Ades. Nevertheless Kim searched for Ades. He found nothing. He searched for debris of an exploded planet. He found nothing. He set cameras to photograph all the cosmos about him, and drove the

Starshine at highest interplanetary speed for twelve hours. Then he looked at the plates.

In that twelve hours the space-ship had driven some hundreds of thousands of miles. Even nearby stars at distances of light-years, would not have their angles change appreciably, and so would show upon the plates as definite, tiny dots. But any planet or any debris within a thousand million miles would make a streak instead of a dot upon the photographic plate.

There was nothing. Ades had vanished.

He aimed for the star Khiv and flashed to its vicinity. The banded planet Khiv Five swam sedately in emptiness. Kim drove for it, at first on mere overdrive, and then on the interplanetary drive used for rising from and landing on the surface of worlds. He landed on Khiv Five.

Women looked at him strangely. A space-ship which landed on Khiv Five—or anywhere else, for that matter—must certainly come from Ades, but ships were not commonplace sights. Kim was no commonplace sight, either. Six years before, the men on Khiv Five had died in one rotation of the planet. Every man and boy was murdered by the killing-beams of the now defunct Sinabian Empire. Now there were only women, save for the very few men who had migrated to it in quest of wives, and had remained to rear families.

The population of Khiv Five was overwhelmingly female.

Kim found his way to the governing center of the capital city. Dona walked with him through the city streets. There were women everywhere. They turned to stare at Kim. They looked at Dona with veiled eyes.

Long years on an exclusively feminine world does strange things to psychology. There were women wearing the badges of mourning for husbands dead more than half a decade.

In a sense it was a dramatization of their loss, because all women, everywhere, take a melancholy pleasure in the display of their unhappiness. But in part to boast of grief for a lost husband was an excuse for not having captured one of the few men who had arrived since the mass murder. As a matter of fact, Kim did not see a single man in the capital city of Khiv Five, but its streets swarmed with women.

He asked for the head of the planet government, and at long last found an untidy woman at a desk. He asked what was known of Ades.

"I was on Terranova," he explained. "The matter-transmitter went off and it did not come back on. I came back by space-ship to find out about it, and went to where Ades should have been. I'm Kim Rendell, and I used to be a matter-transmitter technician. I thought I might repair the one on Ades if it needed repairing. But I could find no planet circling Ades' sun."

The woman regarded him with what was almost hostility.

"Kim Rendell," she said. "I've heard of you. You are a very famous man. But we women on Khiv Five can do without men!"

"No doubt," Kim said patiently. "But has there been any word of Ades?"

"We are not interested in Ades," she said angrily. "We can do without Ades."

"But I'm interested in Ades," said Kim. "And after all, it was Ades which punished the murderers of the men of Khiv Five. A certain amount of gratitude is indicated."

"Gratitude!" said the untidy woman harshly. "We'd have been grateful if you men of Ades had turned those Sinabians over to us! We'd have killed them—every one—slowly!"

"But the point is," said Kim, "that something has happened to Ades. It might happen to Khiv Five. If we can find out what it was, we'll take steps so it won't happen again."

"Just leave us alone!" said the untidy woman fiercely. "We can get along without men or Ades or anything else. Go away!"

3

Dangerous Trip

DONA PLUCKED AT KIM'S ARM. HE TURNED, seething, and went out. Outside he vented his bitterness.

"I thought men were crazy!" he said. "If she's the head of the planet government, I pity the planet."

"She could talk to another woman quite rationally," Dona said with satisfaction. "But she's had to persuade herself that she hates men, and you had me with you, and I'm prettier than she is, Kim, and I have you. So she couldn't talk to you."

"But she's unreasonable," Kim said stubbornly.

"We'll go back to the ship," said Dona brightly. "I'll lock you in it and then go find out what we want to know."

She smiled comfortably all the way back to the *Starshine*. But the staring women made Kim acutely uncomfortable. When he

was safely inside the ship, he wiped perspiration from his forehead.

"I wouldn't want to live on this planet!" he said feverishly.

"I wouldn't want you to," said Dona. "Stay inside, darling. You'd better not even show yourself at a vision-port."

"Heaven forbid!" said Kim.

Dona went out. Kim paced up and down the living quarters of the ship. There was something in the back of his mind that would not quite come out. The disappearance of Ades was impossible. Men had conquered one galaxy and now started on a second, but never yet had they destroyed a planet. Never yet had they even moved one. But nevertheless, only thirty-six hours ago the planet Ades had revolved about its sun and men and women had strolled into its matter-transmitter with no hint of danger, and between two seconds something had happened.

Even had the planet been shattered into dust, its remnants should have been discoverable. And surely a device which could destroy a planet would have had some preliminary testings and the Galaxy would have heard of its existence! This thing that had happened was inconceivable! On the basis of the photographs, Ades had not only been destroyed, but the quintillions of tons of its substance had been removed so far that sunlight shining upon them did not light them enough for photography. Which simply could not be.

Kim wrestled with the problem while Dona went about in the world of women. There was something odd about her in the eyes of women of Khiv Five. Their faces were unlike the faces of the women of a normal world. On a world with men and women, all women wear masks. Their thoughts are unreadable. But where there are no men, masks are useless. The women of Khiv Five saw plainly that Dona was unlike them, but they were willing to talk to her.

She came back to the *Starshine* as Kim reached a state of complete bewilderment. Ades could not have been destroyed. But it had vanished. Even if shattered, its fragments could not have been moved so far or so fast that they could no longer be detected. But they were undiscoverable. The thing was impossible on any scale of power conceivable for humans to use. But it had happened.

So Kim paced back and forth and bit his nails until Dona returned.

"We can take off, Kim," she said quietly.

She locked the inner airlock door as if shutting out something.

She twisted the fastening extra tight. Her face was pale.

"What about Ades?" asked Kim.

"They had matter-transmission to it from here, too," said Dona. "You remember, the original transmitter on Ades was one-way only. It would receive but not send. Some new ones were built after the war with Sinabia, though. And this planet's communication with Ades cut off just when ours did, thirty-six hours ago. None of the other twenty planets had communication with it either. Something happened, and on the instant everything stopped."

"What caused it?" Kim asked, but Dona paid no attention.

"Take off, Kim," she said. "Men are marching out of the matter-transmitter. Marching, I said, Kim! Armed men, marching as soldiers with machine-mounted heavy weapons. Somebody knows Ades can't protect its own any more and invaders must be crowding in for the spoils. I'm—afraid, Kim, that Ades has been destroyed and our planets are part of a tyrant's empire now."

Later, the *Starshine* swooped down from the blue toward the matter-transmitter on Khiv Five. Serried ranks of marching figures were tramping out of the transmitter's silvery, wavering film. In strict geometric rows they marched, looking neither to the right nor to the left. They were a glittering stream, moving rhythmically in unison, proceeding to join an already-arrived mass of armed men already drawn up in impressive array.

Racing toward the high arch of the transmitter with air screaming about the *Starshine's* hull, Kim saw grimly that the figures were soldiers, as Dona had said. He had never before seen a soldier in actual life, but pictures and histories had made them familiar enough.

These were figures out of the unthinkably remote past. They wore helmets of polished metal. They glittered with shining orichalc and chromium. The bright small flashes of faceted corundum—synthetic sapphire in all the shades from blue-white to ruby—shone from their identical costumes and equipment. They were barbarous in their splendor, and strange in the precision and unison of their movements, which was like nothing so much as the antics of girl precision dancers, without the extravagance of the dancers' gestures.

The *Starshine* dipped lower. It shot along a canyon-like open way between buildings. The matter-transmitter was upon a hill within the city and the ship was now lower than the transmitter and

the heads of the soldiers who still tramped out of the archway in a scintillating stream.

Kim raged. Soldiers were an absurdity on top of a catastrophe. Something had erased the planet Ades from its orbit around a lonely sun. That bespoke science and intelligence beyond anything dreamed of hitherto. But soldiers marching like dancing-girls, bedecked with jewels and polished metal like the women of the pleasure-world of Dite—

This military display was pure childishness!

"Our pressure-wave'll topple them," said Kim savagely. "At least we'll smash the transmitter."

There was a monstrous roaring noise. The *Starshine*, which had flashed through intergalactic space at speeds no science was yet able to measure, roared between tall buildings in atmosphere. Wind whirled and howled past its hull. It dived forward toward the soldiers.

There was one instant when the ship was barely yards above the gaping faces of startled, barbarously accoutred troopers. The following spreading pressure-wave of the ship's faster-than-sound movement spread out on every side like a three-dimensional wake. It toppled the soldiers as it hit. They went down in unison, in a wildly-waving, light-flashing tangle of waving arms and legs and savage weapons.

But Kim saw, too, squat and bell-mouthed instruments on wheels, in the act of swinging to bear upon him. One bore on the *Starshine*. It was impossible to stop or swerve the ship. There was yet another fraction of a second of kaleidoscopic confusion, of momentary glimpses of incredibly antique and childish pomp.

And then anguish struck.

It was the hellish torment of a fighting-beam, more concentrated and more horrible than any other agony known to mankind. For the infinitesimal fraction of an instant Kim experienced it to the full. Then there was nothingness.

There was no sound. There was no planet. There was no sunlight on tall and stately structures built by men long murdered from the skies. The vision-ports showed remote and peaceful suns and all the tranquil glory of interstellar space. The *Starshine* floated in emptiness.

It was, of course, the result of that very small device that Kim had built into the *Starshine* before even the invention of the transmitter-drive. It was a relay which flung on faster-than-light drive

the instant fighting-beams struck any living body in the ship. The *Starshine* had been thrown into full interstellar drive while still in atmosphere.

It had plunged upward—along the line of its aiming—through the air. The result of its passage to Khiv Five could only be guessed at, but in even the unthinkable minute part of a second it remained in air. the ship's outside temperatures had risen two hundred degrees. Moving at multiples of the speed of light, it must have created an instantaneous flash of literally stellar heat by the mere compression of air before it.

Kim was sick and shaken by the agony which would have killed him had it lasted as long as the hundredth of a second. But Dona stared at him.

"Kim—what—Oh!"

She ran to him. The beam had not touched her. So close to the projector, it had been narrow, no more than a yard across. It had struck Kim and missed Dona.

"Oh, my poor Kim!"

He grimaced.

"Forget it," he said, breathing hard. "We've both had it before, but not as bad as this. It was a mobile fighting-beam projector. I imagine they'll think we burned up in a flash of lightning. I hope there were X-rays for them to enjoy."

For a long time Kim Rendell sat still, with his eyes closed. The dosage of the fighting-beam had been greater than they had ever experienced together, though. It left him weak and sick.

"Funny," he said presently. "Barbarous enough to have soldiers with decorative uniforms and shiny dingle-dangles on them, and modern enough to have fighting-beam projectors, and a weapon that's wiped Ades out of space. We've got to find out who they are, Dona, and where they came from. They've something quite new."

"I wonder," said Dona. But she still looked at Kim with troubled eyes.

"Eh?"

"If it's new," said Dona. "If it's a weapon. Even if—if Ades is destroyed."

Kim stared at her.

"Now, what do you mean by that?"

"I don't quite know," admitted Dona. "I say things, and you turn them over in your head, and something quite new comes out. I told you a story about a dust-grain, once, and you made the transmitter-

drive that took us to Ades in the first place and made everything else possible afterward."

"Hmmm," said Kim meditatively. "If it's new. If it's a weapon. If Ades is destroyed. Why did you think of those three things?"

"You said no planet had ever been destroyed," she told him. "If anybody could think of a way to do such a thing, you could. And when Sinab had to be fought, and there weren't any weapons, you worked out a way to conquer them with things that certainly weren't weapons. Just broadcasters of the disciplinary circuit field. So I wondered if what they used was a weapon. Of course if it wasn't a weapon, it was probably something that had been used before for some other purpose, and it wouldn't be new."

"I've got to think about that," said Kim. He cogitated for a moment. "Yes, I definitely have to think about that."

Then he stood up.

"We'll try to identify these gentry first. Then we'll go to another of the twenty-one planets."

4

Despots Take Over

HE TOOK HIS OBSERVATIONS AND SWUNG THE little ship about. He adjusted the radiation-switch to throw off the transmitter-drive on near approach to a sun. He aimed for the star Thom. Its fourth planet had been subjugated to the Empire of Sinab ten years before, and freed by the men of Sinab six years since.

The *Starshine* winked into being some twenty million miles from it, and two hundred million from the star. Kim looked annoyed, and then glanced at the relay and adjusted it again. He pointed the *Starshine* close to the planet's disk. He pressed the transmitter-drive button. Instantly the ship was within mere thousands of miles of the planet.

"Nice!" Kim was pleased. "Saves a lot of overdrive juggling. Those horrible fighter-beams seem to make one think more clearly. Dona, get us down to the night-side while I try to work something out. Don't ground. Just drop into atmosphere enough to pick up any broadcasts."

She took his place at the controls. He got out his writing-materials and a stylus and began busily to sketch and to calculate. Dona drove the ship to atmosphere on the dark side of Thom Four,

not too far from the sunset's rim. In the earlier night hours, on a given continent, the broadcasts should be greater in number.

Communicator-bands murmured in soprano. Thom Four was more than ninety-five per cent female, too. Kim worked on. After a long time a speaker suddenly emitted a blast of martial music. Until now the broadcast programs had gone unheeded by both Kim and Dona, because from each wave-band only women's voices had come out, and only women's music. The sound of brazen horns was something new. Dona smiled at Kim and turned up the volume.

A man's voice said pompously:

"To the People of Thom Four, greeting!

"Whereas His Most Gracious Majesty, Elim the Fortieth, of high and noble lineage, has heard with distress of the misfortunes of the people of the planet Thom Four, of the injuries they have suffered at the hands of enemies, and of their present distressful state, and

"Whereas, His Most Gracious Majesty, Elim the Fortieth, of high and noble lineage, is moved to extend his protection to all well-disposed persons in need of a gallant and potent protector;

"Therefore His Most Gracious Majesty, Elim the Fortieth, of high and noble lineage, has commanded his loyal and courageous troops to occupy the said planet Thom Four, to defend it against all enemies whatsoever, and to extend to its people all the benefits of his reign.

"Given at his Palace of Gornith, on the second day of the tenth month of the sixteenth year of his reign, and signed by His Most Gracious Majesty, Elim the Fortieth, of high and noble lineage."

The voice stopped. There was another blare of martial music. The broadcast ended. Ten minutes later, on another wavelength, the same proclamation was repeated. That broadcast stopped too. Five minutes later came still another broadcast. And so on and so on. At long last there was but a single wavelength coming into the communicators. It was a broadcast of a drama with only female characters, and in which there was no reference to the fact that the human race normally includes two sexes. It was highly emotional and it was very strange indeed.

Then a pompous male voice read the silly proclamation and the broadcast cut off.

"The question," said Kim, "is whether I'd better try to catch a soldier and make him tell us where Gornith is and what planet is

ruled by Elim the Fortieth of high and noble lineage. I think I'd better find out."

"Darling," said Dona, "I'm afraid of soldiers bothering you, but I certainly won't let you venture out on a planet full of women. And there's something else."

"What?"

"There are twenty-one planets which Ades used to protect. What planetary ruler could send troops to occupy twenty-one other planets? Do you think this King Elim the Fortieth has tried to seize all of them, or do you think he arranged a coöperative steal with the rulers of other planets, and an arrangement for them all to help protect each other? Hadn't we better make sure?"

Kim looked up at her from the desk where he worked.

"You're an uncomfortably brainy woman, Dona," he said drily. "Do you think you could find Sinab? Sinab Two was the capital planet of the Empire we had to take over."

Dona looked carefully on a star-chart. Kim went back to his task. He had drawn, very carefully, an electronic circuit. Now he began to simplify it. He frowned from time to time, however, and by his expression was thinking of something else than the meticulous placing of symbols on paper.

It was symptomatic of his confidence in Dona, though, that he remained absorbed while she worked the ship. Presently there were mutterings in the speakers. Dona had navigated to another solar system and entered the atmosphere of another planet.

"Listen, Kim!" she said suddenly.

From a communicator blared a heavy male voice.

"People of Sinab Two!" the voice said. "You are freed from the tyranny of the criminals of Ades.

"From this time forth, Sinab Two is under the protection of the Dynast of Tabor, whose mercy to the meek, justice to the just, and wrath toward the evil-doer is known among all men.

"People of Sinab Two! The soldiers now pouring in to defend you are to be received submissively. You will honor all requisitions for food, lodgings, and supplies. Such persons as have hitherto exercised public office will surrender their authority to the officials appointed by the Dynast to replace them.

"For your protection, absolute obedience is essential. Persons seeking to prevent the protection of Sinab Two by the troops of the Dynast of Tabor will be summarily dealt with. They can expect no mercy.

"People of Sinab Two! You are freed from the tyranny of the criminals of Ades!"

"So Elim the Fortieth, of high and noble lineage, has a competitor," Kim said grimly. "The Dynast of Tabor, eh? But there are twenty-one planets that used to belong to Sinab. I'm afraid we'll have to check further."

They did. While Kim scowlingly labored over the drawing of a new device, Dona drove the *Starshine* to six worlds in succession. And four of the six worlds had been taken over by the Sardathian League, by King Ulbert of Arth, by the Emperor and Council of the Republic of Sind—which was a remarkable item—and by the Imperator of Donet. On the last two worlds there was confusion. On one the population was sternly told by one set of voices that it now owed allegiance to Queen Amritha of Megar, and by another set that King Jan of Pirn would shortly throw out the Megarian invaders and protect them forever. On the sixth planet there were four armies proclaiming the exclusive nobility of their intentions.

"That's enough, Dona," Kim said in a tired voice. "Ades vanished or was destroyed, and instantly thereafter gracious majesties and dynasts and imperators and such vultures pounced on the planets we'd freed. But I'd like to know how they made sure it was safe to pounce!"

Dona punched buttons on the *Starshine's* control-board. The ship lifted. The great black mass which was the night-side of the last planet faded behind and the *Starshine* drove on into space. And Dona turned back to Kim from her post at the controls.

"Now what?"

Kim stared at nothing, his features sombre.

"It's bad," he said sourly. "There's the gang on Terranova. They're fair game if they land on any planet in the whole First Galaxy—and Terranova isn't self-sustaining yet. They'll starve if they stay isolated. There are the people on Ades. Sixteen millions of them. Not a big population for a planet, but a lot of people to be murdered so a few princelings can feast on the leavings of Sinab's Empire.

"There are all the people who'd started to dream because Ades had come to mean hope. And there are all the people in generations to come who'd like to dream of hope and now won't be able to, and there are all the nasty little surprise-attacks and treacheries which will be carried out by matter-transmitters, now that these gentry of high and noble lineage have been able to snatch some

loot for themselves. It's pretty much of a mess, Dona."

Dona gave an impatient toss of her head.

"You're not responsible for it, Kim," she protested.

"Maybe I should simply concentrate on finding a solution for Terranova, eh? Let decency as something to fight for go by the board and be strictly practical?"

"You shouldn't try to take all the problems of two galaxies on your shoulders," said Dona.

Kim shook his head impatiently.

"Look!" he said in vexation. "There's some way out of the mess! I just contrived a way to make a very desirable change in all the governments of the First Galaxy, given time. It was one of those problems that seem too big to handle, but it worked out very easily. But I absolutely can't think of the ghost of an idea of how to find a friendly world for Terranova!"

Dona waited.

"It occurs to me that I haven't slept for forty hours," Kim said. "I doubt that you've done any better. I think we should go to bed. There's one puzzle on which all the rest is based, and it's got me. What the devil happened to Ades? There's a whole planet, seven thousand miles in diameter, vanished as if it had never been. Maybe after some sleep I'll be able to work it out. Let's go to sleep!"

The space-ship *Starshine* drove on through emptiness at mere interplanetary speed, its meteor-repellers ceaselessly searching space for any sign of danger. But there was no danger. In the midst of space, between the stars, there was safety. Only where men were was there death.

The ship swam in the void, no lights showing in any of its ports.

Then, in the midst of the darkness inside, Kim sat up in his bunk.

"But hang it, Ades *couldn't* be destroyed," he cried, in exasperation.

5

Industrial World

PLANET SPICUS FIVE WAS AN INDUSTRIAL world. According to the prevailing opinion in the best circles, its prosperity was due to an ample and adequate supply of raw materials, plus a skilled and thrifty population. There were sixteen matter-transmitters on the

planet, and their silvery films were never still.

From abecedaria for infants to zylites (synthetic) for industrial use, its products ran in endless streams to the transmitters, and the other products and raw materials obtained in exchange came out in streams no less continuous. The industrial area covered a continent of sprawling rectangular buildings designed for the ultimate of efficiency, with living-areas for the workmen spreading out between.

The *Starshine* descended through morning sunlight. Kim, newly shaved and rested, forgot to yawn as he stared through the vision-ports at the endless vista of structures made with a deliberate lack of grace. From a hundred-mile height they could be seen everywhere to north and south, to the eastward where it was already close to midday, and to where shadows beyond the dawn hid them. Even from that altitude they were no mere specks between the cloudmasses. They were definite shapes, each one a unit.

The ship went down and down and down. Kim felt uncomfortable and realized why. He spoke drily.

"I don't suppose we'll ever land on any new planet without being ready to wince from a fighting-beam and find ourselves snatched to hell-and-gone away."

Dona did not answer. She gazed at the industrial plants as they swelled in size with the *Starshine's* descent. Buildings two miles to a side were commonplace. Great rectangles three and even four miles long showed here and there. And there were at least half a dozen buildings, plainly factory units, which were more than ten miles in extent on each of their ground dimensions. When the *Starshine* was below the clouds, Dona focused the electron telescope on one of them and gestured to call Kim's attention to the sight.

This factory building enclosed great quadrangles, with gigantic courtyards to allow—perhaps—of light. And within the courtyards were dwelling-units for workmen. The telescope showed them plainly. Workmen in factories like this would have no need and little opportunity ever to go beyond the limits of their place of employment. The factory in which they labored would confront them on every hand, at every instant of their life from birth until death.

"That's something I don't like, without even asking questions about it," said Kim.

He took the controls. The *Starshine* dived. He remembered to

flick on the communicators. A droning filled the interior of the space-ship. Dona looked puzzled and tuned in. A male voice mumbled swiftly and without intonation through a long series of numerals and initial letters. It paused. Another voice said tensely, "*Tip.*" The first voice droned again. The second voice said, "*Tip.*" The first voice droned.

Dona looked blank. She turned up another wave-length. A voice barked hysterically. The words ran so swiftly together that they were almost indistinguishable, but certain syllables came out in patterns.

"It's something about commerce," said Kim. "Arranging for some material to be routed on a matter-transmitter."

None of the wavelengths carried music. All carried voices, and all babbled swiftly, without expression, with a nerve-racking haste.

The *Starshine* landed before a gigantic building. An armed guard stood before it at a gateway. Kim trudged across to him. He came back.

"He's stupid," he said shortly. "He knows what to guard, and the name of the plant, and where a workman may go to be received into employment. That's all. We'll try again."

The *Starshine* rose and moved. She was designed for movement in space, with parsecs of distance on every hand. She was unhandy when used as now for an atmosphere-flier. She descended within a factory quadrangle. There was no one about. Literally no one. The dwelling-units were occupied, to be sure, but no one moved anywhere.

When Kim opened the air-lock there was a dull, grumbling rumble in the air. It came from the many-storied building which surrounded this courtyard and stretched away for miles.

Kim and Dona stood blankly in the air-lock door. The air had no odor at all. There was no dust. There was not a single particle of growing stuff anywhere. To people who had lived on Terranova, it was incredible.

Then bells rang. Hundreds and thousands of bells. They rang stridently in all the rooms and corridors of all the dwelling-units which reached away as far as the eye could follow them. It was a ghastly sound, because every bell was in exactly the same tone and made exactly the same tintinabulation.

Then there was a stirring in the houses. Folk moved within them. Figures passed inside the windows. Now and again, briefly, faces peered out. But none lingered to stare at what must have been the

unprecedented sight of a space-ship resting in the courtyard,

After a little, figures appeared in the doors. Men and women swarmed out and streamed toward openings in the factory building. Their heads turned to gaze at the ship, but they did not even slacken speed in their haste toward the sound of industry.

Kim hailed them. They looked at him blankly and hurried on. He caught hold of a man.

"Where will I find the leader?" he asked sharply. "The boss! The government! The king or whatever you have! Where?"

The man struggled.

"I be late," he protested unhappily. "I work. I be late!"

"Where's the government?" Kim repeated more sharply still. "The king or nobles or whoever makes the laws or whatever the devil—"

"I be late!" panted the man.

He twisted out of Kim's grasp and ran to join the swarming folk now approaching the great building.

They hurried inside. The quadrangle was again empty. Kim scowled. Then other workers came out of the factory and plodded wearily toward the dwelling-units. Kim waylaid a man and shot questions at him. His speech was slurred with fatigue. Dona could not understand him at all. But he gazed at the *Starshine*, and groped heavily for answers to Kim's questions, and at the end trudged exhaustedly into a doorway.

Kim came into the ship, scowling. He seated himself at the control-board. The ship lifted once more. He headed toward the curve of the plant's bulging form.

"What did you learn, Kim?"

"This is the work continent," said Kim shortly. "The factories and the workmen are here. The owners live in a place of their own. I have to talk to one of the more important merchants. I need information."

Time passed and the ship went on over the rim of the planet. Orbital speed was impossible. The *Starshine* stayed almost within atmosphere and moved eastward at no more than fifteen hundred miles an hour.

"Here it is," said Kim, at last.

The ship settled down once more. There was a thin, hazy overcast here, and clear vision came suddenly as they dropped below it. And the coast and the land before them brought an exclamation from Dona. The shoreline was magnificent, all beautiful bold cliffs

with rolling hills behind them. There were mountains on farther yet and splendid vistas everywhere. But more than the land or the natural setting, it was what men had done which caused Dona to exclaim.

The whole terrain was landscaped like a garden. As far as the eye could reach—and the *Starshine* still flew high—every hillside and every plain had been made into artificial but marvelous gardens. There were houses here and there. Some were huge and gracefully spreading, or airily soaring upward, or simple with the simplicity of gems and yet magnificent beyond compare. There was ostentation here, to be sure, but there was surely no tawdriness. There was no city in sight. There was not even a grouping of houses, yet many of the houses were large enough to shelter communities.

"I—see," said Kim. "The workmen live near the factories or in their compounds. The owners have their homes safely away from the ugly part of commerce. They've a small-sized continent of country homes, Dona, and undoubtedly it is very pleasant to live here. Whom shall we deal with?"

Dona shook her head. Kim picked a magnificent residence at random. He slanted the *Starshine* down. Presently it landed lightly upon smooth lawn of incredible perfection, before a home that Dona regarded with shining eyes.

"It's—lovely!" she said breathlessly.

"It is," agreed Kim.

"It even has a feeling all its own," he said. "The palace of a king or a tyrant always has something of arrogance about it. It's designed to impress the onlooker. A pleasure-palace is always tawdry. It's designed to flatter the man who enters it. These houses are solid. They're the homes of men who are thinking of generations to follow them and, meanwhile, only of themselves. I've heard of the merchant princes of Spicus Five, and I'm prejudiced. I don't like those factories with the workmen's homes inside. But—I like this house. Do you want to come with me?"

Dona looked at the house—yearningly. At the view all about; every tree and every stone so placed as to constitute perfection. The effect was not that of a finicky estheticism, but of authentic beauty and dignity. But after a moment Dona shook her head.

"I don't think I'd better," she said slowly. "I'm a woman, and I'd want one like it. I'll stay in the ship and look at the view. You've a communicator?"

Kim nodded. He opened the airlock door and stepped out. He walked toward the great building.

Dona watched his figure grow small in its progress toward the mansion. She watched him approach the ceremonial entrance. She saw a figure in formalized rich clothing appear in that doorway and bow to him. Kim spoke, with gestures. The richly clothed servant bowed for him to go first into the house. Kim entered and the door closed.

Dona looked at her surroundings. Dignity and tranquility and beauty were here. Children growing up in such an environment would be very happy and would feel utterly safe. Wide, smooth, close-cropped lawns, with ancient trees and flowering shrubs stretched away to the horizons. There was the gleam of statuary here and there—rarely. A long way off she could see the glitter of water, and beside it a graceful colonnade, and she knew that it was a pleasure-pool.

Once she saw two boys staring at the space-ship. There was no trace of fear in their manner. But a richly-dressed servant—much more carefully garbed than the boys—led up two of the slim riding-sards of Phanis, and the boys mounted and their steeds started off with that sinuous smooth swiftness which only sards possess in all the First Galaxy.

Time passed, and shadows lengthened. Finally Dona realized how many hours had elapsed since Kim's departure. She was beginning to grow uneasy when the door opened again and Kim came out followed by four richly clad servants. Those servants carried bundles. Kim's voice came over the communicator.

"Close the inner airlock door, Dona, and don't open it until I say so."

Dona obeyed. She watched uneasily. The four servants placed their parcels inside the airlock at a gesture from Kim. Then there was an instant of odd tension. Dona could not see the servants, but she saw Kim smiling mirthlessly at them. He made no move to enter. He spoke sharply and she heard them file out of the air lock. Dona could see them again.

Kim stepped into the space-ship and closed the door.

"Take her up, Dona—fast!"

The *Starshine* shot upward, with the four servants craning their necks to look at it. It was out of sight of the ground in seconds. It was out of the atmosphere before Kim came into the control-room from the lock.

"Quite a civilization," he said. "You'd have liked that house, Dona. There's a staff of several hundred servants, and it is beautiful inside. The man who owns it is also master of one of the bigger industrial plants. He doesn't go to the plant, of course. He has his offices at home, with a corps of secretaries and a television-screen for interviews with his underlings. Quite a chap."

"Were those four men servants?" Dona asked.

"No, they were guards," said Kim drily. "There are no proletarians around that place, and none are permitted. Guards stand watch night and day. I'd told my friend that the *Starshine* was packed with lethal gadgets with which Ades had won at least one war, and he's in the munitions business, so I wasn't going to let his guards get inside. They wanted to, badly, insisting they had to put their parcels in the proper place. He'd have paid them lavishly if they could have captured a ship like the *Starshine*."

He laughed a little.

"I was lucky to pick a munitions maker. There aren't many wars in the ordinary course of events, but he turns out weapons for palace guards, mobile fighting-beam projectors, and so on. All the equipment for a planet ruler who wants a fancy army for parades or a force with a punch to fight off any sneak attack via matter-transmitter. That's what your average ruler is afraid of, and what he keeps an army to defend himself against. Of course the Disciplinary Circuit takes care of his subjects."

6

Vanished World

AHEAD OF THEM LOOMED THE SUN, SPICUS, many millions of miles away, while beneath them lay the planet, Spicus Five, a vast hemisphere which was rapidly shrinking into the distance. Kim moved over beside Dona and stared reflectively at the instrument board.

"I got frightened, Kim," the girl said. "You were gone so long."

"I was bargaining," Kim answered. "I told him I came from Ades. I'd a space-ship, so he could believe that. Then I told him what had happened. Selling munitions, he should have known about it beforehand, and I think he did. He doubted that I'd come from Ades as quickly as I said, though, until I recited the names of some of the gracious majesties who are making a grab of planets. Then he was sure. So he wanted to strike a bargain with me for

Terranova. He'd supply it with arms, he said, in exchange for a star-cluster of his own in the Second Galaxy. If I'd set up a private matter-transmitter for him. . . ."

Kim laughed without mirth.

"He could colonize a couple of planets himself, and make a syndicate to handle the rest. He saw himself changing his status from that of a merchant princeling to that of a landed proprietor with half a dozen planets as private estates, and probably a crown to wear on week-ends and when he retired from business on Spicus Five. There are precedents, I gather."

"But, Kim!" protested Dona. "What did you do?"

"I did one thing that's been needed for a long time," said Kim grimly. "It seems to me that I do everything backwards. I should have attended to the matter of Ades first, but I had a chance and took it. I think I put something in motion that will ultimately smash up the whole cursed system that's made slaves of every human being but those on Ades and Terranova—the Disciplinary Circuit. Back on Ades we've talked about the need to free the people of this galaxy. It's always seemed too big a job. But I think it's started now. It will be a profitable business, and my friend who wanted to bargain for some planets in the Second Galaxy will make a pretty penny of the beginning, and it will carry on of itself."

The planet below and behind was now only a globe. It soon dwindled into a tiny ball. Kim touched Dona on the shoulder.

"I'll take over," he said. "We've got work to do, Dona."

Dona stood up and stamped her foot.

"Kim! You're misunderstanding me on purpose! What about Ades? Did you find out what happened to it?"

Kim began the process of sighting the *Starshine's* nose upon a single, distant, minute speck of light which seemingly could not be told from a million other points of light, all of which were suns.

"I think I found out something," he told her. "I thought a merchant planet would be the place to hear all the gossip of the Galaxy. My friend back yonder put his research organization to work finding out what I wanted to know. What they dug up looks plausible. Right now I'm going to get even for it. That's a necessity! After that, we'll see. There were sixteen million people on Ades. We'll try to do something about them. They aren't likely to be all dead—yet."

The sun of Ades swam in emptiness. For uncountable billions

of years it had floated serenely with its single planet circling it in the companionability of bodies separated only by millions of miles, when their next nearest neighbors are light-years away. A sun with one planet is a great rarity.

A sun with no satellites—save for giant pulsing Cepheids and close-coupled double suns—is almost unknown. But for billions upon billions of years that sun and Ades had kept each other company. Then men had appeared. For a thousand years great space-ships had grimly trundled back and forth to unload their cargoes of criminals upon the chilly small world.

Ades was chosen as a prison planet from the beginning. Later, matter-transmitters made the journeys of space-craft useless. For six, seven, eight thousand years there was no traffic but the one-way traffic of its especially contrived transmitter, which would receive criminals from all the Galaxy but would return none or any news of them to the worlds outside.

During all that time a lonely guard-ship hung drearily about, watching least someone try to rescue a man doomed to hopeless exile, and return him to happier scenes. And finally the guard-ship had gone away, because the space-ways were no longer used by anybody, and there were no ships in the void save those of the Patrol itself. Accordingly the Patrol was disbanded.

For hundreds of years nothing happened at all. And then Kim Rendell came in the *Starshine*, and shortly thereafter tiny ships began to take off from Ades, and they fought valorously on distant star-systems, and at last a squadron of war-craft came to subjugate Ades for the beastly Empire of Sinab. Finally there was a battle in the bright beams of the lonely sun itself. And after that, for a time, little space-ships swam up from the planet and darted away, and darted back, and darted away, and back.

But never before had there been any such situation as now. The sun, which had kept company with Ades for so long, now shone in lonely splendor, amid emptiness, devoid of its companion. And that emptiness was bewildering to a small ship—sister to the *Starshine*—which flicked suddenly into being nearby.

The ship had come back from a journey among the virgin stars of the Second Galaxy with honorable scars upon its hull and a zestful young crew who wished to boast of their journeying. They had come back to Ades—so they thought—direct, not even stopping at Terranova. And there was no Ades.

The little ship flashed here and there about the bereft sun in

bewilderment. It searched desperately for a planet some seven thousand miles in diameter, which had apparently been misplaced. And as it hunted, a second ship whisked into sight from faster-than-light drive. The detectors of the two ships told them of each other's presence, and they met and hung in space together. Then they searched in unison, but in vain. At long last they set out in company for one of the planets of the former Sinabian Empire, on which there must be some news of what had happened to Ades.

On transmitter-drive they inevitably separated and one was much closer to the chosen planet when they came out of stressed space. One drove down into atmosphere while the other was still thousands of miles away.

The leading ship went down at landing-speed, toward a city. The other ship watched by electron telescope and prepared to duplicate its course. But the man of the second ship saw—and there could be no doubt about it—that suddenly the landing ship vanished from its place as if it had gone into intergalactic drive in atmosphere. There was a flash of intolerable, unbearable light. And then there was an explosion of such monstrous violence that half of the planet's capital city vanished or was laid in ruins.

The crew of the second ship were stunned. But the second ship went slowly and cautiously down into atmosphere, and its communicators picked up voices issuing stern warnings that troops must be welcomed by all citizens, and that absolute obedience must be given to all men wearing the uniform of His Magnificence the Despot of Lith. And then there was babbling confusion and contradictory shoutings, and a hoarse voice ordered all soldiers of His Magnificence to keep a ceaseless watch upon the sky, because a ship had come down from overhead, and when the fighting-beams struck it—to kill its crew—it appeared to have fired some devastating projectile which had destroyed half a great city. All ships seen in the sky were to be shot down instantly. His Magnificence, the Despot of Lith, would avenge the outrage.

The lonely surviving ship went dazedly away from the planet which once had been friendly to the men of Ades. It went back to Ades' sun, and searched despairingly once again, and then fled to the Second Galaxy and Terranova, to tell of what it had seen.

That was an event of some importance. At least all of one planet had been rocked to its core from the detonation of a space-ship which flashed into collision with it at uncountable multiples of the speed of light, and was thereby raised to the temperature of a hot

sun's very heart. And besides, there was agitation and suspicion and threats and diplomatic chaos among the planetary governments who had joined to loot the dependencies of Ades, once Ades was eliminated from the scene.

But a vastly, an enormously more significant event took place on a planet very far away, at almost the same instant. The planet was Donet Three, the only habitable planet of its system. It was a monstrous, sprawling world, visibly flattened by the speed of its rotation and actually habitable only by the fact that its rotation partly balanced out its high gravity.

The *Starshine* approached over a polar region and descended to touch atmosphere. Then, while Dona looked curiously through the electron-telescope at monstrous ice-mountains below, Kim donned a space-suit, went into the air-lock, and dropped a small object out of the door. He closed the door, returned to the control-room, and took the *Starshine* out to space again.

That was the most significant single action, in view of its ultimate meaning, that had been performed in the First Galaxy in ten thousand years. And yet, in a sense, it was purely a matter of form. It was not necessary for Kim to do it. He had arranged for the same effect to be produced, in time yet to come, upon every one of the three hundred million inhabited planets of the First Galaxy. The thing was automatic; implicit in the very nature of the tyrannical governments sustained by the disciplinary circuit.

Kim had simply dropped a small metal case to the surface of Donet Three. It was very strong—practically unbreakable. It contained an extremely simple electronic circuit. It fell through the frigid air of the flattened pole of Donet Three, and it struck the side of a sloping ice-mountain, and bounced and slid down to a valley and buried itself in snow, and only instants later, the small hole left by its fall was filled in and covered up completely by snow riding on a hundred-mile gale. It was undiscoverable. It was irretrievable. No device of man could detect or recover it. Kim himself could not have told where it fell.

Kim then sighted the *Starshine* on another distant target, and found the planet Arth, and dropped a small metal object into the depths of the humid and festering jungles along its equator. Human beings could live only in the polar regions of Arth. Then he visited a certain planet in the solar system of Tabor and a small metal case went twisting through deep water down to the seabed of its ocean.

He dropped another on the shifting desert sands which cover one-third of Sind where an Emperor and Council rule in the name of a non-existent republic, and yet another on a planet of Megar, where an otherwise unidentified Queen Amritha held imperial power, and others. . . .

He dropped one small metal case, secured from a merchant-prince on Spicus Five, on each of the planets whose troops had moved into the planets left defenseless by the vanishment of Ades.

"I wanted to do that myself, because what we've got to do next is dangerous and we may get killed," he told Dona drily. "But now we're sure that men won't stay slaves forever and now we can try to do something about Ades. I'm afraid our chances are pretty slim."

7

One Chance in a Million

IN SPITE OF HIS PESSIMISM, KIM SETTLED down to the fine calculations required for a voyage to a blue-white dwarf star not readily distinguished from others. Most inhabited planets, of course, circled sol-type suns. Light much different from that in which the race had developed was apt to have produced vegetation inimical to humanity, and useful vegetation did not thrive. And of course sol-type stars are most readily spotted by space navigators. As he checked his course with star-charts, Dona spoke softly.

"Thanks, Kim."

"For what?"

"For not wanting to put me in safety when you're going to do something dangerous. I wouldn't let you, but thanks for not trying."

"*Mmmmh!*" said Kim. "You're too useful."

He lined up his course and pressed the transmitter-drive stud on the control-panel. Space danced a momentary saraband,—and there was a blue-white dwarf two hundred million miles away, showing barely a planet-sized disk, but pouring out a pitiless white glare that hurt the eyes.

"That's it," said Kim. "That's the sun Alis. There should be four planets, but we're looking for Number One. It goes out beyond Two at aphelion, so we have to check the orbit—if we can find it—before we can be sure. No—we should be able to tell by the rotation. Very slow."

"And what are you going to do with it?" demanded Dona.

There were bright spots in emptiness which the electron telescope instantly declared to be planets. Kim set up cameras for pictures.

"Alis One is the only really uninhabitable planet in the Galaxy that's inhabited," he observed painstakingly. "It belongs to Pharos Three. I understand it's the personal property of the king. It has no atmosphere in spite of an extremely high specific gravity and a reasonable mass. But the plutonium mines have been worked for five thousand years."

"Plutonium mines with that half-life?" Dona said skeptically. "You must be joking!"

"No," said Kim. "It's a very heavy planet, loaded with uranium and stuff from bismuth on out. It has an extremely eccentric orbit. As I told you, at aphelion it's beyond the orbit of Pharos Two. At perihelion, when it's nearest to its sun, it just barely misses Roche's Limit—the limit of nearness a satellite can come to its primary without being torn apart by tidal strains. And at its nearest to its sun, it's bombarded with everything a sun can fling out into space from its millions of tons of disintegrating atoms. Alpha rays, beta rays, gamma particles, neutrons, and everything else pour onto its surface as if it were being bombarded by a cyclotron with a beam the size of a planet's surface. You see what happens?"

Dona looked startled.

"But, Kim, every particle of the whole surface would become terrifically radioactive. It would kill a man to land on it!"

"According to my merchant-prince friend on Spicus Five, it did kill the first men to set foot on it. But the point is that its heavy elements have been bombarded, and most of its uranium has gone on over to plutonium and americium and curium. In ancient days, when it went out on the long sweep away from its sun, it cooled off enough for men to land on it at its farthest-out point. With shielded space-suits they were able to mine its substance for four to five months before heat and rising induced radio-activity drove them off again. Then they'd wait for it to cool off once more on its next trip around.

"They went to it with space-ships, and the last space-line in the First Galaxy ran plutonium and americium and the other radio-actives to a matter-transmitter from which they could be distributed all over the Galaxy. But it wasn't very efficient. They could only mine for four or five months every four years. All their equip-

ment was melted and ruined when they were able to land again. A few hundred years ago, however, they solved the problem."

Dona stared out the vision-ports. There were two planets which might be the one in question. But there were only three in sight.

"How did they solve it?" Dona asked.

"Somebody invented a shield," said Kim, as drily as before. "It was a force-field. It has the property of a magnetic field on a conductor with a current in it, except that it acts on mass as such. A current-carrying conductor in a magnetic field tends to move at right angles both to the current and the field. This force-field acts as if mass were an electric charge.

"Anything having mass, entering the field, tries to move sideways. The faster it moves, the stronger the sidewise impulse. Neutrons, gamma particles, met rays and even electrons have mass. So has light. Everything moving that hits the shielding field moves sideways to its original course. Radiation from the sun isn't reflected, at right angles.

"So, with the shield up, men can stay on the planet when it is less than three diameters from its sun. No heat reaches it. No neutrons. No radiations at all. It doesn't heat up. And that's the answer. For three months in every four-year revolution, they have to keep the shield up all the time. For three months more, they keep it up intermittently, flashing it on for fractions of a second at a time, just enough to temper the amount of heat they get.

"They live on great platforms of uranium glass, domed in. When they go out mining they wear shielded space-suits and work in shielded machines. The whole trick was worked out about five hundred years ago, they say, and the last space-line went out of existence, because they could use a matter-transmitter for all but six of our months of that planet's year."

"And did you find out how it's done?" asked Dona.

"Hardly," said Kim. "The planet belongs to the king of Pharos Three. Even five hundred years ago the governments of all the planets were quite tight corporations. Naturally Pharos wouldn't let the secret get out. There are other planets so close to their primaries that they're radioactive. If the secret were to be disclosed there'd be competition. There'd be other plutonium mines in operation. So he's managed to keep it to himself. But we've got to find out the trick."

There was silence. Kim began to check over the pictures the cameras had taken and developed. He shook his head. Then he

stared at a photograph which showed the blue-white dwarf itself. His face looked suddenly very drawn and tired.

"Kim," said Dona presently. "It's stupid of me, but I don't see how you're going to learn the secret."

Kim put the picture on the enlarger, for examination in a greater size.

"They made the shield to keep things out," he said wearily. "Radiation, charged particles, neutrons—everything. The planet simply can't be reached, not even by matter-transmitters, when the shield is up. But by the same token nothing can leave the planet either. It can't even be spotted from space, because the light of the sun isn't reflected. It's deflected to a right-angled course. You might pick it up if it formed a right-angled triangle with you and the sun, or you might spot it in transit across the sun's disk. But that's all."

"Yes."

"The shield was a special job," said Kim. "For a special purpose. It was not a weapon. But there were all those planets that could be grabbed if only Ades were knocked out. So why shouldn't King Pharos sneak a force-field generator on to Ades? When the field went on, Ades would be invisible and unreachable from outside. And the outside would be unreachable from it. Space-ships couldn't get through the field. Matter-transmitters couldn't operate through it. If a few technicians were sneaked to Ades as supposed exiles and promised adequate reward, don't you think they'd hide out somewhere and turn on that field, and leave it on until the folk on Ades had starved or gone mad?"

Horrified, Dona stared at him. She went pale.

"Oh—horrible! The sky would be black—always! Never a glimmer of light. No stars. No moons. No sun. The plants would die and rot, and the people would grow bleached and pale, and finally they'd starve."

"All but the little gang hidden away in a well-provisioned hide-out," said Kim grimly. "I think that's what's happened to Ades, or is happening. And this is the solar system where the little trick was worked out. I'd hoped simply to raid the generator and find out how it worked, which would be dangerous enough. Look!"

He pointed to the projected image of the sun. There was a tiny dot against its surface. It was almost, it seemed, bathed in the tentacular arms of flaming gases flung up from the sun's surface.

"There's the planet," said Kim. "At its closest to the sun! With

the shield up, so that nothing can reach its surface. Nothing! And that includes space-ships such as this. And at that distance, Dona, the hard radiation from the sun would go right through the *Starshine* and kill us in seconds before we could get within millions of miles of the planet. If there's any place in the Universe that's unapproachable, there it is. It may be anything up to three months before the shield goes down even for fractions of a second at a time. And my guess is that the people on Ades won't last that long. They've had days in which to grow hopeless already. Want to gamble?"

Dona looked at him. He regarded her steadily.

"Whatever you say, Kim."

"Sixteen million lives on Ades, besides other aspects of the situation," said Kim. "The odds against us are probably about the same, sixteen million to one. That makes it a fair bet. We'll try."

He got up and began to tinker with the radiation-operated relay which turned off the transmitter-drive. Presently he looked up.

"I'm glad I married you, Dona," he said gruffly.

As the *Starshine* moved closer in, the feeling in the control-room grew tense. The little ship had advanced to within twenty millions of miles of the blue-white sun, and even at that distance there was a detectable X-ray intensity.

Kim had turned on a Geiger counter, and it was silent simply because there was no measurable interval between its discharges. A neutron detector showed an indication very close to the danger mark. But Kim had the *Starshine's* nose pointed to the intolerably glaring sun.

The electron telescope showed the sun's surface filling all its field, and because the illumination had been turned so low, raging sun-storms could be seen on the star's disk. Against it, the black silhouette of the planet was clear. It was small. Kim estimated its diameter at no more than six thousand miles. The *Starshine's* gyros hummed softly and the field of the telescope swayed until the planet was centered exactly.

There was a little sweat on Kim's forehead.

"I—don't mind taking the chance myself, Dona," he said, dry-throated. "But I hate to think of you. . . . If we miss, we'll flash into the sun."

"And never know it," said Dona, smiling. "It'll be all over in the skillionth of a second—if we miss. But we won't."

"We're aiming for the disk of the planet," he reminded her.

"We have to go in on transmitter-speed to cut the time of our exposure to hard radiation. That speed will make the time of exposure effectively zero. But we have to move at a huge multiple of the speed of light, and we have to stop short of that planet. It may not be possible!"

"Do you want me to press the button, Kim?" Dona said softly.

He took a deep breath.

"I'll do it. Thanks, Dona."

He put his finger on the stud that would throw the ship into transmitter-drive, aimed straight at the disk of planet against the inferno of sun beyond. There was nothing more certain than that to miss the planet would fling them instantly into the sun. And there was nothing more absurd than to expect to come out of transmitter-drive within any given number of millions of miles, much less within a few thousands. But—

Kim pressed the stud.

Instantly there was blackness before them. A monstrous, absolute blackness filled half the firmament. It was the force-field-shielded planet, blotting out its sun and half the stars of the Galaxy. Kim had made a bull's-eye on a target relatively the size of a dinner-plate at eleven hundred yards. More than that, he had stopped short of his target, equivalent to stopping a bullet three inches short of that place.

He said in a queer voice:

"The—relay worked—even backward, Dona."

8

Dark Barrier

FOR A TIME KIM SAT STILL AND SWEAT poured out on his skin. Because their chances had seemed slight indeed. To stop a space-ship at transmitter-speed was impossible with manual means, anyhow. It could cross a galaxy in the tenth of a millisecond. So Kim had devised a radiation-operated relay which threw off the drive when the total radiation reaching a sensitive plate in the bow had reached an adjustable total.

If in an ordinary flight the *Starshine* headed into a sun—unlikely as such an occurrence was—the increased light striking the relay-plate would throw off the drive before harm came. But this time they had needed to approach fatally close to a star. So Kim had reversed the operation of the relay. It would throw off the drive

when the amount of light reaching it dropped below a certain minimum. That could happen only if the ship came up behind the planet, so the sun was blacked out by the world's shadowed night-side.

It had happened. The glare was cut off. The transmitter-drive followed. The *Starshine* floated within a bare few million miles—perhaps less than one million—of a blue-white dwarf star, and the two humans in the ship were alive because they had between them and the sun's atomic furnaces, a planet some six thousand miles in diameter.

"We don't know how our velocity matches this thing," said Kim after an instant. "We could be drifting toward the edge of the shadow. You watch the stars all around. Make sure I head directly for that blackness. When we touch, I'll see what I can find out."

He reversed the ship's direction. He let the *Starshine* float down backward. The mass of unsubstantial darkness seemed to swell. It engulfed more and more of the cosmos. . . .

A long, long time later, there was a strange sensation in the feel of things. Dona gave a little cry.

"Kim! I feel queer! So queer!"

Kim moved heavily. His body resisted any attempt at motion, and yet he felt a horrible tension within him, as if every molecule were attempting to fly apart from every other molecule. The controls of the ship moved sluggishly. Each part of each device seemed to have a vast inertia. But the controls did yield. The drive did come on. A little later the sensation ended. But both Kim and Dona felt utterly exhausted.

"It—was getting dark, too," said Dona. She trembled.

"When we tried to move," said Kim, "our arms had a tendency to move at right angles to the way we wanted them to—at all the possible right angles at once. That was the edge of the shield, Dona. Now we'll see what we've got."

He uncovered the recording cabinet. There had been no need to set up instruments especially for the analysis of the field. They had been a part of the *Starshine's* original design for exploration. Now Kim read the records.

"Cosmic-ray intensity went down," he reported, studying the tapes. "The dielectric constant of space changed. It just soared up. The relationship of mass to inertia. That particular gadget never recorded anything significant before, Dona. In theory it should have detected space-warps. Actually, it never amounted to any-

thing but a quantitative measure of gravitation on a planet one landed on. But it went wild in that field! And here! Look!"

He exultantly held out a paper recording.

"Glance at that, Dona! See? A magnetometer to record the strength of the magnetic field on a new planet. It recorded the ship's own field in the absence of any other. And the ship's field dropped to zero! Do you see? Do you?"

"I'm afraid not," admitted Dona. But she smiled at the expression on Kim's face.

"It's the answer!" said Kim zestfully. "Still I don't know how that blasted field is made, but I know now how it works. Neutrons have no magnetic field, but this thing turns them aside. Alpha and beta and gamma radiation do have magnetic fields, but this thing turns them aside, too. And the point is that it neutralizes their magnetic fields, because otherwise it couldn't start to turn them aside. So if we make a magnetic field too strong for the field to counter, it won't be able to turn aside anything in that magnetic area. The maximum force-field strength needed for the planet is simply equal to the top magnetic field the sun may project so far. If we can bury the *Starshine* in magnetic flux that the force-field can't handle—" He grinned. He hugged her.

"And there's a loop around the *Starshine*'s hull for space-radio use," he cried. "I'll run a really big current through that loop and we'll try again. We should be able to put quite a lot of juice through a six-turn loop and get a flux-density that will curl your hair!"

He set to work, beaming. It took him less than half an hour to set up a series-wound generator in the airlock, couple in a thermocell to the loop, so it would cool the generator as the current flowed and thereby reduce its internal resistance.

"Now!" he said. "We'll try once more. The more juice that goes through the outfit, the colder the generator will get and the less its resistance will be, and the more current it will make and the stronger the magnetic field will be."

He flipped a switch. There was a tiny humming noise. A meter-needle swayed over, and stayed.

The *Starshine* ventured into the black globe below.

Nothing happened. Nothing happened at all.

"The stars are blotted out, Kim," Dona at last said uneasily.

"But you feel all right, don't you?" He grinned like an ape in his delight.

"Why, yes."

"I feel unusually good," said Kim happily.

The vision-screens were utterly blank. The ports opened upon absolute blackness—blackness so dead and absorbent that it seemed more than merely lack of light. It seemed like something horrible pressing against the ports and trying to thrust itself in.

And, suddenly, a screen glowed faintly, and then another. . . .

Then there was a greenish glow in the ports, and Dona looked out and down.

Above was that blackness, complete and absolute. But below, seen with utter clarity, because of the absence of atmosphere, lay a world. Nothing grew upon it. Nothing moved. It was raw, naked rock with an unholy luminescence. Here and there the glow was brighter where mineral deposits contained more highly active material. The surface was tortured and twisted, in swirled stained writhings of formerly melted rock.

They looked. They saw no sign of human life nor any sign that humans had ever been there. But after all, even five thousand years of mining on a globe six thousand miles through would not involve the disturbance of more than a fraction of its surface.

"We did it," said Kim. "The shield can be broken through by anything with a strong enough magnetic field. We won't disturb the local inhabitants. They undoubtedly have orders to kill anybody who incredibly manages to intrude. We can't afford to take a chance. We've got to get back to Ades!"

He pointed the *Starshine* straight up. He drove her, slowly, at the ceiling of impentetrable black. He worked upon the transmitter-drive relay. He adjusted it to throw the *Starshine* into transmitter-speed the instant normal starlight appeared ahead.

The ship swam slowly upward. Suddenly there was a momentary impression of reeling, dancing stars. Kim swung the bow about.

"Now for Ades!" he said gleefully. "Did you know, Dona, that once upon a time the word Ades meant hell?"

The stars reeled again. . . .

They found Ades. Knowing how, now, it was not too difficult. There were two positions from which it could be detected. One was a position in which it was on a line between the *Starshine* and the sun. The other was a position in which the invisible planet, the space-ship, and the sun formed the three points of a right-angled triangle with Ades in the ninety-degree corner.

Kim sent the little ship in a great circle beyond the planet's

normal orbit, watching for it to appear where such an imaginary triangle would be formed. The deflected light of the sun would spread out in a circular flat thin plane, and somewhere about the circuit the *Starshine* had to run through it. It would be a momentary sight only, and it would not be bright; it would be utterly unlike the steady radiance of a normal planet. Such flashes, if seen before, would have been dismissed as illusions or as reflections from within the ship. Even so, it was a long, long time before Dona called out quickly.

"There!" she said, and pointed.

Kim swung the *Starshine* back. He saw the dim, diffused spectre of sun's reflection. They drove for it, and presently a minute dark space appeared. It grew against the background of a radiant galaxy, and presently was a huge blackness, and the *Starshine's* space-radio loop was once more filled with a highly improbable electrical amperage by the supercooled generator in the airlock.

The ship ventured cautiously into the black.

And later there were lonely, unspeakably desolate little lights of the lost world down below.

Kim drove for them with a reckless exultation. He landed in the very centre of a despairing small settlement which had believed itself dead and damned—or at any rate doomed. He shouted out his coming, and Dona cried out the news that the end of darkness was near, and men came surging toward her to listen. But it was Dona who explained, her eyes shining in the light of the torches men held up toward her.

Kim had gone back into the ship and was using the communicators to rouse out the mayors of every municipality, and to say he had just reached the planet from Terranova—there was no time to tell of adventures in between—and he needed atmosphere fliers to gather around him at once, with armed men in them, for urgent business connected with the restoration of a normal state of affairs.

They came swiftly, flitting down out of the blackness overhead, to land in the lights of huge bonfires built by Kim's orders. And Kim, on the communicators, asked for other bonfires everywhere, to help in navigation, and then he went out to be greeted by the bellowing Mayor of Steadheim.

"What's this?" he roared. "No sunlight! No stars! No matter-transmitter! No ships! Our ships took off and never came back! What the devil happened to the Universe?"

Kim grinned at him.

"The Universe is all right. It's Ades. Somewhere on the planet there's a generator throwing out a forcefield. It will have plenty of power, that generator. Maybe I can pick it up with the instruments of the *Starshine*. But we'll be sure to find it with magnetic compasses. What we want is for everyone to flick their compasses and note the time of swing. We want to find the place where the swings get slower and slower. When we find a place where the compasses point steadily, without a flicker—not even up and down—we'll be at the generator. And everybody put on navigation-lights or there'll be crashes!"

He lifted the *Starshine* and by communicator kept track of the search. Toward the polar regions was the logical hiding-place for the generator, because there the chilly climate of Ades became frigid and there were no inhabitants. But it was a long search. Hours went by before a signal came from a quarter-way around the globe.

Then the *Starshine* drove through darkness—but cautiously—with atmosphere-fliers all about. And there was an area where the planet's magnetic field grew weaker and weaker, and then a space in which there was no magnetic field. But in the darkness they could find no sign of a depot!

9

Gadget of Hope

GRIMLY KIM SET THE "STARSHINE" ON THE ground, in the very centre of the dark area, and started the generator in the airlock. When it worked at its utmost, and nothing happened, Kim threw in the leads of the ship's full engine-power. There was a surging of all the terrific energy the ship's engines could give. Then the radio-loop went white-hot and melted, with a sputtering arc as the circuit broke.

Abruptly the stars appeared overhead, and simultaneously came the leaping flame of a rumbling explosion. Then followed the flare of fuel burning savagely in the night. The *Starshine's* full power had burned out the force-field generator, an instant before the loop melted to uselessness.

Kim was with the men who ran toward the scene of the explosion, and he would have tried to stop the killing of the other men who ran out of underground burrows, but the victims would not have it. They expected to be killed, and they fought wildly. All died.

Later Kim inspected the shattered apparatus which now lay in pieces, but he thought it could be reconstructed and perhaps in time understood.

"Night's nearly over," he announced to those who prowled through the wreckage. "It shouldn't be much more than an hour until dawn. If I hadn't seen sunlight for a week or more, I think, I'd go for a look at the sunrise."

In seconds the first atmosphere-flier took off. In minutes the last of them were gone. They flew like great black birds beneath the starlight, headed for the east to greet a sun they had not expected to see again.

But the Mayor of Steadheim stayed behind.

"Hah!" he said, growling. "It's over my head. I don't know what happened and I never expect to understand. How are my sons in the new Galaxy?"

"Fine when last we heard," said Dona, smiling. "Come into the ship."

He tramped into the living space of the *Starshine*. He eased himself into a seat.

"Now tell me what's gone on, and what's happened, and why!" he commanded dictatorially.

Kim told him, as well as he could. The Mayor of Steadheim fumed.

"Took over the twenty-one planets, eh?" he sputtered. "We'll attend to that. We'll take a few ships, go over there, and punish 'em."

"I suspect they've pulled out," said Kim. "If they haven't, they will. And soon! The Gracious Majesties and Magnificents, and the other planetary rulers who essayed some easy conquests, have other need for their soldiers now. Plenty of need!"

"Eh, what?" cried the mayor. "What's the matter? Those rulers have got to have a lesson! We didn't try to free the whole Galaxy because it was too big a job. But it looks like we'll have to try!"

"I doubt the need," said Kim, amused. "After all, it's the Disciplinary Circuit which has enslaved the human race. When the psychogram of every citizen is on file, and a disciplinarian has only to put his card in the machinery and press a button to have that man searched out by Disciplinary-Circuit waves and tortured, wherever he may be—when that's possible—any government is absolute. Men can't revolt when the whole population or any part of it can be tortured at the ruler's whim."

Dona's expression changed.

"Kim!" she said accusingly. "Those things you got on Spicus Five and dropped on the planets the soldiers came from—what were they?"

"I'll tell you," said Kim. "The Disciplinary Circuit is all right to keep criminals in hand—not rebels like us, but thieves and such—and it does keep down the number of officials who have to be supported by the state. Police and guards aren't really needed on a free planet with the Disciplinary Circuit in action. It's a useful machine for the protection of law and order. The trouble is that, like all machines, its use has been abused. Now it serves tyranny. So I made a device to defend freedom."

The Mayor of Steadheim cocked a suspicious eye upon him.

"I procured a little gadget," said Kim. "I dropped the gadget in various places where it wasn't likely to be found. If one man is under Disciplinary Circuit punishment, or two or three or four—that's not unreasonable on a great planet—nothing happens. But if twenty-five or fifty or a hundred are punished at once, the Disciplinary Circuit is blown out as I just blew out that force-field generator."

The Mayor of Steadheim considered this information.

"*Ha-hmmm!*" he said profoundly.

"Criminals can be kept down, but a revolt can't be suppressed," Kim went on. "The soldiers who are occupying the twenty-one planets will be called back to put down revolts, as soon as the people discover the Disciplinary Circuits on their planets are blowing out, and that they blow out again as fast as they're re-made and used."

"*Hm!*" said the Mayor of Steadheim. "Not bad! And the rebels will have some very tasty ideas of what to do to the folk who've tyrannized over them. No troops can stop a revolt nowadays. Not for long!"

"No, not for long," said Kim. "No government will be able to rule with a dissatisfied population. Not if it has a little gadget hidden somewhere that will blow out the Disciplinary Circuit, if it's used to excess."

"Good enough, good enough," grumbled the mayor. "When rulers are kept busy satisfying their people, they won't have time to bother political offenders. That's sensible enough! But it's too fiendish bad that only those twenty planets have the gadgets on them! I suppose we criminals will have to set up a factory and

make them, and then visit all the three hundred million inhabited planets, one by one, and drop one little contrivance on every one. But it'll take us centuries! Space! That's a pity!"

"It won't take centuries," said Kim drily. "I made a deal with a factory-owner on Spicus Five. He turned out the ones I personally dropped, in exchange for the design. He's going to manufacture them in quantity. He'll make a fortune out of them!"

"How? Who'll buy them?" demanded the mayor. "Every king will outlaw them! Space, yes! They'll be scared to death—"

"The kings," said Kim more drily than before, "the kings and despots and emperors will be the ones to buy them. They'll want them to drop in their neighbors' dominions. Every king or ruler will buy a few to put where they will weaken his enemies—and every one has enemies! We don't have to plant the gadgets that make the Disciplinary Circuit into a boomerang! We'll let the kings weaken each other and bring back freedom. And they will!"

The Mayor of Steadheim puffed in his breath until it looked as if he would explode. Then he bellowed with laughter.

"Make the tyrants dethrone each other," he roared delightedly. "They'll weaken each other until they find they've their own people to deal with. There'll be a fine scramble! I give it five years, no more, before there's not a king in the Galaxy who dares order an execution without a jury-trial first!"

"A consummation devoutly to be wished," said Kim, smiling. "I rather like the idea myself."

The mayor heaved himself up.

"Hah!" he said, still chuckling. "I'll go back to my wife and tell her to come outdoors and look at the stars. What will you two do next?"

"Sleep, I suspect," said Kim. It was all over. The realization made him aware of how tired he was. "We'll probably put in twenty-four hours of just plain slumber. Then we'll see if anything more needs to be done, and then I guess Dona and I will head back to Terranova. The Organizer there is worried about a shortage of textiles."

"To the devil with him," grunted the Mayor of Steadheim. "We've had a shortage of sunlight! You're a good man, Kim Rendell. I'll tell my grandchildren about you, when I have them."

He waved grandly and went out. A little later his flier took off, occulting stars as it rose.

Kim closed the airlock door. He yawned again.

"Kim," said Dona. "We had to break that shield, but it was dangerous."

"Yes," said Kim. He yawned again. "So it was. I'll be glad to get back to our house on Terranova."

"So will I," said Dona. Her face had become determined. "We shouldn't even think of leaving it again, Kim! We should—anchor ourselves to it, so nobody would think of asking us to leave."

"A good idea," said Kim. "If it could be done."

Dona looked critically at her fingers, but she flushed suddenly.

"It could," she said softly. "The best way would be—children."

THE LAST SPACE SHIP

By Murray Leinster

Put yourself in the place of Kim Rendall, a handsome, idealistic young man living on a distant planet ruled by a super-efficient government. Here is industrialization carried to its **illogical** conclusion. Kim Rendall lives in the shadow of mechanized terror, for machines have taken over, and the disciplinary circuit keeps the inhabitants in check.

Rendall is an outlaw because he tried to strike at the very foundations of this so-called civilization. He will not yield to the tyranny of the power-mad, sensuously warped rulers of the astral body Alphin III. He and his girl friend are in danger of psychological torture worse than death.

Kim Rendall goes to the antique museum of Alphin III, which houses Starshine, an outmoded space ship. He conceives the daring plan of using the Starshine to save his girl and himself from the dictators of Alphin III. In this world, teleportation of matter has taken the place of transportation from planet to planet, and solar system to solar system, via rocket and atomic-powered vessels. Nevertheless, Kim decides to steal the last space ship from the antique museum and flee with his girl.

Thus starts this most stirring novel of love, adventure and the fight against tyranny, by the well-known author of hundreds of adult science-fiction stories.