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The Currents of Space BY ISAAC ASIMOV

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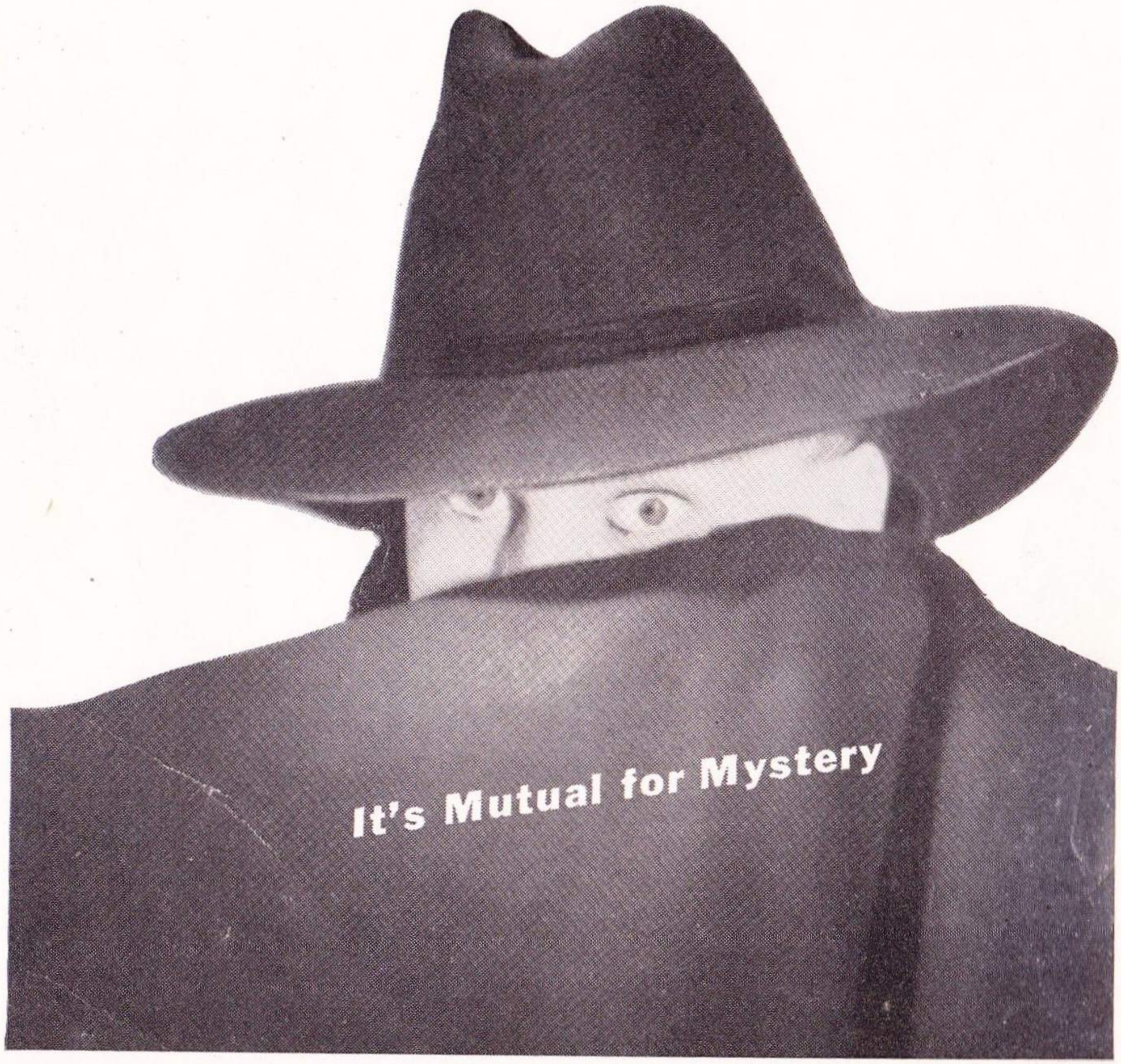

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EDITORIAL

THE PERFECT MACHINE

The Argonne National Laboratories has developed another device for use in connection with nuclear power reactors—a new type of pump. It interested me greatly, because they've come up with another of those very rare, much to be desired devices—a near-perfect machine.

The perfect machine would have one hundred per cent efficiency, would have no moving parts above the atomic level—and hence no friction—and would be exceedingly simple in mechanical structure. Having no friction, it couldn't wear out; having no moving parts above the atomic level assures freedom from friction and wear-out, and also from loss of efficiency due to frictional heating.

The requirement of extreme mechanical simplicity is a human desire for perfection—after all, even a very complex machine of infinite endurance and perfect efficiency would be inherently perfect, once constructed. The requirement of simplicity is for the benefit of the manufacturer.

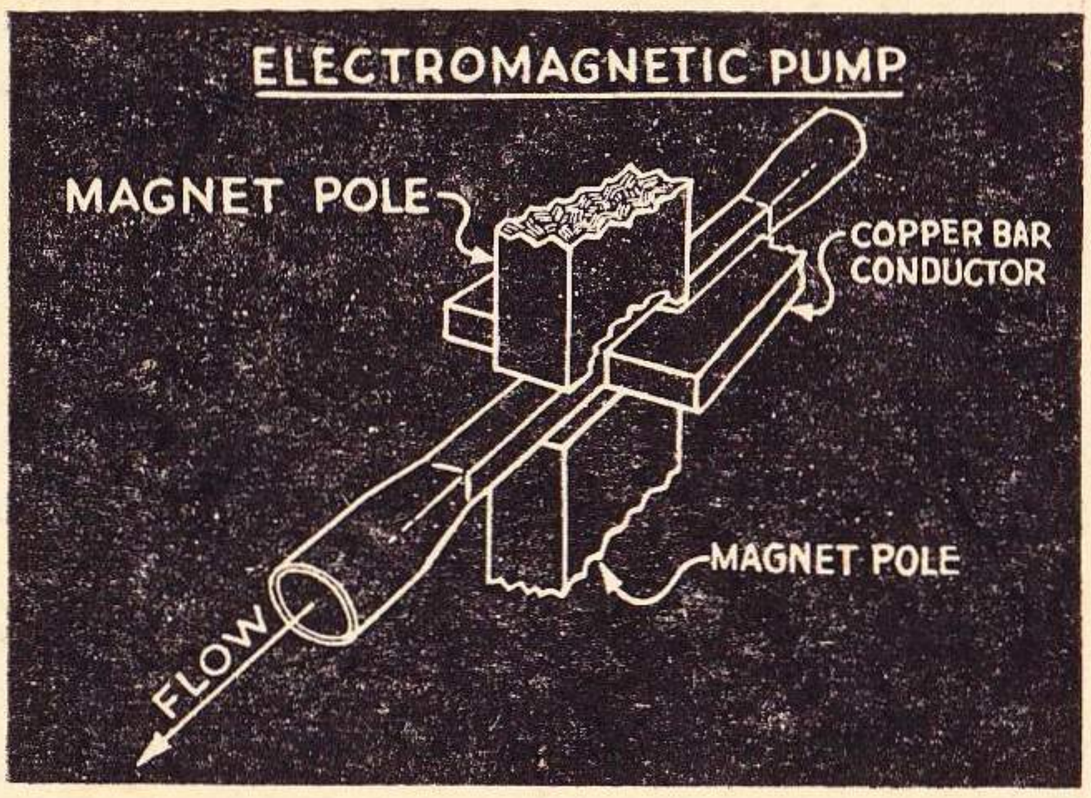
One form of perfect machine, for example, might be so arranged that a single, relatively simple part was made, and that part thereafter built the rest of the machine. A seed, for instance, leads to the development of a rather good machine known as a *sequoia sempervirens* that lasts three to four kiloyears.

However, for human construction, the ideal is a machine of exceedingly simple structure, and exceedingly high efficiency and great endurance. In working around nuclear reactors, such machines are not merely desirable, they become very nearly necessary; you can't repair equipment that's saturated with intensely radioactive contaminants, so the machines better be permanently immune to failure.

The electromagnetic transformer approaches the ideal machine; structurally, it can be described as two hanks of wire and a hunk of iron. Properly designed, the efficiency is above ninety-five per cent. Nothing moves but electrons and the magnetic domains of the iron core. In high-frequency transformers, the iron core can be omitted, and we have only

electrons moving in electric and magnetic fields.

The newest device is a pump—to pump the liquid metal used as a heat-transfer agent in the nuclear reactor to carry the automically released heat-energy to an external boiler. Since the liquid metal must be moved, we do have mechanical motion as a required product of the machine; hence some wear and friction are implicit in the ideal specifications here. The structure evolved is shown in the sketch:



The operation is as follows: twenty thousand amperes at one volt is fed to the bus bars. The metal pipe is made of a nickle-chrome-steel alloy which is a very poor conductor of electricity. The metal coolant is—presumably—a sodium-potassium alloy, and these metals are both extremely good conductors. Therefore, practically all the current flows through the liquid metal.

This current, however, is flowing through a conductor—the liquid metal—which is in a powerful magnetic field. When current flows through a conductor which is in a magnetic field—the electric motor works on that principle—the conductor experiences a side thrust. Result: the liquid metal is thrust sidewise, at right angles to the flow of the current and the lines of the magnetic field.

No fuss, no muss, no bother—and the only moving part is the moving liquid metal. The structure is exceedingly simple. The magnets can be powerful permanent magnets. The copper bus bars are welded to the sides of the nickle-chrome-steel tube; the sheer simplicity of the thing makes mechanical failure practically inconceivable. The extremely low voltage used—only one volt—means insulation failure is no problem. The chance that anyone will ever have to repair such an electromagnetic pump is exceedingly remote indeed, so the fact that the mechanism has to be placed deep behind heavy radiation shields, and never exposed, is unimportant.

This is Man's second near-perfect machine—and it, like the electromagnetic transformer, works almost entirely on the basis of using simple masses of matter, and directly applying forces of the pure field type—electric and magnetic fields.

Maybe the near-perfect machine inherently must employ pure-field effects, wherein friction and loss are impossible, and "breakage" or "wear-out" is inconceivable.

THE EDITOR.

First of Three Parts. *One man knew—and his mind had been wiped clean. He had believed. One man remembered—and didn't believe. And a world of savage contrasts of luxury and harshness lay in the path of Something!*

THE CURRENTS OF SPACE

BY ISAAC ASIMOV

Illustrated by van Dongen

Prologue

The man from Earth came to a decision. It had been slow in coming and developing, but it was here.

It had been weeks since he had felt the comforting deck of his ship and the cool, dark blanket of space about it. Originally, he had intended a quick report to the local office of the Interstellar Spatioanalytic Bureau and a quicker retreat to space. Instead, he had been held here.

It was almost like a prison.

He drained his tea and looked at the man across the table. He said, "I'm not staying any longer."

The other man came to a decision. It had been slow in coming and developing, but it was here. He would need time, much more time. The response to the first letters had been nil. They might have fallen into a star for all they had accomplished.

That had been no more than he had expected, or, rather, no less. But it was only the first move.

It was certain that while future moves developed, he could not allow the man from Earth to squirm out of reach. He fingered the smooth black rod in his pocket.

He said, "You don't appreciate the delicacy of the problem."

The Earthman said, "What's delicate about the destruction of a planet? I want you to broadcast the details to all of Sark; to everyone on the planet."

"We can't do that. You know it would mean panic."

"You said at first you would do it."

"I've thought it over and it just isn't practical."

The Earthman turned to a second grievance. "The representative of the I.S.B. hasn't arrived."

"I know it. They are busy organizing proper procedures for this crisis. Another day or two."

"Another day or two! It's always another day or two! Are they so busy they can't spare me a moment? They haven't even seen my calculations."

"I have offered to bring it to them. You don't want me to."

"Right. They can come to me or I can go to them." He added violently, "I don't think you believe me. You don't believe Florina will be destroyed."

"I believe you."

"You don't. I know you don't. I see you don't. You're humoring me. You can't understand my data. You're not a spatioanalyst. I don't think you're even who you say you are. Who are you?"

"You're getting excited."

"Yes, I am. Is that surprising? Or are you just thinking, Poor devil, space has him. You think I'm crazy."

"Nonsense."

"Sure you do. That's why I want to see the I.S.B. They'll know if I'm crazy or not. They'll know."

The other man remembered his decision. He said, "Now you're not feeling well. I'm going to help you."

"No, you're not," shouted the Earthman, hysterically, "because I'm going to walk out. If you want to stop me, kill me, except that you won't dare. The blood of a whole world of people will be on your hands if you do."

The other man began shouting, too, to make himself heard. "I won't kill you. Listen to me, I won't kill you. There's no need to kill you."

The Earthman said, "You'll tie me up. You'll keep me here. Is that what you're thinking? And what will you do when the I.S.B. starts looking for me? I'm supposed to send in regular reports, you know."

"The Bureau knows you're with me."

"Do they? I wonder if they know I've reached the planet at all? I wonder if they received my original message." The Earthman was giddy. His limbs felt stiff.

The other man stood up. It was obvious to him that his decision had come none too soon. He walked slowly about the long table, toward the Earthman.

He said, soothingly, "It will be for your own good." He took the black rod

from his pocket.

The Earthman croaked, "That's a psycho probe." His words were slurred and when he tried to rise, his arms and legs barely quivered.

He said, between teeth that were clenching in rigor, "Drugged!"

"Drugged!" agreed the other man. "Now, look, I won't hurt you. It's difficult for you to understand the true delicacy of the matter while you're so excited and anxious about it. I'll just remove the anxiety. Only the anxiety."

The Earthman could no longer talk. He could only sit there. He could only think numbly, I've been drugged. *He wanted to shout and scream and run, but he couldn't.*

The other had reached the Earthman now. He stood there, looking down at him. The Earthman looked up. His eyeballs could still move.

The psychic probe was a self-contained unit. Its wires needed only to be fixed to the appropriate places on the skull. The Earthman watched in panic until his eye muscles froze. He did not feel the fine sting as the sharp, thin leads probed through skin and flesh to make contact with the sutures of his skull bones.

He yelled and yelled in the silence of his mind. He cried, No, you don't understand. It's a planet full of people. Don't you see that you can't take chances with hundreds of millions of living people.

The other man's words were dim and receding, heard from the other end of a long, windy tunnel. "It won't hurt you. In another hour, you'll feel well, really well. You'll be laughing at all this with me."

The Earthman felt the thin vibration against his skull and then that faded, too.

Darkness thickened and collapsed about him. Some of it never lifted again. It took a year for even parts of it to lift.

I.

Rik put down his feeder and jumped to his feet. He was trembling so hard he had to lean against the bare, milk-white wall.

He shouted, "I remember!"

They looked at him and the gritty mumble of men at lunch died somewhat. Eyes met his out of faces indifferently clean and indifferently shaven, glistening and white in the imperfect wall-illumination. The eyes reflected no great interest, merely the reflex attention enforced by any sudden and unexpected cry.

Rik cried again, "I remember my job. I had a job!"

Someone called, "Shoddop!" and someone else yelled, "Siddown!"

The faces turned away, the mumble rose again. Rik stared blankly along the table. He heard the remark, "Crazy Rik," and a shrug of shoulders. He saw a finger spiral at a man's temple. It all meant nothing to him. None of it reached his mind.

Slowly, he sat down. Again he

clutched his feeder, a spoonlike affair, with sharp edges and little tines projecting from the front curve of the bowl, which could therefore with equal clumsiness, cut, scoop and impale. It was enough for a mill worker. He turned it over and stared without seeing at his number on the back of the handle. He didn't have to see it. He knew it by heart. All the others had registration numbers, just as he had, but the others had names also. He didn't. They called him Rik because it meant something like "moron" in the slang of the *kyrt* mills. And lately, they were getting into the habit of calling him "Crazy Rik."

But perhaps he would be remembering more and more now. This was the first time since he had come to the mill that he remembered anything at all from before the beginning. If he thought hard! If he thought with all his mind!

All at once he wasn't hungry; he wasn't the least hungry. With a sudden gesture, he thrust his feeder into the jellied briquet of meat and vegetables before him, pushed the food away, and buried his eyes in the heels of his palms. His fingers thrust and clutched at his hair and painstakingly he tried to follow his mind into the pitch from which it had extracted a single item—one muddy, undecipherable item.

Then he burst into tears, just as the clanging bell announced the end of his lunch shift.

Valona March fell in beside him when he left the mill that evening. He was scarcely conscious of her at first, at least as an individual. It was only that he heard his footsteps matched. He stopped and looked at her. Her hair was something between blond and brown. She wore it in two thick plaits that she clamped together with little magnetized green-stoned pins. They were very cheap pins and had a faded look about them. She wore the simple cotton dress which was all that was needed in that mild climate, just as Rik himself needed only an open, sleeveless shirt and cotton slacks.

She said, "I heard something went wrong lunch time."

She spoke in the sharp, peasant accents one would expect. Rik's own language was full of flat vowels and had a nasal touch. They laughed at him because of it and imitated his way of speaking, but Valona would tell him that that was only their own ignorance.

Rik mumbled, "Nothing's wrong, Lona."

She persisted. "I heard you said you remembered something. Is that right, Rik?"

She called him Rik, too. There wasn't anything else to call him. He couldn't remember his real name. He had tried desperately enough. Valona had tried with him. One day she had obtained a torn city directory somehow and had read all the first names to him. Not one had seemed more

familiar than another.

He looked her full in the face and said, "I'll have to quit the mill."

Valona frowned. Her round, broad face with its flat, high cheekbones was troubled. "I don't think you can. It wouldn't be right."

"I've got to find out more about myself."

Valona licked her lips. "I don't think you should."

Rik turned away. He knew her concern to be sincere. She had obtained the mill job for him in the first place. He had had no experience with mill machinery. Or perhaps he had, but just didn't remember. In any case, Lona had insisted that he was too small for manual labor and they had agreed to give him technical training without charge. Before that, in the nightmarish days when he could scarcely make sounds and when he didn't know what food was for, she had watched him and fed him. She had kept him alive.

He said, "I've got to."

"Is it the headaches again, Rik?"

"No. I really remember something. I remember what my job was before—*Before!*"

He wasn't sure he wanted to tell her. He looked away. The warm, pleasant sun was at least two hours above the horizon. The monotonous rows of workers' cubicles that stretched out and round the mills were tiresome to look at, but Rik knew that as soon as they topped the rise, the field would lie before them in all the beauty of crimson and gold.

He liked to look at the fields. From the very first, the sight had soothed and pleased him. Even before he knew that the colors were crimson and gold, before he knew that there were such things as colors, before he could express his pleasure in anything more than a soft gurgle, the headaches would flicker away faster in the fields. In those days, Valona would borrow a diamagnetic scooter and take him out of the village every idle day. They would skim along, a foot above the road, gliding on the cushioned smoothness of the counter-gravity field, until they were miles and miles away from any human habitation and there would be left only the wind against his face, fragrant with the *kyrt* blossoms.

They would sit beside the road then, surrounded by color and scent, and between them share a food briquet, while the sun glowed down upon them until it was time to return again.

Rik was ravished by the memory. He said, "Let's go to the fields, Lona."

"It's late."

"Please. Just outside town."

She fumbled at the thin money pouch she kept between herself and the soft, blue-leather belt she wore, the only luxury of dress she allowed herself.

Rik caught her arm, "Let's walk."

They left the highway for the wind-

ing, dustless, packed-sand roads half an hour later. There was a heavy silence between them and Valona felt a familiar fear clutching at her. She had no words to express her feelings for him, so she had never tried.

What if he should leave her? He was a little fellow, no taller than herself and weighing somewhat less, in fact. He was still like a helpless child in many ways. But before they had turned his mind off, he must have been an educated man—a very important educated man.

Valona had never had any education besides reading and writing and enough trade-school technology to be able to handle mill machinery, but she knew enough to know that all people were not so limited. There was the Townman, of course, whose great knowledge was so helpful to all of them. Occasionally, Squires came on inspection tours and once, on a holiday, she had visited the city and seen a group of incredibly gorgeous creatures at a distance. Occasionally, the mill workers were allowed to listen to what educated people sounded like. They spoke differently, more fluently, with longer words and softer tones. Rik talked like that more and more as his memory improved.

She had been frightened at his first words. They came so suddenly after long whimpering over a headache. They were pronounced queerly. When she tried to correct him, he wouldn't change.

Even then, she had been afraid that he might remember too much and then leave her. She was only Valona March. They called her Big Lona. She had never married. She never would. A large, big-footed girl with work-reddened hands like herself could never marry. She had never been able to do more than look at the boys with dumb resentment when they ignored her at the idle day dinner festivals. She was too big to giggle and smirk at them.

She would never have a baby to cuddle and hold. The other girls did, one after the other, and she could only crowd about for a quick glimpse of something red and hairless with screwed-up eyes, fists impotently clenched, gummy mouth—

"It's your turn next, Lona."

"When will you have a baby, Lona?"

She could only turn away.

But when Rik had come, he was like a baby. He had to be fed and taken care of, brought out into the sun, soothed to sleep when the headaches racked him.

The children would run after her, laughing. They would yell, "Lona's got a boy friend. Big Lona's got a crazy boy friend. Lona's boy friend is a rik."

Later on, when Rik could walk by himself—she had been as proud the day he took his first step as though he were really only one year old, instead of more like thirty-one—and stepped

out, unescorted, into the village streets, they had run about him in rings, yelling their laughter and foolish ridicule in order to see a grown man cover his eyes in fear, and cringe, with nothing but whimpers to answer them. Dozens of times she had come charging out of the house, shouting at them, waving her large fists.

Even grown men feared those fists. She had felled her section head with a single wild blow the first day she had brought Rik to work at the mill because of a sniggering indecency concerning them which she overheard. The mill council fined her a week's pay for that incident, and might have sent her to the city for further trial at the Squires' court, but for the Townman's intervention and the plea that there had been provocation.

So she wanted to stop Rik's remembering. She knew she had nothing to offer him; it was selfish of her to want him to stay mind-blank and helpless forever. It was just that no one had ever before depended upon her so utterly. It was just that she dreaded a return to loneliness.

She said, "Are you sure you remember, Rik?"

"Yes."

They stopped there in the fields, with the sun adding its reddening blaze to all that surrounded them. The mild, scented evening breeze would soon spring up, and the checkerboard irrigation canals were already beginning to purple.

He said, "I can trust my memories as they come back, Lona. You know I can. You didn't teach me to speak, for instance. I remembered the words myself. Didn't I? Didn't I?"

She said, reluctantly, "Yes."

"I even remember the times you took me out into the fields before I could speak. I keep remembering new things all the time. Yesterday, I remembered that once you caught a *kyrt* fly for me. You held it closed in your hands and made me put my eye to the space between your thumbs so that I could see it flash purple and orange in the darkness. I laughed and tried to force my hand between yours to get it, so that it flew away and left me crying after all. I didn't know it was a *kyrt* fly then, or anything about it, but it's all very clear to me now. You've never told me about that, did you, Lona?"

She shook her head.

"But it did happen, didn't it? I remember the truth, don't I?"

"Yes, Rik."

"And now I remember something about myself from before. There must have been a *before*, Lona."

There must have been. She felt the weight on her heart when she thought that. It was a different before, nothing like the now they lived in. It had been on a different world. She knew that because one word he had never remembered was *kyrt*. She had to teach him the word for the most important object on all the world of Florina.

"What is it you remember?" she asked.

At this, Rik's excitement seemed suddenly to die. He hung back, "It doesn't make much sense, Lona. It's just that I had a job once, and I know what it was—at least, in a way."

"What was it?"

"I analyzed Nothing."

She turned sharply upon him, peering into his eyes. For a moment, she put the flat of her hand upon his forehead, until he moved away irritably. She said, "You don't have a headache again, Rik, have you? You haven't had one in weeks."

"I'm all right. Don't you go bothering me."

Her eyes fell, and he added at once, "I don't mean that you bother me, Lona. It's just that I feel fine, and I don't want you to worry."

She brightened. "What does 'analyzed' mean?" He knew words she didn't. She felt very humble at the thought of how educated he must once have been.

He thought a moment, "It means . . . it means, to take apart. You know, like we would take apart a sorter to find out why the scanning beam was out of alignment."

"Oh. But Rik, how can anyone have a job not analyzing anything? That's not a job."

"I didn't say I didn't analyze anything. I said I analyzed Nothing. With a capital N."

"Isn't that the same thing?" It was coming, she thought. She was beginning to sound stupid to him. Soon he would throw her off in disgust.

"No, of course not." He took a deep breath. "I'm afraid I can't explain though. That's all I remember about that. But it must have been an important job. That's the way it feels. I *couldn't* have been a criminal."

Valona winced. She should never have told him that. She had told herself it was only for his own protection that she warned him, but now she felt that it had really been to keep him bound tighter to herself.

It was when he had first begun to speak. It was so sudden it had frightened her. She hadn't even dared speak to the Townman about it. The next idle day, she had withdrawn five credits from her life hoard—there would never be a man to claim it as dowry, so that it didn't matter—and taken Rik to a city doctor. She had the name and address on a scrap of paper, but even so it took two frightening hours to find her way through the huge pillars that held the Upper City up to the sun to the proper building.

She had insisted on watching and the doctor had done all sorts of fearful things with strange instruments. When he put Rik's head between two metal objects and then made it glow like a *kyrt* fly in the night, she had jumped to her feet and tried to make him stop. He called two men who dragged her out, struggling wildly.

Half an hour afterward, the doctor came out to her, tall and frowning. She felt uncomfortable with him because he was a Squire, even though he kept an office down in the Lower City, but his eyes were mild, even kind. He was wiping his hands on a little towel, which he tossed into a wastecan, even though it looked perfectly clean to her.

He said, "When did you meet this man?"

She had told him the circumstances cautiously, reducing it to the very barest essentials and leaving out all mention of the Townman and the Patrollers.

"Then you know nothing about him?"

She shook her head, "Nothing before that."

He said, "This man has been treated with a psycho probe. Do you know what that is?"

At first, she had shaken her head again, but then she said in a dry whisper, "Is it what they do to crazy people, doctor?"

"And to criminals. It is done to change their minds for their own good. It makes their minds healthy, or it changes the parts that make them want to steal and kill. Do you understand?"

She did. She grew brick-red and said, "Rik never stole anything or hurt anybody."

"You call him Rik?" He seemed amused. "Now look here, how do you know what he did before you met him? It's hard to tell from the condition of his mind now. The probing was thorough and brutal. I can't say how much of his mind has been permanently removed and how much has been temporarily lost through shock. What I mean is that some of it will come back, like his speaking, as time goes on, but not all of it. He should be kept under observation."

"No, no. He's got to stay with me. I've been taking good care of him, doctor."

He frowned, and then his voice grew milder. "Well, I'm thinking of you, my girl. Not all the bad may be out of his mind. You wouldn't want him to hurt you some day."

At that moment, a nurse led out Rik. She was making little sounds to quiet him, as one would an infant. Rik put a hand to his head and stared vacantly, until his eyes focused on Valona; then he held out his hands and cried, feebly, "Lona—"

She sprang to him, and put his head on her shoulder, holding him tightly. She said to the doctor, "He wouldn't hurt me, no matter what."

The doctor said, thoughtfully, "His case will have to be reported, of course. I don't know how he escaped from the authorities in the condition he must have been in."

"Does that mean they'll take him away, doctor?"

"I'm afraid so."

"Please, doctor, don't do that." She wrenched at the handkerchief, in

which were the five gleaming pieces of credit-alloy. She said, "You can have it all, doctor. I'll take good care of him. He won't hurt anyone."

The doctor looked at the pieces in his hand, "You're a mill worker, aren't you?"

She nodded.

"How much do they pay you a week?"

"Two point eight credits."

He tossed the coins gently, brought them together in his closed palm with a tinkle of metal, then held them out to her, "Take it, girl. There's no charge."

She accepted them with wonder, "You're not going to tell anyone, doctor?"

But he said, "I'm afraid I have to. It's the law."

She had driven blindly, heavily, back to the village, clutching Rik to her desperately.

The next week on the hyper-video newscast there had been the news of a doctor dying in a gyro crash during a short failure in one of the local transit power beams. The name was familiar and in her room that night she compared it with that on the scrap of paper. It was the same.

She was sad, because he had been a good man. She had received his name once long before from another worker as a Squire doctor who was good to the mill hands and had saved it for emergencies. And when the emergency had come, he had been good to her, too.

Yet her joy drowned the sorrow. He had not had the time to report Rik. At least, no one ever came to the village to inquire.

Later, when Rik's understanding had grown, she had told him what the doctor had said so that he would stay in the village and be safe.

Rik was shaking her and she left her reveries.

He said, "Don't you hear me? I couldn't be a criminal if I had an important job."

"Couldn't you have done wrong?" she began hesitantly. "Even if you were a big man, you might have. Even Squires—"

"I'm sure I haven't. But don't you see that I've got to find out so that others can be sure? There's no other way. I've got to leave the mill and the village and find out more about myself."

She felt the panic rise. "Rik! That would be dangerous. Why should you? Even if you analyzed Nothing, why is it so important to find out more about it?"

"Because of the other thing I remember."

"What other thing?"

He whispered, "I don't want to tell you."

"You ought to tell somebody. You might forget again."

He seized her arm. "That's right. You won't tell anyone else, will you, Lona? You'll just be my spare memory in case I forget."

"Sure, Rik."

Rik looked about him. The world was very beautiful. Valona once told him that there was a huge shining sign in the Upper City, miles above it even, that said: "Of all the Planets in the Galaxy, Florina is the Most Beautiful."

And as he looked about him, he could believe it.

He said, "It is a terrible thing to remember, but I always remember correctly, when I do remember. It came this afternoon."

"Yes?"

He was staring at her in horror. "Everybody in the world is going to die. Everybody on Florina."

II.

Myrlyn Terens was in the act of removing a book film from its place on the shelf when the door signal sounded. The rather pudgy outlines of his face had been set in lines of thought, but now these vanished and changed into the more usual expression of bland caution. He brushed one hand over his thinning, ruddy hair and shouted, "One minute."

He replaced the film and pressed the contact that allowed the covering-section to spring back into place and become indistinguishable from the rest of the wall. To the simple mill workers and farm hands he dealt with, it was a matter of vague pride that one of their

own number, by birth at any rate, should own films. It lightened, by tenuous reflection, the unrelieved dusk of their own minds. And yet it would not do to display the films openly.

The sight of them would have spoiled things. It would have frozen their none-too-articulate tongues. They might boast of their Townman's books, but the actual presence of them before their eyes would have made Terens seem too much the Squire.

There were, of course, the Squires as well. It was unlikely in the extreme that any of them would visit him socially at his house, but should one of them enter, a row of films in sight would be injudicious. He was a Townman and custom gave him certain privileges but it would never do to flaunt them.

He shouted again, "I'm coming!"

This time he stepped to the door, closing the upper seam of his tunic as he went. Even his clothing was somewhat Squirelike. Sometimes he almost forgot he had been born on Florina.

Valona March was on the doorstep. She bent her knees and ducked her head in respectful greeting.

Terens threw the door wide. "Come in, Valona. Sit down. Surely it's past curfew. I hope the Patrollers didn't see you."

"I don't think so, Townman."

"Well, let's hope that's so. You've got a bad record, you know."

"Yes, Townman. I am very grateful for what you have done for me in the past."

"Never mind. Here, sit down. Would you like something to eat or drink?"

She seated herself, straight-backed, at the edge of a chair and shook her head. "No, thank you, Townman. I have eaten."

It was good form among the villagers to offer refreshment. It was bad form to accept. Terens knew that. He didn't press her.

He said, "Now what's the trouble, Valona? Rik again?"

Valona nodded, but seemed at a loss for further explanation.

Terens said, "Is he in trouble at the mill?"

"No, Townman."

"Headaches again?"

"No, Townman."

Terens waited, his light eyes narrowing and growing sharp. "Well, Valona, you don't expect me to guess your trouble, do you? Come, speak out or I can't help you. You do want help, I suppose."

She said, "Yes, Townman." Then burst out, "How shall I tell you, Townman? It sounds almost crazy."

Terens had an impulse to pat her shoulder, but he knew she would shrink from the touch. She sat, as usual, with her large hands buried as far as might be in her dress. He noticed that her blunt, strong fingers were intertwined and slowly twisting.

He said, "Whatever it is, I will listen."

"Do you remember, Townman, when I came to tell you about the City doctor and what he said?"

"Yes I do, Valona. And I remember I told you particularly that you were never to do anything like that again without consulting me. Do *you* remember that?"

She opened her eyes wide. She needed no spur to recollect his anger. "I would never do such a thing again, Townman. It's just that I want to remind you that you said you would do everything to help me keep Rik."

"And so I will. Well, then, have the Patrollers been asking about him?"

"No. Oh, Townman, do you think they might?"

"I'm sure they won't." He was losing patience. "Now, come, Valona, tell me what is wrong?"

Her eyes clouded. "Townman, he says he will leave me. I want you to stop him."

"Why does he want to leave you?"

"He says he is remembering things."

Interest leaped into Terens' face. He leaned forward and he almost reached out to grip her hand. "Remembering things? What things?"

Terens remembered the day Rik had first been found. He had seen the youngsters clustered near one of the irrigation ditches just outside the village. They had raised their shrill voices to call him.

"Townman! Townman!"

He had broken into a run. "What's the matter, Rasie?" He had made it his business to learn the youngsters' names when he came to town. That went well with the mothers and made the first month or two easier.

Rasie was looking sick. He said, "Lookie here, Townman."

He was pointing at something white and squirming, and it was Rik. The other boys were yelling at once in confused explanation. Terens managed to understand that they were playing some game that involved running, hiding, and pursuing. They were intent on telling him the name of the game, its progress, the point at which they had been interrupted, with a slight subsidiary argument as to exactly which individual or side was "winning." All that didn't matter, of course.

Rasie, the twelve-year-old black-haired one, had heard the whimpering and had approached cautiously. He had expected an animal, perhaps a field rat that would make good chasing. He had found Rik.

All the boys were caught between an obvious sickness and an equally obvious fascination at the strange sight. It was a grown human being, nearly naked, chin wet with drool, whimpering and crying feebly, arms and legs moving about aimlessly. Faded blue eyes shifted in random fashion out of a face that was covered with a brown stubble. For a moment, the eyes caught those of Terens and seemed to focus. Slowly, the man's

thumb came up and inserted itself into his mouth.

One of the children laughed. "Looka him, Townman. He's finger-sucking."

The sudden shout jarred the prone figure. His face reddened and screwed up. A weak whining, unaccompanied by tears, sounded but his thumb remained where it was. It showed wet and pink in contrast to the rest of the dirt-smeared hand.

Terens broke his own numbness at the sight. He said, "All right, look, fellows, you shouldn't be running around here in the *kyrt* field. You're damaging the crop and you know what that will mean if the farm hands catch you. Get going, and keep quiet about this. And listen, Rasie, you run to Mr. Jencus and get him to come here."

Ull Jencus was the nearest thing to a doctor the town had. He had passed some time as apprentice in the offices of a real doctor in the city and on the strength of it, he was relieved of duty on the farms or in the mills. It didn't work out too badly. He could take temperatures, administer pills, give injections and, most important, he could tell when some disorder was sufficiently serious to warrant a trip to the city hospital. Without such semiprofessional backing, those unfortunates stricken with spinal meningitis or acute appendicitis might suffer intensively but usually not for long. As it was, the foremen muttered and accused Jencus in everything but words of being an accessory after the fact to a conspiracy of malingering.

Jencus helped Terens lift the man into a scooter cart and, as unobtrusively as they might, carried him into town.

Together they washed off the accumulated and hardened grime and filth. There was nothing to be done about the hair. Jencus shaved it, and did what he could by way of physical examination.

Jencus said, "No infection I c'n tell of, Townman. He's been fed. Ribs don't stick out too much. *I* don't know what to make of it. How'd he get out there, d'you suppose, Townman?"

He asked the question with a pessimistic tone as though no one could expect Terens to have the answer to anything. Terens accepted that philosophically. When a village has lost the Townman it has grown accustomed to over a period of nearly fifty years, a newcomer of tender age must expect a transition period of suspicion and distrust. There was nothing personal in it.

Terens said, "I'm afraid I don't know."

"Can't walk, y'know. Can't walk a step. He'd have to be *put* there. Near's I c'n make out, he might's well be a baby. Everything else seems t'be gone."

"Is there a disease that has this effect."

"Not's I know of. Mind trouble might do it, but I don't know nothing

'tall about that. Mind trouble I'd send to the city. Y'ever see this one, Townman?"

Terens smiled, and said gently, "I've been here just a month."

Jencus sighed and reached for his handkerchief. "Yes. Old Townman, he was a fine man. Kept us well, he did. *I* been here 'most sixty years, and never saw this fella before. Must be from 'nother town."

Jencus was a plumb man. He had the look of having been born plump, and if to this natural tendency is added the effect of a largely sedentary life, it is not surprising that he tended to punctuate even short speeches by a puff and a rather futile swipe at his gleaming forehead with his large red handkerchief.

He said, "Don't 'xactly know what t'say t'the Patrollers."

The Patrollers came all right. It was impossible to avoid that. The boys told their parents; their parents told one another. Town life was quiet enough. Even this would be unusual enough to be worth the telling in every possible combination of informer and informee. And in all the telling, the Patrollers could not help but hear.

The Patrollers, so-called, were members of the Florinian Patrol. They were not natives of Florina and, on the other hand, they were not countrymen of the Squires from the planet, Sark. They were simply mercenaries who could be counted on to keep order for the sake of the pay they got and never to be led into the misguidance of sympathy for Florinians through any ties of blood or birth.

There were two of them and one of the foremen from the mill came with them, in the fullness of his own midget authority.

The Patrollers were bored and indifferent. A mindless idiot might be part of the day's work but it was scarcely an exciting part. One said to the foreman, "Well, how long does it take you to make an identification? Who is this man?"

The foreman shook his head energetically. "I never saw him, officer. He's no one around here!"

The Patroller turned to Jencus. "Any papers on him?"

"No, sir. He just had a rag 'bout him. Burned it t'prevent infection."

"What's wrong with him?"

"No mind, near's I c'n make out."

At this point, Terens took the Patrollers aside. Because they were bored, they were amenable. The Patroller who had been asking the questions put up his notebook and said, "All right, it isn't even worth making a record of. It has nothing to do with us. Get rid of it somehow."

Then they left.

The foreman remained. He was a freckled man, red of hair, with a large and bristly mustache. He had been foreman of rigid principles for five years and that meant his responsibility for the fulfillment of quota in his

mill rested heavily upon him.

"Look here," he said, fiercely, "what's to be done about this? The folk are so busy talking, they ain't working."

"Send him t'city hospital, near's I c'n make out," said Jencus, wielding his handkerchief industriously. "Noth-'n' I c'n do."

"To the city!" The foreman was aghast. "Who's going to pay? Who'll stand the fees? He ain't none of us, is he?"

"Not's far's I know," admitted Jencus.

"Then why should *we* pay? Find out who he belongs to. Let *his* town pay."

"How we going t'find out? Tell me that."

The foreman considered. His tongue licked out and played with the coarse reddish foliage of his upper lip. He said, "Then we'll just have to get rid of him. Like the Patroller said."

Terens interrupted. "Look here. What do you mean by that?"

The foreman said, "He might as well be dead. It would be a mercy."

Terens said, "You can't kill a living person."

"Suppose *you* tell me what to do then."

"Can't one of the townspeople take care of him?"

"Who'd want to? Would you?"

Terens ignored the openly insolent attitude. "I've got other work to do."

"So have all the folk. I can't have anyone neglecting mill work to take care of this crazy thing."

Terens sighed, and said, without rancor, "Now, foreman, let's be reasonable. If you *don't* make quota this quarter, I might suppose it's because one of your workers is taking care of this poor fellow, and I'll speak up for you to the Squires. Otherwise, I'll just say that I don't know of any reason you couldn't make quota, in case you don't make it."

The foreman glowered. The Townman had only been here a month, and already he was interfering with men who had lived in town all their lives. Still, he had a card marked with Squire's marks. It wouldn't do to stand too openly against him too long.

He said, "But who'd take him?" A horrible suspicion smote him. "*I* can't. I got three kids of my own and my wife ain't well."

"I didn't suggest that you should."

Terens looked out the window. Now that the Patrollers had left, the squirming, whispering crowd had gathered closer about the Townman's house. Most were youngsters, too young to be working, others were farmhands from the nearer farms. A few were mill workers, away from their shifts.

Terens saw the big girl at the very edge of the crowd. He had noticed her often in the past month. Strong, competent, and hardworking. Good natural intelligence hidden under that unhappy expression. If she were a man, she might have been chosen for Townman's training. But she was a

woman; parents dead, and plain enough to preclude romantic side-interests. A lone woman, in other words, and likely to remain so.

He said, "What about her?"

The foreman looked, then roared, "She ought to be at work."

"All right," soothed Terens. "What's her name?"

"That's Valona March."

"That's right. I remember now. Call her in."

From that moment, Terens made himself an unofficial guardian of the pair. He did what he could to obtain additional food rations for her, extra clothing coupons and whatever else was required to allow two adults—one unregistered—to live on the income of one. He was instrumental in helping her obtain training for Rik at the *kyrt* mills. He intervened to prevent greater punishment on the occasion of Valona's quarrel with a section head. The death of the city doctor made it unnecessary for him to attempt further action there than he had taken, but he had been ready.

It was natural for Valona to come to him in all her troubles, and he was waiting now for her to answer his question.

Valona was still hesitating. Finally, she said, "He says everyone in the world will die."

Terens looked startled. "Does he say how?"

"He says he doesn't know how. He just says he remembers that from before he was like . . . you know, like he is. And he says he remembers he had an important job, but I don't understand what it is."

"How does he describe it?"

"He says he an . . . analyzes Nothing with a capital N."

Valona waited for comment, then hastened to explain. "Analyze means taking something apart like—"

"I know what it means, girl." Terens remained lost.

Valona watched him anxiously. "Do *you* know what he means, Townman?"

"Perhaps, Valona."

"But Townman, how can anyone do anything to Nothing?"

Terens got to his feet. He smiled briefly. "Why, Valona, don't you know that everything in all the galaxy is mostly Nothing?"

No light of understanding dawned on Valona, but she accepted that. The Townman was a very educated man. With an unexpected twinge of pride, she was suddenly certain that her Rik was even more educated.

"Come." Terens was holding his hand out to her.

She said, "Where are we going?"

"Well, where's Rik?"

"Home," she said. "Sleeping."

"Good. I'll take you there. Do you want the Patrollers to find you on the street alone?"

The village seemed empty of life in the nighttime. The lights along the

single street that split the area of workers' cabins in two gleamed without glare. There was a hint of rain in the air, but only of that light warm rain that fell almost every night. There was no need to take special precautions against it.

Valona had never been out so late on a working evening and it was frightening. She tried to shrink away from the sound of her own footsteps, while listening for the possible distant step of the Patrollers.

Terens said, "Stop trying to tiptoe, Valona. I'm with you."

His voice boomed in the quiet and Valona jumped. She hurried forward in response to his urging.

Valona's hut was as dark as the rest and they stepped in gingerly. Terens had been born and brought up in just such a hut and though he had since lived on Sark and now occupied a house with three rooms and plumbing, there was still something of a nostalgia about the barrenness of its interior. One room was all that was required, a bed, a chest of drawers, two chairs, a smooth poured-cement floor, a closet in one corner.

There was no need for kitchen facilities, since all meals were eaten at the mill, nor for a bathroom, since a line of community outhouses and shower cells ran along the space behind the houses. In the mild, unvarying climate, windows were not adapted for protection against cold and rain. All four walls were pierced by screened openings and eaves above were sufficient ward against the nightly windless sprinkles.

Terens noted in the flare of a little pocket light which he held cupped in one palm, that one corner of the room was marked off by a battered screen. He remembered getting it for Valona rather recently when Rik became too little of a child or too much of a man. He could hear the regular breathing of sleep behind it.

He nodded his head in that direction. "Wake him, Valona."

Valona tapped on the screen, "Rik! Rik, baby!"

There was a little cry.

"It's only Lona," said Valona. They rounded the screen and Terens played his little light upon their own faces, then upon Rik.

Rik threw an arm up against the glare. "What's the matter?"

Terens sat down on the edge of the bed. Rik slept in the standard cottage bed, he noted. He had obtained for Valona an old, rather rickety cot at the very first, but she had reserved that for herself.

"Rik," he said, "Valona says you're beginning to remember things."

"Yes, Townman." Rik was always very humble before the Townman, who was the most important man he had ever seen. Even the mill superintendent was polite to the Townman. Rik repeated the scraps his mind had gathered during the day.

Terens said, "Have you remembered anything else since you told this to Valona?"

"Nothing else, Townman."

Terens kneaded the fingers of one hand with those of the other. "All right, Rik. Go back to sleep."

Valona followed him out of the house. She was trying hard to keep her face from twisting and the back of one rough hand slid across her eyes. "Will he have to leave me, Townman?"

Terens took her hands and said gravely, "You must be a grown woman, Valona. He will have to come with me for just a short while but I'll bring him back."

"And after that?"

"I don't know. You must understand, Valona. Right now it is the most important thing in all the world that we find out more about Rik's memories."

Valona said suddenly, "You mean everybody on Florina might die, the way he says?"

Terens' grip tightened. "Don't ever say that to anyone, Valona, or the Patrollers may take Rik away forever. I mean that."

He turned away and walked slowly and thoughtfully back to his house without really noticing that his hands were trembling. He tried futilely to sleep and after an hour of that, he adjusted the Narco-field. It was one of the few pieces of Sark he had brought with him when he first returned to Florina to become Townman. It fitted about his skull like a thin, black-felt cap. He adjusted the controls to five hours and closed contact.

He had time to adjust himself comfortably in bed before the delayed response shorted the conscious centers of his cerebrum and blanketed him into instantaneous, dreamless sleep.

III.

They left the diamagnetic scooter in a scooter-cubby outside the City-limits. Scooters were rare in the City and Terens had no wish to attract unnecessary attention. He thought for a savage moment of those of the Upper City with their diamagnetic ground-cars and antigrav gyros. But that was the Upper City. It was different.

Rik waited for Terens to lock the cubby and fingerprint-seal it. He was dressed in a new one-piece suit and felt a little uncomfortable. Somewhat reluctantly, he followed the Townman under the first of the tall bridgelike structures that supported the Upper City.

On Florina, all other cities had names, but this one was simply the "City." The workers and peasants who lived in it and around it were considered lucky by the rest of the planet. In the City, there were better doctors and hospitals, more factories and more liquor stores, even a few dribbles of very mild luxury. The in-

habitants themselves were somewhat less enthusiastic. They lived in the shadow of the Upper City.

The Upper City was exactly what the name implied, for the City was double, divided rigidly by a horizontal layer of fifty square miles of cementalloy resting upon some twenty thousand steel-girdered pillars. Below in the shadow were the "natives." Above, in the sun, were the Squires. It was difficult to believe in the Upper City that the planet of its location was Florina. The population was almost exclusively Sarkite in nature, together with a sprinkling of Patrollers. They were the upper class in all literalness.

Terens knew his way. He walked quickly, avoiding the stares of passers-by, who surveyed his Townman clothing with a mixture of envy and resentment. Rik's shorter legs made his gait less dignified as he tried to keep up. He did not remember very much from his only other visit to the City. It seemed so different now. Then it had been cloudy. Now the sun was out, pouring through the spaced openings in the cementalloy above to form strips of light that made the intervening space all the darker. They plunged through the bright strips in a rhythmic, almost hypnotic, fashion.

Oldsters sat on wheeled chairs in the strips, absorbing the warmth and moving as the strip moved. Sometimes they fell asleep and would remain behind in the shade, nodding in their chairs until the squeaking of the wheels when they shifted position woke them. Occasionally, mothers nearly blocked the strips with their carriaged offspring.

Terens said, "Now, Rik, stand up straight. We're going up."

He was standing before a structure that filled the space between four square-placed pillars, and from ground to Upper City.

Rik said, "I'm scared."

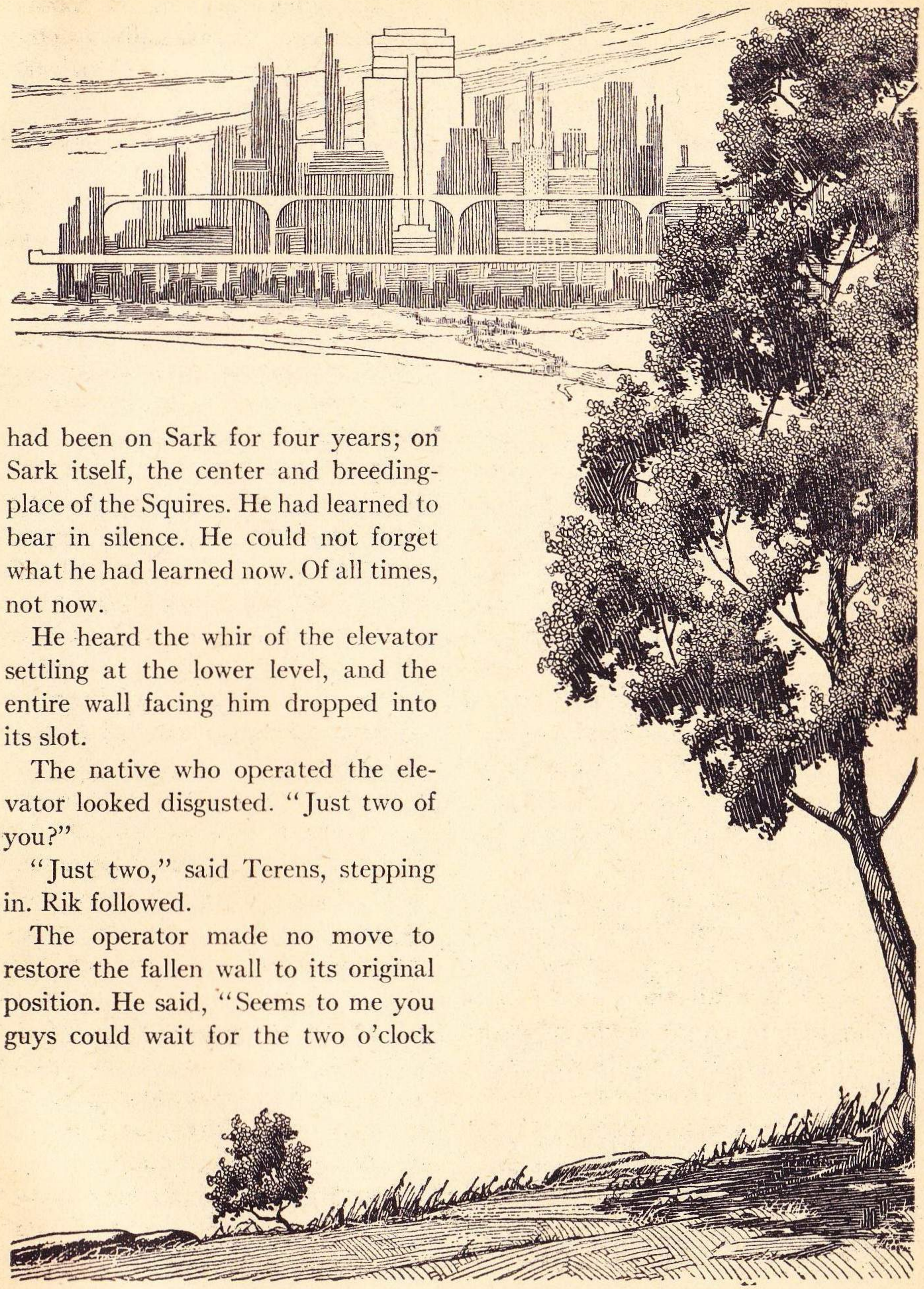
Rik could guess what the structure was. It was an elevator that lifted to the upper level.

These were necessary, of course. Production was below, but consumption was above. Basic chemicals and raw food staples were shipped into Lower City, but finished plastic-ware and fine meals were matters for Upper City. Excess population spawned below; maids, gardeners, chauffeurs, construction laborers were used above.

Terens ignored Rik's expression of fright completely. He was amazed that his own heart beat so violently. Not fright, of course. Rather a fierce satisfaction that he was going up. He would step all over that sacred cementalloy, stamp on it, scuff his dirt upon it. He could do that as a Townman. Of course, he was still only a Florinian native to the Squires, but he was a Townman and he could step on the cementalloy whenever he pleased.

Galaxy, he hated them!

He stopped himself, drew a firm breath and signaled for the elevator. There was no use thinking hate. He



had been on Sark for four years; on Sark itself, the center and breeding-place of the Squires. He had learned to bear in silence. He could not forget what he had learned now. Of all times, not now.

He heard the whir of the elevator settling at the lower level, and the entire wall facing him dropped into its slot.

The native who operated the elevator looked disgusted. "Just two of you?"

"Just two," said Terens, stepping in. Rik followed.

The operator made no move to restore the fallen wall to its original position. He said, "Seems to me you guys could wait for the two o'clock

load and move with it. I ain't supposed to run this thing up and down for no two guys." He spat carefully, making sure that the sputum hit lower level concrete and not the floor of his elevator.

He went on, "Where's your employment tickets?"

Terens said, "I'm a Townman. Can't you see it by my clothes."

"Clothes don't mean nothing. Listen, you think I'm risking my job because you maybe picked up some uniform somewheres? Where's your card?"

Terens, without another word, presented the standard document-folder all natives had to carry at all times; registration number; employment certificate; tax receipts. It was open to the crimson of his Townman's license. The operator scanned it briefly.

"Well, maybe you picked that up, too, but that's not my business. You got it and I pass you, though Townman's just a fancy name for a native to my way of figgering. What about the other guy?"

"He's in my charge," said Terens. "He can come with me, or shall we call a Patroller and check into the rules."

It was the last thing Terens wanted but he suggested it with suitable arrogance.

"Awrright! Y'don't have to get sore." The elevator wall moved up, and with a lurch, the elevator climbed. The operator mumbled direfully under his breath.

Terens smiled tightly. It was almost inevitable. Those who worked directly for the Squires were only too glad to identify themselves with the rulers, and make up for their real inferiority by a tighter adherence to the rules of segregation, a harsh and haughty attitude toward their fellows. They were the "upper-men" for whom the other Florinians reserved their particular hate, unalloyed by the carefully-taught awe they felt for the Squires.

The vertical distance traveled was thirty feet, but the door opened again to a new world. Like the native cities of Sark, Upper City was laid out with a particular eye to color. Individual structures, whether dwelling places or public buildings, were inset in an intricate multicolored mosaic, which, close at hand, were a meaningless jumble, but at a distance of a hundred yards took on a soft clustering of hues that melted and changed with the angle of view.

"Come on, Rik," said Terens.

Rik was staring wide-eyed. Nothing alive and growing! Just stone and color in huge masses. He had never known houses could be so huge. Something stirred momentarily in his mind. For a second, the hugeness was not so strange— And then the memory closed down again.

A ground-car flashed by.

"Are those Squires?" Rik whispered.

There had been time only for a

glance. Hair close-cropped, wide, flaring sleeves of glossy, solid colors ranging from blue to violet, knickers of a velvety appearance and long, sheer hose that gleamed as if it were woven of thin copper wire. They wasted no glance at Rik and Terens.

"Young ones," said Terens. He had not seen them at such close quarters since he left Sark. On Sark they were bad enough but at least they had been in place. Angels did not fit here, thirty feet over Hell. Again he squirmed to suppress a useless tremble of hatred.

A two-man flat-car hissed up behind them. It was a new model which had built-in air controls. At the moment, it was skimming smoothly two inches above surface, its gleaming flat bottom curled upward at all edges to cut air-resistance. Still, the slicing of air against its lower surface sufficed to produce the characteristic hiss which meant "Patrollers."

They were large, as all Patrollers were; broad-faced, flat-cheeked, long, straight black hair, light brown in complexion. To the natives, all Patrollers looked alike. The glossy black of their uniforms, enhanced as they were by the startling silver of strategically placed buckles and ornamental buttons, depressed the importance of the face and encouraged the impression of likeness still more.

One Patroller was at the controls, the other leaped out lightly over the shallow rim of the car.

He said, "Folder!" stared mechanically and momentarily at it and flipped it back at Terens. "Your business here?"

"I intend consulting the library, officer. It is my privilege."

The Patroller turned to Rik. "What about you?"

"I—," began Rik.

"He is my assistant," interposed Terens.

"He has no Townman privileges," said the Patroller.

"I'll be responsible for him."

The Patroller shrugged. "It's your lookout. Townmen have privileges, but they're not Squires. Remember that, boy."

"Yes, officer. By the way, could you direct me to the library?"

The Patroller directed him, using the thin, deadly barrel of a needle-gun to indicate direction. From their present angle, the library was a blotch of brilliant vermilion deepening into crimson toward the upper stories. As they approached, the crimson crept downward.

Rik said with sudden vehemence, "I think it's ugly."

Terens gave him a quick, surprised glance. He had been accustomed to all this on Sark, but he, too, found the garishness of Upper City somewhat vulgar. But then, Upper City was more Sark than Sark itself. On Sark, not all men were aristocrats. There were even poor Sarkites, some scarcely better off than the average Florinian. Here only the top of the pyramid

existed; and the library showed that.

It was larger than all but a few on Sark itself, far larger than Upper City required, which showed the advantage of cheap labor. Terens paused on the curved ramp that led to the main entrance. The color scheme on the ramp gave the illusion of steps, which was somewhat disconcerting to Rik, who stumbled, but gave the library the proper air of archaism that traditionally accompanied academic structures.

The main hall was large, cold, and all but empty. The librarian behind the single desk it contained looked like a small, somewhat wrinkled pea in a bloated pod. She looked up and half rose.

Terens said quickly, "I'm a Townman. Special privileges. I am responsible for this native." He had his papers ready and marched them before him.

The librarian seated herself and looked stern. She plucked a metal sliver from a slot and thrust it at Terens. The Townman placed his right thumb firmly upon it. The librarian took the sliver and put it in another slot where a dim violet light shone briefly.

She said, "Room 242."

"Thank you."

The cubicles on the second floor had that icy lack of personality that any link in an endless chain would have. Some were filled, their glassite doors frosted and opaque. Most were not.

"Two forty-two," said Rik. His voice was squeaky.

"What's the matter, Rik?"

"I don't know. I feel very excited."

"Ever been in a library before?"

"I don't know."

Terens put his thumb on the round aluminum disk which, five minutes before, had been sensitized to his thumbprint. The clear glass door swung open and as they stepped within, it closed silently and, as though a blind had been drawn, became opaque.

The room was six feet in each direction, without window or adornment. It was lit by the diffuse ceiling glow and ventilated by a forced-air draft. The only contents were a desk that stretched from wall to wall and an upholstered backless bench between it and the door. On the desk were three "readers." Their frosted-glass fronts slanted backward at an angle of thirty degrees. Before each were the various control-dials.

"Do you know what this is?" Terens sat down and placed his soft, plump hand upon one of the readers.

Rik sat down, too.

"Books?" he asked, eagerly.

"Well," Terens seemed uncertain. "This is a library, so your guess doesn't mean much. Do you know how to work the reader?"

"No. I don't think so, Townman."

"You're sure? Think about it a little."

Rik tried valiantly. "I'm sorry, Townman."

"Then I'll show you. Look! First, you see, there's this knob, labeled 'Catalogue' with the alphabet printed about it. Since we want the encyclopedia first, we'll turn the knob to E and press downward."

He did so and several things happened at once. The frosted-glass flared into life and printing appeared upon it. It stood out black on yellow as the ceiling-light dimmed. Three smooth panels moved out like so many tongues, one before each reader, and each was centered by a tight light-beam.

Terens snapped a toggle switch and the panels moved back into their recesses.

He said, "We won't be taking notes."

Then he went on. "Now we can go down the list of E's by turning this knob."

The long line of alphabetized materials, titles, authors, catalogue numbers flipped upward then stopped at the packed column listing the numerous volumes of the encyclopedia.

Rik said suddenly, "You press the numbers and letters after the book you want on these little buttons and it shows on the screen."

Terens turned on him. "How do you know? Do you remember that?"

"Maybe I do. I'm not sure. It just seems the right thing."

"Well, call it an intelligent guess."

He punched a letter-number combination. The light on the glass faded, then brightened again. It said: "Encyclopedia of Sark; Volume 54, Sol-Spec."

Terens said, "Now look, Rik, I don't want to put any ideas in your head, so I won't tell you what's in my mind. I just want you to look through this volume and stop at anything that seems familiar. Do you understand?"

"Yes."

"Good. Now take your time."

The minutes passed till fifteen of them had come, shiny and new, to live their brief lifetime and die, when Rik gasped and sent the dials spinning backward. He was yelling incoherently.

When he stopped, Terens read the heading and looked pleased. "You remember now? This isn't a guess? You remember?"

Rik nodded vigorously, "It came to me, Townman. Very suddenly."

It was an article on spatioanalysis.

"I know what it says," Rik said. "You'll see; you'll see." He was having difficulty breathing and Terens, for his part, was almost equally excited.

"See," said Rik, "they always have this part."

He read aloud haltingly, but in manner far more proficient than could be accounted for by the sketchy lessons in reading he had received from Valona. The article said:

"'It is not surprising that the spatioanalyst is by temperament an introverted and, often enough, maladjusted

individual. To devote the greater part of one's adult life to the lonely recording of the terrible emptiness between the stars is more than can be asked of someone entirely normal. It is perhaps with some realization of this that the Spatioanalytic Institute has adopted as its official slogan the somewhat wry statement, "We Analyze Nothing."'"

Rik finished with what was almost a shriek.

Terens said, "Do you understand what you've read?"

The smaller man looked up with blazing eyes. "It said 'We Analyze Nothing.' That's what I remembered. I was one of them."

"You were a spatioanalyst?"

"Yes," cried Rik. Then, in a lower voice, "My head hurts."

"Because you're remembering?"

"I suppose so." He looked up, forehead furrowed. "I've got to remember more. There's danger. Tremendous danger! I don't know what to do."

"The library's at our disposal, Rik." Terens was watching carefully, weighing his words. "Use the catalogue yourself and look up some texts on spatioanalysis. See where that leads you."

Rik flung himself upon the reader. He was shaking visibly. Terens moved aside to give him room.

"How about Wrijt's 'Treatise of Spatioanalytical Instrumentation'?" asked Rik. "Doesn't that sound right?"

"It's all up to you, Rik."

Rik punched the catalogue number and the screen burned brightly and steadily. It said, "Please Consult Librarian for Book in Question."

Terens reached out a quick hand and neutralized the screen. "Better try another book, Rik."

"But—" Rik hesitated, then followed orders. Another search through the catalogue and then he chose Enning's "Composition of Space."

The screen filled itself once more with a request to consult the librarian. Terens said, "Damn!" and deadened the screen again.

Rik said, "What's the matter?"

Terens said, "Nothing. Nothing. Now don't get panicky, Rik. I just don't quite see—"

There was a little speaker behind the grillework on the side of the reading mechanism. The librarian's thin, dry voice emerged therefrom and froze them both.

"Room 242! Is there anyone in Room 242?"

Terens answered harshly, "What do you want?"

The voice said, "What book is it you want?"

"None at all. Thank you. We are only testing the reader."

There was a pause as though some invisible consultation was proceeding. Then the voice said with an even sharper edge to it, "The record indicates a reading request for Wrijt's 'Treatise of Spatioanalytical Instru-

mentation,' and Enning's 'Composition of Space.' Is that correct?"

"We were punching catalogue numbers at random," said Terens.

"May I ask your reason for desiring those books?" The voice was inexorable.

"I tell you we don't want them. Now stop it." The last was an angry aside to Rik, who had begun whimpering.

A pause again. Then the voice said, "If you will come down to the desk, you may have access to the books. They are on a reserved listing and you will have to fill out a form."

Terens held out a hand to Rik. "Let's go."

"Maybe we've broken a rule," quavered Rik.

"Nonsense, Rik. We're leaving."

"We won't fill out the form?"

"No, we'll get the books some other time."

Terens was hurrying, forcing Rik along with him. He strode down the main lobby. The librarian looked up.

"Here now," she cried, rising and circling the desk. "One moment. One moment!"

They weren't stopping for her.

That is, until a Patroller stepped in front of them. "You're in an awful hurry, laddies."

The librarian, somewhat breathless, caught up to them. "You're 242, aren't you?"

"Look here," said Terens, firmly, "why are we being stopped?"

"Didn't you inquire after certain books? We'd like to get them for you."

"It's too late. Another time. Don't you understand that I don't want the books. I'll be back tomorrow."

"The library," said the woman, primly, "at all times endeavors to give satisfaction. The books will be made available to you in one moment." Two spots of red burned high upon her cheekbones. She turned away, hurrying through a small door that opened at her approach.

Terens said, "Officer, if you don't mind—"

But the Patroller held out his moderately long, weighted neuronic whip. It could serve as an excellent club, or as a longer range weapon of paralyzing potentialities. He said, "Now, laddie, why don't you sit down quietly and wait for the lady to come back? It would be the polite thing to do."

The Patroller was no longer young, no longer slim. He looked close to retirement age and he was probably serving out his time in quiet vegetation as library guard, but he was armed and the joviality on his swarthy face had a synthetic look about it.

Terens' forehead was wet and he could feel the perspiration collecting at the base of his spine. Somehow, he had underestimated the situation. He had been sure of his own analysis of the matter; of everything. Yet here he was. He shouldn't have been so reckless. It was his desire to invade Upper City, to stalk through the library cor-

ridors as though he were a Sarkite.

For a desperate moment, he wanted to assault the Patroller and then, unexpectedly, he didn't have to.

It was just a flash of movement at first. The Patroller started to turn a little too late. The slower reactions of age betrayed him. The neuronic whip was wrenched from his grasp and before he could do more than emit the very beginnings of a hoarse cry, it was laid along his temple. He collapsed.

Rik shrieked with delight, and Terens cried, "Valona! By all the devils of Sark, *Valona!*"

IV.

Terens recovered almost at once. He said, "Out. Quickly!" and began walking.

For a moment he had the impulse to drag the Patroller's unconscious body into the shadows behind the pillars that lined the main hall, but there was obviously no time.

They emerged onto the ramp, with the afternoon sun making the world bright and warm about them. The colors of Upper City had shifted to an orange motif.

Valona said, anxiously, "Come on!" but Terens caught her elbow.

He was smiling, but his voice was hard and low. He said, "Don't run. Walk naturally and follow me. Hold on to Rik. Don't let him run."

A few steps. They seemed to be moving through glue. Were there sounds behind them from the library? Imagination? Terens did not dare look.

"In here," he said. The sign above the driveway he indicated flickered a bit in the light of afternoon. It didn't compete very well with Florina's sun. It said: Ambulance Entrance.

Up the drive, through a side-entrance, and between incredibly white walls. They were blobs of foreign material against the aseptic glassiness of the corridor.

A woman in uniform was looking at them from a distance. She hesitated, frowned, began to approach. Terens did not wait for her. He turned sharply, followed a branch of the corridor, then another one. They passed others in uniform and Terens could imagine the uncertainty they aroused. It was quite unprecedented to have natives wandering about unguarded in the upper levels of a hospital. What did one do?

Eventually, of course, they would be stopped.

So Terens felt his heartbeat step up when he saw the unobtrusive door that said: To Native Levels. The elevator was at their level. He herded Rik and Valona within and the soft lurch as the elevator dropped was the most delightful sensation of the day.

There were three kinds of buildings in the City. Most were Lower Buildings, built entirely on the lower level: Workers' houses, ranging up to three stories in height; factories; bakeries; disposal plants. Others were Upper

Buildings: Sarkite homes, theaters, the library, sports arenas. But some few were Doubles, with levels and entrances both below and above; the Patroller stations, for instance, and the hospitals.

One could therefore use a hospital to go from Upper City to Lower City and avoid in that manner the use of the large freight elevators with their slow movements and over-attentive operators. For a native to do so was thoroughly illegal, of course, but the added crime was a pinprick to those already guilty of assaulting Patrollers.

They stepped out upon the lower level. The stark aseptic walls were there still, but they had a faintly haggard appearance as though they were less often scrubbed. The upholstered benches that lined the corridors on the upper level were gone. Most of all there was an uneasy babble of a waiting room filled with wary men and frightened women. A single attendant was attempting to make sense out of the mess, and succeeding poorly.

She was snapping at a stubbled oldster who pleated and unpleated the wrinkled knee of his raveling trousers and who answered all questions in an apologetic monotone.

"Exactly what is your complaint? How long have you had these pains? Ever been to the hospital before? Now look, you people can't expect to bother us over every little thing. You sit down and the doctor will look at you and give you more medicine."

She cried, shrilly, "Next!" then muttered something to herself as she looked at the large timepiece on the wall.

Terens, Valona, and Rik were edging cautiously through the crowd. Valona, as though the presence of fellow-Florinians had freed her tongue of paralysis was whispering intensely.

"I had to come, Townman. I was so worried about Rik. I thought you wouldn't bring him back and—"

"How did you get to Upper City, anyway?" demanded Terens over his shoulder, as he sidled unresisting natives to either side.

"I followed you and saw you go up the freight elevator. When it came down I said I was with you and he took me up."

"Just like that."

"I shook him a little."

"Imps of Sark," groaned Terens.

"I had to," explained Valona, miserably. "Then I saw the Patrollers pointing out a building to you. I waited till they were gone and went there, too. Only I didn't dare go inside. I didn't know what to do so I sort of hid until I saw you coming out with the Patroller stopping—"

"You people there!" It was the sharp, impatient voice of the receptionist. She was standing now, and the hard rapping of her metal stylus on the cementalloy desk top dominated the gathering and reduced them to a hard-breathing silence.

"Those people trying to leave.

Come here. You cannot leave without being examined. There'll be no evading work days with pretended sick calls. Come back here!" Her voice lifted in amplitude and pitch.

But the three were out in the half shadow of Lower City. There were the smells and noise of what the Sarkites called the Native Quarter about them and the upper level was once more only a roof above them. But however relieved Valona and Rik might feel at being away from the oppressive richness of Sarkite surroundings, Terens felt no lifting of anxiety. They had gone too far and henceforth there might be no safety anywhere.

That thought was still passing through his turbulent mind when Rik called, "Look!"

Terens felt salt in his throat.

It was perhaps the most frightening sight the natives of the Lower City could see. It was like a giant bird floating down through one of the openings in the Upper City. It shut off the sun and deepened the ominous gloom of that portion of the City. But it wasn't a bird. It was one of the armed ground-cars of the Patrollers.

Natives yelled and began running. They might have no specific reason to fear, but they scattered anyway. One man, nearly in the path of the car, stepped aside reluctantly. He had been hurrying on his way, intent on some business of his own, when the shadow caught him. He looked about him, a rock of calm in the wildness. He was of medium height, but almost grotesquely broad across the shoulders. One of his shirt sleeves was slit down its length, revealing an arm like another man's thigh.

Terens was hesitating, and Rik and Valona could do nothing without him. The Townman's inner uncertainty had mounted to a fever. If they ran, where could they go? If they remained where they were, what could they do? There was a chance that the Patrollers were after others altogether, but with a Patroller unconscious on the library floor through their act, the chances of that were negligible.

The broad man was approaching at a heavy half-trot. For a moment, he paused in passing them, as though with uncertainty. He said, in a conversational voice, "Khorev's bakery is second left, beyond the laundry."

He veered back.

Terens said, "Come on."

He was sweating freely as he ran. Through the uproar, he heard the barking orders that came naturally to Patroller throats. He threw a look, one look, over his shoulder. A half-dozen of them were piling out of the ground-car, fanning out. They would have no trouble, he knew. In his Townman's uniform, he was as conspicuous as one of the pillars supporting the Upper City.

Two of the Patrollers were running in the right direction. He didn't know if they had seen him or not, but that

didn't matter. Both collided with the broad man who had just spoken to Terens. All three were close enough for Terens to hear the broad man's hoarse bellow and the Patrollers' sharp cursing. Terens herded Valona and Rik around the corner.

Khorev's bakery was named as such by an almost defaced "worm" of crawling illuminated plastic, broken in half a dozen places and was made unmistakable by the wonderful odor that filtered through its open door. There was nothing to do but enter, and they did.

An old man looked out from an inner room within which they could see the flour-obscured gleam of the radar furnaces. He had no chance to ask their business.

Terens began, "A broad man—" He was holding his arms apart in illustration, and the cries of "Patrollers! Patrollers!" began to be heard outside.

The old man said, hoarsely, "This way! Quickly!"

Terens held back. "In there?"

The old man said, "This one is a dummy."

First Rik, then Valona, then Terens crawled through the furnace door. There was a faint click and the back wall of the furnace moved slightly and hung freely from hinges above. They pushed through it and into a small room, dimly-lit, beyond.

They waited. Ventilation was bad, and the smell of baking increased hunger without satisfying it. Valona kept smiling at Rik, patting his hand mechanically from time to time. Rik stared back at her blankly. Once in a while, he put a hand to his flushed face.

Valona began, "Townman—"

He snapped back in a tight whisper, "Not now, Lona. Please!"

He passed the back of his hand across his forehead, then stared at the dampness on his knuckles.

There was a click, magnified by the close confinement of their hiding place. Terens stiffened. Without quite realizing it, he raised clenched fists.

It was only the broad man, poking his immense shoulders through the opening. They scarcely fit.

He looked at Terens and was amused. "Come on, man. We're not going to be fighting."

Terens looked at his fists and let them drop.

The broad man was in markedly poorer condition now than when they had first seen him. His shirt was all but removed from his back and a fresh weal, turning red and purple, marked one cheekbone. His eyes were little and the eyelids crowded them above and below.

He said, "They've stopped looking. If you're hungry, the fare here isn't fancy, but there's enough of it. What do you say?"

It was night in the City. There were lights in the Upper City that lit the

sky for miles, but in the Lower City, the darkness was clammy. The shades were drawn tightly across the front of the bakery to hide the illegal, past-curfew lights away from it.

Rik felt better with warm food inside him. His headache began to recede. He fixed his eyes on the broad man's cheek.

Timidly, he asked, "Did they hurt you, mister?"

"A little," said the broad one. "It doesn't matter. It happens every day in my business." He laughed, showing large teeth. "They had to admit I hadn't done anything but I was in their way while they were chasing someone else. The easiest way of getting a native out of the way—" His hand rose and fell, holding an invisible weapon, butt-first.

Rik flinched away and Valona reached out an anxious, protective arm.

The broad man leaned back, sucking at his teeth to get out particles of food. He said, "I'm Matt Khorov, but they just call me the Baker. Who are you people?"

Terens shrugged. "Well—"

The Baker said, "I see your point. What I don't know won't hurt anyone. Maybe. Maybe. At that, though, you might trust me. I saved you from the Patrollers, didn't I?"

"Yes. Thank you." Terens couldn't squeeze cordiality into his voice. He said, "How did you know they were after us? There were quite a few people running."

The other smiled. "None of them had the faces you three were wearing. Yours could have been ground up and used for chalk."

Terens tried to smile in return. He didn't succeed well. "I'm not sure I know why you risked your life. Thank you, anyway. It isn't much, just saying 'Thank you,' but there's nothing else I can do right now."

"You don't have to do anything." The Baker's vast shoulders leaned back against the wall. "I do this as often as I can. It's nothing personal. If the Patrollers are after someone, I do my best for him. I hate the Patrollers."

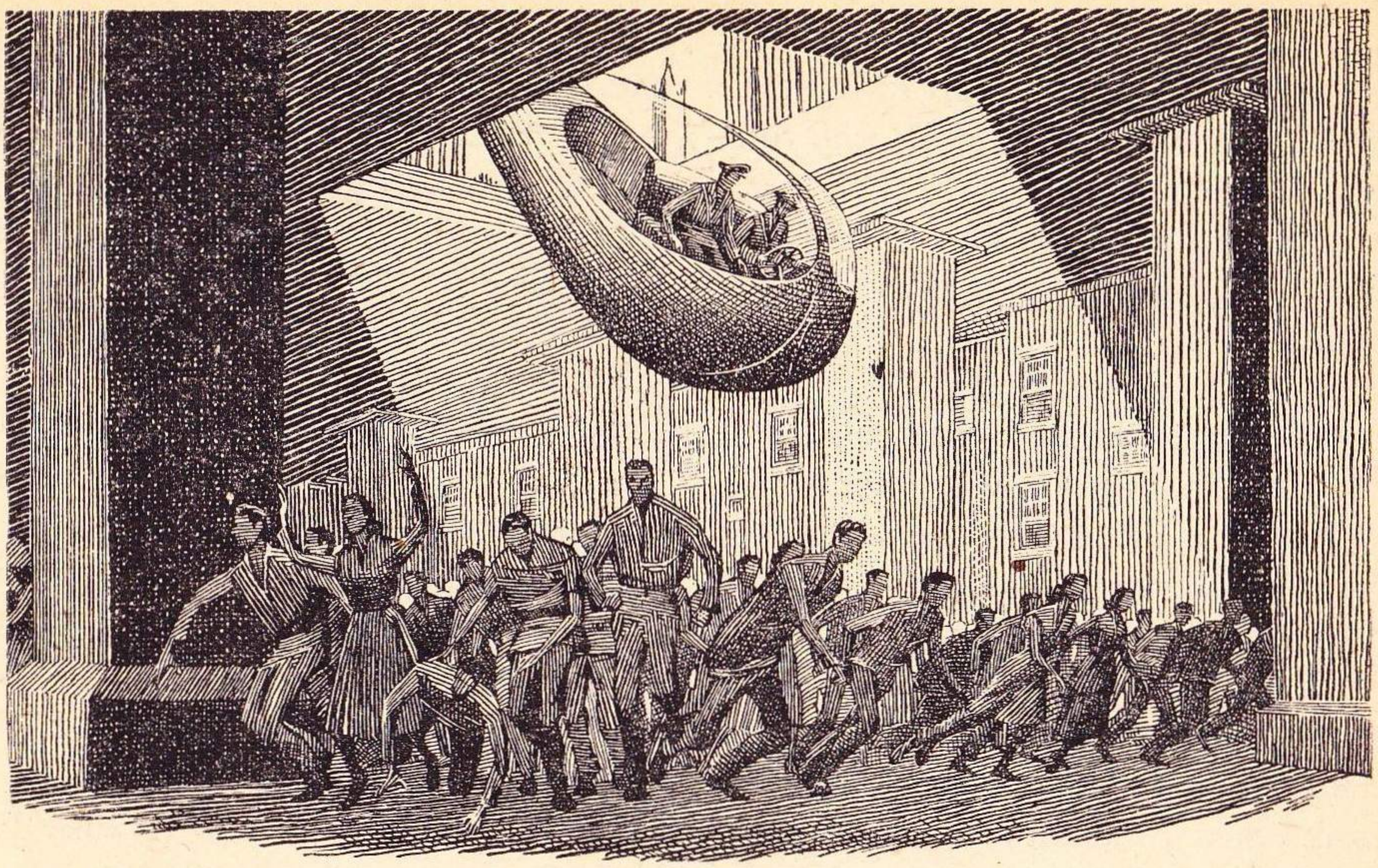
Valona gasped. "Don't you get into trouble?"

"Sure. Look at this." He put a finger gently on his bruised cheek. "But you don't think I ought to let it stop me, I hope. That's why I built the dummy oven. So the Patrollers wouldn't catch me and make things too hard for me."

Valona's eyes were wide with mingled fright and fascination.

The Baker said, "Why not? You know how many Squires there are on Florina? Ten thousand. You know how many Patrollers? Maybe twenty thousand. And there are five hundred million of us natives. If we all lined up against them—" He snapped his fingers.

Terens said, "We'd be lining up against needle-guns and blaster can-



non, Baker."

The Baker retorted, "Yeah. We'd have to get some of our own. You Townmen have been living too close to the Squires. You're scared of them."

Valona's world was being turned upside down today. This man fought with Patrollers and spoke with careless self-confidence to the Townman. When Rik plucked at her sleeve, she disengaged his fingers gently and told him to sleep. She scarcely looked at him. She wanted to hear what this man said.

The broad man was saying, "Even with needle-guns and blast cannon, the only way the Squires hold Florina is with the help of a hundred thousand Townmen. No offense."

Terens looked offended, just the same.

The Baker went on, "For instance, look at you. Very nice clothes. Neat. Pretty. You've got a nice little shack, too, I'll bet, with book-films, a private hopper and no curfew. You can even go to Upper City if you want to. The Squires wouldn't do that for you for nothing."

Terens felt in no position to lose his temper. He said, "All right. What do you want the Townmen to do? Pick fights with the Patrollers? What good would it do? I admit I keep my town quiet and up to quota, but I keep them out of trouble. I try to help them, as much as the law will allow. Isn't that something? Some day—"

"Aah, some day. Who can wait for some day? When you and I are dead, what difference will it make who runs Florina? To us, I mean."

Terens said, "In the first place, I hate the Squires more than you do. Still—"

He stopped, reddening.

The Baker laughed. "Go ahead. Say it again. I won't turn you in for hating the Squires. What did you do to get the Patrollers after you?"

Terens was silent.

The Baker said, "I can make a guess. When the Patrollers fell over me, they were plenty sore. Sore in person, I mean, and not just because some Squire told them to be sore. I know them and I can tell. So I figure that there's only one thing that could have happened. You must've knocked down a Patroller. Or killed him, maybe."

Terens was still silent.

The Baker lost none of his agreeable tone. "It's all right to keep quiet. There's such a thing as being too cautious, Townman. You're going to need help. They know who you are."

"No, they don't," said Terens, hastily.

"They must have looked at your cards in the Upper City."

"Who said I was in the Upper City."

"A guess. I'll bet you were."

"They looked at my card, but not long enough to read my name."

"Long enough to know you're a Townman. All they have to do is find a Townman missing from his town or one who can't account for his movements today. The wires all over Florina are probably scorching right now. I think you're in trouble."

"Maybe."

"You know there's no maybe. Want help?"

They were talking in whispers. Rik had curled up in the corner and gone to sleep. Valona's eyes were moving from speaker to speaker.

Terens shook his head. "No, thanks. I . . . I'll get out of this."

The Baker's ready laughter came. "It will be interesting to see how. Don't look down on me because I haven't got an education. I've got other things. Look, you spend the night thinking about it. Maybe you'll decide you can use help."

Valona's eyes were open in the darkness. Her bed was only a blanket thrown on the floor, but it was nearly as good as the beds she was used to. Rik slept deeply on another blanket in an opposite corner. He always slept deeply on days of excitement after his headaches passed.

The Townman had refused a bed and the Baker had laughed—he laughed at everything, it seemed—turned out the light and told him he was welcome to sit up in the darkness.

Valona's eyes remained open. Sleep was far away. Would she ever sleep again? She had knocked down a Patroller!

Unaccountably, she was thinking of her father and mother.

They were very misty in her mind. She had almost made herself forget them in the years that had stretched between them and herself. But now she remembered the sound of whispered conversations during the night, when they thought her asleep. She remembered people who came in the dark.

The Patrollers had awakened her one night and asked her questions she could not understand, but tried to answer. She never saw her parents again after that. They had gone away, she was told, and the next day they had put her to work when other children her age still had two years of playtime. People looked after her as she passed and other children weren't allowed to play with her, even when work time was over. She learned to keep to herself. She learned not to speak. So they called her "Big Lona" and laughed at her and said she was a half-wit.

Why did the conversation tonight remind her of her parents?

"Valona."

The voice was so close that its light breath stirred her hair and so low she scarcely heard it. She tensed under her light blanket, partly in fear, partly in embarrassment. There was only a sheet over her bare body.

It was the Townman. He said, "Don't say anything. Just listen. I am leaving. The door isn't locked. I'll be back, though. Do you hear me? Do you understand?"

She reached in the darkness, caught his hand, pressed it with her fingers. He was satisfied.

"And watch Rik. Don't let him out of your sight. And Valona." There was a long pause. Then he went on, "Don't trust this Baker too much. I don't know about him. Do you understand?"

There was a faint noise of motion, an even fainter distant creak, and he was gone. She raised herself to one elbow and except for Rik's breathing and her own, there was only silence.

She put her eyelids together in the darkness, squeezing them, trying to think. Why did the Townman, who knew everything, say this about the Baker, who hated Patrollers and had saved them. Why?

She could only think of one thing. He had been there. Just when things looked as black as they could be, the Baker had come and had acted quickly. It was almost as though it had been arranged or as if the Baker had been waiting for it all to happen.

She shook her head. It sounded strange. If it wasn't for what the Townman had said, she would never think this.

The silence was broken into quivering pieces by a loud and unconcerned remark. "Hello? Still here?"

She froze as a beam of light caught her full. Slowly, she relaxed and

bunched the sheet about her neck. The beam fell away.

She did not have to wonder about the identity of the new speaker. His squat broad form bulked in the half-light that leaked backward from the flash.

The Baker said, "You know, I thought you'd go with him."

Valona said, weakly, "Who, sir?"

"The Townman. You knew he left, girl. Don't waste time pretending."

"He'll be back, sir."

"Did he say he would be back? If he did, he's wrong. The Patrollers will get him. He's not a very smart man, the Townman, or he'd know when a door is left open for a purpose. Are you planning to leave, too?"

Valona said, "I'll wait for the Townman."

"Suit yourself. It will be a long wait. Go when you please."

His light-beam suddenly left her altogether and traveled along the floor, picking out Rik's pale, thin face. Rik's eyelids crushed together automatically, at the impact of the light, but he slept on.

The Baker's voice grew thoughtful. "But I'd just as soon you left that one behind. You understand that, I suppose. If you decide to leave, the door is open, but it isn't open for *him*."

"He's just a poor, sick fellow—" Valona began, in a high, frightened voice.

"Yes? Well, I collect poor sick fellows and that one stays here. Remember!"

The light-beam did not move from Rik's sleeping face.

V.

Dr. Selim Junz had been impatient for a year, but one does not become accustomed to impatience with time. Rather the reverse. Nevertheless the year had taught him that the Sarkite Civil Service could not be hurried; all the more so since the civil servants themselves were largely transplanted Florinians and therefore dreadfully careful of their own dignity.

He had once asked old Abel, the Trantorian ambassador who had lived on Sark so long that the soles of his boots had grown roots, why the Sarkites allowed their government departments to be run by the very people they despised so heartily.

Abel had wrinkled his eyes over a goblet of green wine.

"Policy, Junz," he said. "Policy. A matter of practical genetics, look you, carried out with Sarkite logic. They're a small, no-account world, these Sarkites, in themselves and are only important, look you, so long as they control that everlasting gold mine, Florina. So each year they skim Florina's fields and villages, bringing the cream of its youth to Sark for training. The mediocre ones they set to filing their papers and filling their blanks and signing their forms and the really clever ones they send back to Florina

to act as native governors for the towns. Townmen they call them."

Dr. Junz was a spatioanalyst, primarily. He did not quite see the point of all this. He said so.

Abel pointed a blunt old forefinger at him and the green light shining through the contents of his goblet touched the ridged fingernail and subdued its yellow-grayness.

He said, "You will never make an administrator. Ask me for no recommendations. Look you, the most intelligent elements of Florina are won over to the Sarkite cause wholeheartedly, since while they serve Sark they are well taken care of, whereas if they turn their back on Sark the best they can hope for is a return to a Florinian existence, which is not good, look you, not good."

He swallowed the wine at a draught, and went on, "Further, neither the Townmen nor Sark's clerical assistants may breed without losing their positions. Even with female Florinians, that is. Interbreeding with Sarkites is, of course, out of the question. In this way, the best of the Florinian genes are being continually withdrawn from circulation, so that gradually Florina will be composed only of hewers of wood and drawers of water."

"They'll run out of clerks at that rate, won't they?"

"A matter for the future."

So Dr. Junz sat now in one of the outer anterooms of the Department for Florinian Affairs and waited impatiently to be allowed past the slow barriers, while Florinian underlings scurried endlessly through a bureaucratic maze.

An elderly Florinian, shriveled in service, stood before him.

"Dr. Junz?"

"Yes."

"Come with me."

A flashing number on a screen would have been as efficient in summoning him and a fluoro-channel through the air as efficient in guiding him, but where man-power is cheap, nothing need be substituted. Dr. Junz thought "man-power" advisedly. He had never seen women in any government department on Sark. Florinian women were left on their planet, except for some house-servants who were likewise forbidden to breed, and Sarkite women were, as Abel said, out of the question.

He was gestured to a seat before the desk of the Clerk to the Undersecretary. He knew the man's title from the channeled glow etched upon the desk. No Florinian could, of course, be more than a clerk, regardless of how much of the actual threads of office ran through his white fingers. The Undersecretary and the Secretary of Florinian Affairs would themselves be Sarkites, but though Dr. Junz might meet them socially, he knew he would never meet them here in the department.

He sat, still impatiently, but at least

nearer the goal. The clerk was glancing carefully through the file, turning each minutely coded sheet as though it held the secrets of the universe. The man was quite young, a recent graduate perhaps, and like all Florinians, very fair of skin and light of hair.

Dr. Junz felt an ancient atavistic thrill. He himself came from the world of Libair and like all Libairians he was highly pigmented and his skin was a deep, rich brown. There were few worlds in the galaxy in which the skin-color was so extreme as on either Libair or Florina. Generally, intermediate shades were the rule.

Some of the radical young anthropologists were playing with the notion that men of worlds like Libair, for instance, had arisen by independent but convergent evolution. The older men denounced bitterly any notion of an evolution that converged different species to the point where interbreeding was possible, as it certainly was among all the worlds in the galaxy. They insisted that on the original planet, whatever it was, mankind was already split into sub-groups of varying pigmentation.

This merely placed the problem farther back in time and answered nothing so that Dr. Junz found neither explanation satisfying. Yet even now he found himself thinking of the problem at times. Legends of a past of conflict had lingered, for some reason, on the dark worlds. Libairian myths, for instance, spoke of times of war between men of different pigmentation and the founding of Libair itself was held due to a party of browns fleeing from a defeat in battle.

When Dr. Junz left Libair for the Arcturian Institute of Spatial Technology and later entered his profession, the early fairy tales were forgotten. Only once since then had he really wondered. He had happened upon one of the ancient worlds of the Centaurian sector in the course of business; one of those worlds whose history could be counted in millennia and whose language was so archaic that its dialect might almost be that lost and mythical language, English. They had a special word for a man with dark skin.

Now why should there be a special word for a man with dark skin? There was no special word for a man with blue eyes, or large ears, or curly hair. There was no—

The clerk's precise voice broke his reverie. "You have been at this office before, according to the record."

Dr. Junz said, with some asperity, "I have indeed, sir."

"But not recently."

"No, not recently."

"You are still in search of a spatio-analyst who disappeared," the clerk flipped sheets, "some eleven months and thirteen days ago."

"That's right."

"In all that time," said the clerk, in his dry, crumbly voice out of which all the juice seemed carefully pressed, "there has been no sign of the man

and no evidence to the effect that he ever was anywhere in Sarkite territory."

"He was last reported," said the Scientist, "in space near Sark."

The clerk looked up and his pale blue eyes focused for a moment on Dr. Junz, then dropped quickly. "This may be so, but it is not evidence to his presence *on* Sark."

Not evidence! Dr. Junz's lips pressed tightly together. It was what the Interstellar Spatioanalysis Bureau had been telling him with increasing bluntness for months.

No evidence, Dr. Junz. We feel that your time might be better employed, Dr. Junz. The Bureau will see to it that the search is maintained, Dr. Junz.

What they really meant was, stop wasting our dough, Junz!

It had begun, as the clerk had carefully stated, eleven months and thirteen days ago by Interstellar Standard Time—the clerk would, of course, not be guilty of using local time on a matter of this nature. Two days before that he had landed on Sark on what was to be a routine inspection of the Bureau's offices on that planet, but which turned out to be — Well, which turned out to be what it was.

He had been met by the local representative of the I.S.B., a wispy young man who was marked in Dr. Junz's thoughts chiefly by the fact that he chewed, incessantly, some elastic product of Sark's chemical industry.

It was when the inspection was almost over and done with that the local agent recalled something, parked his Lasto-plug in the space behind his molars and said, "Message from one of the field-men, Dr. Junz. Probably not important. You know *them*."

It was the usual expression of dismissal: You know *them*. Dr. Junz looked up with a momentary flash of indignation. He was about to say that fifteen years ago, he himself had been a "field-man," then he remembered that after three months he had been able to endure it no longer. But it was that bit of anger that made him read the message with an earnest attention.

It went: Please keep direct coded line open to I.S.B. Central HQ for detailed message involving matter of utmost importance. All galaxy affected. Am landing by minimum trajectory.

The agent was amused. His jaws had gone back to their rhythmic champing and he said, "Imagine, sir. 'All galaxy affected.' That's pretty good, even for a field-man. I called him after I got this to see if I could make any sense out of him, but that flopped. He just kept saying that the life of every human being on Florina was in danger. You know, half a billion lives at stake. He sounded very psychopathic. So frankly, I don't want to try to handle him alone when he lands. What do you suggest?"

Dr. Junz said, "Do you have a transcript of your talk?"

"Yes, sir." There was a few minutes searching. A sliver of film was finally found.

Dr. Junz ran it through the reader. He frowned. "This is a copy, isn't it?"

"I sent the original to the Bureau of Extraplanetary Transportation here on Sark. I thought it would be best if they met him on the landing field with an ambulance. He's probably in a bad way."

Dr. Junz felt the impulse to agree with the young man. When the lonely analysts of the depths of space finally broke over their jobs, their psychopathy was liable to be violent.

Then he said, "But wait. You sound as though he hasn't landed yet."

The agent looked surprised. "I suppose he has, but nobody's called me about it."

"Well, call Transportation and get the details. Psychopathic or not, the details must be on our records."

The spatioanalyst stopped in again the next day on a last-minute check before he left the planet. He had other matters to attend to on other worlds, and he was in a moderate hurry. Almost at the doorway, he said, over his shoulder, "How's our field-man doing?"

The agent said, "Oh, say. I meant to tell you. Transportation hasn't heard from him. I sent out the energy pattern of his hyperatomic motors and they say his ship is nowhere in near space. The guy must have changed his mind about landing."

Dr. Junz decided to delay his departure for twenty-four hours. The next day he was at the Bureau of Extraplanetary Transportation in Sark City, capital of the planet. He met the Florinian bureaucracy for the first time and they shook their heads at him. They had received the message concerning the prospective landing of an analyst of the I.S.B. Oh, yes, but no ship had landed.

But it was important, Dr. Junz insisted. The man was very sick. Had they not received a copy of the transcript of his talk with the local I.S.B. agent. They opened their eyes wide at him. Transcript? No one could be found who remembered receiving that. They were sorry if the man were sick, but no I.S.B. ship had landed, and no I.S.B. ship was anywhere in near space.

Dr. Junz went back to his hotel room and thought many thoughts. The new deadline for his leaving passed. He called the desk and arranged that he be moved to another suite more adapted to an extended occupancy. Then he arranged an appointment with Ludigan Abel, the Trantorian Ambassador.

He spent the next day reading books on Sarkite history and when it was time for the appointment with Abel, his heart had become a slow drumbeat of anger. He was not going to quit easily, he knew that.

The old ambassador treated it as a

social call, pumped his hand, had his mechanical bartender rolled in, and would not allow any discussion of business over the first two drinks. Junz used the opportunity for worthwhile small talk, asked about the Florinian civil service and received the exposition on the practical genetics of Sark. His sense of anger deepened.

Junz always remembered Abel as he was that day. Deep-set eyes half closed under startling white eyebrows, beaky nose hovering intermittently over his goblet of wine, insunken cheeks accentuating the thinness of his face and body, and a gnarled finger slowly keeping time to some unheard music. Junz began his story, telling it with stolid economy. Abel listened carefully and without interruption.

When Junz was finished, he dabbed delicately at his lips, and said, "Do you know this man who has disappeared?"

"No."

"Nor met him?"

"Our field-analysts are hard men to meet."

"Has he had delusions before this?"

"This is his first, according to the records at central I.S.B. offices, if it is a delusion."

"If?" The ambassador did not follow that up. He said, "And why have you come to me?"

"For help."

"Obviously. But in what way? What can I do?"

"Let me explain. The Sarkite Bureau of Extraplanetary Transportation has checked near space for the energy-pattern of the motors of our man's ship, and there is no sign of it. They wouldn't be lying about that. I do not say that the Sarkites are above lying, but they are certainly above useless lying, and they must know that I can have the matter checked in the space of two or three hours."

"True. What then?"

"There are two times when an energy-pattern trace will fail. One, when the ship is not in near space, because it has Jumped through hyperspace and is in another region of the galaxy, and two, when it is not in space at all because it has landed on a planet. I cannot believe our man has Jumped. If his statements about peril to Florina and Galactic importance are megalomanic delusions, nothing would stop him from coming to Sark to report on them. He would *not* have changed his mind and left. I've had fifteen years' experience with such things. If, by any chance, his statements were sane and real, then certainly the matter would be too serious to allow him to change his mind and leave near space."

The old Trantorian lifted a finger and waved it gently. "Your conclusion then is that he is on Sark."

"Exactly. Again, there are two alternatives. First, if he *is* in the grip of a psychosis, he may have landed anywhere on the planet other than at a recognized spaceport. He may be

wandering about, sick and semiamnesic. These things are very unusual, even for field-men, but they have happened. Usually, in such a case, the fits are temporary. As they pass, the victim finds the details of his job returning first, before any personal memories at all. After all, the spatioanalyst's job is his life. Very often, the amnesic is picked up because he wanders into a public library to look up references on spatioanalysis."

"I see. Then you want to have me help you arrange with the Board of Librarians to have such a situation reported to you."

"No, because I don't anticipate any trouble there. I will ask that certain standard works on spatioanalysis be placed on reserve and that any man asking for them, other than those who can prove they are native Sarkians, be held for questioning. They will agree to that because they will know, or certain of their superiors will know, that such a plan will come to nothing."

"Why not?"

"Because," and Junz was speaking rapidly now, caught up in a trembling cloud of fury, "I am certain that our man landed at Sark City spaceport exactly as he planned and, sane or psychotic, was then possibly imprisoned but probably killed by the Sarkite authorities."

Abel put down his nearly empty glass. "Are you joking?"

"Do I look as if I were? What did you tell me just half an hour ago about Sark. Their lives, prosperity and power depend upon their control of Florina. What has all my own reading in this past twenty-four hours shown me? That the *kyrt* fields of Florina are the wealth of Sark. And here comes a man, sane or psychotic, it doesn't matter, who claims that something of Galactic importance has put the life of every man and woman on Florina in danger. Look at this transcript of our man's last known conversation."

Abel picked up the sliver of film that had been dashed upon his lap by Junz and accepted the reader held out to him. He ran it through slowly, his faded eyes blinking and peering at the eyepiece.

"It's not very informative."

"Of course not. It says there is a danger. It says there is horrible urgency. That's all. But it should never have been sent to the Sarkites. Even if the man were wrong, could the Sarkite government allow him to broadcast whatever madness, granting it be madness, he has in his mind and fill the galaxy with it? Leaving out of consideration the panic it might give rise to on Florina, the interference with the production of *kyrt* thread, it remains a fact that the whole dirty mess of Sark-Florina political relationships would be exposed to the view of the galaxy as a whole. Consider that they need do away with only one man to prevent all that, since I can't take action on this transcript alone and

they know it. Would Sark hesitate to stop at murder in such a case? The world of such genetic experimenters as you describe would not hesitate."

"And what would you have me do? I am still not certain." Abel seemed unmoved.

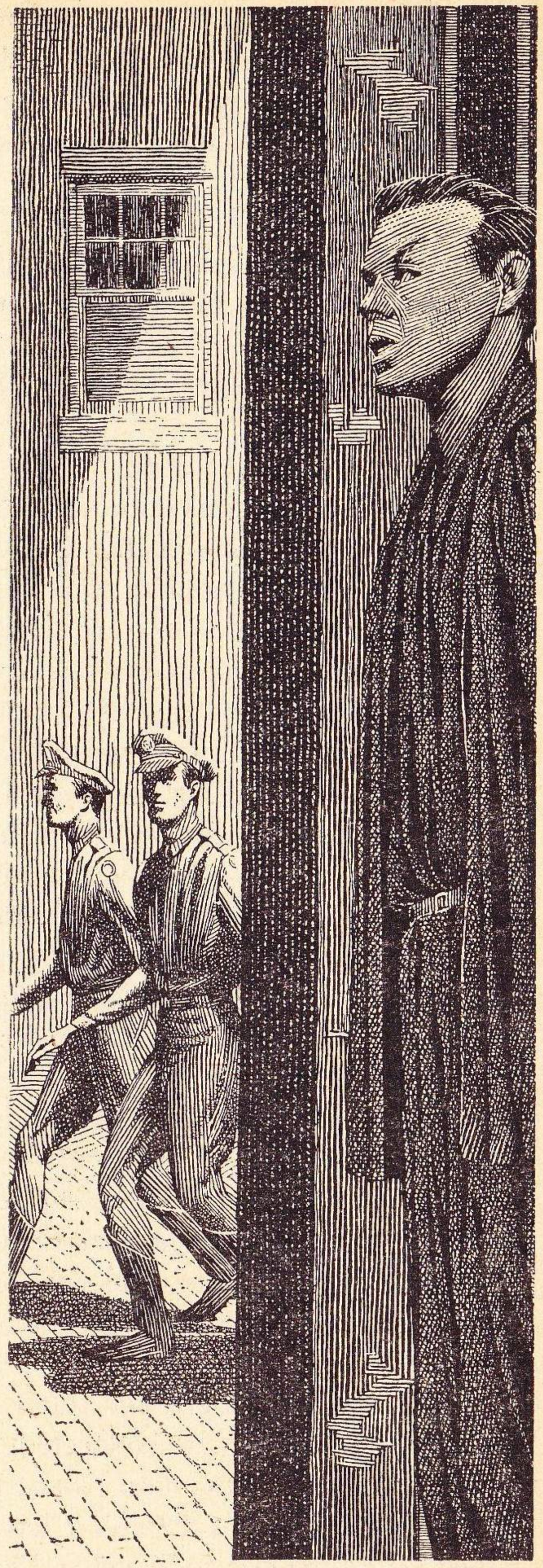
"Find out if they have killed him," said Junz with dreadful grimness. "You must have an organization for espionage here. Oh, let's not quibble. I have been knocking about the galaxy long enough to have passed my political adolescence. Get to the bottom of this while I distract their attention with my library negotiations. And when you find them out for the murderers they are, I want Trantor to see to it that no government anywhere in the galaxy ever again has the notion it can kill an I.S.B. man and get away with it."

And there his first interview with Abel ended.

Junz was right in one thing. The Sarkite officials were co-operative and even sympathetic as far as making library arrangements were concerned.

But he seemed right in nothing else. Months passed, and Abel's agents could find no trace of the missing fieldman anywhere on Sark, alive or dead.

For over eleven months that held true. Almost, Junz began to feel ready to quit. Almost, he decided to wait for the twelfth month to be done and then no more. And then the break came and it was not from Abel at all, but from the nearly forgotten straw-man he had



himself set up. A report came from Sark's public library and Junz found himself sitting across the desk from a Florinian civil servant in the Bureau of Florinian Affairs.

The clerk completed his mental arrangement of the case. He had turned the last sheet.

He looked up. "Now what can I do for you?"

Junz spoke with precision. "Yesterday, at 4:22 p.m., I was informed that the Florinian branch of the Public Library of Sark was holding a man for me who had attempted to consult two standard texts on spatioanalysis and who was not a native Sarkite. I have not heard from the library since."

He continued, raising his voice to override some comment begun by the clerk. He said, "A telenews bulletin received over a public instrument owned by the hotel at which I maintain residence, and timed 5:05 p.m. yesterday, claimed that a member of the Florinian Patrol had been knocked unconscious in the Florinian branch of the Public Library of Sark and that three native Florinians believed responsible for the outrage were being pursued. That bulletin was not repeated in later news broadcast summaries.

"Now I have no doubt that the two pieces of information are connected. I have no doubt that the man I want is in the custody of the Patrol. I have asked for permission to travel to Florina and been refused. I have subethered Florina to send the man in question to Sark and have received no answer. I come to the Bureau of Florinian Affairs to demand action in this respect. Either I go there or he comes here."

The clerk's lifeless voice said, "The Government of Sark cannot accept ultimata from officers of the I.S.B. I have been warned by my superiors that you would probably be questioning me in these matters and I have been instructed as to the facts I am to make known to you. The man who was reported to be consulting the reserved texts, along with two companions, a Townman and a Florinian female, did indeed commit the assault you referred to, and were pursued by the Patrol. They were not, however, apprehended."

A bitter disappointment swept over Junz. He did not bother to try to hide it. "They have escaped?"

"Not exactly. They were traced to the bakery shop of one Matt Khorov."

Junz stared. "And allowed to remain there?"

"Have you been in conference with His Excellency, Ludigan Abel, lately?"

"What has that to do with—"

"We are informed that you have been frequently seen at the Trantorian Embassy."

"I have not seen the ambassador in a week."

"Then I suggest you see him. We allowed the criminals to remain unharmed at Khorov's shop out of re-

spect for our delicate interstellar relationships with Trantor. I have been instructed to tell you, if it seemed necessary, that Khorov, as you probably will not be surprised to hear"—and here the white face took on something uncommonly like a sneer—"is well-known to our Department of Security as an agent of Trantor."

VI.

It was ten hours before Junz had had his interview with the clerk, that Terens had left Khorov's bakery.

Terens kept a hand on the rough surfaces of the workers' hovels he passed, as he stepped gingerly along the alleys of the city. Except for the pale light that washed down in a periodic glimmer from the Upper City, he was in total darkness. What light might exist in Lower City would be the pearly flashes of the Patrollers, marching in twos and threes.

Lower City lay like a slumbering noxious monster, its greasy coils hidden by the glittering cover of Upper City. Parts of it probably maintained a shadowy life as produce was brought in and stored for the coming day, but that was not here, not in the slums.

Terens shrank into a dusty alley—even the nightly showers of Florina could scarcely penetrate into the shadowy regions beneath the cementalloy—as the distant clank of footsteps reached him. Lights appeared, passed, and disappeared a hundred yards away.

All night long the Patrollers marched back and forth. They needed only to march. The fear they inspired was strong enough to maintain order with scarcely any display of force. With no city lights, the darkness might well be cover for innumerable crawling humans, but even without Patrollers as a distant threat, that danger could have been discounted. The food stores and workshops were well guarded; the luxury of Upper City was unattainable; and to steal from one another, to parasitize on another's misery, was obviously futile.

What would be considered crime on other worlds was virtually non-existent here in the dark. The poor were at hand but had been picked clean, and the rich were strictly out of reach.

Terens flitted on, his face gleaming white when he passed under one of the openings in the cementalloy above and could not help but look up.

Out of reach!

Were they indeed out of reach? How many changes in attitude toward the Squires of Sark had he endured in his life. As a child, Patrollers were monsters in black and silver, from whom one fled as a matter of course, whether one had done wrong or not. The Squires were misty and mystical supermen, enormously good, who lived in a paradise known as Sark and brooded watchfully and patiently over the welfare of the foolish men and women of Florina.

He would repeat every day in school: May the Spirit of the Galaxy watch over the Squires as they watch over us.

Yes, he thought now, exactly. Exactly! Let the Spirit be to them as they to us. No more and no less. His fists clenched and burned in the shadows.

When he was ten, he had written an essay for school about what he imagined life to be like on Sark. It had been a work of purely creative imagination, designed to show off his penmanship. He remembered very little, only one passage in fact. In that, he described the Squires, gathering every morning in a great hall with colors like those of the *kyrt* blossoms and standing about gravely in twenty-foot-high splendor, debating on the sins of the Florinians and sorrowfully somber over the necessities of winning them back to virtue.

The teacher had been very pleased, and at the end of the year, when the other boys and girls proceeded with their short sessions on reading, writing, and morality, he was promoted to a special class where he learned arithmetic, galactography, and Sarkite history. At the age of sixteen, he was taken to Sark.

He could still remember the greatness of that day, and he shuddered away from the memory. The thought of it shamed him.

Terens was approaching the outskirts of the city now. An occasional breeze brought him the heavy night-odor of the *kyrt* blossoms. A few minutes now and he would be out in the relative safety of the open fields where there were no regular Patroller beats and where, through the ragged night clouds, he would see the stars again. Even the hard, bright yellow star that was Sark's sun.

It had been *his* sun for half his life. When he first saw it through a spaceship's porthole as more than a star, as an unbearably bright little marble, he wanted to get on his knees. The thought that he was approaching paradise removed even the fright that had paralyzed him when first he felt acceleration seize him as he left a planet for space for the first time in his life.

He landed on his paradise, and was delivered to an old Florinian who saw to it that he was bathed and clothed becomingly. He was brought to a large building and on the way there, his elderly guide had bowed low to a figure that passed.

"Bow!" the old one muttered angrily to the young Terens.

Terens did so and was confused. "Who was that?"

"A Squire, you ignorant farmhand."

"He! A Squire?"

He stopped dead in his tracks and had to be urged forward. It was his first sight of a Squire. Not twenty feet tall at all, but a man like men. Other Florinian youths might have recovered from the shock of such a disillu-

sion, but not Terens. Something changed inside him; changed permanently.

In all the training he received; through all the studies in which he did so well; he never forgot that Squires were men.

For ten years he studied, and when he neither studied nor ate nor slept, he was taught to make himself useful in many small ways. He was taught to run messages and empty wastebaskets, to bow low when a Squire passed and to turn his face respectfully to the wall when a Squire's lady passed.

For five more years he worked in the Civil Service, shifted as usual from post to post in order that his capacities might best be tested under a variety of conditions.

A plump, soft Florinian visited him once, smiling his friendship, pinching his shoulder gently, and asked what he thought of the Squires.

Terens repressed a desire to turn away and run. He wondered if his thoughts could have imprinted themselves in some obscure code upon the lines of his face. He shook his head, murmured a string of banalities on the goodness of the Squires.

But the plump one stretched his lips and said, "You don't mean that. Come to this place tonight." He gave him a small card, that crumbled and charred in a few minutes.

Terens went. He was afraid, but very curious. There he met friends of his, who looked at him with secrecy in their eyes and who met him at work later with bland glances of indifference. He listened to what they said and found that many seemed to believe what he had been hoarding in his own mind and honestly had thought to be his own creation and no one else's.

He learned that at least some Florinians thought the Squires to be vile brutes who milked Florina of its riches for their own useless good while they left the hard-working natives to wallow in ignorance and poverty. He learned that the time was coming when there would be a giant uprising against Sark and all the luxury and wealth of Florina would be appropriated by their rightful owners.

How, Terens asked. He asked it over and over again. After all, the Squires and the Patrollers had the weapons.

And they told him of Trantor, of the gigantic Empire that had swollen in the last few centuries until half the inhabited worlds of the galaxy were part of it. Trantor, they said, would destroy Sark with the help of the Florinians.

But, said Terens, first to himself, then to others, if Trantor was so large and Florina so small, would not Trantor simply replace Sark as a still larger and more tyrannical master. If that were the only escape, Sark was to be endured in preference. Better the master they knew than the master they knew not.

He was derided and ejected, with threats against his life if he ever talked of what he had heard.

But some time afterward, he noted that, one by one, those of the conspiracy disappeared, until only the original plump one was left.

Occasionally, he saw that one whisper to some newcomer here and there, but it would not have been safe to warn the young victim that he was being presented with a temptation and a test. He would have to find his own way, as had Terens.

Terens even spent some time in the Department of Security, which only a few Florinians could ever expect to fall heir to. It was a short stay, for the power attached to an official in Security was such that the time spent there by any individual was even shorter than elsewhere.

But here Terens found, somewhat to his surprise, that there were real conspiracies to be countered. Somehow men and women met on Florina and plotted rebellion. Usually, these were surreptitiously supported by Trantorian money. Sometimes, the would-be rebels actually thought Florina could succeed unaided.

Terens meditated on the matter. His words were few, his bearing correct, but his thoughts ranged unchecked. The Squires he hated, partly because they were not twenty feet tall, partly because he might not look at their women, and partly because he had served a few, with bowed head, and had found that for all their arrogance they were foolish creatures no better educated than himself and usually far less intelligent.

Yet what alternative to this personal slavery was there? To exchange the stupid Sarkite Squire for the stupid Trantorian Imperial was useless. To expect the Florinian peasants to do something on their own was fantastically foolish. So there was no way out.

It was the problem that had been in his mind for years; as student, as petty official, and as Townman.

And then there arose the peculiar set of circumstances that had now put an undreamed-of answer in his hands in the person of this insignificant looking man who had once been a spatio-analyst and who now babbled of something that put the life of every man and woman on Florina in danger.

Terens was out in the fields now, where the night rain was ending and the stars gleamed wetly among the clouds. He breathed deeply of the *kyrt* that was Florina's treasure and her curse.

He was under no illusions. He was no longer a Townman. He was not even a free Florinian peasant. He was a criminal on the run; a fugitive who must hide.

Yet there was a burning in his mind. For the last twenty-four hours he had had in his hands the greatest weapon against Sark anyone could have dreamed of. There was no question

about it. He *knew* that Rik remembered correctly; that he *had* been a spatioanalyst once; that he *had* been psycho-probed into near brainlessness; and that what he remembered was something true and horrible and—powerful.

He was sure of it.

And now this Rik was in the thick hands of a man who pretended to be a Florinian patriot but was actually a Trantorian agent.

Terens felt the bitterness of his anger in the back of his throat. Of course this Baker was a Trantorian agent. He had had no doubts about that from the first moment. Who else among dwellers in the Lower City would have the capital to build dummy radar ovens?

He could not allow Rik to fall into the hands of Trantor. He *would not* allow Rik to fall into the hands of Trantor. There was no limit to the risks he was prepared to run. What matter the risks? He had incurred the death-penalty already. There was nothing more to lose.

There was a dim gleam in the corner of the sky. He would wait for dawn. The various Patroller stations would have his description, of course, but it might take several minutes for his appearance to register.

And during those several minutes he would be a Townman. It would give him time to do something that even now he didn't dare let his mind dwell upon.

It was ten hours after Junz had had his interview with the clerk that he met Ludigan Abel again.

The ambassador greeted Junz with his usual surface cordiality, yet with a definite and disturbing sensation of guilt. At their first meeting—it had been a long time ago; nearly a Standard Year had passed—he had paid no attention to the man's story *per se*. His only thought had been: Will this, or can this help Trantor?

Trantor! It was always first in his thought, yet he was not the kind of fool who would worship a cluster of stars or the yellow emblem of Spaceship-and-Sun that the Trantorian armed forces wore. In short, he was not a patriot in the ordinary meaning of the word and Trantor as Trantor meant nothing to him.

But he did worship peace; all the more so because he was growing old and enjoyed his glass of wine, his atmosphere saturated with mild music and perfume, his afternoon nap, and his quiet wait for death. It was how he imagined all men must feel; yet all men suffered war and destruction. They died frozen in the vacuum of space, vaporized in the blast of exploding atoms, famished on a besieged and bombarded planet.

How then to enforce peace? Not by reason, certainly, nor by education. If a man could not look at the fact of peace and the fact of war and choose the former in preference to the latter, what additional argument could per-

suade him? What could be more eloquent as a condemnation of war than war itself? What tremendous feat of dialectic could carry with it a tenth the power of a single gutted ship with its ghastly cargo?

So then, to end the misuse of force, only one solution was left, force itself.

Abel had a map of Trantor in his study, so designed as to show the application of that force. It was clear crystalline ovoid in which the Galactic lens was three-dimensionally laid out; its stars were specks of white diamond-dust; its nebulae, patches of light or dark fog; and in its central depths, there were the few red specks that had been the Trantorian Republic.

Not "were" but "had been." The Trantorian Republic had been a mere five worlds, five hundred years earlier.

But it was a historical map, and showed the Republic at that stage only when the dial was set at zero. Advance the dial one notch and the pictured galaxy would be as it was fifty years later and a sheaf of stars would redden about Trantor's rim.

In ten stages, half a millennium would pass and the crimson would spread like a widening bloodstain until more than half the galaxy had fallen into the red puddle.

That red was the red of blood in more than a fanciful way. As the Trantorian Republic became the Trantorian Confederation and then the Trantorian Empire, its advance lay through a tangled forest of gutted men, gutted ships, and gutted worlds. Yet through it all Trantor had become strong and within the red there was peace.

Now Trantor trembled at the brink of a new conversion: from Trantorian Empire to Galactic Empire and then the red would engulf all the stars and there would be universal peace—*pax Trantorica.*

Abel wanted that. Five hundred years ago, four hundred years ago, even two hundred years ago, he would have opposed Trantor as an unpleasant nest of nasty, materialistic and aggressive people, careless of the rights of others, imperfectly democratic at home though quick at seeing the minor slaveries of others, and greedy without end. But the time had passed for all that.

He was not for Trantor, but for the all-embracing end that Trantor represented. So the question: How will this help Galactic peace? naturally became: How will this help Trantor?

The trouble was that in this particular instance he could not be certain. To Junz the solution was obviously a straightforward one. Trantor must uphold the I.S.B. and punish Sark.

Possibly, this would be a good thing, if something could definitely be proven against Sark. Possibly not, even then. Certainly not, if nothing could be proven. But in any case, Trantor could not move rashly. All the galaxy could see that Trantor stood at the edge of Galactic dominion

and there was still a chance that what yet remained of the non-Trantorian planets might unite against that. Trantor could win even such a war, but perhaps not without paying a price that would make victory only a pleasanter name for defeat.

So Trantor must never make an incautious move in this final stage of the game. Abel had, therefore, proceeded slowly, casting his gentle web across the labyrinth of the Civil Service and the glitter of the Sarkite Squiredom, probing with a smile and questioning without seeming to. Nor did he forget to keep the fingers of the Trantorian secret service upon Junz himself lest the angry Libairian do in a moment damage that Abel could not repair in a year.

Abel was astonished at the Libairian's persistent anger. He asked him once, "Why does one agent concern you so?"

He half-expected a speech on the integrity of the I.S.B. and the duty of all to uphold the Bureau as an instrument not of this world or that, but of all humanity. He did not get it.

Instead, Junz frowned and said, "Because at the bottom of all this lies the relationship between Sark and Florina. I want to expose that relationship and destroy it."

Abel felt nothing less than nausea. Always, everywhere, there was this preoccupation with single worlds, that prevented, over and over again, any intelligent concentration upon the problem of Galactic unity. Certainly social injustices existed here and there. Certainly they seemed sometimes impossible to stomach. But who could imagine that such injustice could be solved on any scale less than Galactic. First, there must be an end to war and national rivalry and only then could one turn to the internal miseries that, after all, had external conflict as their chief cause.

And Junz was not even of Florina. He had not even that cause for emotionalized shortsightedness.

Abel said, "What is Florina to you?"

Junz hesitated. He said, "I feel a kinship."

"But you are a Libairian. Or at least, that is my impression."

"I am, but there lies the kinship. We are both extremes in a galaxy of the average."

"Extremes? I don't understand."

Junz said, "In skin pigmentation. They are unusually pale. We are unusually dark. It means something. It binds us together. It gives us something in common. It seems to me our ancestors must have had long histories of being different, even of being excluded from the social majority. We are unfortunate whites and darks, brothers in being different."

By that time, under Abel's astonished gaze, Junz stumbled to a halt. The subject was never sounded again.

And now, after a year, without warning, without any previous in-

timations, just at the point where, perhaps, a quiet trailing end might be expected of the whole wretched matter and where even Junz showed signs of flagging zeal, it all exploded.

He faced a different Junz now, one whose anger was not reserved for Sark, but spilled and overflowed on to Abel as well.

"It is not," the Libairian said, in part, "that I resent the fact that your agents have been set upon my heels. Presumably, you are cautious and must rely on nothing and nobody. Good, as far as that goes. But why was I not informed as soon as our man was located?"

Abel's hand smoothed the warm fabric of the arm of his chair. "Matters are complicated. Always complicated. I had arranged that any report on an unauthorized seeker after spatio-analytic data be reported to certain of my own agents as well as to you. I even thought you might need protection. But on Florina—"

Junz said bitterly, "Yes. We were fools not to have considered that. We spent nearly a year proving we could find him nowhere on Sark. He *had* to be on Florina and we were blind to that. In any case, we have him now. Or you have, and presumably it will be arranged to have me see him?"

Abel did not answer directly. He said, "You say they told you this man, Khorov, was a Trantorian agent."

"Isn't he? Why should they lie? Or are they misinformed?"

"They neither lie nor are they misinformed. He has been an agent of ours for a decade, and it is disturbing to me that they were aware of it. It makes me wonder what more they know of us and how shaky our structure may be altogether. But doesn't it make you wonder why they told you baldly that he was one of our men?"

"Because it was the truth I imagine, and to keep me, once and for all, from embarrassing them by further demands that could only cause trouble between themselves and Trantor."

"Truth is a discredited commodity among diplomats and what greater trouble can they cause for themselves than to let us know the extent of their knowledge about us; to give us the opportunity, before it is too late, to draw in our damaged net, mend it and put it out whole again."

"Then answer your own question."

"I say they told you of their knowledge of Khorov's true identity as a gesture of triumph. They knew that the fact of their knowledge could no longer either help or harm them since I have known for twelve hours that they knew Khorov was one of our men."

"But how?"

"By the most unmistakable hint possible. Listen! Twelve hours ago, Matt Khorov, agent for Trantor, was killed by a member of the Florinian Patrol. The two Florinians he held at the time, a woman and the man who,

in all probability, is the field-man you have been seeking are gone, vanished. Presumably, they are in the hands of the Squires."

Junz cried out and half rose from his seat.

Abel lifted a glass of wine to his lips calmly, and said, "There is nothing I can do officially. The dead man was a Florinian and those who have vanished, for all we can prove to the contrary, are likewise Florinians. So, you see, we have been badly outplayed, and are now being mocked in addition."

VII.

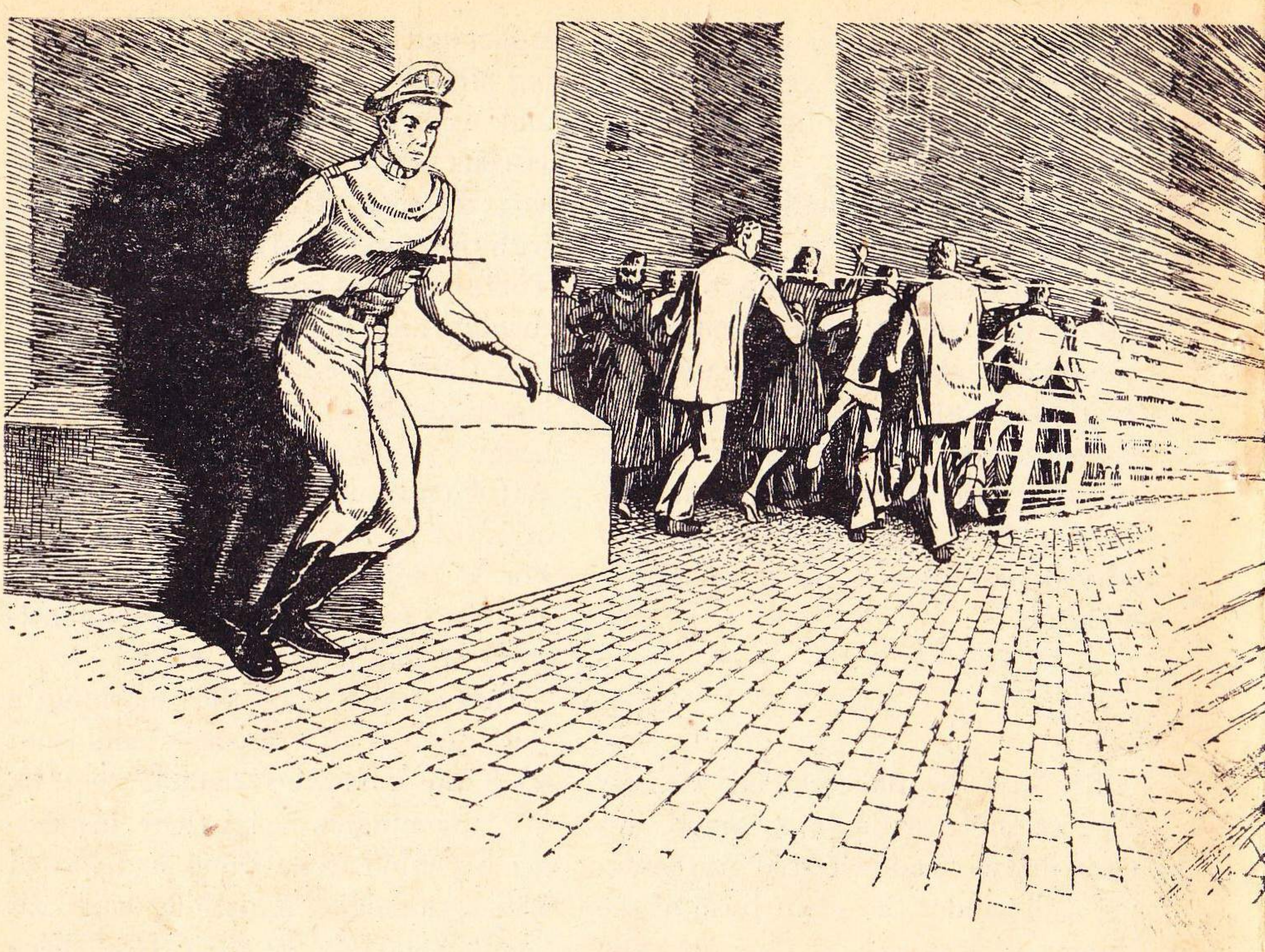
Rik saw the Baker killed. He saw him crumple without a sound, his chest driven in and charred into smoking ruins under the silent push of the blaster. It was a sight that drowned out for him most of what had preceded and almost all that had followed.

There was the dim memory of the Patroller's first approach, of the quiet but terribly intent manner in which he had drawn his weapon. The Baker had looked up and shaped his lips for one last word he had no time to utter. When the deed was done, there was the rushing of blood in Rik's ears and the wild screaming scramble of the mob swirling in all directions, like a river in flood.

For a moment, it negated the improvement Rik's mind had made in those last few hours of sleep. The Patroller had plunged toward him, throwing himself forward upon yelling men and women as though they were a viscous sea of mud he would have to slog through. Rik and Lona turned with the current and were carried away. There were eddies and sub-currents, turning and quivering as the flying cars that carried Patrollers began to hover overhead and amplified voices began to enforce a beginning of order. But Valona urged Rik forward, ever outward to the outskirts of the city. For a while, he was the frightened child of yesterday, not the almost-adult of that morning.

He had awakened that morning in the grayness of a dawn he could not see in the windowless room he slept in. For long minutes, he lay there, inspecting his mind. Something had healed during the night; something had knit together and become whole. It had been getting ready to happen ever since the moment, two days before, when he had begun to "remember." The process had been proceeding all through yesterday. The trip to the Upper City and the Library, the attack upon the Patroller and the flight that followed, the encounter with the Baker; it had all acted upon him like a ferment. The shriveled fibers of his mind, so long dormant, had been seized and stretched, forced into an aching activity, and now, after a sleep, there was a feeble pulsing about them.

He thought of space and the stars, of long, long, lonely stretches, and



great silences.

Finally, he turned his head to one side and said, "Lona."

She snapped awake, lifting herself to an elbow, peering in his direction.

"Rik?"

"Here I am, Lona."

"Are you all right?"

"Sure." He couldn't hold down his excitement. "I feel fine, Lona. Listen! I remember more. I was in a ship and I know exactly—"

But she wasn't listening to him. She slipped into her dress and with her back to him smoothed the seam shut down the front and then fumbled nervously with her belt.

She tiptoed toward him. "I didn't mean to sleep, Rik. I tried to stay awake."

Rik felt the infection of her nervousness. He said, "Is something wrong?"

"*Sh*, don't speak so loudly. It's all right."

"Where's the Townman?"

"He's not here. He . . . he had to leave. Why don't you go back to sleep, Rik?"

He pushed her consoling arm aside. "I'm all right. I don't want to sleep. I

wanted to tell the Townman about my ship."

But the Townman wasn't there and Valona would not listen. Rik subsided and for the first time felt actively annoyed with Valona. She treated him as though he were a child and he was beginning to feel like a man.

A light entered the room and the broad figure of the Baker entered with it. Rik blinked at him and was, for a moment, daunted. He did not entirely object when Valona's comforting arm stole about his shoulder.

The Baker's thick lips stretched in a smile. "You're early awake."

Neither answered.

The Baker said, "It's just as well. You'll be moving today."

Valona's mouth was dry. She said, "You'll not be giving us to the Patrollers?"

She remembered the way he had looked at Rik after the Townman had left. He was still looking at Rik; only at Rik.

"Not to the Patrollers," he said. "The proper people have been informed and you'll be safe enough."

He left, and when he returned shortly thereafter, he brought food, clothes, and two basins of water. The clothes were new and looked completely strange.

He watched them as they ate, saying, "I'm going to give you new names and new histories. You're to listen, and I don't want you to forget. You're not Florinians, do you understand? You're brother and sister from the planet, Wotex. You've been visiting Florina—"

He went on, supplying details, asking questions, listening to their answers.

Rik was pleased to be able to demonstrate the workings of his memory, his easy ability to learn, but Valona's eyes were dark with worry.

The Baker was not blind to that. He said to the girl, "If you give me the least trouble, I'll send him on alone, and leave you behind."

Valona's strong hands clenched spasmodically. "I will give you no trouble."

It was well into the morning when the Baker rose to his feet and said, "Let's go!"

His last action was to place little black sheets of limp leatherette, in their breast pockets.

Once outside, Rik looked with astonishment at what he could see of himself. He did not know clothing could be so complicated. The Baker had helped him get them on, but who would help him take them off. Valona didn't look like a farmgirl at all. Even her legs were covered with thin material, and her shoes were raised at the heels so that she had to balance carefully when she walked.

Passers-by gathered, staring and gawking, calling to one another. Mostly they were children, marketing women, and skulking, ragged idlers. The Baker seemed oblivious to them. He carried a thick stick which found itself occasionally, as though by accident, between the legs of any who pressed too closely.

And then, when they were only a hundred yards from the Bakery and had made but one turning, the outer reaches of the surrounding crowd swirled excitedly and Rik made out the black and silver of a Patroller.

That was when it happened. The weapon, the blast, and again a wild flight. Was there ever a time when fear was not with him, when the shadow of the Patroller was not behind him?

They found themselves in the squalor of one of the outlying districts of the City. Valona was panting harshly; her new dress bore the wet stains of perspiration.

Rik gasped, "I can't run any more."

"We've got to."

"Not like this. Listen." He pulled back firmly against the pressure of the girl's grip. "Listen to me."

The fright and panic was leaving him. He could feel himself turning whole again.

He said, "Why don't we go and do what the Baker wanted us to do?"

She said, "How do you know what he wanted us to do?" She was anxious. She wanted to keep moving.

He said, "We were to pretend we were from another world and he gave us these." Rik was excited. He pulled the little rectangle out of his pocket, staring at both sides and trying to open it as though it were a booklet.

He couldn't. It was a single sheet. He felt about the edges and as his fingers closed at one corner, he heard, or rather felt, something give, and the side toward him turned a startling milky white. The close wording on the new surface was difficult to understand though he began carefully making out the syllables.

Finally, he said, "It's a passport."

"What's that?"

"Something to get us away." He was sure of it. It had popped into his head. A single word, "passport," like that. "Don't you see? He was going

to have us leave Florina. On a ship. Let's go through with that."

She said, "No, they stopped him. They killed him. We couldn't, Rik, we couldn't."

He was urgent about it. He was nearly babbling, "But it would be the best thing to do. They wouldn't be expecting us to do that. And we wouldn't go on the ship he wanted us to go on. They'd be watching that. We'd go on another ship. Any other ship."

A ship. Any ship. The words rang in his ears. Whether his idea was a good one or not, he didn't care. He wanted to be on a ship. He wanted to be in space.

"*Please*, Lona!"

She said, "All right. If you really think so. I know where the spaceport is. When I was a little girl, we used to go there on idle days sometimes and watch from far away to see the ships shoot upward."

They were on their way again, and only a slight uneasiness scratched vainly at the gateway of Rik's consciousness. Some memory not of the far past, but of the very near past; something he should remember and could not; could just barely not. Something.

He drowned it in the thought of the ship that waited for them.

The Florinian at the entry gate was having his fill of excitement that day, but it was excitement at long distance. There had been the wild stories the previous evening throughout the city, telling of Patrollers attacked and of daring escapes. By this morning, the stories had expanded and there were whispers of Patrollers killed.

He dared not leave his post, but he craned his neck and watched the aircars pass, and the grim-faced Patrollers leave as the spaceport contingent was cut and cut until it was almost nothing.

They were filling the city with Patrollers, he thought, and was at once frightened and drunkenly uplifted. Why should it make him happy to think of Patrollers being killed? They never bothered him. At least, not much. He had a good job. It wasn't as though he were a stupid peasant.

But he was happy.

He scarcely had time for the couple before him, uncomfortable and perspiring in outlandish clothing that marked them at once as foreigners. The woman was holding a passport through the slot.

A glance at her, a glance at the passport, a glance at the list of reservations. He pressed the appropriate button and two translucent ribbons of film sprang out at them.

"Go on," he said, impatiently. "Get them on your wrists and move on."

"Which ship is ours?" asked the woman in a polite whisper.

That pleased him. Foreigners were infrequent at the Florinian spaceport.

In recent years they had grown more and more infrequent. But when they did come, they were neither Patrollers nor Squires. They didn't seem to realize you were only a Florinian yourself and they spoke to you politely.

It made him feel two inches taller. He said, "You'll find it in Berth 17, madam. I wish you a pleasant trip to Wotex." He said it in the grand manner.

He then returned to his task of putting in surreptitious calls to friends in the city for more information and of trying, even more unobtrusively, to tap private power-beam conversations in Upper City.

It was hours before he found out that he had made a horrible mistake.

Rik said, "Lona!"

He tugged at her elbow, pointed quickly and whispered, "That one!"

Valona looked at the indicated ship doubtfully. It was much smaller than the ship in Berth 17, for which their tickets held good. It looked more burnished. Four air locks yawned open and the main port gaped, with a ramp leading from it like an outstretched tongue reaching to ground-level.

Rik said, "They're airing it. They usually air passenger ships before flight to get rid of the accumulated odor of canned oxygen, used and reused."

Valona stared at him. "How do you know?"

Rik felt a sprig of vanity grow within himself. "I just know. You see, there wouldn't be anyone in it now. It isn't comfortable, with the draft on."

He looked about, uneasily. "I don't know why there aren't more people about, though. Was it like this when you used to watch it?"

Valona thought not, but she could scarcely remember. Childhood memories were far away.

There was not a Patroller in sight as they walked up the ramp on quivering legs. What figures they could see were civilian employees, intent on their own jobs, and small in the distance.

Moving air cut through them as they stepped into the hold and Valona's dress bellied so that she had to bring her hands down to keep the hemline within bounds.

"Is it always like this?" she asked. She had never been on a spaceship before; never dreamed of being on one. Her lips stuck together and her heart pounded.

Rik said, "No. Just during aeration."

He walked joyfully over the hard metallite passageways, inspecting the empty rooms eagerly.

"Here," he said. It was the galley.

He spoke rapidly. "It isn't food so much. We can get along without food for quite a while. It's water."

He rummaged through the neat and compact nestings of utensils and came

up with a large, capped container. He looked about for the water tap, muttered a breathless hope that they had not neglected to fill the water tanks, then grinned his relief when the soft sound of pumps came and the steady gush of liquid.

"Now just take some of the cans. Not too many. We don't want them to take notice."

Rik tried desperately to think of ways of countering discovery. Again he groped for something he could not quite remember. Occasionally, he still ran into those gaps in his thought and cowardlike, he avoided them, denied their existence.

He found a small room devoted to fire-fighting equipment, emergency medical and surgical supplies, and welding equipment.

He said, with a certain lack of confidence, "They won't be in here, except in emergencies. Are you afraid, Lona?"

"I won't be afraid with you, Rik," she said, humbly. Two days before, no, twelve hours before, it had been the other way around. But on board ship, by some transmutation of personality she did not question, it was Rik who was the adult, she who was the child.

He said, "We won't be able to use lights because they would notice the power-drain, and to use the toilets, we'll have to wait for rest periods and try to get out past any of the night crew."

The draft cut off suddenly. Its cold touch on their faces was no longer there and the soft, steady humming sound that had distantly accompanied it stopped and left a large silence to fill its place.

Rik said, "They'll be boarding soon, and then we'll be out in space."

Valona had never seen such joy in Rik's face. He was a lover going to meet his love.

If Rik had felt a man on awaking that dawn, he was a giant now; his arms stretching the length of the galaxy. The stars were his marbles, and the nebulae were cobwebs to brush away.

He was on a ship! Memories rushed back continuously in a long flood and others left to make room. He was forgetting the *kyrt* fields and the mill and Valona crooning to him in the dark. They were only momentary breaks in a pattern that was now returning with its raveled ends slowly knitting.

It was the ship!

If they had put him on a ship long ago, he wouldn't have had to wait so long for his burnt-out brain cells to heal themselves.

He spoke softly to Valona in the darkness. "Now, don't worry. You'll feel a vibration and hear a noise but that will be just the motors. There'll be a heavy weight on you. That's acceleration."

There was no common Florinian word for the concept and he used another word for it, one that came easily

to mind. Valona did not understand.

She said, "Will it hurt?"

He said, "It will be very uncomfortable, because we don't have anti-acceleration gear to take up the pressure, but it won't last. Just stand against this wall, and when you feel yourself being pushed against it, relax. See, it's beginning."

He had picked the right wall, and as the thrumming of the thrusting hyper-atomics swelled, the apparent gravity shifted, and what had been vertical wall, seemed to grow more and more diagonal.

Valona whispered once, then lapsed into a hard-breathing silence. Both throats rasped as their chest walls, unprotected by straps and hydraulic absorbers, labored to free their lungs sufficiently for just a little air-intake.

Rik managed to pant out words, any words that might let Valona know he was there and ease the terrible fear of the unknown that he knew must be filling her. It was only a ship, only a wonderful ship; but she had never been on a ship before.

He said, "There's the Jump, of course, when we go through hyper-space and cut across most of the distance between the stars all at once. That won't bother you at all. You won't even know it happened. It's nothing compared to this. Just a little twitch in your insides and it's over." He got the words out syllable by grunted syllable. It took a long time.

Slowly, the weight on their chest lifted and the invisible chain holding them to the wall stretched and dropped off. They fell, panting, to the floor.

Finally, Valona said, "Are you hurt, Rik?"

"I hurt?" He managed to laugh. He had not caught his breath yet, but he laughed at the thought that he could be hurt on a ship.

He said, "I lived on a ship for years once. I didn't land on a planet for months at a time."

"Why?" she asked. She had crawled closer and put a hand to his cheek, making sure he was there.

He put his arm about her shoulder, and she rested within it quietly, accepting the reversal.

"Why?"

Rik could not remember why. He had done it; he had hated to land on a planet; for some reason it had been necessary to stay in space; but he could not remember why. Again, he dodged the gap.

He said, "I had a job."

"Yes," she said. "You analyzed Nothing."

"That's right." He was pleased. "That's exactly what I did. Do you know what that means?"

"No."

He didn't expect her to understand, but he had to talk. He had to revel in memory, to delight drunkenly in the fact that he could call up past facts at the flick of a mental thumb and finger.

He said, "You see, all the material in the universe is made up of a hundred different kinds of substances. We call those substances, elements. Iron and copper are elements."

"I thought they were metals."

"So they are, and elements, too. Also oxygen, and nitrogen, carbon and palladium. Most important of all, hydrogen and helium. They're the simplest and most common."

"I never heard of those," Valona said, wistfully.

"Ninety-five per cent of the universe is hydrogen and most of the rest is helium—even space."

"I was once told," said Valona, "that space was a vacuum. They said that meant there was nothing there. Was that wrong?"

"Not quite. There's *almost* nothing there. But you see, I was a spatio-analyst, which meant that I went about through space collecting the extremely small amounts of elements there and analyzing it. That is, I decided how much was hydrogen, how much helium and how much other elements."

"Why?"

"Well, that's complicated. You see the arrangements of elements isn't the same everywhere in space. In some regions there is a little more helium than normal; in other places, more sodium than normal; and so on. These regions of special analytic makeup wind through space like currents. That's what they call them. They're the currents of space. It's important to know how these currents are arranged because that might explain how the universe was created and how it developed."

"How would it explain that?"

Rik hesitated. "Nobody knows exactly."

He hurried on, embarrassed that this immense store of knowledge in which his mind was thankfully wallowing could come so easily to an end marked, "unknown," under the questioning of . . . of— It suddenly occurred to him that Valona, after all, was nothing but a Florinian peasant girl.

He said, "Then, again, we find out the density, you know, the thickness, of this space-gas in all regions of the galaxy. It's different in different places and we have to know exactly what it is in order to allow ships to calculate exactly how to jump through hyperspace. It's like—" His voice squeaked and died away.

Valona stiffened and waited uneasily for him to continue, but only silence followed. Her voice sounded hoarsely in the complete darkness.

"Rik? What's wrong, Rik?"

Still silence. Her hands groped to his shoulders, shaking him. "Rik! Rik!"

And it was the voice of the old Rik, somehow, that answered. It was weak, frightened, its joy and confidence vanished.

"Lona. We did something wrong."

"What's the matter? We did what wrong?"

The memory of the scene in which the Patroller had shot down the Baker was in his mind, etched hard and clear, as though called back by his exact memory of so many other things.

He said, "We shouldn't have run away. We shouldn't be here on this ship."

He was shivering uncontrollably, and Valona tried futilely to wipe the moisture from his forehead with her hand.

"Why?" she demanded. "Why?"

"Because we should have known that if the Baker were willing to take us out in daylight, he expected no trouble from Patrollers. Do you remember the Patroller? The one who shot the Baker?"

"Yes."

"Do you remember his face?"

"I didn't dare look."

"I did, and there was something queer, but I didn't think. I didn't think. Lona, that *wasn't* a Patroller. It was the Townman, Lona, the Townman dressed like a Patroller."

TO BE CONTINUED

IN TIMES TO COME

Next month will, as promised immediately above, continue "Currents of Space," of course. The cover this month, by the way, is, mayhap, a bit unfair. It's from "Currents" all right—but the scene is in a later installment. How about it; do you feel a serial cover should be based strictly on the first installment, or on a scene anywhere in the whole story?

Next month's cover, as mentioned, is by Schneeman; the story for which it was not done, but which it illustrates almost perfectly, is "Last Blast," by Eric Frank Russell. Some while back, I had an editorial on "The Ultimate Weapon." Russell uses, in this yarn, an equally effective, and utterly deadly weapon to solve the problem. Curiously, it's a weapon that's available and to hand in all times and all places!

Ray Jones is back, too—with a yarn involving one of the nicest ideas I've encountered. I owe Ray for the germ of the idea I mentioned in a recent editorial; I wrote him, saying so—and he wrote back a story. Educational psychologists please note!

THE EXILE

BY ALFRED COPPEL

You can lead *a horse to water—and you can drive a man . . . to a certain extent. But driving is a very poor way to work with men.*

Illustrated by van Dongen

Here is a time—

A night in the winter of nineteen hundred and sixty, a year of grace. In San Francisco, the darkness is wet and foggy. The city is blacked out, a futile gesture in a decade of radar and missiles. In Moscow there are purge trials. In Paris the Nihilist Revolt has been put down by Gaullist troopers, and the city of light lies under martial law. In New Mexico there are rocket trails and thunderheads in the sky.

Here is a man—

His name is Francis Cain. He is a pilot. His books are screened, his music is distilled, he lives in a never never land of Q-clearances and security. His wife has been investigated, his friends scrutinized, his thought suspected. He is not free. He is driving fast over rain-washed roads to death.

Here is death—

Denied.

This is the way the world ends—

Spinning lights and cold fire in blackness—and pain, a universe of pain. Fear—black bedeviling fear and a slipping, sliding fall into the dank, wet dark of death.

This is the way, Cain thought confusedly, I'm dying and this is the way it feels. I'm hanging on to the pain already, and soon that will go and there will be nothing left at all. I'll be nothing, nothing at all.

With what remained of sentience he recalled a wet ribbon of road and sudden lights where there should be no lights and then the rending sound of tearing metal. Voices from the past whispered to him and distorted the memory. There was the voice that told him he shouldn't listen to Prokofiev's music—now. And the voice that muttered about the books he should never have read. Voice on voice all weaving themselves into a psychotic symphony with tearing metal and screaming brakes and now this—

Slipping and sliding down into a

wet and sticky darkness all laced with acid tendrils of pain and more fear than he had ever known could be.

I should call for Ben, he thought. Benny can fix it. A crazy syndrome of laughter swept through the broken images in his mind. Call Dr. Benny, Frankie's broken his head and Benny can fix it. Fear welled up again in a dark tide. Ben, help me! *Ben!* Oh, God, he thought, it's all over now. The work, the bite of the cold upper air and the feeling of swift wings. And Carin, what about Carin? That was done for, too. She couldn't follow him down into this slimy black hole that dying was.

He began to sob—inwardly, because his face was gone.

Oh, Carin, Carin, he thought, and blue air and all the stars at night and the lights below and the rush of wind over silvered wings in sunlight gone all gone—

I don't want to die!

His battered heart heard and struggled to beat again within the crushed case of his chest. His blood, that had been turning cool, flowed and stained the white tautness on which he lay.

The night interne stared.

The nurse's aide, a young and pretty WAC, turned away faintly. "I've got a strong stomach, but not that strong," she said. The smells of the Station Hospital, long familiar to her, seemed suddenly sickening.

"You called the Flight Surgeon?" asked the interne.

"Yes, doctor," the girl said.

"And Dr. Isaacs?"

She nodded.

"They better get here quick," the interne said. He seemed hypnotized by the man on the cot. "Get a sheet and cover it up," he said hoarsely.

The girl complied.

"I've seen them bad," the interne said. "I've seen them pulled out of rocket misfires in strips like bacon but I've never seen the like of this." His voice was unsteady. "What a mess a car can make of a guy—"

The red hole below Cain's hairline bubbled and frothed.

"We have to do something," the interne said.

"Dr. Isaacs told the Flight Surgeon not to use any higher system blocks. No morphia, no pentothal sodium and no luminol," the girl said.

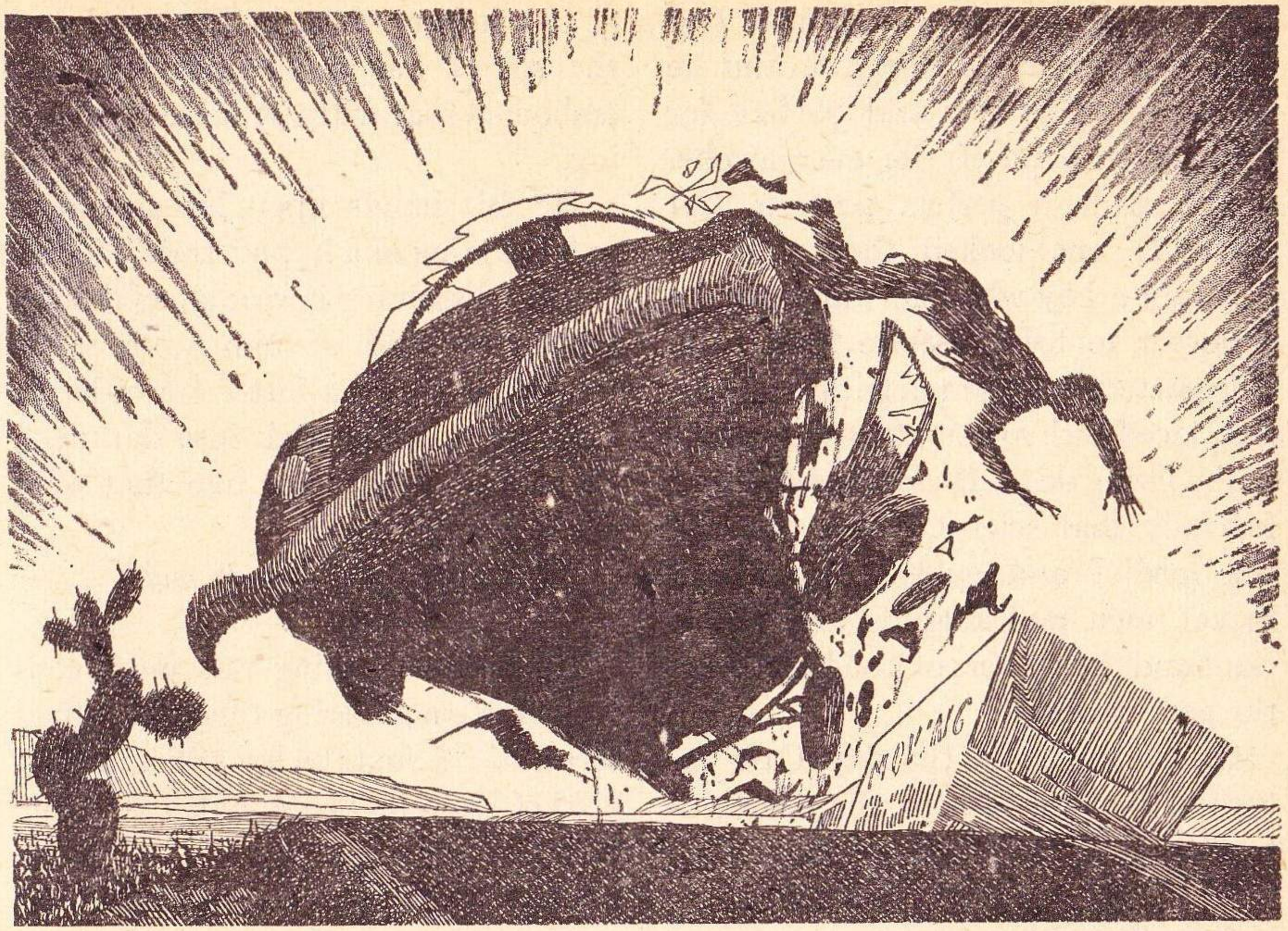
The interne said, "And they call this a hospital."

"The Flight Surgeon said to get him ready for Prosthetics, but I don't know what we can do," the WAC said confusedly.

There was the sound of a Security Guard's boots in the passageway. The girl looked at the interne's pale face and managed a relieved smile. "They're coming," she said thankfully.

Here is a challenge—

Surely a race that has spanned oceans and seas in hours and blacked out the centers of light across the face of a planet, a race that has progressed along the path of learning from



the uranium bomb to the plutonium bomb to the hydrogen bomb, a race that has begun to build a satellite vehicle—

Surely this race can save the life of one valuable man?

Here is the challenge—

The freedom of death denied.

For Cain there was no time.

There was a lessening of anguish.

There was, for a formless interval that might have been seconds and was months, a loss of sentience.

The pain went and the wet dark pit of death closed up and Cain lived on. And on.

The young interne, gray faced, came often to Cain's warm and humid room to stare at the thing the prostheticians had done. He remembered, with a touch of hysteria, Ben Isaac's fingers flying in the glare of the operating light. Cutting and trimming and fitting—

The Test Station was an island in space and time, isolated, cut off from the mainstream of ordinary life. But the outside world impinged in the form of directives and fearful voices on the radio and the work progressing on the rocket field.

It all meshed. It fit. Through the long desert twilights, the interne

would think of how Cain's wife had collapsed when she saw him and he wondered what it would be like for Cain when—and if—he ever awoke. It all made a perfect pattern, but wherever one looked there was no place for a boy who had wanted to be a doctor to bring respite from pain. The pattern was symmetrical and perfect, laced with rocket trails and images of the living dead. He learned to know fearfully that science was a god and the medics and cybernetics and rocket men and soldiers and politicians and the makers of iron limbs were the god's priests.

On the night of the day Cain returned to consciousness, the young interne shot himself through the mouth.

Cain thought—

I'm blind!

He cried out in fear and the sound was like that of a cheap loud-speaker overloading, harsh, incoherent, and fearfully loud. He heard running feet, their beat tinny and unreal.

He panicked and tried to heave himself upright.

There was a stab of pain and a surging nausea and the fantastic noise of metal clashing.

Cain screamed.

The sound was shrill thunder.

He could hear voices now, voices that seemed to be whispering in a hissing roar, voices that pierced the inner marrow of him like needles.

"Ben! *Carin!*"

The images were in his mind but the sound was a disconnected, disembodied roar without sense or meaning.

He felt hands upon his shoulders and the sting of a hypodermic. He felt himself dissolving inwardly, as though the inner stuff of him were sandwashed away by a bitter sea of lethe.

As he tumbled back into darkness, he sobbed in a voice like that of a cheap phonograph:

"*What have you done to me?*"

His second waking was more controlled. Remembering the phantasmal terror of the first, he lay still and took hold of himself. The sounds that came to him were still tinny and not natural, but not so loud. He nerved himself and whispered for Isaacs.

"Where are you, Ben?"

"I'm here, Frank. Right here with you."

"What's happened, Benny?"

"You had an accident in the car. A bad one. But you're going to be all right now. All right—"

"Am I blind?" Cain asked softly.

"You'll be able to see soon, Frank. You have to learn to control yourself, that's all."

"Help me, Ben."

"Look, boy, I am—I will. But you aren't ready yet. First of all—"

"Ben."

"Take it easy." Warningly.

"*Where are my legs?*"

Isaacs' voice sounded flat, toneless.

"It was a bad accident, boy."

Cain felt a thin bead of sweat run slowly down his forehead. At the bridge of his nose, sensation stopped. He tried to lick his lips, and felt nothing.

"Ben, how bad? *How bad?*"

"Real bad, boy."

"My hands? My face?"

In the silence he could hear Ben's wrist watch ticking.

"A . . . a basket case?" Cain fought down a churning nausea. As his throat tightened, he felt the pull of sutures.

"I can take it now, Ben," he said blankly. "Let me see."

"Look, boy. You're not ready—"

"Let me see what I am!" Cain yelled.

He felt Isaacs' hands fumbling about his head and neck.

Cain saw.

His thought was a soundless anguish.

His vision was distorted, like an insect's might be. As though his eyes were on stalks, he could see himself. The top of his head, shaggy and graying; his face—

A plastic mask bonded to the flesh and bone of his skull. White skin, sickly and pale, to the middle of his chest and then a nightmare of steel and plastic with a grotesque bellows working in and out and plastic arms laced to mottled stumps above the elbow joint. His hands—metal claws.

He thought, this isn't real. It's some awful half-human robot. And then he thought of Carin.

He covered his lidless eyes with his metal hands. The voice that issued from the grilled speaker in the mask of his face said hollowly:

"You should have let me die."

Here is reality—

A man is maimed. A valuable man, one with facts and figures in his head that are important in a world steaming in its own ordure of hate. A man with experience.

Science plucks the man from darkness and imprisons what is left of him in steel and plastic. That is reality. It is not reality that his wife retched when she saw him again. It is not reality that his eyes are glass lenses that can never see color or know the beauty of a Renoir or a Miro. Nor is it reality that his aural nerves connect not to ears but to amplifiers and microphones that distort the measured cadences of Scarlatti or Beethoven. Away the majestic Ninth, no more the tender chorales. They are not reality.

Reality is a sickened hope, an acrid demand:

Adapt.

Cain lay staring at the ceiling.

Through the open windows he could hear faintly the sounds of building at the rocket field. He knew the day was bright and the sky blue, but he did not look. Blue was an abstraction now. Bright a meaningless qualification of another period of high illumination.

He had found that he needed little sleep. Almost none. Apparently his disgusting hybrid body needed little. Idly he had found that he could exist on the barest morsels of food. Apparently the batteries that animated his metal self were almost enough to sustain life. And he knew he could not kill himself. He had stopped breathing, but the bellows in his chest continued to pump and he suspected the prosthetician had foreseen a death-wish and supplied him with self-regenerating oxygen bottles.

In spite of his hatred for life as he was, he was toughening.

In the beginning was the Word, he thought bitterly, and the Word was: Adapt.

An Army Flight Nurse, one of several who cared for him, was standing in the doorway. Without changing his position on the cot, Cain could see she was dressed for town.

"I'm off to Lordsburg, Mr. Cain," she said brightly. "Anything I can bring you?"

"Sure," he said hollowly, "a briar pipe and a new pair of bedroom slippers. My feet are getting rusty."

The girl laughed uncomfortably. Cain noted briefly that she was quite pretty, but it didn't matter any more. The bitterness surged through him, and then he realized how the girl must feel—standing there, looking at something that must have her almost sick to her stomach and trying to be cheerful.

He essayed an attempt at humor. "You'd better be careful, lieutenant," he said, "I hear Lordsburg is crawling with Red spies—one under every bush and tumbleweed. Take care of yourself. You're our secret weapon."

"Thank you, Mr. Cain," the girl said thankfully. "Are you sure I can't bring you something? A book maybe?"

"A copy of Plato's 'Republic,' then, if you can find it," he suggested, not really caring.

"Uh uh. On the Red List."

"Well, thanks just the same, then, lieutenant. Have a pleasant time."

And then the girl was gone and Cain was alone with the afternoon brightness flooding the room.

It was perfectly natural, he thought. A natural sequence of events. Eventually everyone would be like he was. I am, he thought, the *avant garde* of our really brave Brave New World. A metal world where a man is told what music he may hear, what books he may read, what friends he may enjoy, what relatives he must disavow, what pictures he may see. An iron-bound world where for him the only freedom had been the cold bite of high flight in some deathly machine momentarily transfigured into a vessel of free delight. And now, logic had demanded that the last tiny islands vanish and the world was all metal, iron curtains and steel discipline and even an iron body. In the beginning was the Word. Adapt! *Adapt!*

"Frankie?"

Isaacs stood in the doorway, looking—as always—like a man in a sack suit in spite of the eagles on the shoulders of his blouse.

"Come in, Ben," Cain said. "Aren't you going to tell me how well I'm looking? 'You're looking fine, boy. Deep rich patina on your arms and legs. High gloss on your face and belly.' How about it, Ben?"

"Don't, Frank."

"Frank? Why not M-22 or some really metallic title. Or aren't you in the mood today?"

Isaacs sat on the edge of Cain's cot. He had a book under his arm.

"For me?" Cain asked.

Isaacs nodded.

Cain read the title. "The Hound of Heaven."

"Francis Thompson."

Cain felt something soften within him. It was like Ben to come up with something like that, remembering school days, remembering the sun-bright days of youth and planning and large dreams—

"'*Across the margent of the world I fled, And troubled the gold gateways of the stars*—'" Cain quoted. "Ben— "

"I know, boy. Remember the rest of it? I do. '*Smiting for shelter on their clanged bars; fretted to dulcet jars and silvern chatter the pale ports of the moon*—'"

"Ben," Cain said thickly, "it's hell, you know. Bloody hell lying here—thinking."

"I swear to you, Frank. It wasn't done for kicks. We had to do it. You're *the* man. I guess you know that."

"Still? Like *this?*"

"I hate to say it, boy. But you're more the man than ever now."

"The *Moonshot?*"

"You can hear them building her."

Cain thought—

I was wrong. The brave Brave New World isn't quite complete. The sky goes with it. And a sickness rose up inside him. It was what he had always planned. The sky. The stars. But not now. Not like this, a half-man in an iron, acrid smelling world.

"I won't do it," Cain said quietly.

Ben Isaacs did not reply.

"I won't spread this lousy sickness into the sky, Ben. It's filthy enough as it is."

"Would you rather the Russki did it, Frank?"

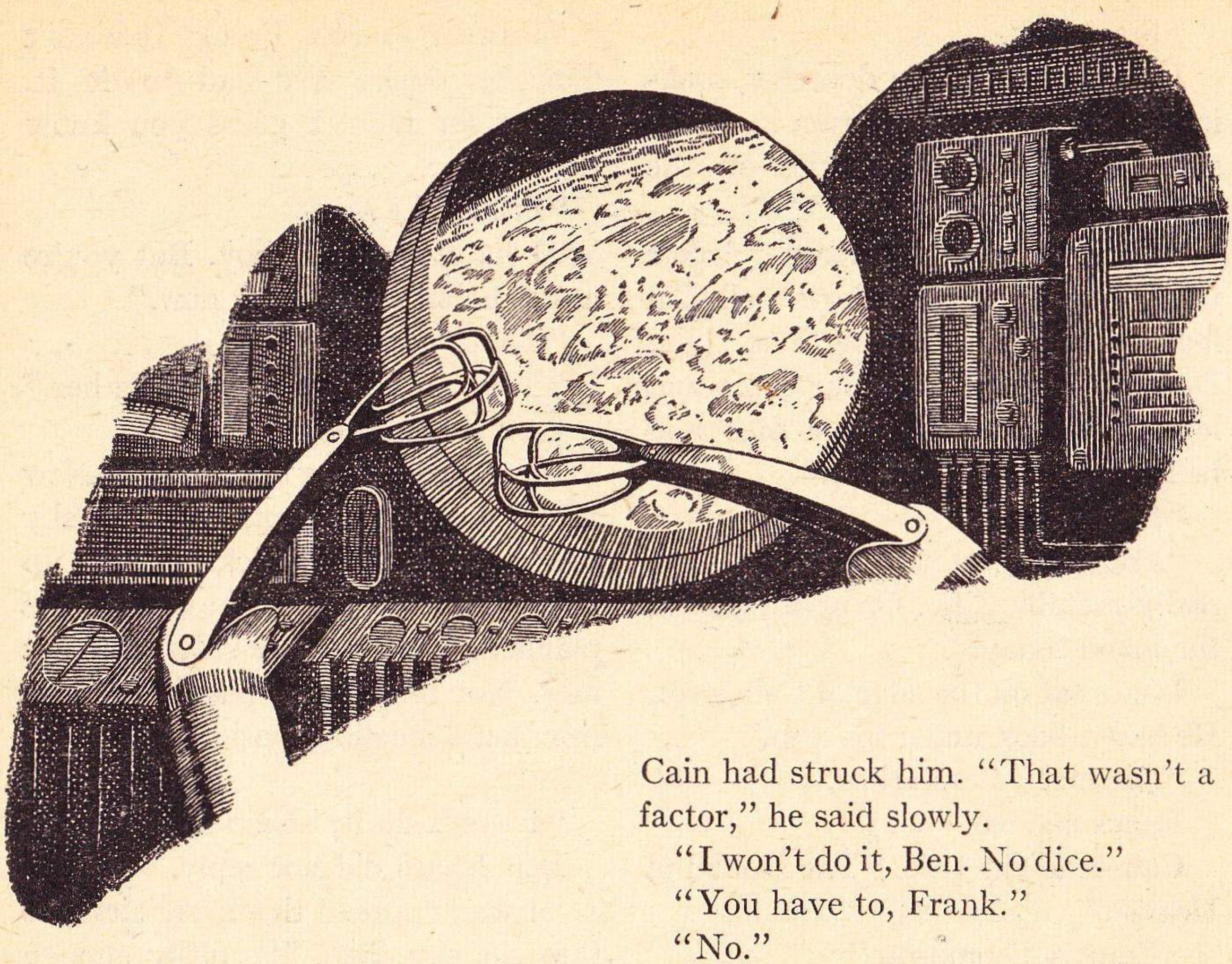
"I don't care who does it. I only know I won't."

Ben studied the desert beyond the windowpanes.

"You aren't afraid, I know that," he said softly. "Can you tell me why you won't?"

"Why I won't reach out a metal claw and pluck off the plum I've wanted all my life? Maybe it's because it doesn't mean anything to me any more, Ben."

"I can't believe that. You were the best of the high pilots. You still could



be. You are the logical man. You earned the right and the ship was designed for you—"

"The new me?" Cain asked sneeringly.

"Yes, the new you. It won't work any other way. You should be able to figure it out."

"You didn't by any chance arrange for that truck that wiped me out, did you?"

"No, you know better than to ask. But it did happen to you and we kept you alive—for this."

"Not for sweet friendship, Ben?"

Isaacs' dark face blanched as though Cain had struck him. "That wasn't a factor," he said slowly.

"I won't do it, Ben. No dice."

"You have to, Frank."

"No."

"I'll make you do it, Frank," Ben Isaacs said.

"Blow it."

"I can, Frank. You know I can."

Cain felt the beginnings of a sickness he had put aside.

"I wrote to Carin, Ben. I told her to get a divorce. You can't use her in this—"

"Carin is still your wife," Ben said flatly.

"You wouldn't do that, Ben. You wouldn't bring her here—"

"You have to take the flight up, Frank."

"*No!*" Desperately.

Isaacs got to his feet and looked

down at the half-man. There were tears in his dark eyes as he shook his head, wondering if he could actually be as cruel as he must be.

"*No!*" The speaker grille croaked tinnily.

"Frank—"

"Get out! *Get out!*"

Isaacs laid the book gently on the cot and walked from the room, his shoulders drooping as though from the weight of the eagles he wore. The sound of dry grief-laden sobbing followed him accusingly down the quiet hall and out into the still desert afternoon.

Here is a woman—

In her hand is a scrawled note written by metal hands. It is her key to freedom from bondage to the thing that was her man. She can no longer equate the half-robot in the Station Hospital with the taut fleshed man who once shared her life. But she hasn't the courage or the kindness to use the key. She is bound by duty, by a feeling of failure. Failure because she cannot love the half-man as she once loved him before. Failure because she has shown her weakness and her humanity. She listens to a military doctor's words and agrees. She hasn't the strength or the integrity to refuse. She is, after all, only a twentieth century woman. And perhaps, deep below the level of her preconscious mind exists the tiny fragment of hope that here is freedom with honor.

Here is Carin Cain.

She's coming, Cain thought. She's really coming here to see me, to stare at me, to be sickened by me.

Footsteps in the hall. The measured, medical beat of Ben Isaacs, the staccato light touch of high heels, the strident ever-present heaviness of the Security Guard's boots—

I won't do it, Cain thought bitterly. They can't force me to do it.

But they can. He could hear Carin's steps, faltering now. Go back, go back, don't look at me like this. Don't make me see the sick horror on your face. Carin go back—

He tried to force his mind from the picture of Carin, but he could not. He was filled with a hunger for her. He wanted to see her face smiling at him, he wanted to remember the soft texture of her hair, the faint musky odor of her skin. He remembered her small tendernesses, the tiny, essential reliefs from a regimented, bleak world.

In his mind he saw her, the blond light on her face, the soft curve of her mouth—

Distorting—

With fear, sickness, loathing.

Carin, no!

He wanted to run, to escape, to be free of memory. He wanted to flee—*across the margent of the world.*

The footsteps had paused at the door. He heard himself shouting:

"All right, Ben! All right!"

Ben's voice: "All right what, boy?"

Carin's voice: "Frank, my poor Frank—"

"*Stay out!*" Cain shrieked.

Ben's voice: "All right *what?*"

"You know!"

"Your word, Frank?"

"Yes, yes, anything, anything! *Just stay out of here!*"

"All right, Frank. Thank you."

The sound of footsteps again, receding, slowly—gratefully.

Cain woke in darkness.

He felt, rather than heard the restless thrumming of the jet. Still accelerating—at a rate that would kill a man.

Clever god, science, he thought briefly. They had transplanted the stump of him into a new body—the ship, the *Moonshot*.

Tubes from the ship fed him, comforted him, soothed him. He lay in warm darkness, a fragment of a man, a brain in a ragged fleshy case while his body drove like an arrow into night.

His electric eyes brought him the great curving disk of the world far below. It was mottled brown and white and blue, free, at this height of the scars of man's occupation.

Memory—

Ben standing beside his cradle in the humid darkness of the ship's viscera.

"Frank, I want you to know I wouldn't have done it this way if there had been any other way."

"All right, Ben," the ship said.

"We haven't much time. The Reds—"

"It's O.K., Ben. Really O.K. It's better this way."

Technicians and cybernetics bustling about, making last minute adjustments. And outside, the black desert night with a million stars like dust across the sky.

"Everything's set and automatic. But there can be errors, I guess," Ben said. "That's your job, Frank."

"O.K., Ben," the ship said.

"Come back, boy."

Silence.

"Frank?"

"Look. Say good-by to Carin, will you, Ben? Tell her I understand how it is—"

And he did. Carin was of the world of men. To the ship—Cain—it seemed that he was already apart from it.

"Almost time, Frank," Ben said uneasily.

"Eighty-seven seconds," the ship said. "You'd better leave now."

"Come back, Frank."

"Sure, Ben. Don't worry."

"Just once around the Moon."

"Like once around the park. Easy does it."

"Good-by, boy. God bless you."

"*Sholem aliechem*, Ben," the ship said.

Memory, fading, fading.

The hours ticked by. The jet, drained of fuel, was silent. Cain felt the stillness of swift flight. The stars,

bright against the deep, blue-black night, looked down on him.

A thought swiftly checked the automatic flow of telemetered information that bound him to the scrubby plot of sun-scorched desert now on the far side of the world.

I'm still bound to the world, Cain thought. Still filled with grief for the thing I once was—for the thing the world might once have been. There must be an end—somewhere.

The Moon lay below, a sweeping panorama of pumice, basalt, striated sandstone, streaked with black night shadows. Cain surveyed it without interest as the cameras recorded, interpreted, dispatched their information to the waiting ones in the desert.

The ship swung around the barren disk, clucking softly within itself with cybernetic satisfaction. Cain lay inert, not caring, still bound by inner sadness, and a desolation that the Moon's barren face could not match.

The radarscope scanned the proper path ahead, evaluated it, and with a machine's strange perversity, discarded it. The ship continued on its curving path.

Cain caught the error almost instantly.

The watchers in the desert caught it, too. The radio crackled and hissed.

"*Moonshot One, you're off course.*"

Cain did not reply. He felt the first stirrings of—

What?

The voice became insistent. "*Moonshot, you are fifteen degrees off your proper return path. Correct at once.*"

Cain thought, I've done my job.

The ship continued to drift off course. Now its needle prow was pointed once again off into the deep night.

Ben's voice: "*Frank! What's gone wrong? Answer me, Frank!*"

Isaacs' voice brought it back again, sharp and clear. The grief, the loss, the loneliness, the cobalt sadness—

A flicker of fire licked from the ship's emergency jet. Cain straightened out—pointed at the stars.

"*Frank, what are you doing?*"

Cain sensed the nearness of a kind of freedom he had only dreamed of.

"*Listen Frank, listen to me!*" Ben's voice sounded ragged and afraid. "*You owe it to us to—*"

The voice from the ship was bitter and metallic. "*I owe you nothing.*"

The ship's dwindling tail flare remained pointed at the face of the world. Cain reached outward and upward, yearning after release and the starry dark.

The watchers below tracked it until they could track it no longer in the deeps of the interplanetary night.

Cain's body sustained him a long, long while. And his mind reached out to the night, hungrily. Freedom was there. There in the darkness dusted with stars—

THE END

BUT YOU SAID... BY RALPH WILLIAMS

Foreword:

For several years certain associates and I have been pursuing a line of investigation paralleling, though not duplicating, that of the Kinsey group.

The following paper outlines certain rather interesting conclusions which may be drawn from one aspect of this work. We feel this material, even in this fragmentary form, is of especial significance in the present period of world-wide disorientation.

A TENTATIVE EVALUATION OF THE DYNAMICS OF REGENERATIVE CONFLICT ARISING IN A TYPICAL SOCIAL SITUATION

PART I

1. Etiology:
   - 1.1 (A) and (B) comprise a social unit (AB) in which they are, respectively, man and wife, or occupy the roles of man and wife.
   - 1.2 (A) builds up certain nervous tensions which periodically demand release.
   - 1.2.1 In (AB)'s cultural environment, one acceptable mechanism for relieving such tensions is through social drinking.
   - 1.2.1.1 Within the system (AB) this mechanism of release is fully effective only for (A).

     Note: Experimental evidence seems to indicate both qualitative and quantitative differences in the response of the male and female nervous system to similar stimuli. The exact mechanism of this variable response has not yet been completely evaluated, although it has been continuously and exhaustively studied for more than fifty thousand years. It continues to offer an interesting and rewarding field for collaborative research.
   - 1.2.2 (A)'s tensions arise in part from attempts to conform to standards of demeanor acceptable to (B).
   - 1.3 When (A) drinks, he relaxes from these standards (i.e., he may butter his bread with the starboard side of his knife, or display preliminary symptoms of amentia.
   - 1.3.1 Under these circumstances, (B) finds (A)'s behavior distasteful and (A) repulsive.

2. Mechanism:

2.1 If (B) expresses this distaste during the active phase of (1.3), (A) may drink more heavily in order to produce full anaesthesia.

2.1.1 If the impact of (B)'s disapproval is quite heavy, coma in (A) may result before the desired anaesthesia is attained.

2.2 If (B) waits until the active phase of (1.3) has subsided (i.e., the hangover stage is reached) to express perseveration of the attitude (1.3.1), some of the euphoric effect from (1.3) may be dissipated, and (A)'s hangover will be intensified.

2.2.1 This may cause (A) to consciously or unconsciously transfer blame for the hangover from his earlier insistence on mixing his liquors, where it belongs, to (B).

2.2.2 If (B) exhibits a chronic tendency toward (2.2), foreknowledge of this may have the effect on (A) of (2.1); or may establish a block in (A) against returning home at all (Domiciliphobia).

3. Prognosis:

3.1 Frustrations incident to (1.3.1) through (2.2.2) in turn give rise to tensions in (B) which are considered in Part II of this paper.

Part II

1. Etiology:

1.1 (A) and (B) comprise a social unit (AB) in which they are, respectively, man and wife, or occupy the roles of man and wife.

1.2 (B) builds up certain minor nervous tensions which periodically demand release. This desire for release is probably unconscious.

1.2.1 One socially acceptable way of relieving these tensions is by way of a crying jag.

1.2.1.1 Within the system (AB) this mechanism of release is fully effective only for (B). (See note (1.2.1.1) Part I.)

1.2.2 (B)'s tensions arise in part from attempts to conform to standards of behavior acceptable to (A).

1.3 When (B) cries, she relaxes from these standards (i.e., her appearance deteriorates, she uses up all the Kleenex.

1.3.1 Under these circumstances, (A) becomes irritated.

2. Mechanism:

2.1 If (A) allows himself to express this irritation during the active phase of (1.3) (i.e., if (A) kicks (B)) (B) may sob more loudly, further aggravating (A).

2.1.1 If the impact of (A)'s irritation is sufficiently severe, this may go on until (B) is

completely exhausted.

2.2 If (A) waits until the active phase of (1.3) has subsided (i.e., the desire for comfort and reassurance becomes manifest), and then kicks (B), some of the euphoric content of (1.3) will be dissipated, and (B)'s depression will be intensified.

2.2.1 This may cause (B) to unconsciously transfer blame for her unhappiness from the burnt roast, where of course it belongs, to (A). (See note (2.2.1) Part I.)

2.2.2 If (A) does this frequently, expectation of his behavior by (B) may have the effect of (2.1); or may even establish a strong block in (B) against doing any cooking at all (Dysculinaria).

3. Prognosis:

3.1 Frustrations incident to (1.3.1) through (2.2.2) in turn give rise to tensions within (A) which are considered in Part I of this paper.

ADDENDUM:

The composition of this paper is based in part on Koestler's theory of bisociation, and we have exposed several subjects to it as a preliminary check of the theory. Male subjects in general responded as predicted, the intensity of response showing interesting correlations with the cultural background of the subject.

Female subjects, however, almost invariably indicated aggressive responses quite at variance with the expected generalized relaxation of tension. This may indicate that Koestler's theory of operative fields is completely valid only for the male of the species. On the other hand, it may indicate that women are not human, in the strict scientific sense of the term.

A further unexpected observation was that with some subjects there occurred a delayed secondary reaction —the technical term is "double-take" —when some of the more abstruse terms were defined. The mechanism of this response is not entirely clear, but for the convenience of the reader I include a short glossary of the terms most effective in triggering this emotive discharge:

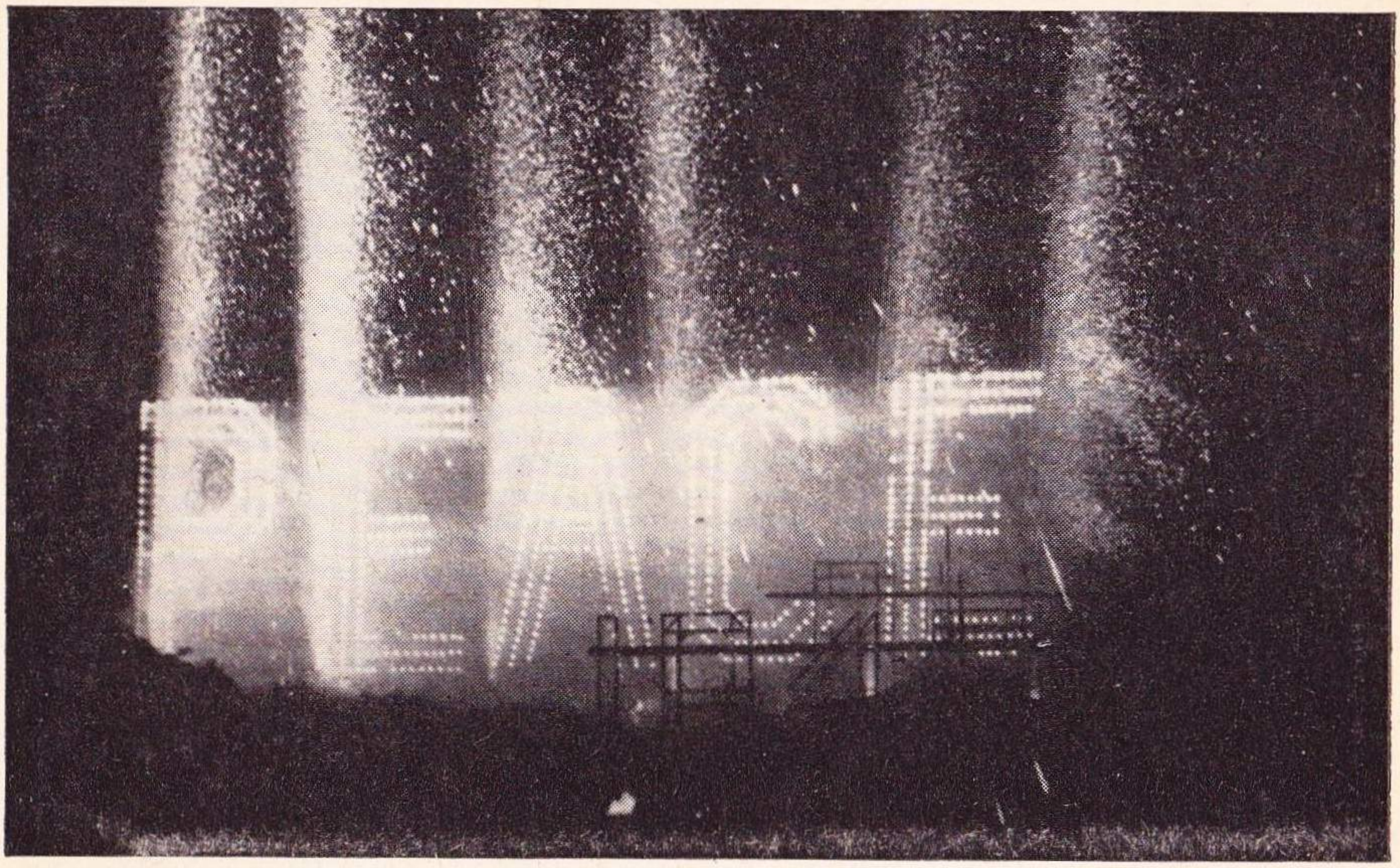
Amentia: Simple-mindedness.

Rapport: An attitude of mutual sympathy and harmony of endeavor.

Repulsive: Loathsome, offensive, disgusting, and repellent to any woman of decent sensibilities.

Hangover: Self-explanatory.

THE END



FIREWORKS BY WILLY LEY

Best known *perhaps for his work on that most advanced field of technology, rocketship engineering, Willy Ley is also an expert on an ancient and now-dying technology: pyrotechnics. And, as the author points out, it's perfectly logical; the first rockets were pyrotechnic display pieces.*

Tomorrow is the Fourth of July—and that date is traditionally still connected with the thought of fireworks. But only traditionally; in reality the Fourth of July is now practically fireworkless in large sections of the country. For "the distribution, sale, possession and discharge" of fireworks is outlawed in a number of states. Where the state legislatures have so far failed to act, city ordnances have jumped into the breach. I gravely doubt that Mr. Henry J. Welman's manuscript on "Fireworks And How To Make Them—Instructions for Amateurs" —would even find a publisher now. It

INTERNATIONAL NEWS PHOTO

Even in modern times, no other method exists for creating the brief, bright beauty of the centuries-old rocket.

did, when it was originally written, which was in New York City in about 1900. A modern publisher, upon receipt of such a manuscript, would call his legal department and the legal department would reply with a list of prohibitive ordnances and a general lecture on liability.

And even in those sections of the country—or in foreign countries—where the law is still aware of the fact that automobiles kill more people than fireworks ever did, there is the important question of expense. Good big displays cost large sums of money even in the past; some of the victory or coronation displays of the time before the First World War came to about seventy-five thousand dollars even then. Small wonder that what

was shown at the World's Fair a dozen years ago was only a miniature edition of the real thing of the past. Nor should it be forgotten that a fireworks display in, say, 1900, had little competition from other sources. A modern child would probably compare a display to the flashing electric signs of Broadway and remark that the latter last much longer. And to somebody used to neon lights a Red Bengal fire is scarcely a big surprise.

So, in writing about fireworks I feel that I am writing about a slowly disappearing art, involved in a losing struggle with safety regulations, the competition of more modern arts and its own costliness. For pyrotechnics does not lend itself very well to mass production methods; most of the things which were done a certain way in 1650 were still done in precisely the same manner in 1900. And even in 1952 the picture is still very much the same. The machine has moved in mostly where brute strength was re-

INTERNATIONAL NEWS PHOTO

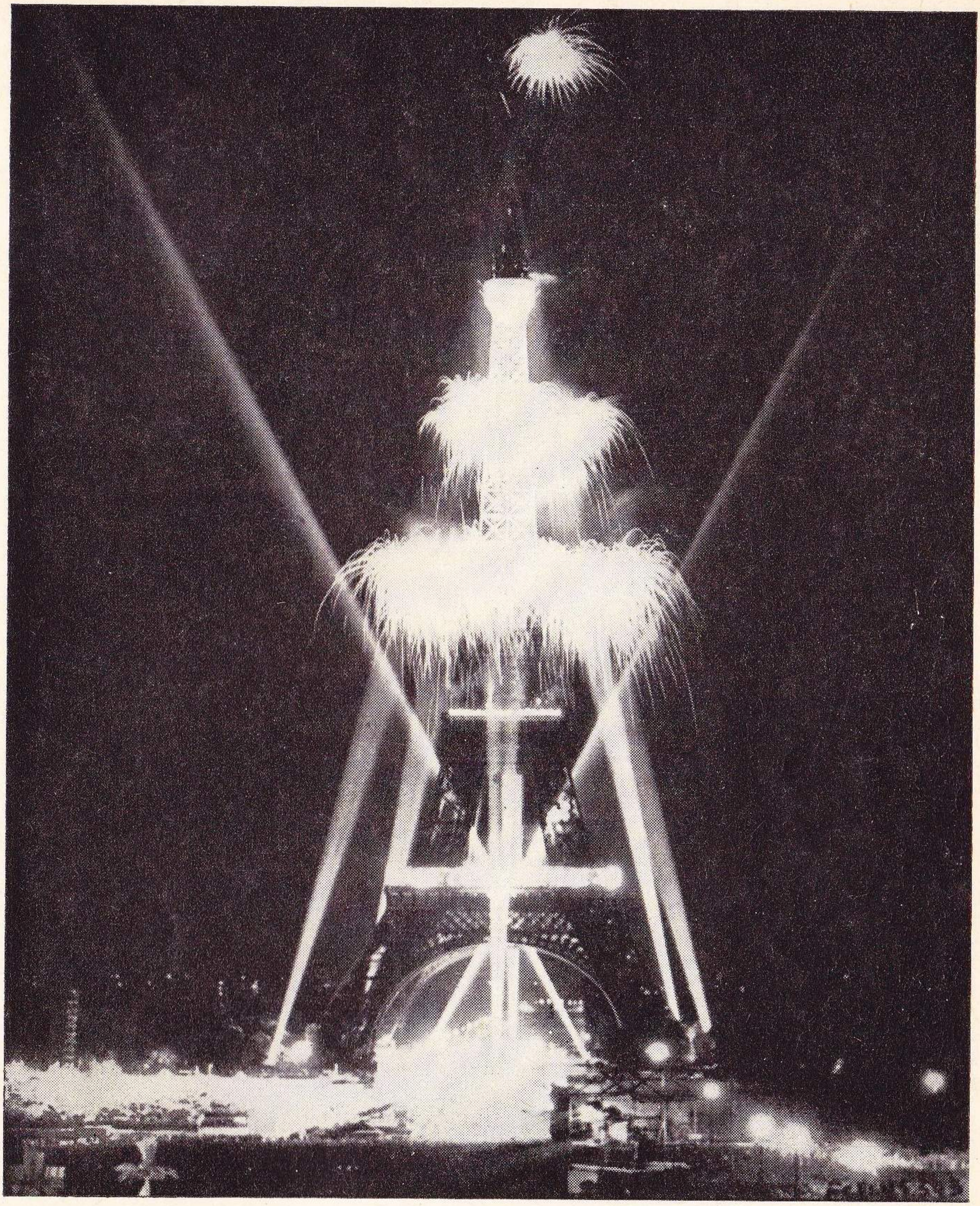
In older times, when a candle's flame was brilliant night illumination, the blaze and color of firework displays were even more impressive.

quired originally. But in this particular field the precision of the machine could substitute for the skill of the artisan in only a few places.

The basic material of all fireworks is ordinary black gunpowder. This fact alone permits some dating, it enables us to say when fireworks could not exist, for gunpowder entered the Western world—via the Arabs—in about 1250 A.D., having been concocted in China only a few decades earlier. At first there was so little gunpowder and it was so precious and presumably so expensive that it could not be used for any such frivolous purpose as amusement. But the art of fireworks displays did grow out of the military use of the newly introduced gunpowder in the most natural manner. The guns which had reduced a fortress or won a battle were fired once more in celebration of victory. The rockets which had set the enemy's wooden and wickerwork "fortifications" on fire were shot high into the air when the victorious general or prince returned.

While we don't know too much detail, two dates prove that things moved at a leisurely pace in those days. The first skyrocket mentioned in the Western world was used in 1258, as recorded in the *City Chronicle* of the City of Cologne. The first picture of fireworks—contemporary—is that of a display near Nuremberg in 1570. From the scarcity of other information it seems likely that the artist depicted one of the first, if not the first, organized and planned fireworks display. Since the conversion from military employ to peaceful display must have taken place repeatedly and in various places two definite "schools" of fireworks can be distinguished in the beginning. One is called the Italian—or more specifically the Siena—school, the other was northern, mostly German. But they did not stay separated for any important length of time, by the time the first books on fireworks were written the distinction had largely disappeared.

The first book specifically devoted to fireworks was printed in the same city which seems to have been the first to stage fireworks displays for the fun of it, without waiting for military victories or important state visits to celebrate, namely Nuremberg. The book, written by one Johann Schmidlap, bears the date of 1591 and its author stated, on the title page, in the foreword and about a dozen times in the text itself that the book contained information which has been heretofore only handed on from master to apprentice. It was true, too—I have read all the older books on gunnery and while all of them devoted some remarks, a few paragraphs or even a chapter to fireworks, they did not give instructions. On the other hand all the fireworks books after Schmidlap, up to, say, the year 1800, are solidly based on Schmidlap's book.



INTERNATIONAL NEWS PHOTO

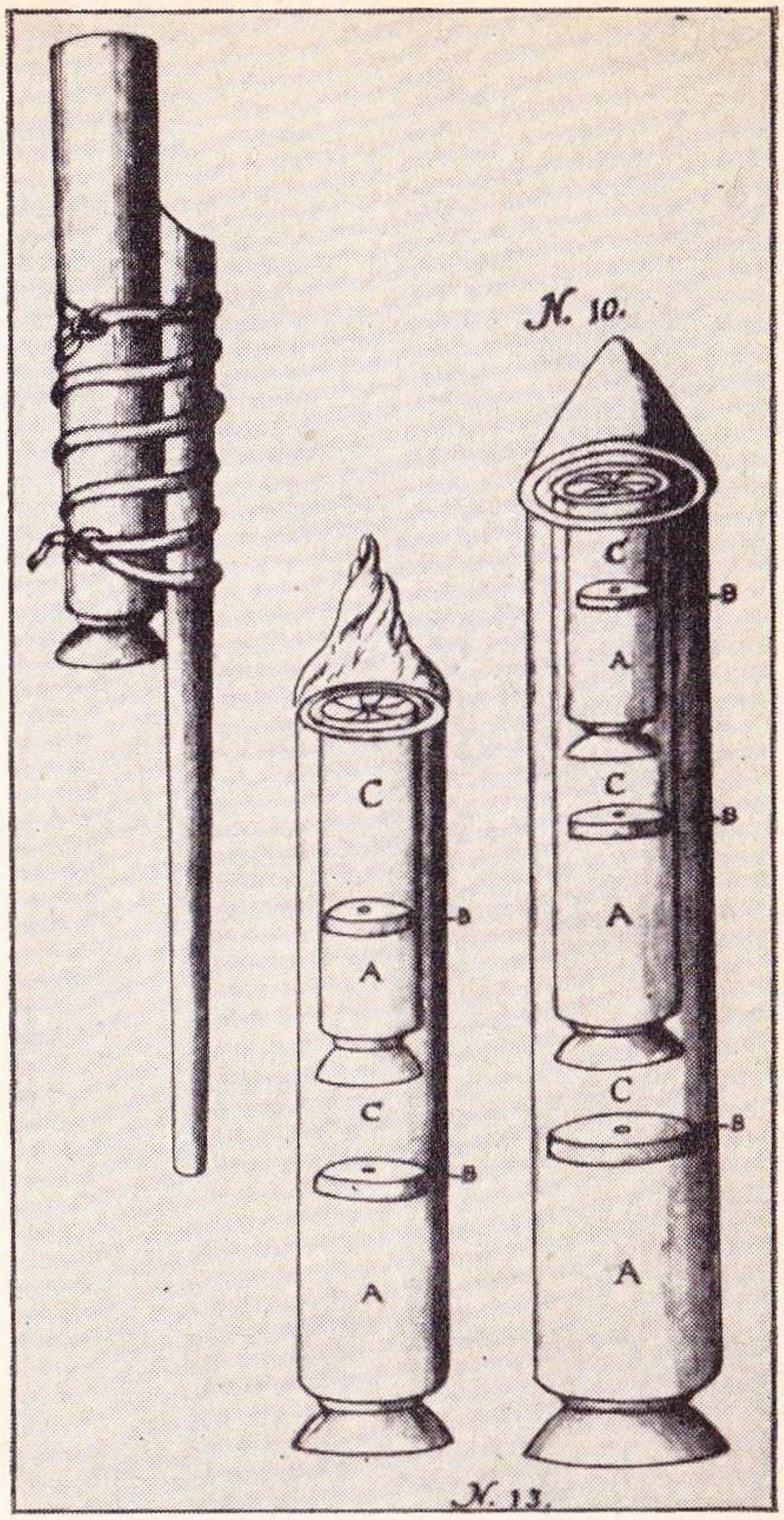
Built to adorn one World Exposition, the Eiffel Tower gives Paris an ideal display-platform for fireworks.

INTERNATIONAL NEWS PHOTO

The New York World's Fair used the old appeal of fireworks to draw crowds. Ley mentions the rocket as the modern descendant of fireworks; equally, however, there is the aerial photograph flash-bomb, the Very signal pistol, the railroad and trucker's red fuse danger warning, and the amateur photographer's glassed-in flashbulb.

Apparently the art solidified early; if you have seen pictures of the fireworks makers' tools in one of the old books, you recognize them instantly anywhere else. Of course their number is small, and most of them look simply like thick dowels of various sizes; in fact, they are. These hardwood dowels, called "formers" and "tampers," are to the fireworks maker what the wooden last is to a shoemaker. They have to be numerous because numerous pieces of work progress at the same time. And they come in assorted sizes, but their shape hardly varies. In addition to these formers the fireworks maker's shop contained large flat worktables, and a number of "rolling boards" which you can picture best if you imagine a drawing board, about two by three feet in size, made of hardwood and equipped with two leather straps for handles on its back. The other equipment were mallets in assorted sizes, a few funnels, in rare cases a small pill press, and an assortment of brass pipes.

The function of all this equipment was to make tubes. Supposing the master was informed around Palm Sunday that three hundred large sky-

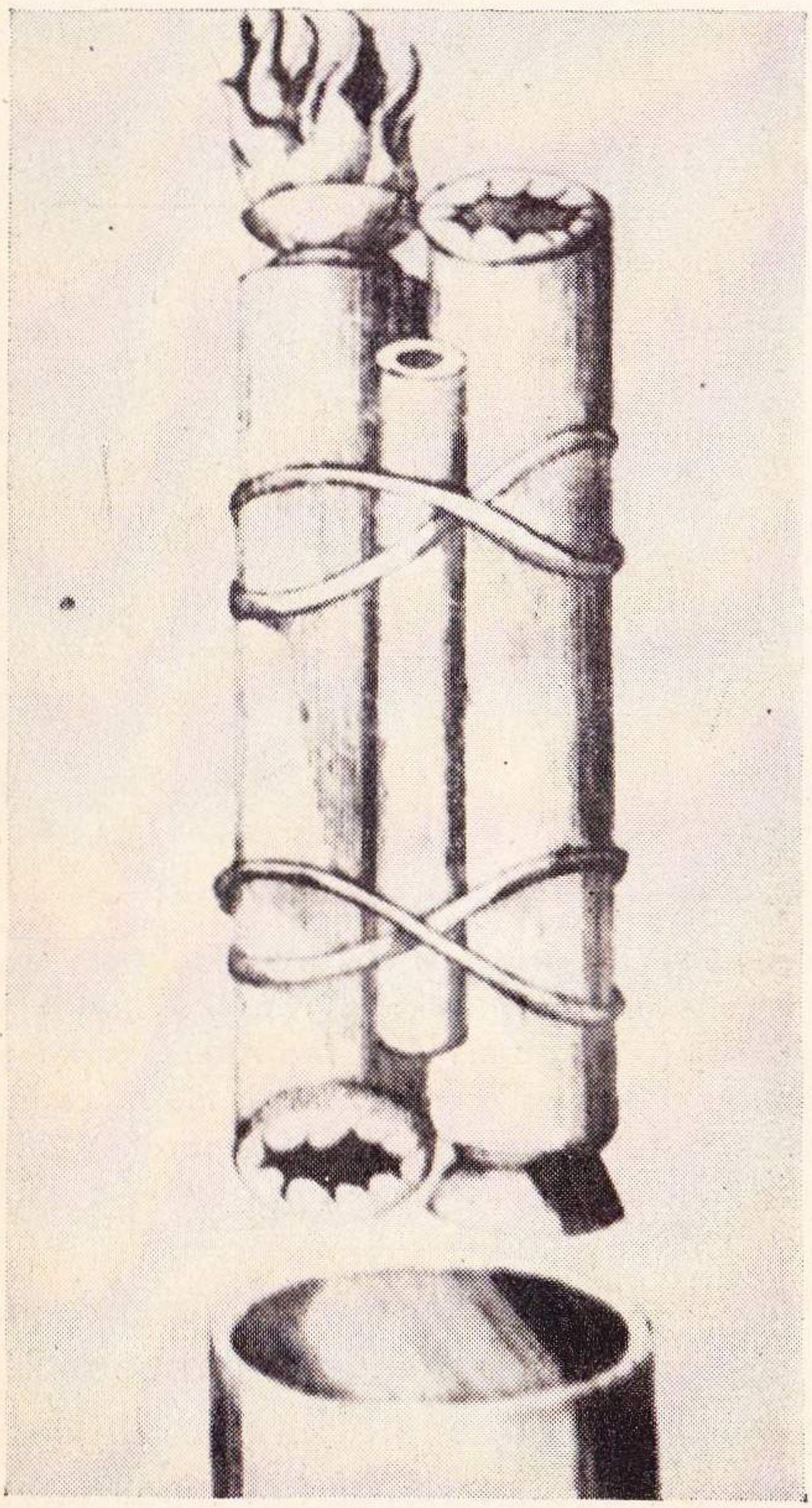


Fireworks rockets from the Austrian book on "engineering and fireworks" of 1740. At left finished rocket, to the right two rockets carrying smaller rockets as "garniture." A is the space for the propulsive charge, B is the separating disk and C is the spare for garniture.

rockets were required for a display on St. Martin's Day come October. The master would probably mutter that the time was a bit short. But that he would do his best and would even throw in two "cannons," as usual, to mark the beginning and the end of the display.

The first step then was to take some paper from the stockroom and to boil a large kettle of flour paste. A "former" of the proper diameter was selected—say one and one quarter inches since the burgomaster had

asked for large rockets—and one layer of paper wound around it. This done, the remainder of the sheet was thinly smeared with paste and wound tightly around the "former." When the paper was all wound, the "rolling board" went into action. The "former" with the pastesheet around it was placed on a table and the board on top of it. Then the new tube was rolled back and forth under the board, the master gradually increasing the pressure and finally resting as much of his body weight as possible on the board. Later another sheet of paper might be added to the tube or not, depending on how hard the rocket was to be pressed later, on the size of the first sheet of paper and lots of other things. While the first "former" was put aside to dry the next tube was begun; and so on, all day long.



AUSTRIAN FIREWORKS BOOK

Two rockets, tied so that they will whirl in midair, with a "lance" tied to them, over the mouth of a pot-à-feu from which they were just ejected.

After two days the first tubes of the batch were about half dry. That was the time to begin the "throttling." There was a stout hook in the door jamb for this purpose. The equipment consisted of a good strong string, some two yards long and well smeared with soap. The end of the string was tied to the hook, the other was tied to a wooden crosspiece. The fireworks maker then pulled the "former" out of the still moist tube, but only for about two inches. A shorter "former," some three inches long with a rounded-off end, was inserted and the soaped string looped around the tube. Then the master took the string between his legs and "riding" the crosspiece, the tube, being turned steadily, slowly received the constriction which was actually a primitive exhaust nozzle. The "throttling" was carried on until the hole left was about one third of the inside diameter of the tube, for larger tubes, until the hole was one half the inside diameter. Tubes for some purposes were throttled shut at

one end, a closed throttle was tied with string as a rule, partly for marking it as such, partly to avoid a later re-opening.

While the tubes were all throttled and set aside to dry an apprentice made the two "cannons" ready. They were just wooden boxes about the size of a cigar box. They were simply filled with cannon powder and were merely supposed to make a loud bang. To make the bang louder it was necessary to strengthen the box. The material was again string, soaked in carpenter's glue. The glue-wet string was wound around the box—to a present day observer it would have looked like winding a square coil. When the box was wound with one layer of string, the next layer was wound at right angle to the first; then a third, at right angle to the second; and often a fourth. When it was all wound—there was a short piece of dowel sticking out which temporarily closed the touch hole—the box was dipped in or "painted" with hot carpenter's glue, and set aside to dry.

Loading the "cannons" when dry was simple and could be done by the apprentice who merely pulled out the dowel and funneled powder grains into the box until it was full. Loading the rockets was more complicated and more tedious. The tube was set on a "thorn" which filled the space that would later be the hole in the rocket composition. Then the master fitted a brass pipe around the tube, some used wooden blocks with a straight hole of the proper thickness. This was to reinforce the tube during hammering which meant just what the term implies. About as much composition as would fill the tube an inch high was poured in. Then a hollow "tamper" which fitted around the "thorn," was inserted and received a dozen or more blows with a heavy mallet. Then another one-inch layer of composition was poured in and hammered into place, until the tube was full except for a space about two inches high at the top.

That space was for the "garniture" —we'd call it "payload" because whatever was carried by the rocket was "garniture," whether it was simply a load of cannon powder to make another bang, or at later dates a starlight with or without parachute, or even a smaller rocket. No matter what the garniture, a disk went on top of the composition. It was a thick cardboard disk, up to a quarter inch in thickness for the larger sizes, which was glued into the tube. In its center it had a one-eighth inch hole through which a spark could pass. (Later a thin layer of clay was hammered on top, with a tamper that had a small "thorn" in the center in order to make the hole.) Supposing the rocket was just to end with a loud report, the garniture chamber received half an ounce or so of gunpowder; then another and usually thinner disk, with-

out a center hole, was pasted over the powder to keep it in place. The last operation was to paste a conical cap on top, that was usually done after the rocket had been pulled off the "thorn" and out of the tube which prevented it from bursting during the hammering.

To avoid accidents the touch hole was also pasted shut with paper for the duration of the storage which was to be as short as possible. The final operations just before use were to tie the guiding stick to the rocket and to paste in the fuse. For the guiding stick the old recipe was that it should be seven times as long as the rocket itself and that its weight should be such that the whole would balance on a knife blade about an inch below the touch hole.

Meanwhile an apprentice had prepared the fuses. They were candlemaker's wicks, soaked in a thick soup of "mealed gunpowder"—I'll explain soon what that was and why—and alcohol. When the wicks were well soaked they were pulled out of the pot, the surplus stripped off between the fingers of the operator and then—surprise—put aside to dry. Interestingly these fuses could be used both as a quick match and as a slow match. When ignited after drying they would burn rather slowly. But, if they were enclosed in a very loosely fitting tube of just one layer of good writing paper, the flame would flash from one end to the other almost instantaneously.

Now I have to explain the "mealed powder" and then I can proceed to more general things. The old type black gunpowder consisted, as you well know, of seventy-five per cent by weight of saltpeter. The remaining twenty-five per cent were about evenly divided between sulphur and charcoal. But if you merely mix these three ingredients you don't get gunpowder, instead you get something that burns slowly and sputteringly and unless there is something nearby that may catch fire the whole is completely harmless. Artillerymen learned early that gunpowder, to be any good at all, had to be compressed and grained. The procedure, as worked out to perfection in the end—just before the smokeless powders came in and took over as far as military use was concerned—looked about as follows. First the ingredients were pulverized in special mills; it was not at all extraordinary to run the mill for twenty-four hours on one batch of sulphur. After they had been pulverized as much as humanly possible, they were mixed with fanatic thoroughness for days.

The result of the day-long shuffling and mixing was a very fine blackish powder, which, however, if burned openly, would still not perform much better than the simple mixture that had been stirred for only an hour. Moreover, since the specific gravity of the three ingredients is not the same, it would "de-mix" in storage.

One process that was worked out, there were several, of course, consisted in adding a small quantity of grain alcohol to the ready-mixed powder, just enough to make it barely moist. Then it was forced over rollers, more precisely between a brass roller and a wide belt of sail cloth. After this was repeated a few times you had flat cakes of powder which were broken up into large pieces, about egg size, for drying. When dry, the "graining" began, the powder lumps were broken up into smaller grains which were sorted by size by a series of sieves. Each size then was shoveled into hollow brass drums which slowly rotated for a day or so. Tumbling inside the grains polished each other and presumably grew more uniform in grain size, too. What came out of the drums, sieved once more and freed from dust, was the finished product, gunpowder.

Then the fireworks master bought himself some of that powder and put it in leather bags, usually about half a pound of powder into a bag which could have held two pounds easily. And then the strongest apprentice took these bags out into the open, one by one, put them on a smooth chopping block and beat them mercilessly with a heavy mallet. After half an hour of beating the bags contained "mealed powder"; externally the powder had returned to its original shape, but now each tiny grain still contained all three ingredients in the proper mixture ratio. It was this mealed powder which was actually the mainstay of the fireworks laboratory, not the grained powder which the military used.

In the fireworks laboratory the grained powder was an exception. It was needed for those "cannons" mentioned, or for expelling the garniture from a rocket. Or for other purposes of the same type.

Everything else was not powder, but composition or "fires" as they termed them. And the "fires" could be grouped into three main classes: "spark fires," "brilliant fires" and "luminous fires." The layman is likely to call the luminous fires Bengal fires, but to a devotee of the art that term has a more restricted meaning. To him all Bengal fires are luminous fires all right, but not all luminous fires are Bengal fires.

The terms "spark fires" and "brilliant fires" are a bit harder to explain since there is a good deal of resemblance between them. The best distinction, not counting the actual ingredients of the composition, is that the "spark fires" can be used for propulsion while the "brilliant fires" cannot. A rocket, then, is a "spark fire" while a so-called "fountain," at least most of them, is a "brilliant fire."

But let's begin with the luminous fires which can be either simply white, or else yellow, orange, red, green-blue and violet. Aside from the color, the

luminous fires come in several forms, of which the true Bengal fire is the simplest. The Bengal fire is simply composition burning in an open trough, the arrangement is such that the public cannot see the flame itself but only the illumination it provides.

Next in line are the "lances"—also called "lights"—which are in tubes that may be half a yard long and one and one half inches wide or as small as cigarettes. These lances are usually employed for so-called fixed pieces, they may form the outlines of a castle, for example. Actually the whole is a skeleton of wooden slats with one-inch nails driven through quarter-inch slats from the back. The lances are fastened to the nail points which stick out. The tube of a lance consists of at most two layers of paper which burn with the composition. The fuse is inserted at the front end while the other end contains something that can be stuck on the nail, say a cork. But the corks would catch fire from the composition and might even endanger the wooden structure, for this reason the corks were soaked for days in a concentrated solution of alum—then set aside to dry—to make them fireproof. The structure of slats is never vertical, incidentally, for burning composition might drip off lances near the top and ignite things at the bottom which are not scheduled to go off until later. With a tilted structure the dripping composition would just fall on the ground.

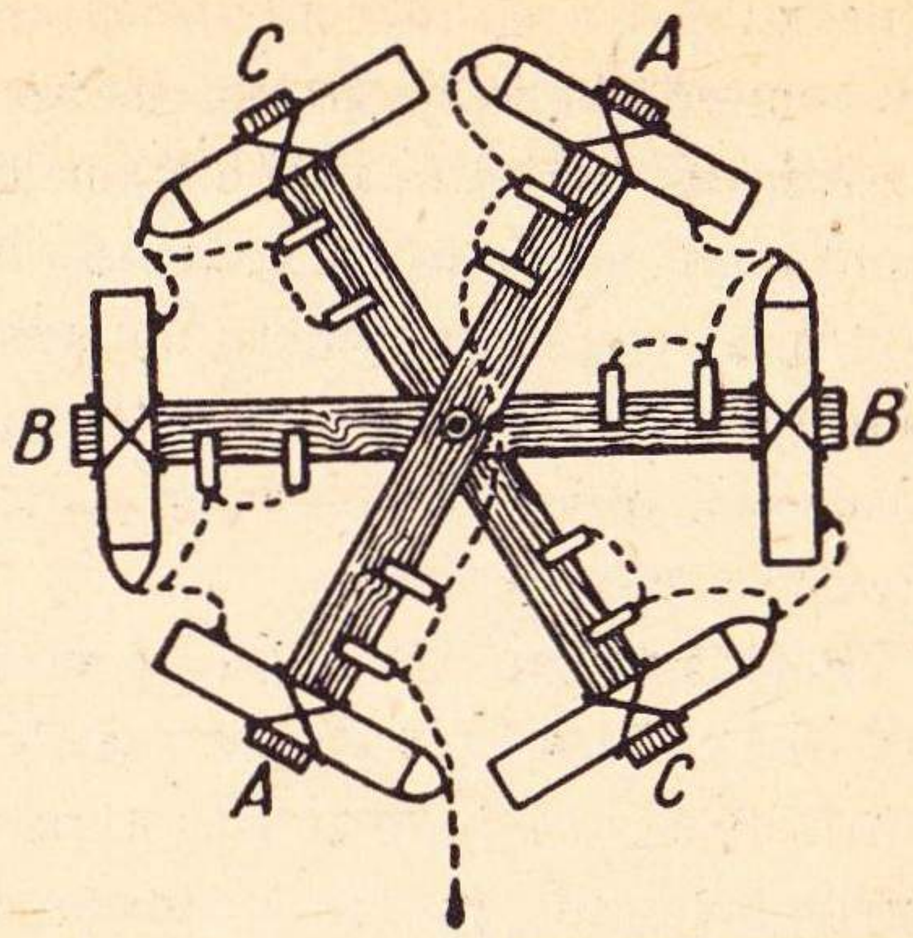
After the lances come the starlights, of similar composition but formed into balls or short, squat cylinders. The shape does not matter, when burning it always looks like a round ball of flame. Such starlights are the most customary form of garniture for rockets, they are packed in mealed powder for ignition and rest on a disk above a few grains of ordinary powder. The sequence of events is that a spark from the burning propulsive charge ignited the gunpowder which forms the starlights out of the casing by blowing off the rocket's cap, simultaneously igniting the mealed powder which, in turn, ignites the stars. Another method of using starlights is to put them into a short tube which was throttled shut. At the bottom of that tube you have a little gunpowder, and above that the ball of composition with some mealed powder for ignition. Since there is a short ignition delay the starlight is rarely seen to emerge from its firing tube, it seems to catch fire in midair, still going up.

The last of the luminous fires are tiny starlights, about as large as a pea, also called "kernels." They are never used alone, but are mixed into some other composition, usually brilliant fire, to make it more exciting.*

* There was once one more variety of luminous fire, thoroughly obsolete by now and used under circumstances which would make any fireman shudder. The name tells the story, they were called "Theater Fires" and were distinguished from the others by not containing any sulphur which might make the audience cough.

I know that you would like to know just what ingredients will go into such a fire. Not being a lawyer I don't *know* the laws of liability. But I distrust them. And the only way out is what they used to do in *Unknown Worlds* when they printed an incantation. They said that they were leaving out an important sentence or step, so that the readers could not imitate the incantation. Similarly I'll leave out some information so that what I describe will give an understanding, but it would not work. One typical Bengal fire with a yellow flame would consist of about equal amounts of sodium oxalate, saltpeter, potassium chlorate and shellac—plus knowledge of how to do it and much skill. A typical red fire would consist of strontium nitrate and sulphur in equal parts, plus two other ingredients one would not guess. A typical green flame would be sixty per cent barium nitrate, the other forty per cent being "other things." White flames usually contain antimony or antimony compounds; but that was prior to magnesium.

The "spark fires" like rocket composition usually consisted essentially of mealed powder with extra charcoal, both for the rockets which rose up and for those which merely drove vertical or horizontal turning wheels. The latter, since one wanted to have as many sparks as possible and did not care too much about efficiency, were usually so-called "branders" which is



"DER KUNSTFEUERWERKER"

"Sun," consisting of six branders and twelve colored lances. A and A, B and B and C and C burn in pairs in succession so that the whole lasts for a fairly long time.

a solidly filled rocket without the center hole. Such a "brander" lasts much longer than a rocket and is correspondingly weaker. But the lack of power can be made up by using several branders simultaneously.

Another way in which branders were used was to tie them down well so that they merely issued a spray of sparks. Such jets could be parallel or crisscross each other, with beautiful and surprising effects. But all spark fires still produced decided jets, if you wanted cascading flames with long lasting sparks you had to switch to the "brilliant fires." The principle was simple: namely the admixture of metal to a spark fire. One was literally a spark fire with about forty per cent of iron filings imbedded. Each tiny piece of iron formed a brilliant and long lasting spark. Another one, just

as brilliant but of different appearance, substituted pulverized porcelain for the iron filings. And if the "kernels" mentioned earlier are mixed into "brilliant fire" you have something breath-taking, especially if you have them in massed batteries cascading off a bridge like a waterfall of fire.

There is one mixture which probably has to be classified among the "brilliant" fires although it is not particularly brilliant. In that composition sawdust—treated to burn well—forms the major portion of what would be a spark fire without it. This composition is usually put into comparatively thin tubes a dozen of which are the garniture of a large rocket. What you see falling out of the sky looks like a fountain of long, faintly luminous streamers.

Many startling effects had nothing to do with the ingredients of the fire or with the "simple pieces" but with the manner in which they were used. There was one piece, for example, which was known as the caduceus rocket, producing a double corkscrew of sparks going up into the night, ending either with an explosion or a number of starlights. It consisted simply of two fairly weak but long-burning rockets fastened at an angle to the same guiding stick.

Or there was a highly unusual and quite startling "underwater rocket." It was simply a solid brander, weighed down with a few dozen turns of iron wire around the garniture chamber so that it floated head down in water. (The tube was waxed on the outside.) But while hammering it the fireworks maker had alternately used two kinds of composition. One was a slow and virtually powerless spark fire, the other almost uncontaminated mealed powder. As long as the weak spark fire burned the rocket floated at the surface, emitting a jet of sparks. When the fire progressed to the powerful layer it was forced under water and disappeared for a short time. Since it obviously did not float perfectly vertical it reappeared at another point. This was repeated six or seven times until the garniture—grain powder—exploded, at the surface if the layer next to it had been weak, or under water if that layer had been powerful.

In principle the oft-mentioned Roman candle is the same, except that a starlight is imbedded in each weak layer. As the flame progresses the starlights catch fire one by one and are shot out by the powerful mixture under them. Then you get only sparks for a short while and another starlight shoots out.

I know it is dangerous to prophesy and if the prophet is at all careful he'll restrict his predictions to things which are more than a century in the future. But it struck me as significant that the only large fireworks display my own daughter has ever seen was on a television screen. And that dis-

play was on film.

One day, in all probability, there will be nobody left to practice the ancient and noble trade of the fireworks master. There will most likely still be displays then, but they will be electrical. But in those days there will probably be gigantic spaceliners, too, and historians will remember that these spaceliners can be traced back to a small toy which was laboriously put together with pasteboard and a mixture of crude chemicals, compounded by strong-armed helpers wielding heavy mallets.

And for this reason the men who worked with their wooden "formers" and "tampers," their rolling boards and soaped strings, will never be completely forgotten.

THE END

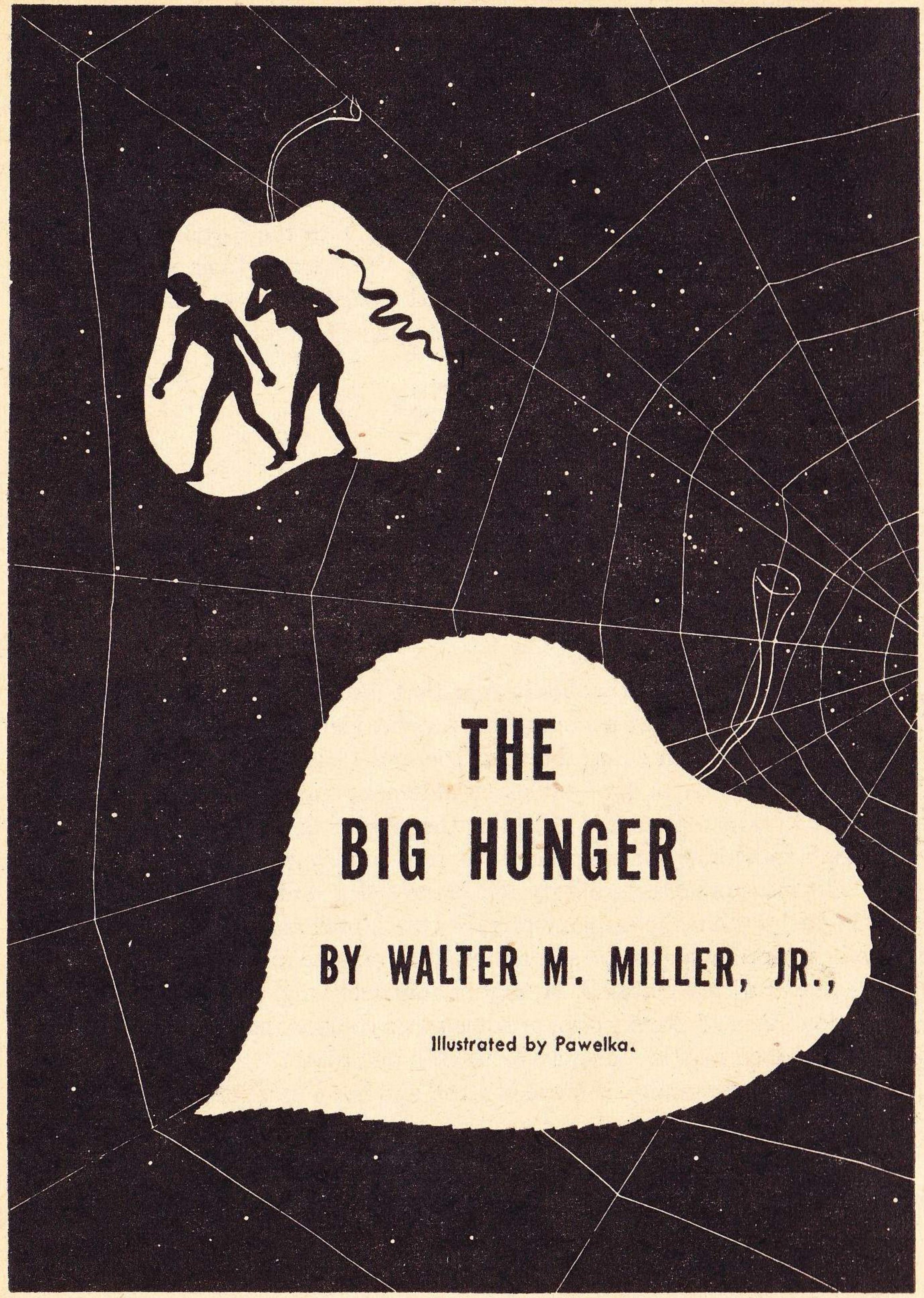
MODERN STYLE ROCKETS

Willy Ley's account makes it clear that the hand-craftsman style of production would not make rockets practicable in modern use for any purpose other than entertainment. Too much hand labor, and waiting around for things to dry—too much judgment and experience and skill of the workman required. Pounding the powder home is possible—but it isn't something for happy little morons to play with.

The mass-produced military rockets of today do the job differently. The fuel load in the airplane-carried attack rockets, for instance, is a solid stick of a special plastic material. It may be an injected molded plastic, or a cast material. It may be four feet long, and have a cross section like a Maltese Cross, or some other complex multilobed shape. Several such plastic rods may be used in one rocket.

The rocket chamber is made of steel, and has a more or less conventional rocket throat.

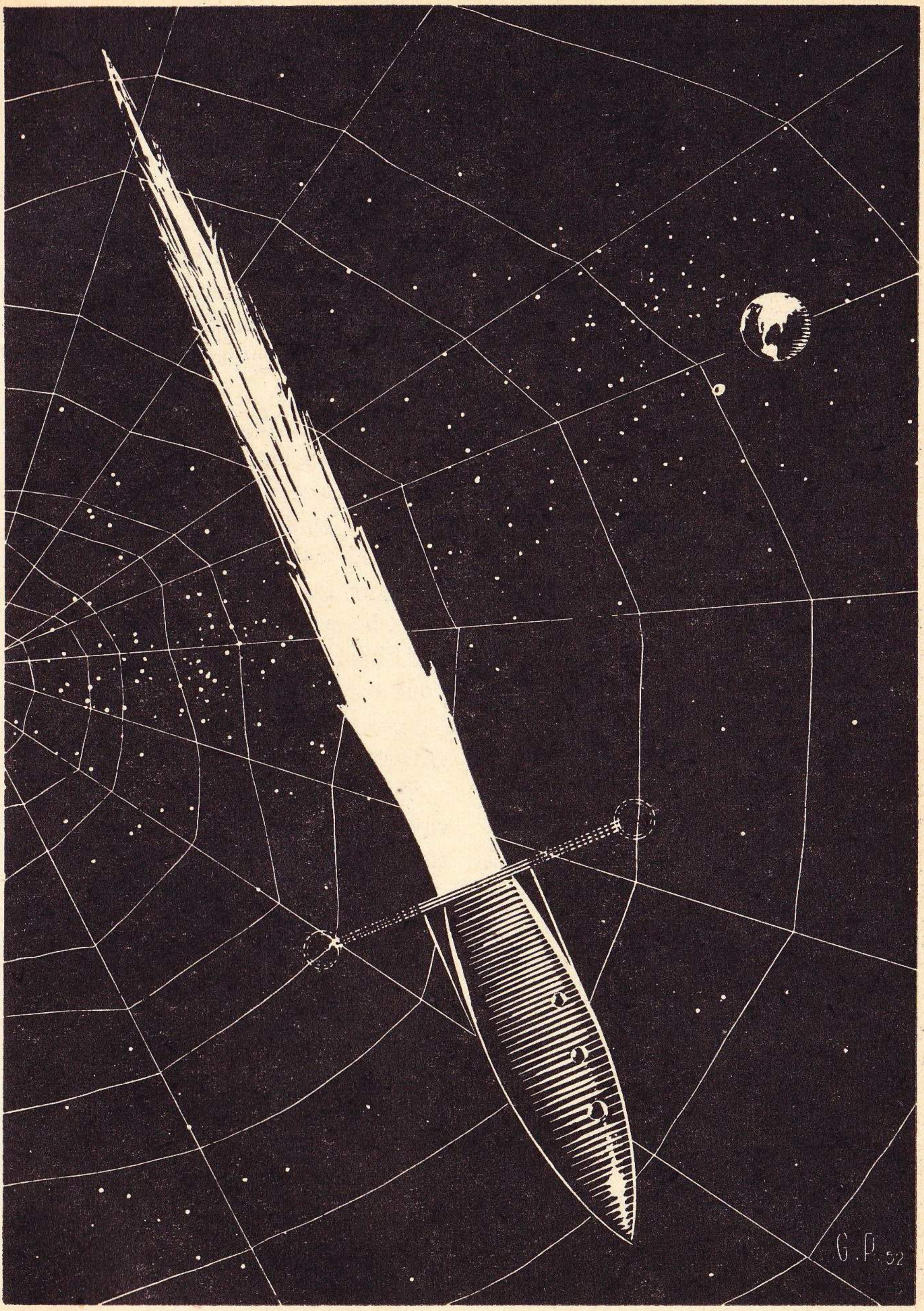
The plastic rod is a very special, exceedingly combustible compound, based on a highly nitrated organic compound, of the general family of TNT or picric acid. They can be made fast, by machine, and don't require skilled human labor; they are also quite reliable and thoroughly destructive.



THE BIG HUNGER

BY WALTER M. MILLER, JR.,

Illustrated by Pawelka.


G.P.52

***There was** a Race, and its life-drive was Curiosity, and only Space was limited . . .*

I am blind, yet I know the road to the stars. Space is my harp, and I touch it lightly with fingers of steel. Space sings. Its music quivers in the flux patterns, comes creeping along the twitch of a positron stream, comes to whisper in glass ears. I hear. Aiee! Though I am without eyes, I see the stars tangled in their field-webs, tangled into One. I am the spider who runs over the web. I am the spider who spins, spinning a space where no stars are.

And I am Harpist to a pale, proud Master.

He builds me, and feeds me the fuel I eat, and leads me riding through the space I make, to the glare of another sun. And when he is done with me, I lie rusting in the rain. My metal rots with ages, and the sea comes washing over land to take me while I sleep. The Master forgets. The Master chips flint from a stone, leaving a stone-ax. He busies himself with drums and bloody altars; he dances with a writhing snake in his mouth, conjuring the rain.

Then — after a long time — he remembers. He builds another of me, and I am the same, for like the Soul of him who builds me, my principle lies beyond particular flesh. When my principle is clothed in steel, we go wandering again. I the minstrel, with Man the king.

Hear the song of his hunger, the song of his endless thirst.

There was a man named Abe Jolie, and he leaned against me idly with one hand in the gloom while he spoke quietly and laughed with a female of his species.

"It's finished, Junebug. We got it made," he said.

And the girl looked her green eyes over me while the crickets sang beyond the wall, and while the shuffling of their feet echoed faintly in the great hangar.

"Finished," she murmured. "It's your success, Abe."

"Mine, and a lot of others. And the government's money."

She toyed with the lapel of his coveralls, grinned, and said, "Let's steal it and run away."

"*Ssshh!*" He looked around nervously, but there were no guards in sight. "They can shoot you for less than that," he warned. "The S.P. doesn't have a sense of humor."

"Abe —"

"What?"

"Kiss me."

He kissed her.

"When is that going to be illegal, too?" she whispered.

He looked at her grimly, and she answered her own question.

"As soon as the eugenics laws are passed, Abe. Abe Jolie, who built the spacedrive, a genetic undesirable."

"*Don't!*"

They stood there breathing quietly, and there was hate in their throats.

"Well?"

He looked around again, and whispered, "Meet me here at eleven o'clock, Junebug."

They parted to the sound of casual footsteps.

At eleven o'clock, a lion roared in the hangar. At eleven o'clock a steel juggernaut tore through the hangar wall and paused on a concrete ramp while bullets ricocheted off the hull. Then the first star-chariot burnt a vertical column of flame in the night. Thunder walked upward on fiery stilts, while men shouted angrily. When we were alone in the airless, star-stung, sun-torn blackness, I stroked the web of space, and listened to the muted notes. When the tune is memorized, I speak. I contradict. I refute the universe. We lived in a spaceless space beyond stars.

The man and the woman had gone. But the plan remained on Earth. My principle lingered on the drawing boards, and in the dreams of men—men who said they were sick of wars and politics and the braying of collectivist jackasses. Others were sick of petty peace and cheapness and Independence Day speeches and incorporated jackasses who blubbered disgustingly about various freedoms.

They wanted the one Big Freedom. They built me again, these pale, proud bipeds, these children of an Ape-Prince who walked like a god. They packed themselves in cylinders of steel and wandering, riding starward on a heart-tempest that had once sung them down from the trees to stalk the plains with club and torch. The pod of earth opened, scattered its seed spaceward. It was the time of the great bursting, the great birth-giving. Empires shivered in the storm.

Sky-chariots flung themselves upward to vanish beyond the fringes of the atmosphere. Prairie schooners of space bore the restless, the contemptuous, the hungry and the proud. And I led them along the self-road that runs around space. The world seethed, and empires toppled, and new empires arose whose purpose it was to build the sky-chariots.

Young men, young women, clamored at the gates of launching fields. Those who were chosen grinned expectantly at the stars. They climbed aboard in throngs and deserted Earth. They were hard laughers with red freckles and big fists. They wore slide rules at their belts like swords, and they spoke familiarly of Schwarzchild Line-Elements and Riemann-Christofel tensors. Their women were restless talkers, big women, with flashing white teeth. They teased the men, and their hands were strong and brown.

Poets came—and misfits, and saints,

sinners, dirt-farmers. Engineers came, and child-bearers, fighters, utopianists, and dreamers with the lights of God glowing in their starward eyes.

"Why were we taught to pray with *down*cast eyes?" they asked. "When you pray, look starward, look to the God at the north end of the Universe."

Man was a starward wind, a mustard seed, a wisp of Brahma's breath breathed across space.

They found two corpses in an orbit about Arcturus. The corpses were frozen and the ice was slowly sublimating into space-vapor. One of them had an Engineering Union card in his pocket. It gave his name as Abe Jolie. The other was a girl. And, because the corpse had given them the blueprints that led to space, they hauled him aboard with the girl. Somebody sang the "*Kyrie*" and somebody said, "I am the Resurrection and the Life." Then they cancelled out the orbital velocity and let the corpses go toppling toward Arcturus, toward a burning sun-grave where their light would shine forever.

There were those who remained behind. There were those who made Earth their business and stayed at home. Their tribes were numbered at two billion souls. And they were somehow different from the spacers. They liked to sit in their rocking chairs. They liked prettiness and a one-hundred cent dollar. They voted for the Conservative Party. They abolished centralization. Eventually they abolished government. And for the first time in anyone's memory, there was peace on Earth, good will among men.

My Master was hungry for land. My Master sought new worlds. And we found them.

There was a yellow sun in Serpens called 27 Lambda, lying eight parsecs inward toward the galactic heartland and seven parsecs north toward the galactic pole. A lush green planet drifted at one hundred twenty megamiles from the friendly sun-star, and it awoke in the wandering biped nostalgic thoughts. We paused in space-black, we looked, we came down on tongues of lightning from the clear sky to set jet-fires in the grassy plain near a river and a forest.

Man was a seed replanted.

He wandered away from the sky-chariot and drank from a pool in the jungle. A behemoth with several legs and a parasite-rider came roaring his appetite at the pale biped. And his bones lay whitening in the sun, and his descendants learned that it was easier to stay alive by ignoring the biped from the sky.

I lay rusting in the rain. Houses of log and stone grew up on the hillsides. They crumbled slowly into ruin. A man wearing a fur robe came and built an altar at my feet. He burnt his eldest daughter on it while he sang a battle song and danced, danced a victory under strange sky.

The sons of men molded clay and chipped arrowheads and built fires. The old men told them stories of a space-going god, and the stories became their legends. They kidnaped the daughters of neighbors, knew wives, and multiplied.

A glacier came and ground me into dust. Millenniums passed, and each Prophet had his Hazar.

One of the prophets wrote an energy equation. Men crucified an Agitator on a telegraph pole. They purged a minority-group. They split a uranium atom into atoms of strontium and xenon. They wrote immortal lines deploring war while they invented better ways to wage it. They refashioned a body for my life-principle, for the tensor-transforms that constitute my soul. They mounted me again in a sky-borne prairie schooner because they were weary of sanctified braying.

There were growling columns of blue-white fire in the night, and growling voices of restless masses of men. Men darted along the road around space.

Men departed for other stars. But after a thousand years, many remained on the planet of their birth — homebodies and movie-idols and morticians, nembutal-addicts and advocates of world-government.

When the restless ones, the wild-eyed spacers were gone, the addicts got religion and the federalists became placid anarchists and the Parliaments voted themselves out of existence. There was peace of the third planet of 27 Lambda Serpentis, and good will among the inhabitants thereof. They made love and studied sociology under a friendly sun, under a pleasant blue sky forever.

On the road around space, my Master hungered for land.

And there was a yellow sun in the region of the Scorpion, and once it had been called 18 Scorpii, but now they named it Ba'Lagan. It was a little south of Serpens, a little nearer to the galactic nucleus. They named its planets Albrasa and Nynfi, and they were twins. Albrasa was already populated by a clan of hairy intellectuals with teeth and twittering voices. They liked the flavor of man-flesh, digested it easily.

Man came down on sky-lightning. Man came down to walk on the land and own it. I lay quietly rusting in the rain.

Man taught his grandson to hammer virgin copper into a vicious battle-ax, and taught him the mystic recipe for roasting a hairy intellectual. It was forbidden to boil a young intellectual in the milk of its mother, but it was permissible to roast it alive and remind it that its fathers had dared to attack a two-legged god.

Man's grandson waxed strong and malicious. He committed genocide on the furry natives and used their skins for blankets. He shattered their brain-cases and erected his own altars in

their temples. He butchered an octogenarian on one of the altars, because the old man had made the silly suggestion that they sacrifice a perfectly healthy young virgin to their god. The young virgin watched the ceremony with quietly triumphant eyes; then she married the chief priest and bore him many children.

The biped bludgeoned the planet into submission. He assured himself that he was the Chosen Child of the Most High. He built himself a throne and sat upon it—while he listened to a newscaster describe jet-battles over the North Pole. Centuries wandered by, decked in gaudy robes. And there was a war with Nynfi between the worlds.

And then another Abraham Jolie bent over his drawing board. Another crew of big-fisted men wrapped steel flesh around my principle. Another race of men spat contempt on the soil —the soil that had drunk the blood of their fathers, felt the fire of the suns as the rockets heaved skyward bearing my body and the bodies of my Master.

Men were steel-jacketed motes of flesh, scurrying among the stars. Men were as dust, rolling across the galactic prairie—bits of dandelion fluff whirling in a rising tempest that bore them along the arm of the galactic spiral and inward, ever inward. Their eyes were on Hercules and the far-distant globular clusters. He paused at Nu Lupi and 15 Sagittae and a nameless yellow sun in Ophiuchus where he met a native race who dared to be bipeds. He crushed them quickly.

There were always those who remained behind, lingered on the planets where their ancestors had fought. I watched them with my last eyes as the last ship hurtled into space. I watched, and saw the lust go out of them, saw them become as a cauldron removed from the fire. Their boiling waned to a simmer, and they cooled. They always found peace when the spacers were gone.

This I have never understood. I, the machine, the space-spider, cannot understand. But I have seen it—the exodus of the hungry, the settling of peace over those who chose to linger. The hungry drink of the emptiness of space, and their hunger grows. The placid eat of the earth, and find peace, yet somehow—they seem to die a little.

Ever deeper pressed the starships, deeper into Sagittarius and Scorpius, and Lupus, Ophiuchus and Sagitta. Now and then they paused to colonize and conquer. A planet devoured a handful of men and tormented them with its biological devices. But the men grew and beat the savage planet into a slave, after long ages, forced it to pay tribute to its king. Once more they coveted the stars. Once more they darted heavenward, leaving re-reluctant brothers in peace.

They wrote a song. They called it "Ten Parsecs to Paradise." They sang

the song as if they believed it. This I have never understood.

It was always ten or twelve parsecs to another sun with a class G spectrum, with a planet chastely clad in green forests and white clouds. There he landed to rebuild, to furrow the fertile earth, to rock in a porch swing at twilight sucking his pipe, and thoughtfully staring at the stars while his grandchildren romped like young chimpanzees on the cool lawn.

He had forgotten Earth—this old man—his race had forgotten its history. But he knew a little. He knew the star-going cycle—the landing of the starships, the regression to savagery, the painful rebuilding, the cruelty, the re-learning, the proud exodus. He knew these things because Man had learned to keep a little of the past intact throughout a cycle. He no longer fell back to chipping arrowheads. Now he managed to begin again in an age of bronze or soft iron. And he knew in advance that he would carve mighty industries out of savage wilderness.

But the old man was sad as he sat on his porch. He knew so little of the Great Purpose. Why must his seed fling itself starward? He knew that it *must*—but he lacked a reason. His grandchildren played in the twilight, played space-games, although there was not yet a starship on the planet.

There was a small boy on the lawn who tried to tease the girls, but the girls put on masks of superior sophistication and ignored the little man. Disgruntled, he looked up and saw the old man dreaming on the porch.

"Gramp's got star-craze!" he shrieked. "Look at Gramp menting! Nnyahh! Gramp's got star-craze."

Musical laughter tittered over the lawn. Another voice took up the cry. The old man chuckled affectionately but wistfully. They were young, but they knew about the star-thirst. The planet was young, too young for starships, even though the priests preserved the records and scientific writings in the temples. The planet knew about space and coveted it. Yet, the children would all be dead before the first vessel was launched.

The laughter on the lawn subsided. The eldest child, a gawky and freckled girl of eight years came trudging up the steps to sit against the post and stare at him quietly in the gloom. He felt a question lurking in her silence. He nudged her ribs affectionately with his toe.

"What weighty matter worries you, Nari?" he asked pleasantly.

"Why is star-craze, Gramp?"

He rocked thoughtfully for a moment. "Why are there men to feel it?" he countered.

The child was silent.

"I know only what the priests say, Nari," he told her gently. "They say that man once owned a paradise planet, and that he ran away in search of a better one. They say he made the

Lord Bion angry. And the lord hid the paradise, and condemned Man to forever wander, touched his heart with eternal hunger for the place he lost."

"Will people find it again, Gramp?"

"Never—so the priests say. The hunger is on him, Nari."

"It's not fair!" said the little girl.

"What isn't, my child?"

"Star-craze. Last night I saw a lady crying. She was just standing there crying at the sky."

"Where?"

"On the street. Waiting for a motor bus."

"How old was she?"

Nari scraped her heels and muttered doubtfully. "It was kind of dark."

Gramp chuckled reassuringly. "I bet she wasn't over fourteen. I bet she was still a kid. Star-craze comes to little girls about the time they start being interested in little boys. Works the other way, too. But you grow out of it, Nari. By the time you're twenty, it won't make you miserable any more. It gives you a goal. Gives everyone a goal. Something to work for. Something to long for and fight for. The stars—you'll want to give them to your grandchildren."

"Won't I get to go?"

"Not ever, Nari."

They fell silent again, and the old man peered up into the deepening blackness with its countless array of suns sitting like hens on their nests of planets. He scarcely believed the legend of the lost paradise-planet, but it was a good story to tell little girls. It made him sad though, and revived a little of the forgotten restlessness of his youth. If only he could have lived two centuries later—

But then a gust of wind brought the sweet perfume of freshly cut hay from the field to the east of the farmhouse, and the odor made him smile. The field would have to be raked tomorrow, and the hay brought in to the barn. A lot of things like that needed to be done before the starships could rise again. And every straining muscle helped toward the ultimate goal. The hay fed the animals whose flesh fed the men who made the tools which built the factories which fashioned more complicated tools—and so the journey, down the long road to space again.

The old man didn't know why the road had to be traveled, nor did he really care. The road was there, and it beckoned, and it gave meaning to life, for surely the Lord Bion was less cruel a tempter than the priests sometimes proclaimed Him. Surely there was something more than despair at the end of the long, long road.

The old man grew older, and died peacefully, and his ashes were scattered across the fields he had tilled since boyhood. His children, and his grandchildren, followed in his patient steps, and their ashes were mingled with his own before the first gleaming sky-craft burst star-fire in the night.

When the skycraft at last rumbled

upward, the crowd thundered a triumphant roar, the crowd gathered to witness the culmination of their labors, and the labors of their ancestors. Men walked with shoulders erect and with pride glowing in their faces. Again they triumphed over forces that held them bound to a grain of sand in the sky. Again they slashed through the knot that held them in the web of the continuum, and shed the weights that dragged at their feet.

I noticed a subtle difference in those who lingered behind. They no longer lingered of their own choosing. They were no longer the peace-seekers and the placid ones. They were those who could not go because they were old, or sick, or because the industries were half-deserted and there was no one left to build the ships. They still stared longingly upward on dark nights.

"We'll do it again," they promised. "We'll repopulate and do it again."

But the bitterness of their plight was upon them, a sense of defeat and doom. They fought savagely among themselves. They fell in feudal wars, while the starward wave receded.

I am the acolyte of the space-priest, the server of the pale proud biped. I have taken him onward across the void, to the Hercules Cluster, and beyond it to the uncharted regions past the dust clouds of the Great Rift, into the star-pact heartland of the galactic nucleus where other races were testing their space wings and tasting of the great freedom. I have watched him, and have felt the life-aura of his longing. And I have wondered. What is his goal? Where is an answer to his hunger?

My neural circuits are not of flesh. My circuits are of glass and steel. My thought is a fanning electron stream. But I have prayed. I, the spider who builds around space, have prayed to the gods of the biped I serve. I have prayed to the God of the North End of Space. I have asked, "Where is his peace?"

No answer came.

I have seen my Master change.

The biped was thunder across the galaxy. The biped was a swift and steel-clad spear hurtling ruthlessly onward. He made no friends; for he came as a being who owned the stars, and he took what he wanted along the way. He left his seed to grow anew. A creature of fierce pride! And fiercer longing. He trampled hatelessly such races as he encountered. He crushed them, or harnessed them to his plow, or borrowed their neural circuits for his bio-computers. Sometimes he fought against his own race, men who had traveled other routes to the galactic heartland. When man battled against man, they fought with hatred and cruelty and bitterness—but never with contempt. Man saw a rival king in man. Against other races, he waged only cool contempt and hot death.

Sometimes a thoughtful old man would say, "Seems to me they've got

as much right to live as we have. Seems to me all intelligent creatures have got a common denominator. God, maybe." But he muttered it quietly, speculatively. Even if he believed it, he never objected to the swift ambush of the alien ship, nor to the razing of the alien city. For the biped stalked a new frontier. The ape-tribe stole across a field where danger lurked. He was fresh from the branches of the trees, not wise to the ways of the plains. How could he risk offering peace to the shaggy beast who crouched in the tall grass? He could only weigh the odds—then strike or run away.

He took the planets of the yellow suns — deep in the galactic heartland. He skipped from one to the next in jumps as long as his patience would last. He captured the globular clusters. He inhabited each planet for a few generations. He built ships, and battled with his brothers for the right to take them. Many were left behind. They repopulated after an exodus, rebuilt, launched a second flight, and a third—until those who finally remained at home were those who lacked the incentive of the big hunger.

Those who lacked incentive sought their peace. They molded a pleasant place to live in and infested it. Or else they scorned pleasantry and made themselves a battleground.

My Master is the Nomad, gaunt and tall. My Master grits his teeth in staring at the stars, and his eyes go narrow and moist. I have mirrored his hunger, have allowed his life-aura to seep into the cold steel and hot glass of me, have reflected his thoughts in my circuits. Sometimes he wonders if I am alive. But then he remembers that he built me. He built me to think, not to be alive. Perhaps I am not alive, but only a mirror that catches a little of my Master's life. I have seen him change.

The spearhead groups pushed relentlessly across the gleaming blackness, and each generation grew more restless than the one before it. The restless moved ahead. The contented remained at home. Each exodus was a separation, and a selection of the malcontent.

The biped came to believe his priests. He believed the legend of the lost home. He believed that Bion had touched him with the hunger curse. How else could they explain the pressing cry of the heart? How could they interpret the clamor of the young, the tears—except as a Divine Thirst.

The star-craze. The endless search.

There was a green planet beyond the heartland, and it was ripe for bursting its human star-seed. There was a launching field, and a ship, and teeming crowd, and a fence with guards to keep the others out. A man and a girl stood at the fence, and it was nearly dawn.

He touched her arm and gazed at the shadows on the launching site.

"We won't find it, Marka," he said quietly. "We'll never find it."

"You believe the legend, Teris?" she whispered.

"The Planet of Heaven? It's up there. But we can never find it."

"Then why must you look?"

"We are damned, Marka."

There was a silence, then she breathed, "It *can* be found. The Lord Bion promised—"

"Where is *that* written, Marka?" he scoffed coldly.

"In a woman's heart."

Teris laughed loudly. "What does the heart-writing say?"

She turned to stare at the dark shadow of the ship against the graying sky. "It says: 'When Man is content —without his lost paradise—when he reconciles himself—Bion will forgive, and show us the road home.'"

He waved his hand fiercely at the fading stars in the west. "*Ours*, Marka. They're ours! We took them."

"Do you want them?"

He stiffened angrily and glared at the shadow of her face. "You . . . you make me sick. You're a hang-backer."

"No!" She shook her head wildly. "*No!*" She caught at his arm as he retreated a step. "I wish I could go! I want to go, do you hear?"

"I hear," he snapped. "But you can't, so there's no use talking about it. You're not well, Marka. The others wouldn't let you aboard." He backed away another step.

"I love you," she said frantically.

He turned and stumbled away toward the sky-chariot.

"*I love you!*"

He began to trot, then burst into a wild sprint. Afraid, she thought in triumph. Afraid of turning back. Of loving her too much.

"*You'll never find it!*" she screamed after him. "*You can't find it up there! It's here—right here!*"

But he was lost in the crowd that milled about the ship. The ship had opened its hatches. The ship was devouring the people, two at a time. The ship devoured Teris and the space crew. Then it closed its mouth and belched flame from its rockets.

She gasped and slumped against a fencepost. She hung there sobbing until a guard drove her away.

A rocket bellowed the space song. The girl tore off her wedding bracelet and flung it in the gutter. Then she went home to fix breakfast for the children.

I am the Weaver of space. I am a Merchant of new fabrics in flux patterns for five-space continua. I serve the biped who built me, though his heart be steeped in hell.

Once in space, a man looked at me and murmured softly, "You are the cross on which we crucify ourselves."

But the big hunger pushed him on—on toward the ends of space. And he encountered world where his ancestors had lived, and where his peaceful

cousins still dwelt in symbiosis with their neighbors. Some of the worlds were civilized, some barbaric, and some were archaeological graveyards. My nomads, they wore haunted faces as they re-explored the fringes of the galaxy where Man had walked before, leaving his footprints and his peace-seeking children. The galaxy was filled.

Where could he go now?

I have seen the frantic despair in their faces when, upon landing, natives appeared and greeted them politely, or tried to kill them, or worshiped them, or just ran away to hide. The nomads lurked near their ships. A planet with teeming cities was no place for a wanderer. They watched the multifaceted civilizations with bitter, lonely eyes.

Where were new planets?

Across the great emptiness to the Andromeda galaxy? Too far for the ships to go. Out to the Magellanic clouds? Already visited.

Where then?

He groped blindly, this biped. He had forgotten the trail by which his ancestors had come, and he kept recrossing it, finding it winding everywhere. He could only plunge aimlessly on, and when he reached the last limit of his fuel—land. If the natives could not provide the fuel, he would have to stay, and try to pass another cycle of starward growth on the already inhabited world. But a cycle was seldom completed. The nomads intermarried with the local people; the children, the hybrid children, were less steeped in hunger than their fathers. Sometimes they built ships for economic purposes, for trade and commerce—but never for the hysterical starward sweep. They heard no music from the North End of Space, no Lorelei call from the void. The craving was slowly dying.

They came to a planet. The natives called it "Earth." They departed again in cold fright, and a space commander blew out his brains to banish the memory. Then they found another planet that called itself "Earth"—and another and another. They smiled again, knowing that they would never know which was the true home of Man.

They sensed the nearness of the end.

They no longer sang the old songs of a forgotten paradise. And there were no priests among them. They looked back at the Milky Way, and it had been their royal road. They looked ahead, where only scattered stars separated them from the intergalactic wasteland—an ocean of emptiness and death. They could not consign themselves to its ultimate embrace. They had fought too long, labored too hard to surrender willingly to extinction.

But the cup of their life was broken.

And to the land's last limit they came.

They found a planet with a single moon, with green forests, with thin

clouds draping her gold and blue body in the sunlight. The breath of the snow-king was white on her ice caps, and her seas were placid green. They landed. They smiled when the natives called the planet "Earth." Lots of planets claimed the distinction of being Man's birthplace.

Among the natives there was a dumpy little professor—still human, though slightly evolved. On the night following the nomad's landing, he sat huddled in an easy-chair, staring at the gaunt nomadic giant whose bald head nearly touched the ceiling of the professor's library. The professor slowly shook his head and sighed.

"I can't understand you people."

"Nor I you," rumbled the nomad.

"Here is Earth—yet you won't believe it!"

The giant snorted contemptuously. "Who cares? Is this crumb in space the fulfillment of a dream?"

"You dreamed of a lost Earth-paradise."

"So we thought. But who knows the real longing of a dream? Where is its end? Its goal?"

"We found ours here on Earth."

The giant made a wry mouth. "You've found nothing but your own smug existence. You're a snake swallowing its tail."

"Are you sure you're not the same?" purred the scholar.

The giant put his fists on his hips and glowered at him. The professor whitened.

"That's untrue," boomed the giant. "We've found nothing. And we're through. At least we went searching. Now we're finished."

"Not *you*. It's the *job* that's finished. You can live here. And be proud of a job well done."

The giant frowned. "Job? *What* job?"

"Why, fencing in the stars. Populating the galaxy."

The big man stared at him in horrified amazement.

"Well," the scholar insisted, "you did it, you know. Who populates the galaxy now?"

"*People like you.*"

The impact of the searing words brought a sick gasp from the small professor. He was a long moment in realizing their full significance. He wilted. He sank lower in the chair.

The nomad's laughter suddenly rocked the room. He turned away from his victim and helped himself to a tumbler of liqueur. He downed it at a gulp and grinned at the professor. He tucked the professor's liqueur under his arm, waved a jaunty farewell, and lumbered out into the night.

"My decanter," protested the professor in a whisper.

He went to bed and lay whimpering slightly in drowsiness. He was afraid of the tomorrows that lay ahead.

The nomads settled on the planet for lack of fuel. They complained of the climate and steadfastly refused to believe that it was Earth. They were

a troublesome, boisterous lot, and frequently needed psychoanalysis for their various crimes. A provisional government was set up to deal with the problem. The natives had forgotten about governments, and they called it a "welfare commission."

The nomads who were single kidnaped native wives. Sometimes they kidnaped several, being a prolific lot. They begot many children, and a third-generation hybrid became the first dictator of a northern continent.

I am rusting in the rain. I shall never serve my priest here on Earth again. Nuclear fuels are scarce. They are needed for the atomic warheads now zipping back and forth across the North Pole. A poet—one of the hybrids—has written immortal lines deploring war; and the lines were inscribed on the posthumous medal they gave his widow.

Three dumpy idealists built a spaceship, but they were caught and hung for treason. The eight-foot lawyer who defended them was also hung.

The world wears a long face; and the stars twinkle invitingly. But few men look upward now. Things are probably just as bad on the next inhabited planet.

I am the spider who walked around space. I, Harpist for a pale proud Master, have seen the big hunger, have tasted its red glow reflected in my circuits. Still I cannot understand.

But I feel there are some who understand. I have seen the pride in their faces. They walk like kings.

THE END

THE ANALYTICAL LABORATORY

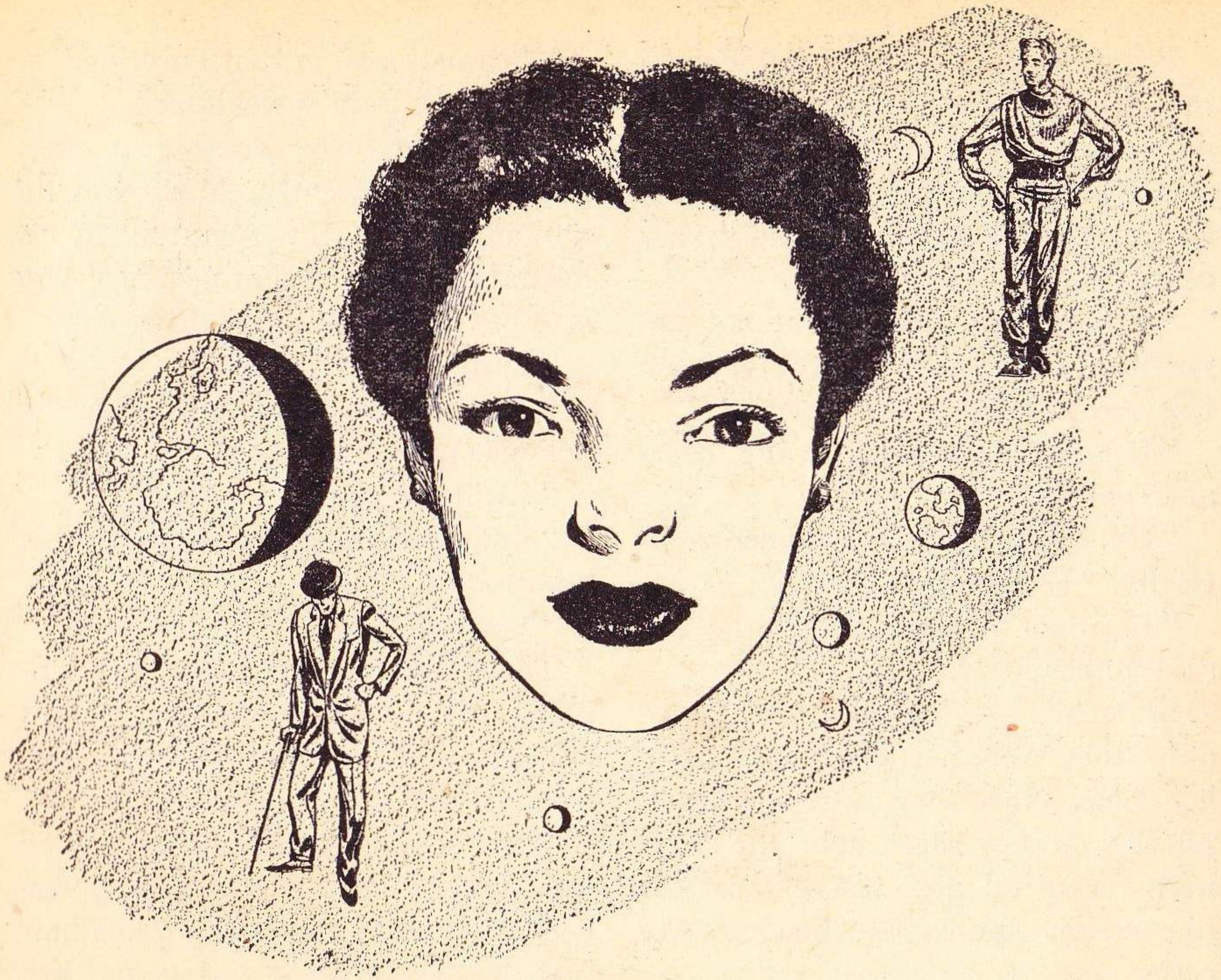
It seems to have been a tight competition in the July, 1952 issue, for the top places. And an interesting feature of the letters shows, again, that any such mathematical system of rating them as this score board represents is strictly delusional. Many letters referred strongly to the powerful emotional appeal of "I Am Nothing," yet voted one of the other stories into first place. Seemingly, it's a matter of giving ratings on a complex basis such that *logically* story A is first, while *emotionally*, story B would be first — and then not being able to make a really meaningful sequence of them.

But the mathematical answer, for what it's worth, is:

PLACE	STORY	AUTHOR	POINTS
1.	The Emissary	Jim Brown	2.05
2.	Stardust	Chad Oliver	2.16
3.	All The Way Back	Michael Shaara	2.88
4.	I Am Nothing	Eric Frank Russell	3.00
5.	Gramp And His Dog	Frank Quattrocchi	4.47

If anyone has a better suggestion of how to make up the score sheet for publication, though, I'd be glad to hear it.

THE EDITOR.



SURVIVAL POLICY

BY EDWIN JAMES

*"**Wisdom,**" Malachi Jones once said, "is not the daughter of intelligence but the child of experience. Some call it common sense."*

Illustrated by van Dongen

The sign on the door said:

LAIRDS OF LUNA
"We Insure Anything"

The girl inside the office was taking it literally. Rand Ridgway leaned back in his chair at the side desk and whistled.

"One hundred million dollars!"

From her dark, unfathomable eyes, the girl gave him a glance that could have meant anything. Malachi Jones, seated behind the desk across from her, was, on the other hand, taking it very calmly.

"A large sum, Rand, but not impossible. Depending, naturally, upon the value of what is to be insured."

"It is," the girl said, "a life insurance policy."

"Hm-m-m," Malachi hummed skeptically. "For whom?"

"I cannot divulge that," the girl said immediately.

Malachi's eyes were not unfathomable; they were a transparent, guileless blue. Now they were obviously puzzled as they gazed upon the strikingly beautiful girl, whose face was like cream against the blackness of coffee.

"Miss —" Malachi offered, but the girl, without emotion, watched the word quiver painfully in the air and then, discouraged, droop to the floor.

Without embarrassment, Malachi went on.

"Our motto, Miss, which you no doubt observed on the door, is 'we insure anything.' It means just that. But common sense says that we must insure something."

"I wish," the girl said quietly, "to insure the survival of my race."

Malachi waited for her to continue, but in vain.

"And what race is that?" he prompted, finally.

"I cannot answer that question."

Malachi's mild eyes blinked.

"We seem to be working at cross purposes. Apparently, Miss, you do not understand the operation of an insurance company. For instance, who is to be the beneficiary of this policy?"

"I am," the girl said.

"And how are we to know when the policy is payable?"

"I will tell you."

"And how are we to check on this information?"

"You will know."

The silence in the room was palpable with misunderstanding. Rand and Malachi were staring at the girl. The girl was staring at Malachi.

What she saw could not have been inspiring. Malachi was a dapper, wizened little man with thin, graying hair and the dried look of a skin that has been left too long in the sun. Dapper though he was, his clothes would not have been in style a century before—what was once called a conservative business suit—while in the corner, on an antique hat rack, hung the rest of his attire, a dark cane and a dark head covering. The latter Malachi called a derby.

"Of all the preposterous—!" Rand began.

"I believe," said the girl, getting up with feline grace and decision, "that I have been misinformed. Good-by, Mr. Jones."

Malachi waited until she was almost to the door.

"Of what were you informed?"

"You have a great reputation," the girl said, pausing. "It has reached even the remotest corners of the galaxy. I'm afraid, however, that you cannot be of help to me."

"Common sense," Malachi said dryly, "says that you should not judge the dinner until you have at least sampled the soup. I have done many strange things in my lifetime. I once insured an extra brain for a person named Gosseyn. Lairds never had to pay off. Perhaps I can even do something for you. I will, however, have to have a little more information."

Without hesitation the girl returned to the desk.

"Will any information I give you be confidential?"

"I am not," Malachi said judiciously, "a priest or a doctor or a lawyer. Nevertheless, I have my own quaint sense of honor. What you say will not go beyond this room."

The girl shot a speculative glance at Rand.

"I will guarantee the silence of my assistant," Malachi added.

The girl returned her gaze to Malachi and began to speak in a low, steady voice.

"My race is one of mutants confined to the planet New Earth of the sun Polaris. The mutation is natural, and we have deduced that its beginnings lay in the passage of a spaceship carrying immigrants through an unsuspected nucleonic storm several hundred years ago. Our numbers, however, are still small, and word of our existence has somehow leaked out."

"What distinguishing characteristics?" Malachi asked.

"None."

"What does the mutation consist of?"

"Increased intelligence."

"Then how do you know—?" Rand broke in.

A brief smile curled the corners of the girl's mouth.

"We *know*," she said, and there was obviously no doubt in her mind. "Hysteria on New Earth has led to the most oppressive of measures. No one suspected of being a mutant is permitted to leave the planet; anyone on whom a reasonable—or unreasonable—doubt rests is executed. Even babies must have compulsory intelligence tests; if their results are too high, they are disposed of. The only reason we have survived so long is the relative smallness of the population in comparison to the size of New Earth."

Malachi nodded and pressed a button which raised a small keyboard above the surface of the desk. But before he could begin to punch the keys, the girl had spun around the corner of the desk and had gripped his wrists.

"What are you going to do?" she asked in a low, hard voice.

"My dear," Malachi said gently, "I must compute the premium. Common sense should suggest that having

trusted us with your secret you must trust us to preserve it. If we wished to stop you, a word to the authorities as soon as you leave this office would prevent you from getting off the Moon. And now, if you will release me?"

He shook his arms gently. She let go and stepped back, a trifle baffled.

"You may see that the coded information is cleared as soon as I am finished," Malachi said.

Malachi's fingers were busy for a moment. Scarcely had they finished when the typewriter began to click. Malachi glanced down and then, carefully, so that the girl could see, pressed the clear button.

"That will be," he said calmly, "twenty-five million dollars."

Wordlessly, the girl pulled a slip of paper out of the side pocket of her fitted plastic dress, filled in the amount, and let it flutter to the desk top.

"The odds are better than I thought," she said coldly.

Malachi smiled.

"That, of course, figures in the aid of our special service. Lairds not only insures against certain contingencies, it sees that those contingencies do not occur. You'll never know what I had to go through with that fellow Gosseyn. Service on your policy will begin as soon as this check has cleared the banks."

The girl's face hardened, contemptuously.

"I knew of the service feature, which is why I came to you, without, I might add, the knowledge or consent of the others of my race. I realize, however, better than the others, what humans will do for money."

With blue, fathomable eyes, Rand watched her slender, firmly rounded figure as she turned lithely and covered the distance to the door only too quickly. Then he reached for the visiphone switch.

As they were approaching New Earth, Rand was still complaining about it.

"I'll never understand why you wouldn't let me inform the authorities. If a race of supermen gets loose in the galaxy, nothing can stop them. You saw what she thought of humans; what fate awaits us if her kind ever gets control?"

"Common sense," Malachi said, "says that honor cannot be relative. The time to qualify a promise is before it is made, not after."

"Honor!" Rand sneered. "What's honor to them? Do you think they'd hesitate if they saw a chance to make their future secure? They'd wipe us out like vermin, like the inferior creations they consider us."

"Now, Rand," Malachi observed absently, from the depths of his comfortable lounge chair, "you have no way of knowing that."

Passionately, Rand leaned over toward the little insurance man.

"It's instinctive, I tell you. Before I even knew what she was—when she

first walked in—something curled up inside me. There was an air of something about her—a superhuman confidence, as if she and her race were the inheritors of the universe. And knew it."

"Well, well, Rand. Tell me more about what curled up inside you." Malachi smiled amiably.

"Laugh!" Rand protested. "You've talked so much about common sense that you can't feel any more. But it's intelligence that rules the universe. It's intelligence that gave man the power to conquer first Earth and then the galaxy. It's intelligence that made him wipe out all the hazards and all the inconveniences—from the carnivores to the housefly—except those that are kept for study. And it's greater intelligence that will eventually conquer man."

"Don't overrate intelligence," Malachi said mildly.

"Overrate it! Don't underrate it! It's the one thing that distinguishes man from all the rest of creation. It's the one thing that has made him great. It's the one thing that can humble him. And you say, don't overrate intelligence."

"So I did," said Malachi, wonderingly.

"When I saw her I felt like the lion, the king of the jungle, must have felt when he saw the first true man in front of him—awed, terrified, already beaten. I felt like leaping at her and tearing her to pieces before she could work some strange magic upon me. I felt as if my intelligence were nothing, that I must make use of brute force to conquer this living menace before it conquered me."

"Well, well," said Malachi, his eyes wide.

"Talk all you will of tolerance; talk all you will of common sense. This thing strikes deeper than those things. It strikes at the roots of human existence. If They win, it is the end of man as a species. He must go the way of the carnivores—or the housefly. For that is how much we will mean to Them. He must give way to the better man, to the better-thinking man, to the superman. Oh, perhaps there may be a few of us left—for study. But the rest of us will die—either because They will destroy us or through a fatal inferiority complex."

"Hm-m-m," Malachi mused. "I didn't know that it was fatal."

Rand's handsome face grew still and intense, and his voice became low, vibrant, and packed with meaning.

"She speaks of the survival of her race. I tell you, Malachi, upon this depends the survival of ours."

Malachi was silent for a long moment.

"You have been reading again," he said finally.

Rand's face fell with frustrated emotion.

"What of it?" he admitted defiantly.

"Those fictional adventures?" Mal-

achi asked.

"Yes," Rand muttered. "But that doesn't mean that the ideas are worthless."

"Common sense," Malachi observed cheerfully, "says that fiction is meant to entertain, not instruct. And there is only one thing that fictional adventures lack."

"What is that?" asked Rand.

"Common sense," said Malachi, and he returned to the study of his guide book, while Rand sat staring stern-faced and unseeing at the visiplate on the lounge wall which showed New Earth growing large and lovely.

"Listen to this," said Malachi, licking his lips. "*New Earth; is noted for its many excellent restaurants. Especially to be recommended are: the Interstellar Bar and Grill for its Galactic Smorgasbord—rare delicacies from many worlds—the Old Earth Tea Room for its taste-tempting salads—crisp greens like none found elsewhere in the inhabited planets—the Spaceman's Cafe—*".

"Malachi!" Rand wailed. "How can you think of food when the race is in danger of extinction?"

"Common sense," said Malachi with real earnestness, "says that the race would be in real and pressing danger of extinction if someone didn't think of food. Besides, if I must go the way of the carnivore, I would prefer to go having eaten my fill."

He leaned back, folded his hands across his chest, and closed his eyes, ruminating, no doubt, about strange and familiar dishes, past and future, all cooked to perfection.

"Laugh," said Rand, laughing humorlessly. "Joke. Be gay. And maybe you can laugh this way. You, Malachi, are a traitor to the human race."

Malachi opened one eye.

"Common sense—" he began.

"Common sense!" Rand interrupted. "Perhaps common sense can tell you where that girl got twenty-five million dollars."

Malachi didn't answer.

"How," Rand continued, "if the mutants can be detected, are you going to keep them from being wiped out and collecting the policy?"

Malachi's mouth remained as tightly closed as his eyes.

"Why, if these mutants are not dangerous, are the human beings on New Earth bent on exterminating them?"

Malachi might have been asleep.

"How, if there is no means of detecting them, are they going to be kept from spreading throughout the galaxy?"

Malachi didn't stir.

"And how," Rand thundered, "with their superior intelligence and strange, new powers, are they to be kept from assuming control of the universe?"

Malachi once more opened one eye.

"Remember," he said mildly, "she came to me."

With the whispering of New Earth's atmosphere around the huge ship began a subtle and indefinable sense of

tension which gripped the passengers, waiting in the main lounge with their hand luggage, and caused them to eye their neighbors suspiciously. It showed itself in different ways. In one corner a man began to twitch; a woman quarreled violently with a ship's officer; somewhere a child screamed for its mother.

They had been called together for final landing instructions, for directions on leaving the ship and claiming their baggage. They had been counted, and now the chief steward was rattling off a prepared speech which was receiving scant attention. Landing time was no more than twenty minutes away.

At that moment the jets sputtered and died—indisputably, finally. The gentle vibration which had pervaded the ship for these several weeks was still—as still as the crowd in the lounge, stunned with the suddenness of a death sentence from which there was no appeal. Once cut off, the jets could not be started again in the ten minutes remaining before the ship crashed into the great concrete landing field below. Almost everyone recognized the finality of their doom in that instant, and those who were slow caught the unspoken news from the frozen panic of those near them.

Just before the ice-jam broke, Malachi caught a flicker of movement near the door, and then it was gone as terror exploded in the crowd. A woman shrieked wordlessly, a girl began to sob, a man cursed with a soft and steady earnestness that was worse than violence.

From the elegant platform the chief steward bravely tried to calm the crowd, to achieve some kind of order that would prevent a stampede, but his voice went unheard.

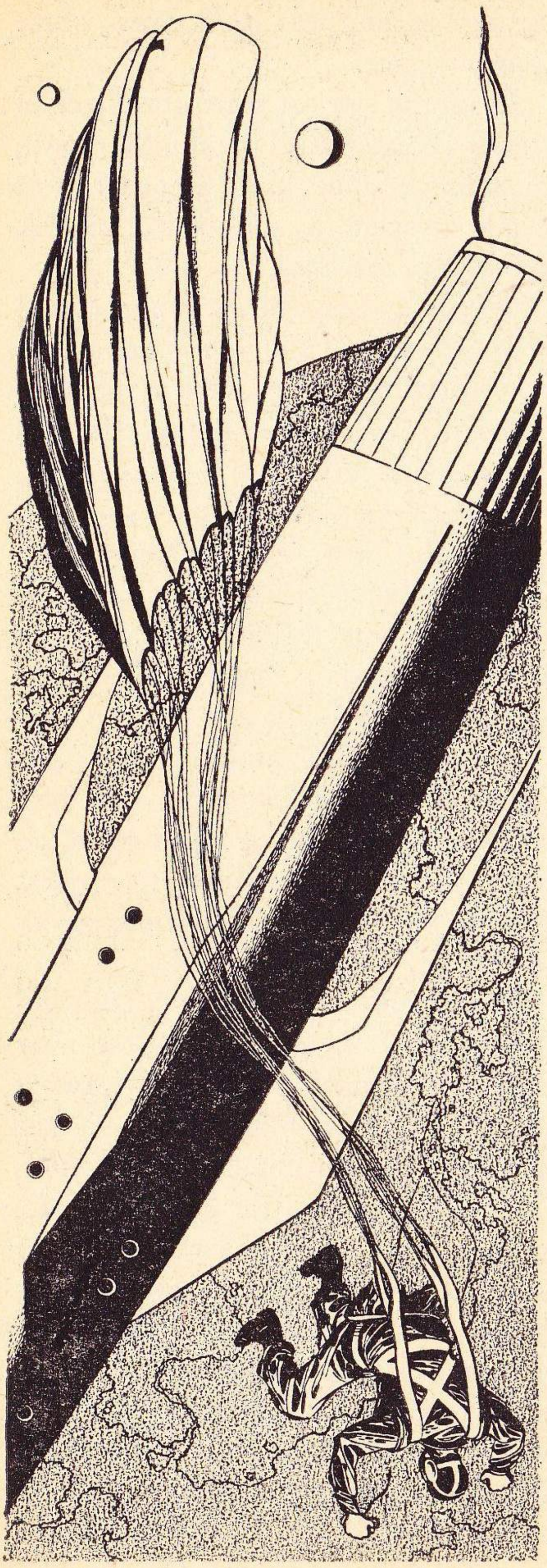
Then Rand saw Malachi and stared in amazement. Malachi's actions were not so strange; they were what hundreds of others were doing. He was dashing first this way and then that, his mouth open as if he were shouting madly. But he wasn't shouting.

"Stay cool," he was saying calmly. "We'll get out of this. Be brave. The jets'll be fixed in time. No need to worry. Be cool—"

His words and actions were having their effect. Some persons were soothed; others just stopped to watch him. An eddy of comparative quiet grew in the midst of the turbulent pool of milling, screaming people.

Then somebody yelled, "The lifeboats," and immediately those near the door formed a jammed, clawing mass of human flesh trying to get through. Malachi changed his cautionings to urge his little group to wait calmly, that there was no chance of getting out yet. Rand trotted along beside Malachi in the little man's strange, excited, haphazard dashings which contrasted so sharply with his words. He tried to figure it out for a moment, and then shook his head.

"Malachi!" he shouted hoarsely.



"Let's get out of here."

Malachi shook his head.

"We'll crash within ten minutes," Rand argued savagely. "We've got to do something."

Malachi ignored him, as he ignored the rest of his frantic, subsequent exhortations, and went on his own mad way. Slowly the crowd thinned out, until they, too, could follow through the door.

There was no stopping Rand then. He grabbed Malachi by the arm and dashed off, dragging the little man in the improbable suit, with the useless cane and the impossible hat, willy-nilly along behind.

They came to the first lifeboat entrance. The scene at the lounge door was being repeated—a funneled mass of humanity tried to drain itself through a narrow neck into the boat, and few were succeeding. Malachi glanced at his watch.

"Seven minutes," he said calmly.

Off they dashed again, Malachi uncomplainingly allowing himself to be pulled along like a man whose shoes have run away with him; unable to do anything about it, he resigns himself to the incomprehensible.

The mob was as great at the second lifeboat and the third.

"Six minutes," said Malachi.

Around and around they went, past one shouting, swirling, struggling mass of humanity after another. As they completed the circuit, arriving back

opposite the main lounge door, Malachi dug in his heels and leaning back like an ancient buggy driver with a runaway horse pulled Rand to a puffing, panting standstill.

"See here, Rand," Malachi said, "those boats can't get clear."

"I know," said Rand, his shoulders sinking dejectedly. "I've been trying not to think about it."

"Five minutes," said Malachi. "We might as well be graceful about this. Common sense says that death is as final one way as another."

"You can be graceful about death," Rand said bitterly. "I can't." And then he struck his forehead a sharp blow with the heel of his hand. "The parachutes! Me once a pilot and I forgot the parachutes! They always have a few 'chutes in the lock for passenger and freight drops at small planets."

Malachi smiled.

"Ah, yes."

"What are you waiting for?" Rand shouted, and began to resume the runaway-horse routine.

Malachi pulled him up before he got started.

"There are only four minutes left."

"No time," Rand muttered. "Not enough time now."

From close at hand came a loud metallic clang, followed closely by another, like the gong of Time, inexorably announcing the departure of hope and the entrance of doom. But Rand's head lifted with a wild surmise, his ears filled with a throaty roar communicated through the hull. The passenger shell sank, and Malachi and Rand found themselves pressed down with sudden weight.

"Jets!" Rand shouted wonderingly, and then, "Tugs! They caught us."

The landing was a little rough, but not nearly as rough as they had expected. Even the unloading procedure was curtailed, and they were out of the ship within minutes of their arrival, stretcher bearers passing them on the way in to take out the injured.

On the broad concrete landing field a parachute lay in a tumbled mass. A few hundred feet away a group of guards were marching a man toward the large control building. The man was looking straight ahead, his bearing proud and disdainful. Malachi watched the scene, shaking his head.

Rand looked bewildered.

"What is the meaning of all this?" he demanded bewilderedly, making an all-encompassing gesture. "Why did you act so strange on the ship? What—?"

"That," Malachi said gently, "was an intelligence test. And he was the only one who passed."

They were out on the streets of New Earth's capital and largest city, Utopia, before Rand had recovered sufficiently to question the wizened insurance man.

"What do you mean," he asked, finally, "an intelligence test?"

"Look at it this way," Malachi said

absently, staring at the clean purity of lines that marked the architecture of Utopia and the spotless condition of the streets that emphasized them. "What would be the perfect intelligence test?"

"I don't understand," Rand said, his forehead puckering.

"How would you test the intelligence of a person," Malachi went on patiently, "who didn't want to reveal his intelligence?"

Rand puzzled over it for a while.

"I guess," he said finally, "I'd make it a life-or-death matter. He'd have to figure it out if he wanted to live."

"But if you couldn't kill him if he failed? And if he knew it?"

Rand's face cleared.

"Oh, I see. They can't kill everybody — the mutants who pass and the humans who fail. So it has to look like an accident."

"Exactly." Malachi nodded. "It has to be an accident to all except a very few. There are two essential parts to the perfect intelligence test: it must test intelligence and nothing else, and it must make it certain that the intelligence be displayed."

"So the failure of the jets was that test."

"Everyone had about one second to recognize the situation, to estimate the possibilities, and to initiate the only action that had any hope of success."

"The 'chutes," Rand muttered.

"Yes," Malachi agreed. "There was just enough time, if one started immediately after the jets stopped, to make it to the lock, get into a parachute, and jump—with a few minutes extra, so that you weren't inevitably killed when the ship exploded."

"But we might have been killed!" Rand said suddenly. "Those tugs catching us was about as risky a business as there is!"

"A necessary part of the test," Malachi pointed out. "Otherwise it would have had no chance of success. Which must have influenced the one-who-passed. And it shows how desperate the authorities are—they are willing to risk a ship and a shipload of passengers and cargo to catch one mutant."

"That wouldn't work every time," Rand objected. "They'd soon catch on."

"Of course. There must be a whole corps of men working on these things —all one-shot. The mutant must have realized that the situation might be a test, but as soon as he made his first move he might as well have gone through with it. There were probably hidden cameras trained on us every minute. And who knows what valuable information he was carrying? It must have been something priceless for him to risk leaving New Earth and returning."

Rand's eyes narrowed.

"What about you? Why didn't you head for the 'chutes?"

Malachi chuckled. "Me? I'm no

mutant."

"Don't kid me," Rand said. "You knew what was going on all the time, from the first moment."

"Well," said Malachi dryly, "I had no overpowering need for self-preservation. And besides—I was in the center of the room."

They walked a few seconds in silence. Then Rand suddenly thrust his fist hard into his palm.

"That girl—the mutant—she came a few days ahead of us. She must have been caught."

Malachi shrugged. "Perhaps. What of it?"

"What of it?" Rand repeated sternly. "They've probably executed her."

"But you hated her, remember?" Malachi reminded. "Instinctively? Something curled up inside you."

"I know," Rand muttered. "But one—against so many. What chance did she have?"

Rand brooded about it for a while. Ahead of them a small, well-dressed group of people were congregating, forming a tight circle about something. There was nothing particularly conspicious about it at first—except for the tautness of the backs and the low mutter which held an ugly minor note.

The mutter began to grow louder and uglier; it seemed out of place among the good clothes and the intelligent faces. Rand and Malachi were almost even with the circle now. Malachi nudged his assistant.

"What is it?" he whispered.

"A girl," Rand whispered back, peering over the heads of the crowd. "Dark hair. I can't see her face."

Someone finally said it.

"Mutant!" a woman spat out.

The word was like a match to tinder. "Mutant!" came from all sides and the circle pressed inward.

Malachi stepped forward and pulled at the arm of the nearest man in the group.

"Pardon me," he began, and when the man pulled away impatiently, Malachi grabbed him again. "Pardon me, but could you tell me where—?"

The man turned, but Rand was already wading in from the other side, sending his battle cry ahead of him like a knight of old.

"Let her alone!" he shouted, his arms flailing. "A mob—against one girl!"

"Here's another one," someone said, swearing.

The air became a kaleidoscope of arms and fists and feet; screams and curses resounded along the street.

"I'll get you out," shouted Rand from the midst, his voice somewhat muffled.

Malachi sighed.

When the officers arrived and broke up the fight, Rand was stretched out on the pavement, his clothes in shreds, his face bruised, one eye swollen, a knot raising on his forehead, and he was muttering through puffed lips:

"I'm coming. Don't give up!"

He looked up at Malachi, who was leaning on his cane, cool and impeccable, gazing down at Rand and shaking his head sorrowfully.

"Where were you?" Rand mumbled reproachfully.

"Common sense," said Malachi, "says that more battles are won by tactics than by violence."

"Where's the girl?"

"She came out this side when you went in the other. You'll have to pardon my friend, officers. He's a little impetuous."

"That may be," replied one of the uniformed men, "but we'll have to take you into security headquarters. Maybe that was a mutant got away, maybe not. We can't take chances."

"Fine," Malachi said, jauntily swinging his cane. "That's where we were heading. Will you call a car? I think my friend would prefer to ride."

The security officer at headquarters, a calm, shrewd-looking person, eyed them carefully when they first were ushered in, commenting to Malachi:

"You seem all right, but I don't like the looks of this other character."

It was not to be wondered at—Rand was not a pleasant sight to behold. A glance at their passports, however, soon convinced him that they were born far from the center of infection.

"Lairds of Luna, eh?" he commented. "It will be convenient having an office on New Earth."

"Oh, I'm not opening an office," Malachi said carelessly. "This is just a visit."

"Didn't you know?" asked the security officer, surprised. "This planet is closed. You came in on the last ship. Nothing comes in; nothing goes out. You'd better pick out a nice human wife and settle down."

"What do you mean?" Rand gasped. "Closed for how long?"

"Till this emergency is over," said the officer casually, squinting speculatively at the ceiling. "You might be able to leave here, if you're lucky, in—say forty-fifty years."

After the galactic smorgasbord at the Interstellar Bar and Grill, a meal over which Malachi lingered long and lovingly, much to Rand's disgust, they headed for the government center—a huge, towering building housing all planetary governmental activities and containing living quarters as well.

"What I can't figure out," said Rand, patched into some semblance of presentability but speaking and eating with difficulty, "is how that mob knew they had caught a mutant."

"Hysteria," Malachi said, "if the information we've been given is accurate."

It was, the official at the center informed them; he was only too happy to be of service to *the* Malachi Jones from Lairds. And, after inviting them to make the fullest use of the center's facilities and to accept accommoda-

tions in the visiting dignitaries section of the building, as being most convenient, he continued:

"There is no sure test. We do the best we can, but even *we* cannot expect one-hundred per cent accuracy. All we can look forward to is a long, hard struggle."

"Isn't there anything at all?" asked Malachi.

The official hesitated. "Only when one of them is caught in circumstances which almost preclude doubt. Then—there is a certain cold pride which makes them refuse to deny that they are mutants. If it isn't another trick to take us off our guard. There are some who don't—and then we can't be certain," he ended unhappily.

"Do you really execute them?" Rand blurted out. "Babies and all?"

The official looked at him for a long moment.

"Where did you get that information?"

"Oh—around," Rand said lamely. "You know—what people say."

"We cannot divulge our methods," the official said.

"Is information restricted on the origin of the mutants?" Malachi asked, steering the conversation into safer channels.

"Not restricted," the official admitted, "unknown. Oh, there's some story about an early spaceship and a nucleonic storm, but it's unverifiable."

"The danger must be extreme to make you quarantine the planet," Rand observed.

"Yes," the official said coldly, and on that note the conversation concluded.

As they stepped out of the elevator into the hall that led to their designated quarters, the door of the next elevator was just closing. Within the car they had a glimpse of a girl with dark hair and a face like cream against the blackness of coffee. On each side of her was a tall, hard-faced man with cold, watchful eyes. Rand grabbed Malachi by the arm.

"There she is. They've caught her."

Malachi carefully peeled Rand's fingers from what he called—for lack of a better name—his biceps. He massaged the arm as he glanced ruefully at the lean, muscular ex-pilot.

"Jumping at conclusions again," he complained. "Aren't you bruised enough?"

"We've got to do something," Rand went on, unheeding. "We've got to get her away."

"Common sense," said Malachi, "says that she is much more capable of taking care of herself than either of us are."

"One against so many," Rand muttered. "How can you say that, Malachi?"

"Oh, I don't know," Malachi said. "I'm foolish, I guess."

"They'll kill her. After all, we have an obligation to her."

"She's the beneficiary," Malachi objected. "Not the insured."

"Stop splitting hairs," said Rand.

Malachi sighed and turned away. In his room he sat for a long time, staring out of the window over the broad expanse of city, while Rand paced back and forth mumbling to himself.

"How to find her? Where could she be?"

Malachi finally raised himself from his chair.

"I have to do some work. Coming with me?"

Rand shook his head. "I'll comb the building," he muttered. "I'll roam the halls until I find her."

Malachi snorted. The building was two hundred floors covering four city blocks.

Malachi spent several hours in the historical library, dividing his time fairly equally between early archives and recent events. He was in the office of the New Earth *News* for about half an hour. When he returned to his room Rand was nowhere to be seen. There was no evidence, in fact, of his ever having been there. Malachi shrugged and went to bed. It had been an eventful day.

The buzzing of the visiphone awoke him. It was still dark, and when he snapped on the bedlight, he found that it was three o'clock. Malachi yawned, and flicked the visiphone switch. The screen stayed blank, but a woman's hard, suspicious voice filled the room.

"Malachi Jones?"

"Yes."

"There's a strange young man in my bedroom. He says that you can vouch that his purpose is not what I think it is."

When Malachi arrived, a few minutes later, in the luxurious suite twenty-five floors above, the girl who had claimed to be a mutant was sitting up in bed, her eyes cold, but no colder than the eye of the pistol that was staring implacably in the direction of a shrinking Rand Ridgway by the door.

"Malachi," Rand said hoarsely "tell this girl—"

"My friend here," said Malachi, "is a quixotic fool, Miss Hastings—not a lustful one."

"Miss Hastings!" Rand exclaimed.

"Miss Hastings," Malachi went on, "as you might have discovered, Rand, had you investigated, is the daughter of the President."

"But—" said Rand.

"Her motives are no concern of ours," said Malachi.

"But—" said Rand.

"And now let us return to our room," said Malachi.

"But—" said Rand.

Malachi saw that Rand was securely tucked into bed before he slipped between his own sheets and turned out the light.

"Get some sleep," he said. "If everything goes well, we should be leaving New Earth tomorrow."

"What?" said Rand.

But Malachi was snoring—or pre-

tending to.

Things began to happen soon after the delivery of the New Earth *News* to their door. Rand took one look at the full-page ad on page three and gasped.

ARE YOU A MUTANT?

Anyone tracing his ancestry as far back as the *Mayflower*, in its 2075 voyage, carries mutant blood in his veins and can be expected to display exceptional intelligence. En route to New Earth, the *Mayflower* passed through an unusual nucleonic storm which subtly altered the genes of the passengers. In a few centuries mutated recessives began to appear—

"You've betrayed them!" Rand said accusingly.

"Hah!" said Malachi.

The door opened silently. Two men and a girl slipped into the room, their guns pointing steadily in the direction of Malachi and Rand.

"Ah, Miss Hastings," said Malachi. "I've been expecting you and your delegation."

"Traitor!" the girl spat out. "I hope your company breaks you for this. I can't see what you expect to gain by it."

"That is where intelligence must take a back seat to common sense," said Malachi. "As for what I expect to gain—that is self-evident."

"You—or your company—has just lost one hundred million dollars," the girl said bitterly. "I don't doubt that the government has offered you more than that to sell us out."

"On the contrary, my dear—" Malachi began.

"We have no choice now," said the girl, "but to go underground—although it will do little good. All our efforts, all our plans are worthless. The government can track us down one by one, dig us out, exterminate us."

"How did you find out that it was the *Mayflower?*" asked one of the men, with a cold, hard face and colder eyes.

"Yes," said the girl, "before we—The government researchers have been trying to find that out for years."

Malachi smiled ingenuously.

"It was a little logic and a lot of sentiment," he admitted. "Perhaps the same mixture that motivated you—or your predecessors. However, that is not important."

"Not important!" exclaimed the girl in anguish. "When you have just sentenced our race to extinction?"

One of the strange men moved his gun impatiently. Rand jerked.

"Did you hear what she said?" he asked. "Or rather what she didn't say? 'Before we—' Before they kill us, is what she meant."

"Oh, come now, Rand," said Malachi. "These are admittedly extra-intelligent people. They will realize that violence defeats itself. Besides, I have taken the only course possible."

"You are mistaken," the girl said. "We are going to kill you before we go—and soon."

"Come now," said Malachi in

amazement. "Revenge, even if it were justified—which it is not—is profitless."

"We are not going to kill you for revenge," said the girl, "but to safeguard whatever chance for survival remains to us. We do not underestimate your intelligence, Malachi Jones. What I underestimated"—she cast an uneasy, flickering glance at her companions—"was your sense of honor. Were it not for the fact that your heredity is obviously clear of New Earth influence, we might suspect you of being one of us."

"Oh, no," Malachi protested, smiling. "Not that."

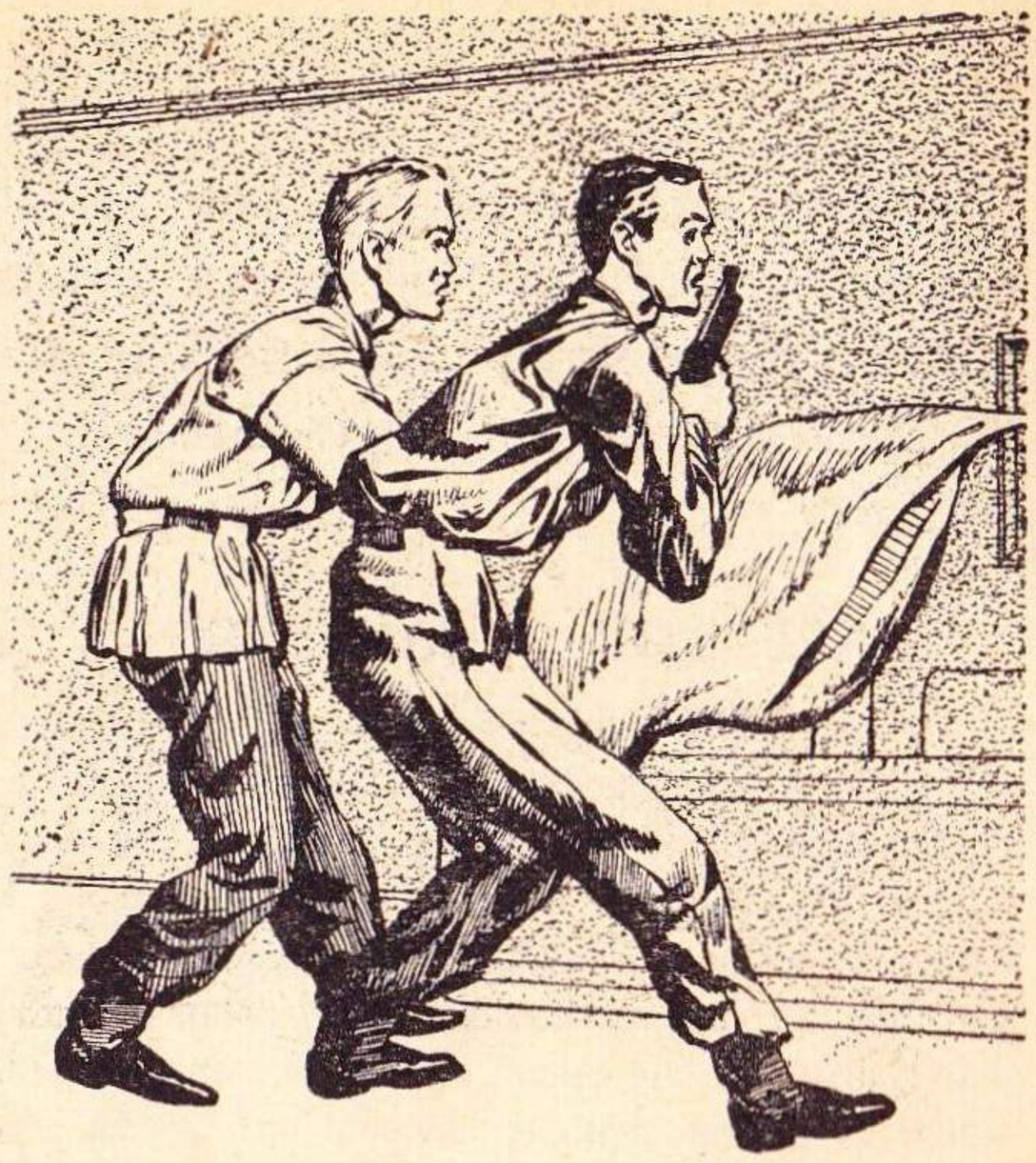
"Talk is useless," said the stranger who had been silent until now. "The council has decided."

"You have been condemned," said the girl.

The three guns, which had been pointed downward, began to raise.

"Let me ask you one thing—" Malachi began.

Rand threw the pillow with fluttering accuracy. Straight at the two men it flew, spoiling their aim. In the same moment Rand dove headlong across the room at the girl. As if she had all the time in the world, she hesitated and then, effortlessly, brought the muzzle of her gun down on Rand's head. The ex-pilot crumpled at her feet, blood welling through his curly blond hair. The girl stared down at him expressionlessly.



One of the men turned to eye her coldly.

"Why didn't you shoot?" he asked without emotion.

She cast him a sidelong glance.

"I—don't know. He's a fool—worthless."

"Ah, yes," said Malachi, sighing. "My friend can never get it beaten into his head—although he and others have tried hard—that the ends violence wins are worthless in themselves. But then, he is a likable fool."

The girl, her expression breaking, slowly sank to the floor as if her body had suddenly acquired a puzzling will of its own. She placed Rand's blood-stained head in her lap and gently inspected his wound.

"You were going to say something," one of the strangers remarked, raising his gun again, "before we shot you."

"Oh, yes," said Malachi. "I was going to ask you a very pertinent question: Did you ever hear the story of the fairy changeling?"

The finger that was tightening on the trigger relaxed. The men looked at Malachi as if the insurance agent had suddenly gone mad.

"If this is your idea of a joke—"

But a knock at the door prevented the completion of the ultimatum the mutant was about to give. Without waiting for permission, Malachi strode —or would have strode had his short legs been longer—quickly to the door.

"Oh, yes," he said, flinging open the door. "I was expecting you gentlemen."

Turning back to the room, he nodded toward the tableau formed by the three mutants and Rand.

"Miss Hastings, friends," he said formally, "may I present certain officials and a few members of the security police."

One was large and fleshy, but not soft. He preceded the four others through the door. Behind him was a tall, cadaverous eagle of a man with a questing beak and sharp, restless eyes. The three who followed were holding guns.

"My friends here," Malachi said, completing the introductions, "claim to be mutants."

"Georgia!" said the large man, missing or ignoring the last remark. "What are you doing here?"

The girl looked up from the blond head she held in her lap. Her eyes were puzzled.

"I don't know," she said.

"We should have shot him when

we first came in," said one of the mutant gunmen, coldly, as if it were a simple statement of fact, not something to be brooded about. "Then we might have had a chance."

"Mutants!" said the big man, swinging back to Malachi. "Mutants, did you say?"

"That's what he said," came from the Eagle.

"Those two and your daughter, President Hastings," Malachi said lightly. "Not the unconscious one in the position he would undoubtedly find interesting if he were aware of it."

"Georgia!" exclaimed the President. "That's absurd."

Georgia met her father's eyes. Slowly, not changing her gaze or expression, she rotated her head back and forth. At the mention of mutants, the three members of the security police had drawn close to the President and the Eagle had suddenly materialized, a gun in his fist.

"If you force our hands," a mutant gunman said coldly, "we will have to kill the President."

"No," said Georgia, her voice equally as cold.

"President Hastings is the one man who has prevented outright massacre," said the Eagle. "Injure him and you destroy your race."

The moment held, taut, vibrant, like the stretching of a piano wire—four guns on one side; two, perhaps three, on the other. But the reflexes behind the two guns were just a little quicker—everyone in the room knew that. They weren't, on the other hand, very much quicker; they were just enough so that no one in the room could expect to leave it alive. And the moment stretched into another, lengthened, drew out impossibly—

"Well, well, well," Malachi's voice tinkled cheerfully, plucking an airy harpsichord melody out of a string tuned for a dirge. "Now that we're all together I hope you aren't going to make the same kind of mistake my friend made who is now lying bleeding in Miss Hastings' lovely lap. Not that it isn't an enviable position, but Rand, alas, is in no condition to appreciate it."

Without any definable reason, the forces that had been pulling at opposite ends of the piano wire relaxed, and the wire collapsed in a tangle.

"Georgia," said the President, brokenly, "what's got into you?"

"Nothing but what my heredity put there," Georgia said. "I can't help it if I'm a mutant."

She hastily bent her dark head over the fair one in her lap.

"I was just asking these . . . er . . . mutants," Malachi said, "if they had ever heard the story of the fairy changeling."

"What has that got to do with the situation?" the Eagle asked.

"Ah," said Malachi, smiling. "That is the first intelligent question I have heard in this room yet. Before I answer it, however, let me sum up the

general situation, a situation which, if I am right, the persons here have not originated but inherited."

The Eagle nodded.

"It is, I might say by way of preface, an impossible situation," Malachi continued, "one which can only result in the deterioration of this world into insignificance and eventual poverty—economic and intellectual. It has already resulted in the quarantine of New Earth for forty or fifty years."

President Hastings, recovered from his emotional shock, spoke now with speed and precision.

"A desperation move, we admit."

"We have a condition of armed warfare," Malachi said, "underground movements, spies and counterspies, plots and counterplots. Meanwhile the principal work of life goes undone while both sides fight for survival. *Both sides*," Malachi emphasized, fixing on the mutants a gaze which was fully as steely as their own.

Georgia looked up and glanced at her gunmen. They shrugged slightly and Georgia turned her eyes on Malachi.

"The ideal solution of *your* problem," Malachi said, still looking at the mutants, "is removal of the threats to your existence and the restrictions which hamper your activities."

Georgia agreed silently.

"The ideal solution of *your* problem," Malachi went on, turning to the President's party, "is not, as you might at first be tempted to suggest, the elimination of the mutants."

"Why not?" asked the Eagle sharply.

Malachi shook his head sorrowfully.

"I am disappointed in you. I thought I had found a kindred spirit. No, the wiping out of the 'mutants' would cripple the intellectual potential of New Earth so severely that it would be centuries in recovering. Your ideal solution is the integration of the 'mutants' into your race."

"Exactly," President Hastings said, nodding. Then an expression of discouragement flickered across his face. "But that is, I'm afraid, impossible. We can never change the deep-rooted prejudice of the people. It is too strong, too old. The countermeasures we have hinted at, but never"—he stared defiantly at the mutant group—"carried out, are only those which would appease the blood-thirst, the primeval fear, of the public."

"I think," Malachi said softly, "you might find that attitude changed as of this morning."

These words centered the deadly stares of eight pairs of hot eyes upon Malachi. The insurance agent bore it with nonchalance, even, perhaps, with unawareness.

"You," he said, indicating the mutants, "came here prepared to execute me for revealing information you considered essential to your survival.

"You," he went on, turning to the President's group, "came here to force

my source of information from me and to see what else I might not have revealed.

"Both of you are mistaken. I know nothing." The eight hot stares became blank. "Only people," Malachi added softly.

When the silence had lasted long enough, Malachi cleared his throat.

"I looked up the most likely spaceship in the early immigration history of New Earth. As a matter of fact, there were four—all equally probable, all having passed through an area of unexplained radioactivity in space—a frequent occurrence, by the way. We ourselves passed through one on our way here."

"Are you trying to say that the history of the mutations is a myth!" Georgia exclaimed hotly.

"I didn't say that," Malachi pointed out. "You did. However, now that you have brought it up, perhaps it is. Your 'infallible' test of mutation is of the same class as that of your opponents—a level of intelligence."

Georgia's face flushed in admission.

"Perhaps you have more certain ways of determining intelligence, but the important factor is that there is no significant difference between mutant and human—it is not a question of kind but of degree. The fact you overlook is that there have always been a certain number of unusually intelligent persons."

"But never so many," Georgia objected, "nor so high a level."

"A matter of evolution, my dear," Malachi said. "Intelligence mates with intelligence, on the whole. The number of geniuses has risen, according to statistics, all over the galaxy. As," he added sadly, "have the number of mentally deficient. This factor, together with the fact that only the more intelligent tend to emigrate to other planets, has misled you and your group."

"But what," asked the Eagle, "of the instinctive hatred of the people?"

"That answer has already been given—ingrained prejudice against the extra-intelligent. And, you know, the mobs are usually wrong in their diagnoses, aren't they?"

The Eagle nodded reluctantly.

"The mutant group probably began as a fad," Malachi said reflectively. "When word of it leaked out, the people rose up—instinctively, perhaps, as you say—and cast the so-called different ones out. Then began the psychology of the outcast; in self-defense the fad became a cult, the cult a religion. Remember—no one feels like an outcast until he is cast out. But, to get back to my little announcement in the *News*, I imagine you have already noticed a reaction?"

The President nodded.

"If that is the cause of this morning's activities. The streets are unusually quiet. Disturbances are at a minimum. There hasn't been a lull like this since my first term of office began. It's had us worried."

"It needn't have," Malachi said dryly. "Everyone is at home looking up his genealogy."

"I can't imagine what you have gained," said the Eagle, "besides confusion of the issue."

But the President was quicker.

"I see. Everyone—"

"Well," Malachi qualified, "not everyone—but every third generation child on New Earth can trace his ancestry back to the *Mayflower*, which was one of the first ships to reach New Earth."

"But they aren't all mutants," Georgia gasped. "It takes a certain combination of recessives—"

"Are we back on that again?" Malachi complained.

"I mentioned the story of the fairy changeling," Malachi went on. "At this point it becomes significant. Every child, at some stage in his life, has nursed the secret belief that he is really a prince, a princess—or a mutant—in disguise, and not the child of his actual parents at all. Witness your own child, President Hastings, as a case in point. Everyone considers himself superior, and anyone, given half a chance, will snatch at the belief that he is of a superior race. Nothing, once this belief is firmly implanted, will shake it. You might read an ancient work called 'Star-Begotten' by a man named H. G. Wells for artistic confirmation.

"You will probably be annoyed for a long time," Malachi observed, "by superiority complexes. But that is better than what you have had."

The exchange of glances around the room was wary but promising.

"Let this then," said Malachi, "be a lesson to successful, superior mutations. Common sense says that the best survival policy is not secrecy but publicity."

Rand, stirring, opened the black eye below the knot on his forehead. Then he saw the face bending solicitously above him, sighed, and went back to sleep, smiling.

"There's one point I still can't understand," Rand said, two and one-half light-years out from New Earth. "What if they really are mutants?"

"Your own experience with Georgia," Malachi said, "should convince you that now, once the segregation of the outcast is over, they will never be able to keep their mutation pure. Intelligent young men fall illogically in love with stupid young women, and intelligent young women fall in love with . . . well—"

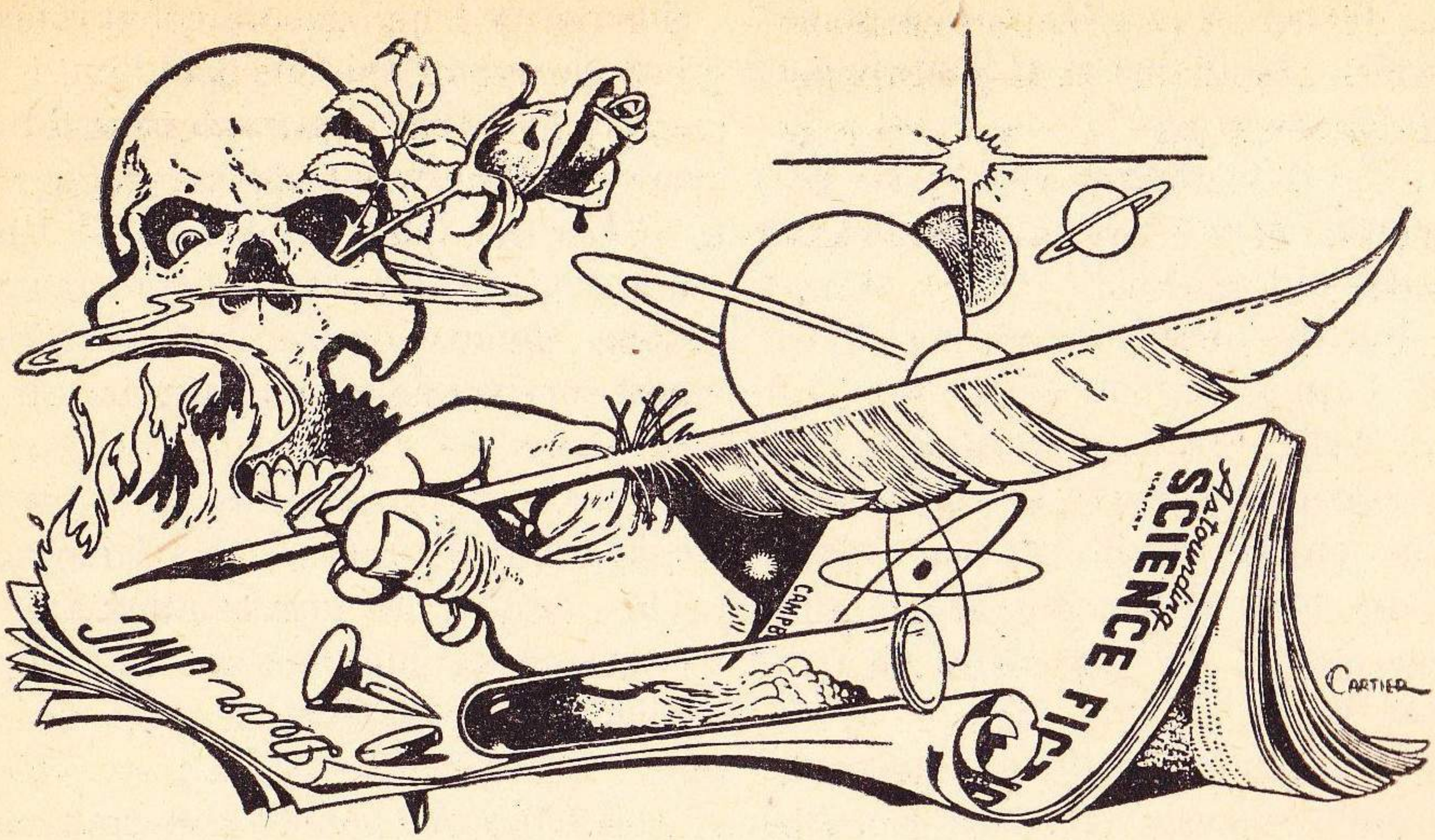
"That's all right, Malachi," Rand said. "You can't hurt my feelings."

And he crossed the lounge toward the smiling girl whose face was like cream against the blackness of coffee.

Malachi gazed after him, shaking his head and smiling.

"What this universe needs is not greater intelligence," he said to himself, "but more common sense."

THE END



BRASS TACKS

Dear Sir:

We had known, of course, that Gödel proved the existence of unprovable theorems. That is, there are theorems whose truth or falsity cannot be determined.

Mr. Kim-Bradley, in his fine article, tells us that Gödel has constructed *true* theorems which are unprovable. The natural question is, if the theorems are unprovable, how does Gödel know they are true?—P. Amfter, Newton, Massachusetts.

[*C. Kim Bradley's reply follows. Ed.*]

Dear Mr. Campbell:

This is in reply to the query you received concerning how Gödel determined the truth of his "undecidable propositions," as they are called, in view of the fact that they were unprovable. The question is a good one and is certainly deserving of a reply. When I wrote the article on metamathematics I was much tempted to include a discussion of this very point, but considerations of space limitations ruled otherwise. I shall attempt here to give a partial answer. However I must refer your reader to the literature for details if this letter is not to become more lengthy than the article itself.

The question is fraught with tech-

nical difficulties of a high order, some of which are related to the seemingly pedantic question: If 5/10 is 1/2, why isn't the denominator of 5/10 the denominator of 1/2? This little perplexity arises from a confusion of levels of language—Korzybski-ites will love this—or a confusion of the "object language" with the "meta-language" as the logician would say. When we assert the identity of 5/10 and 1/2 we are speaking of the rational numbers represented, or designated, by the fractions "5/10" and "1/2". It is these rational numbers which are identical, and not the fractions. We could as well inquire: If the ninth word in this question is "tiger," why doesn't it have stripes? Common sense prevents our confusing the name of the animal with the animal itself, but when it comes to statements, numbers, and other logical or mathematical entities the error is easily committed. Lack of care in making the distinction has been the downfall of many an otherwise flawless argument.

Now when we make a statement, such as "John has quit smoking" we are speaking of certain objects, actions, et cetera; namely John, smoking, et cetera. But when we assert the truth of the statement and say "'John has quit smoking' is true" we are speaking about the statement itself and not about John. Hence truth is a concept belonging to the metalanguage, corresponding to a state of affairs communicated by the object language.

I have perhaps elaborated at too great a length on this one point, but it seems to be, next to a mastery of the symbolism, the chief technical obstacle to an understanding of Gödel's Theorem.

When we attempt to establish the truth of a theorem in mathematical logic there are two methods of procedure open to us. There is the traditional mathematical method of deriving the result from a set of postulates by the application of certain rules of inference, all of which can be carried out within the object language of mathematics or logic. But in certain very special cases it is possible to establish the truth of an assertion by metalinguistic considerations, without recourse to the object language at all. Now Gödel was able to construct theorems which were unprovable within the object language of mathematics, but which could be shown to be true on metalinguistic grounds.

Here is a brief sketch of how Gödel constructed his "undecidable propositions." His first step was to "arithmetize" the content of formal logic, i.e., he set up a scheme whereby he was able to assign a unique number to each basic symbol used in logic and mathematics. For example he might have assigned the number 1 to "a," 2 to "=," and 3 to "b." Once this arithmetization of the symbolism was complete, the arithmetization of theorems and statements readily followed: thus "a=b" might become the string

of numbers 123. Every statement in mathematics or logic, whether true, false, or meaningless, receives a unique numerical representation under this scheme. Gödel next constructed a statement, call it P(x), which is true of any number x only if x happens to be a number assigned, under the above scheme, to a theorem provable from the postulates of mathematics. Next Gödel determined, in effect, a number n and a statement Q(x) such that Q(x) was false only if x = n, and n was the number assigned to the statement (Ex) P(x).Q(x)—or, in ordinary language, there is a number x for which P(x) and Q(x) are both true. This latter statement, namely (Ex) P(x). Q(x), is a Gödelian undecidable proposition. For a moment's reflection will reveal that this statement is true if Q(x) is false when x = n; hence only if n is the number of a nonprovable theorem. But the statement numbered n was the Gödelian statement itself, which, therefore, is true only if unprovable.

This is all I can say on the subject within the confines of one letter. I realize that it leaves much to be desired as an answer to your reader's question. So I now direct him to more competent hands. If your reader has some previous acquaintance with mathematical logic, I recommend an article entitled "An Informal Exposition of Proofs of Gödel's Theorems and Church's Theorem," by J. B. Rosser in the *Journal of Symbolic Logic*, vol. 4 (1939), pp. 15–24. An excellent, completely nontechnical discussion which presupposes no acquaintance with mathematics or logic is one by J. Findlay entitled "Gödelian sentences: a non-numerical approach" in *Mind*, vol. 51 (1942) pp. 259–265.—C. Kim-Bradley.

There is a point at which any specialist must say of another specialist's statements, "I'll have to take your word for it, until I equal your specialization level." So here, for me. To me, that undecidable theorem closely resembles the statement "You must never believe what I say for I am always a liar."

Dear Mr. Campbell:

In a recent issue you took a stand defending the "real necessity" of what is called military security. This surprises me, considering the number of stories you must have read, since Astounding printed them, pointing out in fiction form, the complete pointlessness of "security." I believe that your stand can easily be proved wrong on a basis of past fact.

In the first place, security has been touted as the necessary regulation to keep our "atomic secrets" and other military information from the hands of our "enemies." However, it tends to extend itself. It is a characteristic of any regulation based on fear that it tries to spread that fear into other and

unnecessary fields. Here witness the recent attempt to close up the information centers of the entire government to the public on the basis of security. This was quickly put down and as quickly denied, but the intent was there, and the next attempt may not be met with as much vigilance. Next, we do not have, nor ever have had, any real atomic secrets. The atomic plants during war time had no more secret, even as far as processes, than the secret method of preparing Kellogg's Corn Flakes for example. The general public did not know about the plants, true, but then they had not had the advertising given to the corn flakes. Any interested person—spy—with technical training could have found out what he wished about the plants, and the probable reason that the Communists used sympathetic personnel in the plants was that it was most convenient. The situation may be better now, but I doubt it.

Now the point of other "military information": You must know that this has never been successfully developed by the military itself, but by private firms subject to military supervision or testing to insure the quality of the goods. The ideas have not come from the military. In five years we, using this method, surpassed the other military machines of the world which had spent the previous ten years preparing. Most other nations had spent their time and money secretly developing ideas which were soon obsolete in the press of war. The "secrets" were the subject of an international game known as spying. Few were secret enough to do good in time of war. The principles of all the main weapons of the war were known before 1940, and only development was needed. This could be done, though inefficiently, by the military. But to keep up in any race we need new principles or new applications of old ones, and this never has come under rigid control, nor have we any reason to think that it will in the future.

To continue, who are our enemies? Those who sponsor military security seem to be the most confused about that. During the last war we were told from high up that the Russians were friends. Military security denied friction and all the evidence of non-co-operation to such an extent that even the President was duped into thinking that Stalin was a good fellow. Now we know. Or do we? How can we let bumbling militarists dictate our friends, our enemies, and our actions without regard for the facts, and not get more of the same?

To change from practical to ethical considerations, the whole idea of military security is wrong in this Nation. The people of the United States constituted the government as a limited, not a supreme power. Yet in the name of military security we must submit to the regulations of men who are not representatives of the people, nor responsible to them. Their expenses

are not limited by knowledge of requirements. Directives, not laws, take priority. The effect is to limit the amount of information in the hands of our own people, the loyal Americans who are the only ones to respect "security," and the ones who should be best informed. Others, even our "allies" pay little heed. By their efforts our "security" would be a hollow shell, but we would not know it because of that "security."

Finally, I wish to contradict one of your points in particular. You write that "It is thoroughly pointless to chant about the Traditions of Science." Remember that those traditions are the traditions of freedom, free expression and communication of knowledge. In a nation in which it is pointless to talk about traditions of science, it becomes equally pointless to consider the other traditions, such as freedom of the press, religion, or any other freedom. In that nation we find a dictatorship. Consider that in the past science has always proceeded down the middle path. Neither "wild ideas" nor ultraconservatism is desirable. For every advance in science which has aided offense in war, other scientists have produced some defense. Whenever such a defense against the atom bomb arrives, it should not be hidden by the military in their secure position, so that they may conclude, "Now *we* are safe—start the atom bombers" and launch the Last World War.—Frederick Kingdom, 8 Campus Court, Vermillion, South Dakota.

You misunderstand me, sir. I wasn't describing a situation that I thought should be, *but one that appears almost certain* will *be. It* is *pointless to* chant *about the Traditions of Science—or of liberty, freedom of the press, et cetera. Prayer is a sound practice—but after praying for guidance, the required step is rolling up sleeves and doing something that counts. Talking is remarkably fruitless. Whether you talk about the Traditions of Science, or Liberty, or Freedom of the Press. A world of chants and magic and amulets and talk did not produce results; the magic Winston Churchill recommended does, but is less comfortable. The formula of blood, sweat and tears.*

Motto for Galactic Federation Race relationships: Two Things equal to the same Thing are equal to each other.

THE EVIDENCE AT HAND

BY DEAN McLAUGHLIN

The mistake made was understandable; the evidence was extremely equivocal. Unfortunately, the results of the decision were not equivocal.

Illustrated by Cartier

"At last we have achieved contact with one of the beings who war with us. It was pure good fortune. We have assured this being—a strange, incomprehensible creature with whom communication was barely possible—of our desire to terminate the senseless conflict which exists between our races and it has returned to its fellows bearing our message . . ."

The news was transmitted from being to being, mind to mind. It spread, a flame of joy-creating knowledge, and soon the whole race knew there would be peace.

Or, rather, hoped there might be peace—for there was the memory of another war, with yet another alien race. There had been a lesson in its outcome—one which was learned but barely in time: not all beings would choose peace in preference to war.

Remembering that lesson, and the horror of the learning, the race waited, and hoped, and wondered which this present enemy would be . . .

Interrogator Thurber stood up slowly and leaned over his desk. "I don't care what anybody thinks," he said arrogantly, not caring whether Graham agreed or not. He didn't even care that Graham was his Section Director. Thurber was a short, stubby man, and Graham was seated. Looking down on Graham made Thurber feel bigger than he actually was.

"Opinions don't matter," the 'gator went on insolently. "Facts are the important thing. I'll believe Knight's report is important after I've heard it—and I'm not sure I'll think it's important then." He sat down again, stiffly. Graham almost expected to

hear the chair collapse into splinters.

But Thurber's words had jolted Graham. Confused and curious, he said: "Knight has seen an alien, and you don't think it's important?" He couldn't quite believe it.

Thurber picked up the brief he had been given. He waved it in Graham's face. "This says he *might* have seen an alien. We don't know. All we know is what he said on the communicator, when he was asking for a rescue ship. He said he *thought* the alien ship *might* have crashed. That's a lot of mights and maybes."

"Not as many as it might look," Graham answered reasonably. "We also know that Knight thinks he has important information. Why else would he insist that Commander Dawson hear him. He must have learned *something* out there, and he couldn't have learned very much unless he'd seen either an alien or the wreck of an alien ship. And either of those would be positively full of information."

Thurber looked straight at Graham. "Knight isn't an Intelligence man," he said bluntly. "He can't evaluate things properly." Graham reacted suddenly, instinctively, as if he wanted to interrupt. But Thurber quickly cut him off.

"Another thing," he said, "this planet where he crashed—it's pretty close to the alien frontier. And chew on this: We've never had to rescue a scout before; they've either come back, or they haven't. Knight knew that. And the fact that the planet isn't behind the front, by the way, means that he retreated before he crashed—which should say something about his courage.

"Anyhow, those are the facts. Now, since Knight knew that rescue operations were unusual, and since the planet was so close to the aliens' frontier, he knew we wouldn't even try to rescue him. There was too much danger of a ship being intercepted for us to risk sending one—particularly after he'd called that planet to the aliens' attention by using his communicator. So it was logical for him to cook up a cock-and-bull story that would make us want to rescue him. And what better story than to claim that an alien ship had crashed? Or that there was a wealth of information waiting for us? He was even smart enough to avoid saying an alien *had* crashed; he said one *might have* crashed. When you remember his courage might be none too good, it's obvious that's what actually happened."

Graham waited until he was sure Thurber was finished. Then he calmly replied, "The trouble with that explanation is that Knight thinks he knows something important. If you are right, he'd just say it was a false alarm—that the alien ship hadn't crashed after all."

"It would be easier," Thurber admitted reluctantly. He didn't like being tripped up like that. "But

remember, he's yellow. If he said it was a false alarm, he'd be given another ship and he'd have to go back to the war again—back to another try at getting past the aliens' patrols. But if he makes like a clam, he'll at least gain a little time. He hasn't anything to lose. Besides, scouts are a pretty queer lot. They think in only one direction. They do their job, sure, but not because they want to. All they really care about is the great me, and everything else can go hang."

"You're being unfair," Graham told him. "The scouts are the most courageous men in the service. Why, out of the men we assign to scout the aliens' front, only about ten per cent come back—and the ones who come back are the ones that didn't manage to penetrate. Do you realize we haven't gotten one man through the alien patrols in all thirteen years?"

"Doesn't that say something about Knight? He's *yellow!*"

"I wouldn't say that, just like that." Graham was honestly trying to defend Knight now, but not at the expense of irritating Thurber. "I mean, you're assuming things that might not be true."

"I've seen enough of these hermit scouts to know what they're like," Thurber said stubbornly. "Nobody who squats in a little ship, all alone for months at a time—nobody like that is human. Anyway," he continued defensively, "what I think doesn't matter. Opinions can't change facts, and facts are what I'll get from

Knight."

"Just be sure your opinions don't affect your logic," Graham warned, leaving his chair. He went to the door and was about to leave when, remembering something, he turned. "Commander Dawson will meet you in the session room," he told Thurber. "He was quite interested in Knight when I told him."

Before Thurber could say anything, Graham had opened the door and stepped out of the room.

Commander Dawson was a lean man, with a certain muscular hardness in his appearance. But his eyes and mouth were evidence that his strength was not limited to mere muscles. There was something in his eyes suggesting other qualities than sight, while the lines around them testified to problems and responsibilities beyond the realm of personal affairs. His mouth was ostensibly without expression, but in truth there was a certain tightness to the jaw, a certain firmness to the lips, both bearing witness to the testimony of his eyes. Graying hair covered his head, growing thin toward the back of the crown. He wore his uniform matter-of-factly, needing neither ostentation nor excuse.

He sat on a stiff, steel chair in a corner of the room, apparently unconscious of the barren, time-grayed walls, the scarred utilitarian furniture, the too-bright lamps, or the jarring hum of the inadequate air conditioner. Thurber found himself staring at the commander and hastily turned his head away. But, slowly, his eyes crept back again to the man with the commander's insignia on his lapel.

It made Thurber uncomfortable to sit in the same room with the commander without being able to speak. For he could not address his superior before he was himself addressed. Rather than awkwardly stare at the man, Thurber forced his attention to his outline. But it was still the same as it had been hours ago, with its almost ritualistic divisions and subdivisions—all the gambits and phases of the interrogation he was waiting to begin. The dead familiarity of it repelled him—it was as firmly written in his mind as it was scribbled on the paper.

The brief beside it was no better; it, too, was barren of all newness. He checked the recorder again to see that it was ready, and irritably wished that Knight would hurry up and come. It was so characteristic of a hermit scout to keep people waiting—if he ever considered anyone except himself to be a person.

Eventually, the door slid open and two men entered. One was a noncom attached to the Intelligence Section of the base. Thurber gestured dismissal at him. The noncom slapped the other man on the back.

"Good luck, Mac," he said. "He's a mean one." He mugged defiantly at

the offended Thurber and jauntily departed, carelessly sliding the door shut as he passed.

Startled by the back slap, the newcomer watched the departing noncom wordlessly until the door was sealed. Then, turning with a cattish slowness, he faced Thurber.

Knight was a thin man—almost bony, and his head seemed overlarge for his spindly body. His dark-toned hair was unclipped and shaggy; his cheeks and chin were unshaven and dark with the stubble. His eyebrows protruded and had none of the trimmed neatness so characteristic of Thurber's.

For clothing, Knight wore a spaceman's mission suit. A neutral shaded coverall in general form, it fitted snugly without being actually tight. The sleeves ended in elasticized cuffs that molded to the wrists, while the leg extremities were tucked into the tops of dark felt boots. The long scar of a zipper slashed down the front of the outfit, from the collarless neck to a point immediately below the close-belted waist. Knight's only other visible garment was a bright green choker cloth knotted about his throat, a rebel dash of color on an otherwise colorless form.

Knight peered at Thurber with unsubtle suspicion. "Where's Commander Dawson?" he demanded bluntly.

The unexpectedly clear, medium bass voice surprised Thurber. Before he could reply, however, Commander Dawson had emerged from his chair in the corner and was shaking hands with the spaceman.

"I'm Commander Dawson," he announced. "I suppose you're Arthur Knight."

"Yes, sir." Knight smiled in momentary shyness. "Sir, I have something very important to tell you," he said earnestly. "They wouldn't let me see you any sooner."

"I'm sure you have, Knight," Dawson answered encouragingly.

Thurber watched the interplay with disgust. The commander had forced *him* to maintain a very uncomfortable silence, but he'd given Knight an immediate glad-hand. Why should the commander pamper a misfit like Knight?

Commander Dawson was saying, "What did you find out?" Already, Thurber observed, the two were talking like old friends. It wasn't right!

"Excuse me, sir," Thurber interrupted, "but this session has to be put on tape. We couldn't very well submit the tape of an informal chat to Central Intelligence. It has to be in proper form."

Commander Dawson looked annoyed. "You're right," he admitted finally. To Knight, he said, "I'm afraid we'll have to make this formal. I hope you don't object."

"He can object if he wants to," Thurber put in, speaking out of turn, "but it *has* to be formal. They won't

like it back on Earth if we don't make it formal," he finished darkly.

"It's all right," Knight said reluctantly. "I've had them before."

Dawson nodded to Thurber and retreated to his chair in the corner. Knight sat down on the chair in front of Thurber's desk and waited, toying with his idle hands.

The tape in the machine began unrolling when Thurber touched the contact. A green light blinked into being on the panel. Thurber fingered his outline.

"You are Arthur Knight, hermit scout?"

"Yes, sir." Knight tried to sound patient, but was not particularly successful.

"And you were assigned to attempt a penetration of the alien frontier, following a course assigned to you by the Intelligence Section of this base?"

"That is correct," Knight said stiffly. He had given up the pretense of patience.

Thurber read the course onto the tape. "Did you deviate from that course?" he asked, using his tone to hint suspicion.

"Only after I was intercepted by the alien scout," Knight recited. "Then I had to retreat. My ship was damaged by the alien's fire, and I crashed on a planet."

"Then it is your opinion that the point at which you were to enter the area controlled by the aliens—this point is patrolled and cannot be penetrated?"

"I suppose so." He sounded distinctly uninterested, as if other matters filled his thoughts.

Commander Dawson was on his feet again. "Mr. Thurber," he began seriously, "I would rather you postponed these minor matters to another session. I am interested in Mr. Knight's report—and he believes he has something important to tell me. Therefore, I think we should not waste time with the routine phases of interrogation. Besides, while I am willing to listen to Knight's report, I am not particularly interested in, nor can I spare the time to listen to, matters which are not important."

Thurber scowled. This man, even if he was commander of the base, was still no more than a mere spectator here. He had no right to interfere in an official interrogation which, by the rule books, was to be conducted by the interrogator according to his own judgment. Nevertheless, Dawson *was* the commander, and he deserved a reply on that account.

"These matters *are* important," Thurber asserted. "Unless we determine the exact point at which Knight was intercepted, we can't use his experience as data for the determination of weak points in the aliens' patrol system. And until we are able to penetrate behind their frontier, we can't break the present stalemate. This is a war of Intelligence, not of

Strategy."

Knight watched the interchange of arguments proceed. He felt the compulsion to say something—he had something important to say—but he was afraid to interrupt them. He gripped the arms of his chair and waited, quiet though impatient.

Commander Dawson was saying, "I am not denying the value of such information, but if you want my opinion, I doubt very much whether there *is* any weak point in the enemy's frontier. Our patrols are air-tight—we've kept the aliens out; is it so strange that they can do the same with us? In the thirteen years of this war, we have sent out more than a hundred thousand scouts with orders to penetrate beyond the aliens' patrols. Thus far, not one scout has returned who hadn't been turned back, and only about ten thousand have returned at all. None, so far as we know, have penetrated.

"It is my belief—and you can let this be included in the tape you send to Central—that the only way we can penetrate is by a large scale attack—something more imposing than one or two one-man hermit ships. We need big ships, ships with real fire power, like those we've been holding in reserve in case the aliens tried a big attack. We would lose a lot of men and equipment in forcing our way through their frontier, but that is the only way we can break the stalemate. That is the only way we can beat the aliens."

Thurber heard the commander with resentment; he was turning the interrogation into a policy debate! "In other words," Thurber said slyly, "you doubt the value of Intelligence operations."

"I do," Dawson answered flatly. And, suspecting the motive behind the 'gator's remark, he defiantly added, "And you can let that through to Central, too. For the moment, though, I suggest we return to the matter at hand. I don't have time to engage in useless arguments. Shall we proceed?"

Thurber nodded. After all, he *was* the commander.

Turning back to Knight, Thurber laid aside the first page of his outline.

"According to the brief I was given," Thurber told Knight, "you crashed on a planet not far outside the aliens' frontier. From there, you called this base on your ship's communicator." The 'gator could not resist adding, "By so doing, you exposed yourself to attack, or possibly even capture, by the aliens.

"In your message to base, you asked that a ship be sent to retrieve you, adding that you believed the alien patrol ship which destroyed your ship had also crashed. Have you anything to add to that information?"

"Well, for one thing the planet was between two stars, so that there wasn't any night, and I'd crashed in a desert

and I didn't have much water. As it turned out, those things were important. You see—"

"Those were in your message," Thurber cut in, continuing with malice. "I neglected to mention them because I understood our commander to be in a hurry. I didn't think they mattered so much. Would you mind explaining just how they were important?"

"That's part of what I want to say. You see—"

Thurber cut him off. "In that case, we'll delay the explanation. I still have several preliminary questions."

"Let him talk," Commander Dawson said impatiently from his chair.

"But, sir," Thurber protested, being courteous only in deference to the commander's rank, "before we can go ahead, I have to check certain details I have doubts about. We must have the facts firmly in mind—the *exact* facts."

The commander listened with compressed lips. "All right," he agreed, giving up. "Go ahead."

"Thank you sir," Thurber acknowledged, patronizing. "Now Mr. Knight, you said you thought the alien had crashed. Were you correct?"

"Yes." Knight was displaying as much impatience as the commander, registering his protest by leaving off the "sir."

"Was the pilot killed in the crash?"

"No."

"You were ordered to take it prisoner, if possible." Thurber was almost accusatory in tone. "Why didn't you?"

Knight was suddenly uneasy. "I . . . well, I couldn't. I just couldn't, that's all." He sounded distressed, uncertain.

Thurber suspected Knight was hiding something. He decided to press the question. "Did you have any contact with the alien?"

"Yes." Uncomfortably.

"Did you kill it?"

"No." Hands gripping the chair arms, then relaxing, then tightening again.

"Did you try to kill it?"

"No—not really." Face contorted by internal conflict, words coming blurtingly.

"What do you mean, 'Not really'?" Thurber demanded scornfully.

"Please, if I could just explain—" His voice sounding painful, frantic, strained.

"You'll have your chance."

Shove him a little further, Thurber thought. *Get him good and rattled. He doesn't dare interrupt; nobody interrupts the 'gator.* He shot a glance at the commander. *Except him*, he amended.

Aloud, without pause, he continued in a stern voice. "Was the alien armed?"

Knight faced Thurber, desperately hoping the expression on his face might tell the man of his need: he wanted to say something; he *had* to

say something—but he didn't quite dare.

But Thurber had not seen this plea, had failed to recognize Knight's need. Instead, he had asked a question that meant essentially nothing, and was now waiting for an equally unimportant answer. There was nothing for Knight to do but reply, "He wasn't armed," and desperately added: "If you'd just—"

But he realized that Thurber was not interested, and his whole body wilted with the defeat.

At Knight's entreaty, Thurber stiffened, and a new element entered his thoughts. Men just didn't interrupt like this during interrogation. But more than that, a 'gator was judged by how well he handled his interrogations; if he let Knight get out of hand, Thurber realized, why, they'd blackball him right out of the service! He had to keep Knight under control.

"Don't interrupt," he told Knight harshly, with the authority of rule books and unbreakable practice behind his words.

Knight shrank back, cringing in his chair. "No, sir," he murmured, looking very small.

"Then suppose we proceed. You say the alien was unarmed. Then why didn't you try to kill it—or capture it?"

Knight turned to Commander Dawson. "Please, sir," he began in an uncertain voice, "if I could just tell the whole thing my way—I think I could tell you a lot more."

"I know my business," Thurber snapped. This was *his* interrogation, and he was going to run it himself.

"Just a minute, Mr. Thurber." It was Commander Dawson. "Why not let the man talk for himself without you badgering him? You don't have to pry information out of him. Can't you see he wants to talk?" He shifted to Knight. "Go ahead," he said kindly. "Tell us what you want to say."

Knight bowed his head shyly. "Thank you, sir," he said gratefully.

Thurber reached over to the recorder. "Shall I cut this off?" he asked sullenly.

"No, keep it running," was Dawson's answer. "I think it's about time those fools back on Earth found out their precious rules and practices aren't always such a good idea. This might help them revise their notions." Somehow, his tone implied that he included Thurber in his reference.

Going over to Knight, the commander said, "Before you go ahead, why don't you get a drink of water?"

Surprised and grateful, Knight murmured, "Thank you, sir. I'd like to."

"Then why don't you go get one?" He put an arm around Knight's shoulders and walked with him to the door. "There's a fountain down the hall. We'll wait for you here."

At the door, Knight turned and stared timidly at the commander, afraid he might be called back.

Commander Dawson gestured dismissal at him with a friendly smile. "Go ahead," he said amiably. "You need a drink. I want you to have one."

Knight was embarrassed. "Thank you, sir. It . . . it's good to have one friend here," he blurted. Impulsively, he reached up to his throat to untie his green choker cloth. He held it out to the commander. "I . . . I'd like you to have this," he said, and meant it.

Dawson accepted the cloth soberly. "Thank you," he said, very gravely. He tied it about his own throat. "Thank you very much."

But Knight scarcely heard. He was already gone. The door was slowly sliding shut. Dawson fingered the cloth thoughtfully until the door sealed itself.

The instant the door was sealed, the commander turned on Thurber. At that moment, his face was not a comforting thing to see—not to Thurber.

"Mr. Thurber," he said in grim tones, "I came here expecting to hear Knight's report. I was told that it might be important. I don't know—but I do know that up to now you have prevented me from hearing him. You are an interrogator. Your job is to obtain information. So far, all you have done is obstruct Knight's attempts to tell us what he knows."

Thurber found it impossible to face the commander. He looked away. Turning his head, he glimpsed the recorder from the corner of his eye: the recorder with its tape still feeding through the slot, and the green light gleaming on the panel. He reached for the contact switch—he couldn't let this get through to Central.

But Commander Dawson saw the move. "Leave it on," he ordered. "I want Central to get all of this."

Thurber jerked his arm back as if he had just touched a writhing, slimy snake.

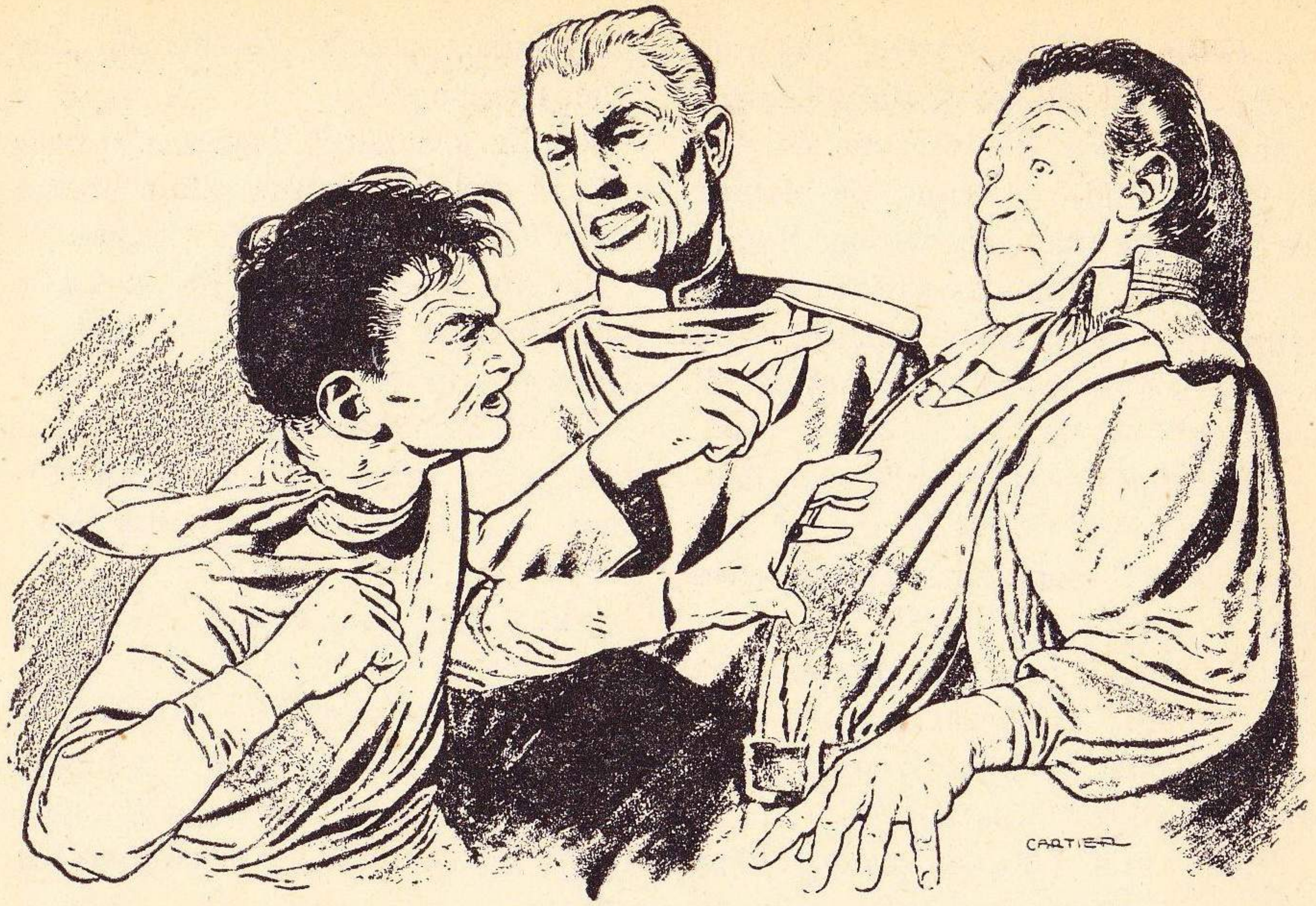
The commander kept on talking. "I came here to listen to Knight, not to hear you badger him. He hasn't done anything wrong. What are you trying to do? Break him down and make an idiot of him?"

The question was meant to be rhetorical, but Thurber had an answer. "I'm trying to get the facts—the *real* facts. Not what he thinks they are."

The commander was surprised by the quick reply, but he didn't yield an inch. "Did it ever occur to you that he might be right? Don't bother to answer; I know it hasn't."

Thurber cut him off. "If he was right, cross-examination wouldn't hurt. We'd get the facts anyway—and we'd know they *were* facts." He felt his temper rising. It had been for some time. But he couldn't stop it. He didn't want to, anyway.

"But it *would* hurt," Dawson countered. "He's a hermit scout because



he's fitted for the job. If you'd looked at his record in your brief—I can see you haven't—you'd have seen why he works best alone. It's the only way he can work—he can't stand working with other people. He's defenseless against the way you've been handling him. It's as if you'd thrown him on the floor and were kicking his head in. He can't take your kind of treatment."

The commander would have gone on, but Thurber cut him off again. "How else can I get information out of him?" he challenged.

"If you had read his record," Commander Dawson said, slowing down but maintaining his anger, "you might have learned that he is quite capable of making his own reports, without the assistance of a third degree. If I'd known you were going to be like this, I'd never have let this affair go through channels. I'd have heard Knight in my own office, without any of Graham's bully boys."

"Why don't you look at *my* record?" Thurber demanded. "Have I ever failed to get information from a man?"

"Maybe not, but have any of them still been alive when you got through with them? You've ruined a good man just now—he won't be fit for duty for months now."

"I followed the standard methods," Thurber defended stiffly. "It's not my fault."

Dawson was exasperated. "The rule books are the refuge of the incompetent. You think because you do just as you're told, you can't be blamed for anything that goes wrong. You're as much to blame as the rules—because you follow them blindly. You should be able to see when they aren't working."

"But nothing like this ever happened before," Thurber argued desperately. "It wouldn't have happened now if you weren't here."

"If I wasn't here, Knight wouldn't talk at all," Dawson pointed out. "You should be able to adapt your methods to the situation."

"Sir," said Thurber stiffly, rising. "If you dislike the way I handle my interrogations, I shall request a transfer to another base."

"Your transfer is granted," the commander said tightly.

Thurber's face went blank with surprise, then relapsed back into anger. But he was saved the necessity of answering by Knight's abrupt return.

He opened the door slowly, with every appearance of timidity. He looked at Thurber, and, seeing the angry tightness of his face, drew back, frightened.

"Come in," Commander Dawson invited cheerfully, demonstrating excellent self-control.

Knight cat-footed into the room, letting the door close itself. He stood just inside, tensely, waiting for another command.

"Grab a chair." Dawson waved toward the one empty chair in the room. "Nobody's going to bite you."

Knight scuttled over to the chair and occupied it. He did not look in Thurber's direction.

"Now Mr. Thurber," Dawson said calmly, "I think we should let this man . . . your name is Arthur, isn't it?"

"Yes, sir," said Knight, very uneasy.

"I think we should let Arthur take a rest now. He's rather tired, and he's had a very trying experience lately. We can hear his report another time."

"Oh no, sir," Knight protested instantly, then stopped, afraid to say more.

"What's the matter, Arthur?" Dawson asked him kindly.

Knight found his voice again, after swallowing several times. "If you don't mind, sir, there's something very important I've got to tell you. I've tried to tell you before, but"—he shifted a hand slightly toward Thurber—"he's always stopped me. Really, I'm *not* tired, and it's *very* important."

The commander stopped the frown he felt coming on. He hadn't expected this. By all the rules, Knight should have wanted desperately to get away from Thurber—and he sounded so terribly sincere.

"All right, Arthur," he agreed. "What is it? What do you want to tell me?"

Knight took a breath. Animation returned to him. He sat up, brightening.

"Just a minute, sir." It was Thurber, looking very sullen, but even more stubborn.

"What is it?" Commander Dawson sounded distinctly disgusted.

"I think he's wasting your time," said Thurber flatly. "He says that the alien crashed, and that it survived the wreck. He says it was unarmed and didn't try to kill him. He claims he couldn't take it prisoner, nor could he kill it. In fact, about all he *did* do was see it. Now what could he have learned that's so important just by seeing it? He doesn't have anything important to tell you. It's all nonsense."

Knight screamed with sudden rage and launched himself at Thurber. There was the desk between them, but that proved to be no obstacle. He dove over it in an unexpected leap and grabbed the startled Thurber by the windpipe. Thurber's chair crashed over backwards with the impact. The two men rolled on the floor, Knight maintaining his strangling grip. Thurber clawed desperately at the man, but was unable to reach his face, which was only inches away from his own. Knight was mouthing senseless sounds that might have been words, but they sounded like no lan-

guage ever uttered.

After an instant of shocked inactivity, Commander Dawson was over them, carefully and gently prying Knight's fingers away from Thurber's throat. Knight resisted at first, but the commander said, "Let him go, Arthur. He isn't going to hurt you any more." Hearing that, Knight relaxed. He rolled over on the floor, face down. He lay there, weeping.

"Idiot! You should have known that would happen."

"Sir, I—"

"Shut up. Don't say another word. And do what I tell you. *Exactly* what I tell you."

"But I—"

"Shut up. You make me sick! Get up on your feet and stand still. Hurry up."

Sullenly, Thurber obeyed.

The commander turned his back on him and knelt down beside Knight. Knight was lying face down, his body shaking with the sobs. Dawson laid a hand on the man's shoulder. "Arthur," he said softly, through his teeth, "I want you to hit him. I want you to bloody his nose for him."

Knight stirred.

"I want you to knock his head off," Dawson said in his ear.

Knight started to get up. He rose slowly, first to hands and knees, then kneeling, then, one deliberate foot at a time, he stood up. He looked at Thurber with knotted fists stiff at his sides.

Thurber started to move away, looking anxiously toward the door.

"Stop right there," the commander told him. "Don't move a muscle. If you move as much as your little finger, I'll let him break your neck."

Thurber froze.

Knight stood up close to Thurber and looked him in the eyes. His tight fists rose from his sides, then dropped limply.

"I can't do it," he said miserably. "I can't do it."

"Hit him," Commander Dawson hissed in his ear. "Hit him hard."

Thurber started to step backward—and his heel struck the wall. "Don't—"

Only chance prevented Thurber's tongue from being bitten through, as Knight sent the interrogator's head reeling backwards against the wall. He leaned groggily against the wall a moment for support. Then his knees weakened and he started to slide down.

"Hit him again!"

Knight's fist shot out again, landing solidly on Thurber's face. Blood started from Thurber's nose. Knight struck again, and then Thurber was crumpled on the floor, conscious but afraid to rise.

The commander nudged him with a foot. "Go over in the corner and sit down. And don't interrupt us. I'm sorry I had to do this, but it's the only way I could repair the damage you did."

Cupping a hand over his crushed and bleeding nose, Thurber stumbled into the corner and flung himself into the chair. A thin red stream ran from between his fingers and dribbled down his arm.

Dawson guided Knight back to his chair, then seated himself on top of the desk. He glanced at the recorder; it was still running.

"All right now, Arthur. You had something to tell me. What was it?"

Knight looked up, face eager. "The aliens. They can't see."

"You mean they're blind?"

"No, not really." Knight was beginning to relax now. "But they can't see like we can—their eyes are too sensitive. They come from dark stars —stars that don't give much light, just heat."

"I see," the commander murmured. "Then they can't live on the same worlds we can."

Knight had almost forgotten Thurber, over in the corner. He was becoming excited. "That's right," he said eagerly. "We don't have any reason for fighting them!"

Commander Dawson hesitated a moment, then shook his head. "I'm not so sure of that. This war isn't really a matter of competition. It doesn't have anything to do with that. This war just couldn't be avoided."

"Why not?" Knight was bewildered, confused. It was as if the bottom had just fallen from beneath beliefs which were sacred to him.

Dawson bit his lip, but he had to reply. If he didn't raise objections, Thurber might, and he didn't want that to happen. Knight was in bad enough shape as it was.

Glancing at Thurber, the commander saw that he was beginning to take interest in something beside his own injuries. He was holding a handkerchief wadded under his nose. The nose was misshapen, and Thurber's eyes glared at him hatefully.

Dawson returned to Knight, hoping he could avoid following in Thurber's footsteps. He was reasonably sure Thurber wouldn't try to prevent Knight from choking him.

"Look at it this way," Dawson said, trying to avoid any hint of antagonism. "We couldn't take chances. You see, about five hundred years ago, when we were just starting interstellar exploration, some of the big men got the idea that we might not be the only intelligent people in the galaxy—that some race on the planet of some other star might be just as brainy. They went on to say that they might have interstellar travel, too. That was reasonable—the galaxy's a pretty big place, and of course we know they were right."

"But just because we thought they might exist," Knight protested anxiously, "that doesn't mean we have to *fight* them."

"No, not in itself," the commander admitted. "But then these people also concluded that they—the aliens—might resent us being as they were and decide to . . . well, to exterminate us. I suppose that may be a lot of fancy supposition, but we couldn't afford to be wrong—we couldn't take the chance of meeting anybody who didn't like us without being ready to give back whatever they handed us. So all our exploration ships were armed and told to be careful. Then, when one of our ships met one of theirs, thirteen years ago . . . well, one man got away in a lifeboat and we had a war on our hands. It's just that we couldn't take chances."

Knight persisted. "We still didn't have to have war," he declared.

"What else could we do? We set up a patrol system on the outskirts of the area we'd colonized—that was logical enough—and when the patrols started intercepting alien ships, well, there was a war."

"But those ships weren't armed!" Knight cried. "They didn't even have a slingshot!"

Dawson froze. "How do you know?" he demanded. In his surprise, he forgot to control his voice. It sounded harsh, brutal.

But Knight didn't seem to care about the tone. "The alien told me," he said stoutly.

Dawson didn't say anything immediately. He digested Knight's announcement and ran it over in his mind. Then, speaking slowly, he asked: "How could the alien tell you any-

thing? It would have to talk—and have to know our language. Have they captured any of our men?"

"I don't think so. If they had, I don't think we'd be fighting the war any longer."

"Then how could it talk to you?" Dawson asked, keeping to the main line of questioning.

"Well, he didn't really talk . . . he talked inside my head; I didn't need my ears to hear him."

"You mean it . . . well, made you think what it wanted to say?"

"That's right." Knight was delighted. He had gotten his meaning across. "He called it 'thought sharing.'"

Commander Dawson decided to take up another tack. A picture was beginning to build up in his mind, and he didn't like it—it made him feel uncomfortable, even guilty. "Just how did you come to engage this alien—who had just wrecked your ship—in this conversation?"

Knight looked hurt. "Please, sir, don't get like *him*." He nodded toward Thurber, who still sat sullen in the corner.

"All right," Dawson said amiably. "Suppose we both forget the question."

"No. It's all right. It's just that . . . you were being sarcastic, weren't you?"

"I guess I was," the commander admitted. "I'm sorry. But why were

you talking with this alien?"

"Well, we just got to talking." He seemed uncomfortable, inarticulate, as if he wanted to say something but was uncertain how he should phrase it.

"Tell me about it—all about it," Dawson invited, helping him.

"Well,"—he sounded almost apologetic—"you remember I said I was on a desert without much water, and that the planet didn't have any night. That's important. You see, after I found the alien's ship, I decided to investigate. When I was just getting up close, he came out of the wreck and talked to me. He was terribly big, and at first I was going to use my blaster on him, but then he suggested that we work together. You remember, I told you he couldn't see in the light—it was too bright and it blinded him. He told me he needed water as much as I did, but that he couldn't find any because he was blind. Then he pointed out that I couldn't find water because I couldn't travel fast enough—my water would be all gone before I got out of the desert. Then he said suppose we work together; I could be his eyes and he could be my feet. That way, we'd both get the water we needed. And while we were looking for water, we got to talking. At first, I had an idea of making him a prisoner when the rescue ship came, but I figured I might have to kill him before then, so I tried pumping him for information. I asked him a lot of questions, and he answered when he could. It wasn't always easy for him to get the idea across."

"I can see how you could get quite a lot of information that way," Dawson said. "But what about this you told me, about those ships not being armed?" He almost hated to ask that question, because a pattern was constructing itself in his mind and he didn't like it at all. But he had asked it, and all he could do now was listen. He shifted his eyes to Thurber, and wished he'd thought to send the man out of the room.

"That's what I've been wanting to tell you, sir," Knight said, and Dawson thought he sounded all the more pitiful for his display of enthusiasm. "I had to fill in the background first, but now I can tell you. Those ships weren't armed because they were trying to prevent a war—they were trying to make peace."

"I wish we had known that," said the commander, very solemn and thoughtful. He added, "But it's too late now. The war's on and we don't have any contact with them. We can't make peace now."

He hoped he sounded sincere enough.

"But it isn't too late," Knight declared eagerly. "That's just the point! You keep interrupting me. Before he got into the ship that came for him, the alien told me to tell you—everybody!—that they want peace. And we can send a delegation back to that world in about a hundred days

and we can arrange a truce. Don't you see? The war's over! We never had to have it in the first place!"

Commander Dawson slid off the desk and was standing in front of Knight, pulling him up out of his chair. "That's the best news I've heard in thirteen years," he exclaimed, slapping him on the back. He went back and stopped the recorder and took out the tape reel and put it in his pocket. "This'll have to go back to Central by special courier. You'd better go back to your room—they have assigned you one, haven't they? —go back there and get some rest. You need rest after the way Thurber treated you. I'll handle matters from here on in. You just take things easy."

Elated, Knight left. The war was as good as over.

The moment Knight was gone, Commander Dawson went over to Thurber, who looked up at him with a mixture of hate and startlement. "You don't really believe that stuff he handed you," Thurber said, obviously suspecting the opposite.

"I hate to admit it," Dawson said soberly, "but this time you're right. I don't." He broke off abruptly. "You'd better get over to the Infirmary. He put quite a dent in your nose."

"I'll get you," Thurber threatened. He sounded like he meant it. "You'll get busted for this."

If Thurber hoped to anger Dawson, he was quickly disappointed. "It's

your right to report this and lay charges," Dawson allowed calmly. "But Central will get my side of the story from the tape, and I think they'll back me up. I think you had it coming to you. You should have been able to see how he was reacting and eased up on him."

"They never acted like that before," Thurber defended.

"You hadn't worked with him before," the commander told him, "and no two men are exactly alike. Besides, this was no ordinary case. He had something he wanted to tell. That never happened before. And when you blocked him at every turn"—he shrugged—"well, he had to react. Be glad I didn't let him strangle you. Letting him draw blood was enough to restore some sort of balance."

"You had no right—"

"I had to know what it was he wanted to report. If I hadn't done what I did, we might not have known for months. Maybe never."

"It was all nonsense anyway!" was Thurber's retort.

"What he said was, yes," Dawson agreed. "Come on. Let's start for the Infirmary. We can talk on the way."

Thurber stood up cautiously, and they went through the door into the hall. His nose had stopped bleeding, but he still carried his bloodstained handkerchief wadded in his hand, reluctant to pocket it. Men passed them in the hall and stared at the broken nose. But the sight of the commander walking beside Thurber forestalled any inquiries.

"You wanted to be a scout once, didn't you?" the commander commented.

"How did you know?" Thurber demanded. Dawson had touched on a sensitive subject.

"They wouldn't let you, would they?" the commander went on.

"None of your business," Thurber snapped. Then he muttered, "Glory hogs!"

Dawson could have pursued the matter, but decided against it. He had learned what he wanted to know.

"I suppose you'll still want that transfer," he said.

"Why not?" Thurber challenged.

"You can have it. I wouldn't want a 'gator in my command who can't see what's going on. The only thing is, I don't want to wish you off on anybody else. You're no good for interrogation anyway—not when it's really important."

Thurber bristled, but the commander went on talking.

"I don't suppose you'd object if I recommended you be given a higher rank and got you assigned to Analysis back at Central. You'd be kicked upstairs, so to speak. You've got a good enough record to put the deal across."

Thurber didn't know quite how to answer. He ended up by not saying anything.

"I take your silence for agreement," the commander said softly after a

minute had gone by.

They turned down another hall. The base was a big place, and there were many men going everywhere. They saluted the commander as he passed them, and he returned their salutes automatically. He went on talking.

"It wasn't a waste of time, though, hearing Knight. That peace story was phony, of course, but at least we learned a lot about the aliens. We've learned more about them in the last hour than in the whole thirteen years we've been fighting them."

Thurber walked beside him, saying nothing.

"I hate to think what they can do to a man. Look what they did to Knight; they—controlled him. That's about all we can call it. They filled him full of lies and made him believe them, and then they sent him back to tell us they wanted peace. Yeah, peace: a nice fancy treaty so we can live together—so they can come into our territory and mingle with us—make slaves out of us! Very neat, and we wouldn't even know what was happening until it was too late—because then we'd all be slaves."

"We've got to beat 'em," Thurber said through his teeth, his injuries forgotten. "We've got to exterminate 'em. The whole universe isn't big enough for them and us both!"

"I think we can beat them, now," Dawson thought aloud. "I wouldn't

have thought so an hour ago. But the fact that they're trying this ruse after thirteen years of fighting would indicate that they don't think they can defeat us. They lack confidence in themselves, and that's always the first step toward defeat. And if we play things right, we can take advantage of this 'peace offer' of theirs. A nice big task force, properly handled, should be able to get through their patrols right at the point in the frontier nearest this world Knight was on—the one the peace delegation is supposed to meet on.

"It was close, though. Terribly close. All those lies they gave Knight were believable enough. Even this world he crashed on was unlikely enough to make things seem realistic.

"But then, I guess it had to be a world without any night. If the planet had a night, then the alien couldn't logically propose co-operation to Knight—it could just wait until it was dark and then go wherever it wanted to. And if it didn't propose co-operation, Knight wouldn't have any excuse for not killing it when he first saw it. The whole logic of the story they gave Knight falls apart if the planet has any night. They were clever, those devils, and very thorough. I might never have realized what they were up to if they hadn't missed one point.

"Knight said he and this alien worked together, looking for water. They were a team. He guided the alien, and the alien carried him. That means they had to act as a unit—but we know that Knight is totally incapable of teamwork.

"As for Knight," he went on gloomily, "I guess we'll just have to put him away in some hospital."

Later, as he was leaving the Infirmary, a new thought came to him. His feet slowed while he considered it. Knight could not co-operate with people, but—were the aliens *people?* And if not, then maybe—

After a moment, he shook his head and started walking again. "No," he decided, vaguely frightened. "We couldn't take the chance."

. . . We could not conceive of how our offer could have possibly been misconstrued. We were, therefore, forced by their brutal rebuff to the conclusion that they—like that other race in our past—were fundamentally inimical. Making our decision on that basis, we released for use the weapons we had previously, out of mercy, been holding in reserve. And thus we gave humanity the only peace that race will ever know.

Only long afterward did we discover our mistake, and the gravity of our error. From records recently discovered in ruins on humanity's native planet, we have finally learned the true explanation of our failure to achieve a peace with them.

Once before in our history we learned an important lesson about exotic races. Our first war with alien beings proved

to us the error that lay in assuming that all beings were like us and would have peace—for that race sought no less than our elimination, and saw no possibility of compromise or co-existence.

Now we have learned a second lesson, and in that lesson lies our guilt. It is immediately evident from the newly-discovered records that the failure of our peace attempt resulted from a minor psychological failing of that race—arising, it is theorized, from their inability to share thoughts with one another—and not inherent malevolence, as we supposed at the time. It is unfortunate that, in our ignorance, we destroyed them.

But more important to us now is how we shall apply this lesson—for should we ever again make contact with some alien race, and war is thrust upon us, how can we know—how can we ever know which they would choose? Would they have peace or conflict? How can we know with certainty before they, or we, or both of us, are totally destroyed and no more than a bitter memory . . . ?

Author: Historian.

THE END

THE REFERENCE LIBRARY

BY P. SCHUYLER MILLER

MATTERS OF FACT

While 1952 may go down in science-fictional history as the Year of the Anthologies, it is also doing very well for itself so far as factual books by science-fiction authors and about subjects related to science fiction are concerned.

Arthur C. Clarke, chairman of the British Interplanetary Society and author of a number of excellent fictional offerings, among them the current "Sands of Mars" (Gnome, $2.75) which is also reviewed in this issue, has achieved the distinction of a Book-of-the-Month selection for "The Exploration of Space" (Harper & Brothers, New York. 1952. 199 pp. Ill. $3.50). This handsomely illustrated book, which offers the combination of Leslie Carr and R. A. Smith in lieu of Chesley Bonestell, is a natural companion to last year's little "Interplanetary Flight" (Harper, $2.50). Where the earlier book put the basics of interplanetary flight by rocket into a tidy nutshell, Clarke's new book takes us on a step-by-step tour of the Moon, the planets, and the stars. Surveying very simply and lucidly the essential physical and engineering problems involved in lifting a human

cargo off the Earth, he then goes on to consider in detail what will have to be done to reach, one by one, other goals in space.

There is no need (readers of Astounding Science Fiction know) for me to go through the argument again. Because of his connection with British rocket circles, Clarke is uniquely equipped to tell the story of step rockets, space stations, and spaceships clearly and simply, and at the same time to introduce sound technological ideas of his own as to how these goals will be reached. The step-rockets which will be needed to lift people and freight from the Earth to the orbit of a space-station, and the less elaborate finless Type B ships for landing on airless worlds, will not be strange to most readers—but what about Clarke's Type C ship, the deep-space craft which performs most of the work of exploring space but, as the author puts it, "would have about as much structural strength as a Chinese lantern"?

The black-and-white drawings, minutely detailed, by R. A. Smith and the color plates made by Leslie Carr from Smith's designs do in pictures what Clarke does in words. Here is the actuality of Man's next step in the exploration of the universe—and the stars are by no means excluded.

Turning the clock and the calendar backward, L. Sprague de Camp and Willy Ley have joined their antiquarian and encyclopedic talents in

"Lands Beyond" (Rinehart & Co., New York. 1952. 346 pp. Ill. $4.75) to outline the story of Man's early searching for the marvelous just over the horizon. These are the lands beyond the expanding circle of the known—Atlantis, the ports Odysseus knew, the wonders Sinbad saw—or said he saw—the fate of the Lost Tribes of Israel, the voyaging in search of Terra Australis, El Dorado, the Amazons, and on down to Symmes' hole and the "druids" of Mount Shasta. Maps and old prints enliven the story—nearly a score of them.

These travelers' tales were in a sense the interplanetary yarns of Mankind's adolescence. We have both varieties still with us—those based on actuality and those made up out of whole cloth. Even the BEM's were there, including gigantic parrots which I swear were rediscovered for "Genus Homo" instead of being stolen from Ortelius. "Lands Beyond" should stand on the shelf between Willy Ley's "The Lungfish, the Dodo, and the Unicorn" and "Dragons in Amber" and Sprague de Camp's yet-to-come "Lost Continents." It is the drive into the beyond which they show as an intrinsic part of the human character, mixed with the scientific reasonableness of Clarke's rocketeers, which will take us into space—wanting to go, then learning how.

The how of space itself—at least, of the stars and planets which are contained in space—is treated in two excellent books of cosmogony which, with Hoyle's "Nature of the Universe" (Harper, 1951), take us back to the great days of Jeans and Eddington. George Gamow's "The Creation of the Universe" (Viking Press, New York. 1952. 147 pp. Ill. $3.75) again brings us the unusual talents of the Professor of Theoretical Physics at George Washington University. I can think of no living physicist of Gamow's stature who has his gift for drawing effective analogies to clarify abstruse concepts. Drawing on the same factual data which Hoyle used, and seemingly on some that the British scientist glossed over or considered unimportant, Gamow draws a convincing and consistent picture of how the stars and planets have been created out of the scattering debris of a primordial explosion. Philosophically and mathematically Gamow's and Hoyle's cosmogonies may be entirely different—Hoyle sees continuous creation of hydrogen throughout space, and condensation of the heavier atoms in the hearts of super-novae, while Gamow begins with a concentration of all matter before which time has no meaning. But in their main structure both men follow the same trends. Hoyle tells you how the universe was born; Gamow shows you.

Another famous scientist, this time a chemist, has invaded the same field. Harold C. Urey, Nobel Prize winner and Service Professor of Chemistry at the University of Chicago, puts the

fundamentals of physical chemistry to work to trace the processes which he believes must have taken place as the planets and their satellites condensed out of the primordial dust clouds. "The Planets: Their Origin and Development" (Yale University Press, New Haven. 1952. 245 pp. Ill. $5.00) is not a popularization: it is a scientific treatise summing up the work of years, and based on the author's Silliman lectures at Yale. Yet, because he is working out of his original field, Urey has been careful to leave no step in his reasoning uncertain or unclear.

Such a book can be read on at least two levels. Since energy relations lie at the root of physical chemistry, Urey's theory of the planets is a quantitative as well as a qualitative one, and the student can follow his arguments step by step and equation by equation, forming his own judgment as to their validity. On the other hand, by assuming that the mathematical reasoning is correct and concentrating on relations and orders of magnitude rather than exact figures, the general reader can derive a very clear idea of the processes through which worlds may form and grow.

This book would have been impossible a generation ago, when chemistry was still not much beyond the test-tube stage. Here we are dealing with reactions which may take place between stray atoms in an almost perfect vacuum to form the "ices" of a comet's head. We are deducing, from the physical-chemical properties of the minerals found in the Earth's crust, the probability that our planet's iron core has been formed in relatively recent geologic times and is probably still growing. The same arguments lead to the conclusion that Mars is a homogeneous planet with no core, and that the flow of iron into the core

of the Earth may yield the energy which builds mountains. The atmospheres are seen as crucially important parts of their planets.

Each new reading of a book like this reveals new facets of the picture of worlds in birth. Borrow a copy to read the general arguments and conclusions, and you may wind up as I did buying it for a rereading—or just for the composite Moon photograph which is thrown in as a bonus.

Finally, and perhaps for serious readers only, we have a new publication from Dover Publications, whose other offset-printed editions of scientific classics or neglected books have been mentioned here from time to time. Now, in two solid volumes, Dover offers A. D'Abro's "The Rise of the New Physics" (Dover Publications, New York. 1952. 2 vol. 1040 pp. $8.00), a reissue of the older and classic work called "The Decline of Mechanism" (Van Nostrand, 1939). Scientific reviewers at the time the book first appeared found it an admirable background work for any serious student of either classical or quantum physics. The *Journal of Philosophy*, though finding the author unduly hard on philosophers, reported: "No philosopher writing on science can afford to be ignorant of the matters with which it deals"—a statement which should cover the breed of philosophers who write and read science fiction. "The intelligent lay reader should have no difficulty in following this text," according to *Chemical and Metallurgical Engineering*, but the *Review of Scientific Instruments* considered it "not to be recommended to the uninitiated" though it could "be read with enjoyment and profit by the serious student of physical science".

Another classical work by D'Abro, which does for Einsteinian relativity what the longer book does for quantum physics, has also been reissued by Dover. This is his "The Evolution of Scientific Thought" (482 pp. $3.95), originally published in 1927, which James Blish calls "the best nonmathematical textbook on relativity in English." One fly appears to be in the ointment: these books are both somewhat dated by the fact that they cannot consider work done since the original edition appeared. How serious this flaw is only a better grounded physicist than I can tell you.

In closing, there are some news items which will be stale by the time this reaches you but are still worth passing along. The response to my request for nominations for two science-fiction libraries has been rather gratifying—about two dozen at this writing. If you have any last moment nominations, send them to a new address—P.O. Box 1573, Pittsburgh 30, Pennsylvania—to which city I am betaking myself and about one hundred fifty running feet of assorted books, more than half science fiction and fantasy, early in July.

ORIGINAL DRAWINGS FOR SALE

Starting with this issue, the original drawings and cover paintings appearing in *Astounding S-F*, will be for sale to the readers.

Inside black-and-whites, $15.00 — covers, $50.00. The work of Mr. Rogers not for sale.

In ordering, please mention artist, month and year of issue, also story and page on which drawing appears. Because of Astounding's national circulation, order bearing the earliest postmark will receive the original. Do not send money with order. Those who are to get the originals will be notified within two weeks.

Also available are some drawings back through 1952–51–50 and just a few from the years 1949 and 1948. Send orders to

PAUL ORBAN • JAY ST., KATONAH, N. Y.

Word has also come through recently of the International Fantasy book awards for 1951—fantasy, mind you, not science fiction alone. In fiction the top award went to John Collier's omnibus of short fantasies, "Fancies and Goodnights" (Doubleday, $4.00), with the second award—and hence top science-fiction billing—to John Wyndham's "The Day of the Triffids" (Doubleday, $2.50), and Ray Bradbury's "The Illustrated Man" as runner-up. I would have liked to see Sprague de Camp's "Rogue Queen" in there somewhere. The Collier book, by the way, also took the Edgar from the Mystery Writers of America.

In the factual field, first award went to Arthur Clarke's "The Exploration of Space," which appeared in England last year. In second place was Willy Ley's "Dragons in Amber" (Viking, $3.75), and in third, the alleged juvenile by Jack Coggins and Fletcher Pratt, "Rockets, Jets, Guided Missiles and Space Ships" (Random, $1.00)—easily the adult or junior bargain of the year.

SANDS OF MARS, by Arthur C. Clarke. Gnome Press, New York. 1952. 216 pp. $2.75

This is the kind of realistically narrated science novel of which I am, perhaps, inordinately fond. It takes you, day by day, through space to Mars with the crew and lone passenger of the *Ares*, that passenger being Martin Gibson, writer of popular but quite unrealistic space operas. With Gibson you land on Mars, live for a few weeks in the pressure-domed villages of the colonists, and through a succession of fortunate accidents are able to participate in a crisis in the future of the Martian community.

The writer, active in the British

Interplanetary Society and author by this time of "Exploration of Space" (Harper, $3.75) as well as his earlier "Interplanetary Flight" (Harper, $2.50), is as well equipped as anyone in the business to give us the most up-to-date view of what space travel and life on Mars will actually be like. If he allows a race of Martians to appear, they are thoroughly probable Martians. If some of the plot mechanism creaks a little, and the book as a whole doesn't seem to have quite the pace of his "Prelude to Space," that is probably a matter of English versus American taste. You'll find the same differences in detective fiction from opposite sides of the Atlantic.

Here is one of the most believable trips to Mars you will have seen in a long while—a counterirritant, if you like, to Ray Bradbury's lyric approach to our red neighbor.

JACK OF EAGLES, by James Blish. Greenberg: Publisher, New York. 1952. 246 pp. $2.75

This is a story I once hoped to write, far better done than I would ever have managed. It is also a book which, like a good half of Greenberg's science-fiction series, is appearing for the first time between boards, without having been serialized.

"Jack of Eagles" is the story of a man who discovers that he has what Charles Fort called "wild talents"—"Psi" forces, in present parapsychological parlance. Tripped up by his unconscious precognition, Danny Caiden sets out, even as you or I, to try to find out what these powers are, why they should be present in him, and how they can be controlled. As might be expected, his search brings him up against some peculiar people, serious scientists, con-artists from the psychic fringes, and out-and-out racketeers. One by one other unsuspected facets of Danny's talents are forced into the open by his struggles to find himself.

For about a third of the book the story proceeds with this beautifully logical simplicity, almost underplayed, bringing in people potentially as real though strange as the carnival folk in Ted Sturgeon's curtain-raiser for Greenberg, "The Dreaming Jewels." Then the drama grows thick, complicated, and van Vogtian. Danny is cooped up by the FBI, snatched by racketeers, trapped by a Brotherhood of psychic adepts, rescued by another brotherhood—small "b"—of ditto, and winds up in a Cook's tour of alternative presents which are strung on the backbone of J. W. Dunne's serial universe. If I have made this sound ridiculous, I am being quite unfair, because the whole story is good standard intricate-plot science-fiction—but the pyramiding mysteries, action, and conceptual complexities of the latter sections of the book seem a let-down after the high promise of

the opening chapters. What might have been a memorable novel—maybe even a classic—bringing home a feeling of the possibility of latent powers in us all, slipped off somehow into just another good story. O. K.—I couldn't have done it either: I told you that in the beginning. But James Blish could—on the strength of his first third—and I simply wish he had.

FIVE ADVENTURE NOVELS, by H. Rider Haggard. Dover Publications Inc., New York. 1952. 821 pp. $3.95

Dover, which gave us the new edition of "Seven Science Fiction Novels of H. G. Wells" and has another Wells collection in press, or perhaps out by this time, has now begun the collection of Rider Haggard's African adventure tales. Four of the five novels in the book comprise what the Haggard bibliographers call the King Solomon's Mines group in the over-all Quatermain-She sequence. They are "King Solomon's Mines" (1885), which was Haggard's first big success, its sequel "Allan Quatermain" (1887) in which Allan, Good, Umslopogaas, and Sir Henry visit the lost city of Milosis and Quatermain loses his life, and two short novels of Quatermain's earlier life among the Zulus, "Allan's Wife" (1889), with its Tarzan element of the baboon-woman and the usual lost-civilization touch, and "Maiwa's Revenge" (1888), a non-fantasy. The fifth is the justly famous "She" (1886).

Here you will find all the elements which Burroughs later modernized in the Tarzan books—but placed in an Africa which the author knew from personal experience, an Africa not quite like any that ever actually existed, but one which should have been. If the reactions of Haggard's characters are Victorian to the core,

they are the same empire-building Victorians of Kipling and Conan Doyle: rugged men in a rugged world.

If we were to have a new edition of Haggard—and I can assure you that the earlier editions are by no means "in every library" as the cliché insists—I would personally have liked to see as many as possible of the "She" group brought together under one set of covers—at the least, "She," "Ayesha," and "Wisdom's Daughter," if practicalities would not permit crowding "She and Allan" and "Allan and the Ice-Gods" into the set as well. However, the opportunity to offer "She" and "King Solomon's Mines," the two of Haggard's books which most people know, in one parcel was probably too great a temptation for any publisher to throw away. Three of the longer non-African novels, "Cleopatra," "Montezuma's Daughter," and "Eric Brighteyes," are promised in another volume to come. If you like Haggard, here is a bargain. If you don't know Haggard, here is a good sample of his earlier and best work.

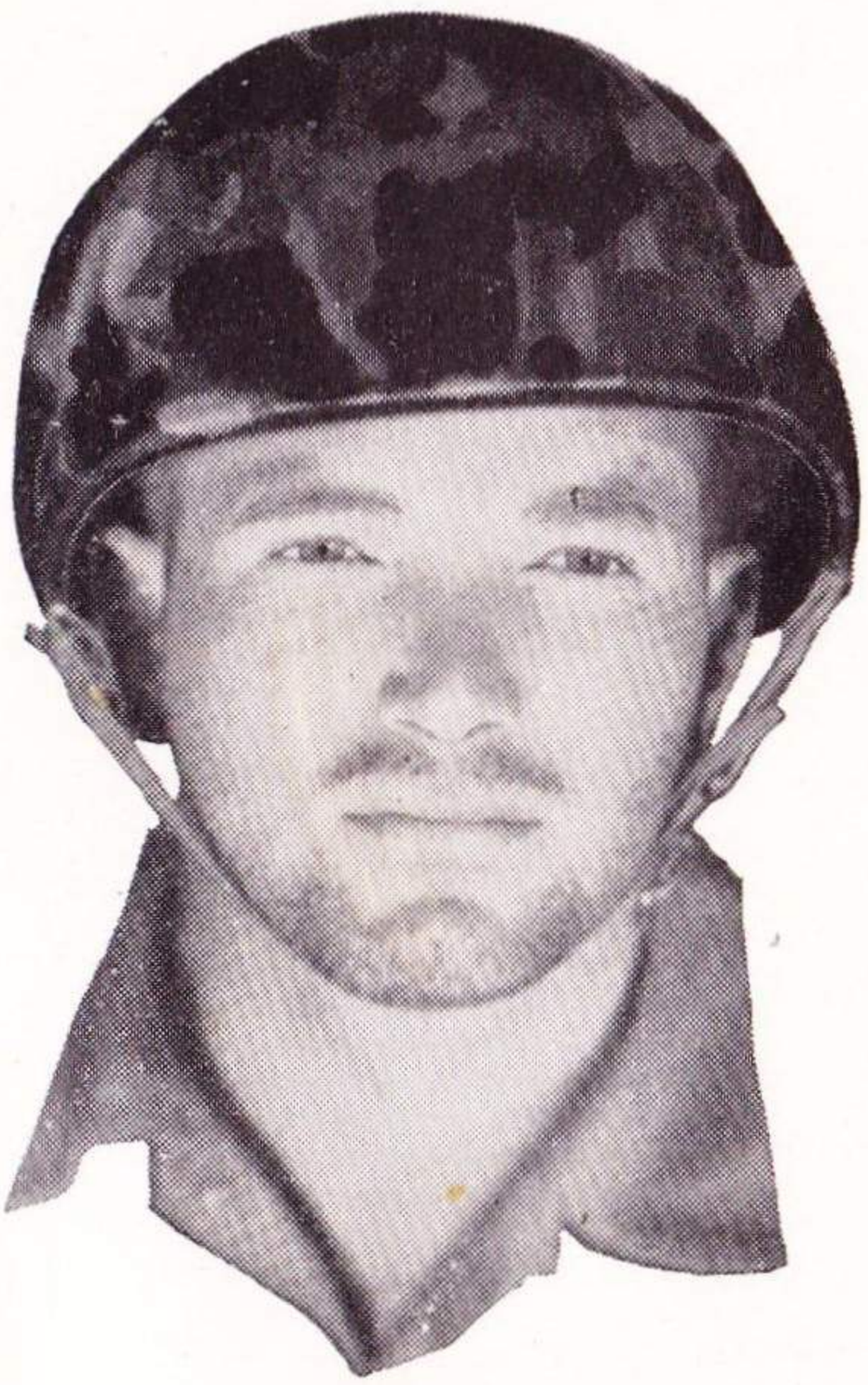
TAKEOFF, by Cyril M. Kornbluth. Doubleday & Company, Garden City. 1952. 218 pp. $2.75

This seems to be the season for hybrids between science fiction and one form or another of the detective story. And, since C. M. Kornbluth is easily one of the best of the new crop of science fiction writers, it should not be surprising that his "Takeoff" is a pretty successful cross.

The story of Dr. Michael Novak, young ceramics engineer, who is railroaded out of the employ of the Atomic Energy Commission and presently finds himself in the bewildering establishment of the so-called American Society for Space Flight, satisfies another often-cited need in science fiction: a story which achieves some degree of verisimilitude in depicting the atmosphere of technical work. The clues which convince Novak that something peculiar is going on behind the scenes in the ASSF are technical clues—features of design in the society's supposed mock-up of a moon-rocket, which seem to require a specific and allegedly nonexistent fuel. And when Novak shares his suspicions with August Clifton, Clifton dies.

You may, if you are a mystery hound as well as a science fiction fan, be able to see through the tangle of clues and action to the explanation which Novak overlooks. The ceramist is, after all, the hot-tempered kind who pokes his boss in the nose first and complains of mistreatment afterward, and he swings at the obvious opponent in trying to track down Clifton's murderer. But here is the build-up of a moon-flight every bit as convincing as Arthur C. Clarke's "Prelude to Space"—which is to say, very convincing indeed

First Lieutenant Henry A. Commiskey, USMC Medal of Honor



ONE SEPTEMBER DAY, near Yongdungp'o, Korea, Lieutenant Commiskey's platoon was assaulting a vital position called Hill 85. Suddenly it hit a field of fire from a Red machine gun. The important attack stopped cold. Alone, *and armed with only a .45 calibre pistol*, Lieutenant Commiskey jumped to his feet, rushed the gun. He dispatched its five-man crew, then reloaded, and cleaned out another foxhole. Inspired by his daring, his platoon cleared and captured the hill. Lieutenant Commiskey says:

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