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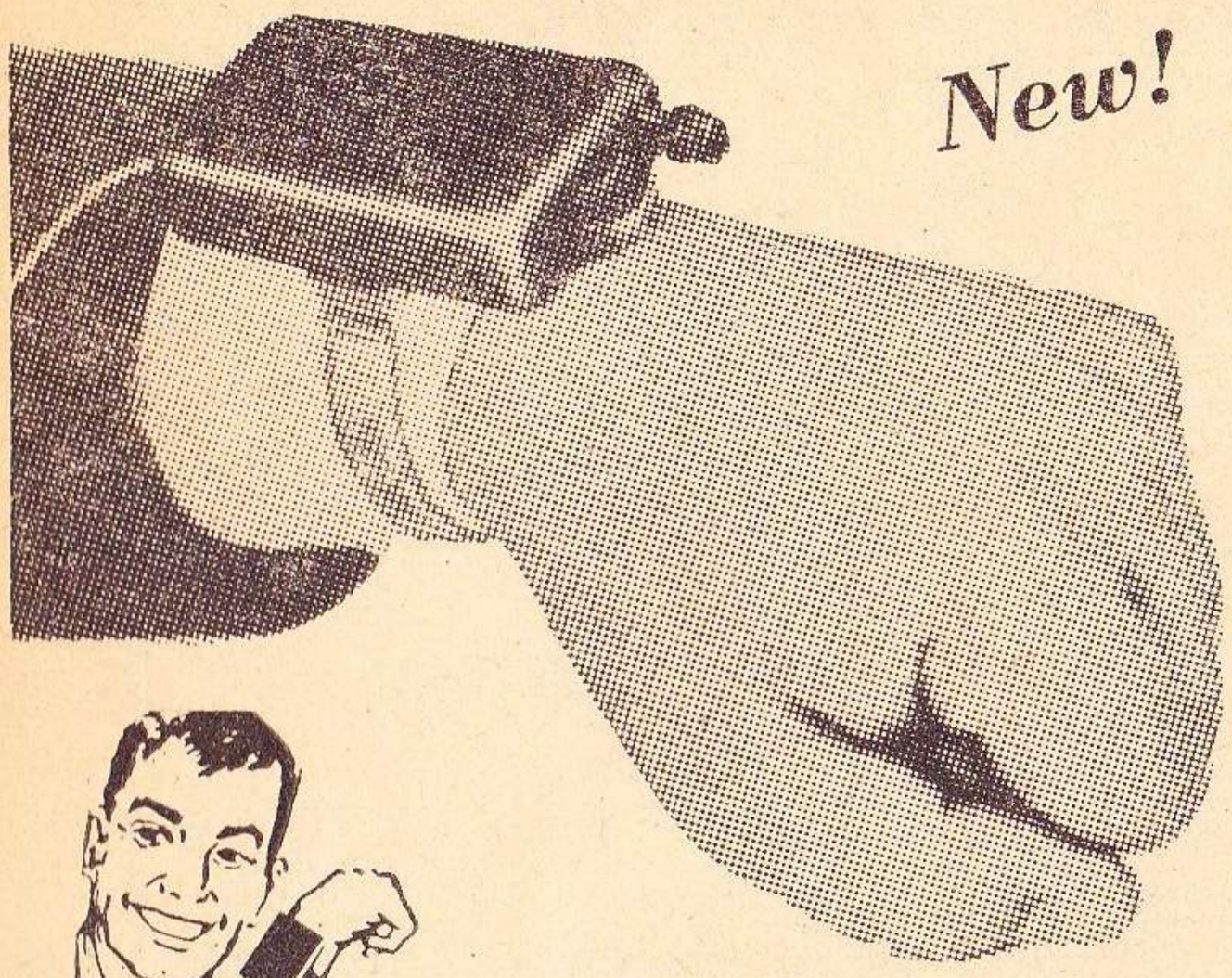




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EDITORIAL

# COEXISTENCE

The ideal of "peaceful coexistence" involves a hidden assumption that's easily overlooked; it may well be that the affairs of the planet Earth are moving toward an era of considerably greater stability because the facts are coming into line with that hidden assumption.

It's one of those things that's so simple it's hard to notice; coexistence is possible only when both individuals are capable of existence. "Live and let live" makes sense only when both sides are capable of living if there is no interference, no interaction. The lion and the zebra cannot practice peaceful coexistence because the lion is inherently incapable of existence without interaction.

A desperate, starving man is an utterly unpredictable danger; he can and will act in a completely irrational manner, simply because, having nothing, he has nothing to lose. When his best rational efforts have yielded nothing, it makes sense to him to try irrational methods. Depress him to the point that he can see no hope, predict no future, find no potential toward which to strive —he has nothing, nor hope of anything, and has nothing whatever to lose, and, therefore, has everything to gain.

Violence, at that point, is predictable.

A generation ago, the creative individual born in Russia of non-noble parents had the deep, human need to develop and express the potentials built into him—and the structure of his environment made that impossible. Part of the problem was the refusal of the aristocracy to allow change; that, in turn, stemmed from the simple fact that the nature of peasants is a deep and abiding suspicion of any and all change. The peasant wants peaceful coexistence; he wants a piece of land, and a chance to sit and watch the grass grow, and a chance to live as his ancestors lived for the last fifty thousand years. He does not want change; any government that allows him that is, for him, a good government. If he is a serf. that is fine by him; it means he is assigned a piece of land, and assured that he will be

able to stay on that land. Is it cruel to "force" a man to do what he wants to do? Is it irritating to a peasant to be required to stay on the land he wants to stay on?

For the peasant, the Czarist government was a good government; it required him to do exactly what he wanted to do—stay on the land of his forefathers. True enough, some individual peasants were victims of atrocious injustice. So? Some Americans today are the victims of the injustice of sudden accidents. Automobiles—industrial explosions—a bolt of lightning—these things happen. So?

It is completely improper to project onto another man exactly the feelings you yourself have; it won't work, and will, instead, lead to misunderstandings so deep as to yield a high probability of violence. There are morons in the human population anywhere; to impose on these individuals the same demands that we impose on higher level human beings is violent injustice. There are geniuses; to impose on these individuals the same limitations that are appropriate to the normal individual is equally unjust. Here is an individual who longs to be a theoretical mathematician; his father is a lawyer. What happens if the father imposes on the son his set of interests and desires?

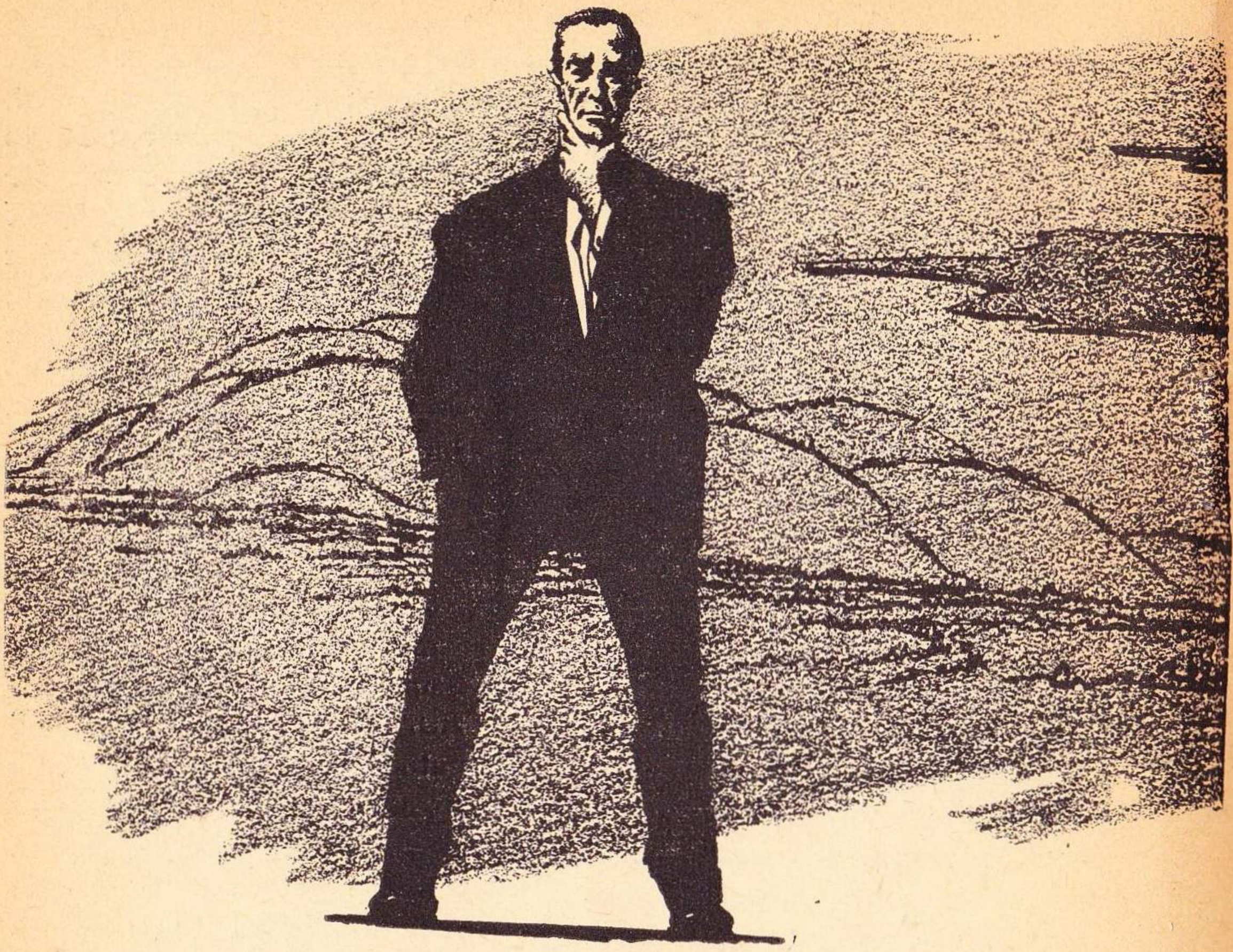
There are human beings who long only and solely for the peaceful coexistence of having a piece of land on which he can enjoy the deep and abiding security of the mighty roll and return of the seasons, knowing that he can depend, with perfect certainty, on the spring to plant, the summer to grow, the autumn to harvest, and the winter to rest. He *knows,* with the deep certainty of unquestioning peace of mind, that these things are, and have been, and will be, and never will there be any uncertainty, nor any need to face the emotionally shaking experience of having the known realities shatter about him.

He asks only that, however others may waste their lives, he be left alone to live the secure and surely-known way of his forefathers. He asks of government only that it serve to prevent any disturbance of the unchanging way of life, that it defend that ever-returning cycle of the seasons from the disruption of invaders, or the whims of human crackpots who want to change a secure and peaceful system.

In major degree, the Czarist government did just that; the nobles maintained a fairly even-tenored, static system in which the peasants, generation after generation, went their ancient ways in peace. There was no place for creative thinkers; nobody wanted them—least of all the peasants, the vast majority of the population.

Most of Europe went through the problems of the rise of the middle-classes some five hundred years ago. Russia was a bit late getting to the

(*Continued on page* 158)



# THE NAKED SUN

***First of Three Parts.*** ***Lije Baley had a murder to solve—but far more important than that, was solving a greater mystery. The Outer Planets had isolated Earth—and Earth needed to know why, and what was going on...and this was Earth's great chance!***

## BY ISAAC ASIMOV

Illustrated by Van Dongen

# I

Stubbornly, Elijah Baley fought panic.

For two weeks, it had been building up. Longer than that, even, It had been building up ever since they had called him to Washington and there calmly told him he was being reassigned.

The call to Washington had been disturbing enough in itself. It came without details, a mere summons; and that made it worse. It included travel slips directing round trip by plane and that made it still worse.

Partly, it was the disturbing sense of urgency introduced by any order for plane-travel. Partly, it was the thought of the plane; simply that. Still, that was just the beginning of uneasiness and, as yet, easy to suppress.

After all, Lije Baley had been in a plane four times before. Once he had even crossed the continent. So, while plane-travel is never pleasant, it would, at least, not be a complete step into the unknown.

And then, the trip from New York to Washington would take only an hour. The take-off would be from New York Runway Number 2, which, like all official Runways,

was decently enclosed, with a lock opening to the unprotected atmosphere only after air speed had been achieved. The arrival would be at Washington Runway 5, which was similarly protected.

Furthermore, as Baley well knew, there would be no windows on the plane. There would be good lighting, decent food, all necessary conveniences. The radio-controlled flight would be smooth; there would scarcely be any sensation of motion once the plane was air-borne.

He explained all this to himself, and to Jessie, his wife, who had never been air-borne and who approached such matters with terror.

She said, "But I don't *like* you to take a plane, Lije. It isn't natural. Why can't you take the Expressways."

"Because that would take ten hours," Baley's long face was set in dour lines, "and because I'm a member of the City Police Force and have to follow the orders of my superiors. At least, I do if I want to keep my C-6 rating."

There was no arguing with that.

Baley took the plane and kept his eyes firmly on the news-strip that unreeled smoothly and continuously from the eye-level dispenser. The City was proud of that service: news, features, humorous articles, educational bits, occasional fiction. Some day the strips would be converted to film, it was said, since enclosing the eyes with a viewer would be an even more efficient way of distracting the passenger from his surroundings.

Baley kept his eyes on the unreeling strip, not only for the sake of distraction, but also because etiquette required it. There were five other passengers on the plane—he could not help noticing that much—and each one of them had his private right to whatever degree of fear and anxiety his nature and upbringing made him feel.

Baley would certainly resent the intrusion of anyone else on his own uneasiness. He wanted no strange eyes on the whiteness of his knuckles where his hands gripped the arm-rest, or the dampish stain they would leave when he took them away.

He told himself: *I'm enclosed. This plane is just a little City.*

But he didn't fool himself. There was an inch of steel at his left; he could feel it with his elbow. Past that, nothing—

Well, air! But that was nothing, really.

A thousand miles of it in one direction. A thousand in another. One mile of it, maybe two, straight down.

He almost wished he could see straight down, glimpse the top of the buried Cities he was passing over; New York, Philadelphia, Baltimore, Washington. He imagined the rolling, low-slung cluster-complexes of domes that he had never seen but which he knew to be there. And under them, for a mile underground and dozens of

miles in every direction, would be the Cities.

The endless, hiving corridors of the Cities, he thought, alive with people; apartments, community kitchens, factories, Expressways; all comfortable and warm with the evidence of man.

And he himself was isolated in the cold and featureless air in a small bullet of metal, moving through emptiness.

His hands trembled, and he forced his eyes to focus on the strip of paper and read a bit.

It was a short story dealing with Galactic exploration and it was quite obvious that the hero was an Earthman.

Baley muttered in exasperation, then held his breath momentarily in dismay at his boorishness in making a sound.

It was completely ridiculous, though. It was pandering to childishness, this pretense that Earthmen could invade space. Galactic exploration! The galaxy was closed to Earthmen. It was pre-empted by the Spacers, whose ancestors had been Earthmen, centuries before. Those ancestors had reached the Outer Worlds first, found themselves comfortable and their descendants had lowered the bars to immigration. They had penned in Earth and their Earthman cousins. And Earth's City civilization completed the task, imprisoning Earthmen within the Cities by a wall of fear of open spaces that barred them from the robot-run farming and mining areas of their own planet; from even that.

Baley thought bitterly: *Jehoshaphat! If we don't like it, let's do something about it. Let's not just waste time with fairy tales.*

But there was nothing to do about it, and he knew it.

Then the plane landed. He and his fellow-passengers emerged and scattered away from one another, never looking.

Baley glanced at his watch and decided there was time for freshening before taking the Expressway to the Justice Department. He was giad there was. The sound and clamor of life, the huge vaulted chamber of the airport with City corridors leading off on numerous levels, everything else he saw and heard, gave him the feeling of being safely and warmly enclosed in the bowels and womb of the City. It washed away anxiety and only a shower was necessary to complete the job.

He needed a Transient's Permit to make use of one of the community bathrooms, but presentation of his travel orders eliminated any difficulties. There was only the routine stamping, with private stall privileges—the date carefully marked to prevent abuse—and a slim strip of directions for getting to the assigned spot.

Baley was thankful for the feel of the strips beneath his feet. It was with something amounting to luxury that he felt himself accelerate as he moved from strip to moving strip inward toward the moving Ex-

pressway. He swung himself aboard lightly, taking the seat to which his rating entitled him.

It wasn't a rush hour, seats were available. The bathroom, when he reached it, was not unduly crowded, either. The stall assigned to him was in decent order with a launderette that worked well.

With his water-ration consumed to good purpose and his clothing freshened, he felt ready to tackle the Justice Department. Ironically enough, he even felt cheerful.

Undersecretary Albert Minnim was a small, compact man, ruddy of skin and graying, with the angles of his body smoothed down and softened. He exuded an air of cleanliness and smelled faintly of tonic. It all spoke of the good things of life that came with the liberal rations obtained by those high in Administration.

Baley felt sallow and rawboned in comparison. He was conscious of his own large hands, deep-set eyes, a general sense of cragginess.

Minnim said, cordially, "Sit down, Baley. Do you smoke?"

"Only a pipe, sir," said Baley.

He drew it out as he spoke, and Minnim thrust back a cigar that he had half-drawn.

Baley was instantly regretful. A cigar was better than nothing and he would have appreciated the gift. Even with the increased tobacco ration that went along with his recent promotion from C-5 to C-6, he wasn't exactly swimming in pipe fixings.

"Please light up, if you care to," said Minnim, and waited with a kind of paternal patience, while Baley measured out a careful quantity of tobacco and affixed the pipe baffle.

Baley said, his eyes on his pipe, "I have not been told the reason for my being called to Washington, sir."

"I know that," said Minnim. He smiled. "I can fix that right now. You are being reassigned temporarily."

"Outside New York City?"

"Quite a distance."

Baley raised his eyebrows and looked thoughtful. "How temporarily, sir?"

"I'm not sure."

Baley was aware of the advantages and disadvantages of reassignment. As a transient in a City of which he was not a resident, he would probably live on a scale better than his official rating entitled him to. On the other hand, it would be very unlikely that Jessie and their son, Bentley, would be allowed to travel with him. They would be taken care of, to be sure, there in New York, but Baley was a domesticated creature and he did not enjoy the thought of separation.

Then, too, a reassignment meant a specific job of work, which was good, and a responsibility greater than that ordinarily expected of the individual detective, which could be uncomfortable. Baley had, not too

many months earlier, survived the responsibility of the investigation of the murder of a Spacer just outside New York. He was not overjoyed at the prospect of another such detail, or anything approaching it.

He said, "Would you tell me where I'm going? The nature of the reassignment? What it's all about?"

He was trying to weigh the Undersecretary's "Quite a distance" and made little bets with himself as to his new base of operations. The "Quite a distance" had sounded emphatic and Baley thought: Calcutta? Sydney?

Then he noticed that Minnim was taking out a cigar after all and was lighting it carefully.

Baley thought: *Jehoshaphat! He's having trouble telling me. He doesn't want to say.*

There was the first premonitory burgeoning of *real* anxiety.

Minnim withdrew his cigar from between his lips. He watched the smoke and said, "The Department of Justice is assigning you to temporary duty on Solaria."

Baley didn't absorb that for a while. His mind groped footlessly for some normal second word one might attach to that destination: Solaria, Asia; Solaria, Australia.

There must be a location for that City. It must be a City and it must be on a Continent.

But he wasn't fooling himself. He rose from his seat and said tightly, "You mean, one of the Outer Worlds?"

Minnim didn't meet Baley's eyes. "That is right!"

Baley said, "But that's impossible. They wouldn't allow an Earthman on an Outer World."

"Circumstances do alter cases, Plainclothesman Baley. There has been a murder on Solaria."

Baley's lips quirked into a sort of reflex smile. "That's a little out of our jurisdiction, isn't it?"

"They've requested help."

"From us? From Earth?" Baley was torn between confusion and disbelief. For an Outer World to take any attitude toward the despised Mother Planet other than contempt or, at best, a patronizing social benevolence, was unthinkable. To come for help?

"From Earth?" he repeated.

"Unusual," admitted Minnim, "but there it is. They want a Terrestrial detective assigned to the case. It's been handled through diplomatic channels on the highest levels."

Baley sat down again. "Why me? I'm not a young man. I'm forty-three. I've got a wife and child. I couldn't leave Earth."

"That's not our choice, Plainclothesman. You were specifically asked for."

"I?"

"Plainclothesman Elijah Baley, C-6, of the New York City Police Force. They knew what they wanted. Surely you see why."

Baley said stubbornly, "I'm not qualified."

"They think you are. The way

you handled the Spacer murder has apparently reached them."

"They must have got it all mixed up. It must have seemed better than it was."

Minnim shrugged. "In any case, they've asked for you and we have agreed to send you. You are reassigned. The papers have all been taken care of and you must go. During your absence, your wife and child will be taken care of at a C-7 level since that will be your temporary rating during your discharge of this assignment." He paused significantly. "Satisfactory completion of the assignment may make the rating permanent."

It was happening too quickly for Baley. None of this could be so. He *couldn't* leave Earth. Didn't they see that?

He heard himself ask in a level voice that sounded unnatural in his own ears. "What kind of a murder? What are the circumstances? Why can't they handle it themselves?"

Minnim rearranged small objects on his desk with carefully-kept fingers. He shook his head. "I don't know anything about the murder. I don't know the circumstances."

"Then who does, sir? You don't expect me to go there cold, do you?" And again a despairing inner voice: But I *can't* leave Earth.

"Nobody knows anything about it. Nobody on Earth. The Solarians didn't tell us. That will be your job; to find out what is so important about the murder that they must have an Earthman to solve it. Or, rather, that will be part of your job."

Baley was desperate enough to say, "What if I refuse?" He knew the answer, of course. He knew exactly what declassification would mean to himself and, more than that, to his family.

Minnim said nothing about declassification. He said, softly, "You can't refuse, Plainclothesman. You have a job to do."

"For Solaria? The hell with them."

"For *us*, Baley. For us." Minnim paused. Then he went on, "You know the position of Earth with respect to the Spacers. I don't have to go into that."

He didn't. Baley knew the situation and so did every man on Earth. The fifty Outer Worlds, with a far smaller population, in combination, than that of Earth alone, nevertheless maintained a military potential perhaps a hundred times greater. With their underpopulated worlds resting on a positronic robot economy, their energy production per human was thousands of times that of Earth. And it was the amount of energy a single human could produce that dictated military potential, standard of living, happiness and all besides.

Minnim said, "One of the factors that conspires to keep us in that position is ignorance. Just that. Ignorance. The Spacers know all about us. They send missions enough to Earth, heaven knows. We

know nothing about them except for what they tell us. No man on Earth has ever as much as set foot on an Outer World. *You* will, though."

Baley began, "I can't—"

But Minnim repeated, "You *will*. Your position will be unique. You will be on Solaria on their invitation, doing a job to which they will assign you. When you return, you will have information useful to Earth."

Baley watched the Undersecretary through somber eyes. "You mean I'm to spy for Earth."

"No question of spying. You need do nothing they don't ask you to do. Whatever it is you do, however, keep your eyes and mind open. Whatever you see and hear will be new to us and, conceivably, useful. You need only observe. There will be specialists on Earth when you return to analyze and interpret your observations."

"What sort of thing do you expect, sir?"

Minnim said, "We know the strengths of the Outer Worlds; they are visible across the light-years. We don't know their weaknesses."

"Maybe they have none."

The Undersecretary smiled wanly. "Then let us know that. Their robots and their low numbers and their long lives are their strengths. There may be weaknesses."

"And if they catch me?"

"How can they? You'll be doing what they ask you to do. You're legitimate."

"If they decide I have learned too much. If they just arbitarily decide that."

Minnim shrugged. "Earth couldn't do anything. Not against an Outer World. But what do you expect? Risk is part of your business as a policeman, isn't it?"

Baley was silent. Sure, risk was his business. Risk on Earth. Risk in surroundings for which he had been trained.

Minnim said, "You won't be caught. And in any case, you must go. Your time of departure is set. The ship that will take you is waiting."

Baley stiffened. "Waiting? When do I leave?"

"In two days."

"I've got to get back to New York then. My wife—"

"*We* will see your wife. She can't know the nature of your job, you know. She will be told not to expect to hear from you."

"But this is inhuman. I must see her. I may never see her again."

Minnim said, "What I say now may sound even more inhuman, but isn't it true that there is never a day you set about your duties on which you cannot tell yourself she may never see you again? Plainclothesman Baley, we must all do our duty."

Baley's pipe had been out for fifteen minutes. He had never noticed it.

No one had more to tell him. No one knew anything about the murder. Official after official simply

hurried him on to the moment when he stood at the base of a spaceship, all unbelieving still.

It was like a gigantic cannon aimed at the heavens, and Baley shivered spasmodically in the raw, open air. The night closed in—for which Baley was thankful—like dark black walls melting into a black ceiling overhead. It was cloudy and though he had been to planetaria, a bright star, stabbing through a rift in the cloud, startled him when it caught his eyes.

A little spark, far, far away. He stared curiously, almost unafraid of it. It looked quite close, quite insignificant, and yet about things like that, circled planets whose inhabitants were lords of the galaxy. The sun was a thing like that, he thought, except much closer, shining now on the other side of the Earth.

He thought of the Earth suddenly as a ball of stone with a film of moisture and gas, exposed to emptiness on every side, with its Cities barely dug into the outer rim, clinging precariously between rock and air. His skin crawled!

The ship was a Spacer vessel, of course. Interstellar trade was entirely in Spacer hands. He was alone now, just outside the rim of the City. He had been bathed and scraped and sterilized until he was considered safe, by Spacer standards, to board the ship. Even so, they sent only a robot out to meet him, bearing as he did a hundred varieties of disease germs from the sweltering City to which he himself was resistant but to which the eugenically hot-housed Spacers were not.

The robot bulked dimly in the night, its eyes a dull-red glow.

"Plainclothesman Elijah Baley?"

"That's right," said Baley, crisply, the hair on the nape of his neck stirring a bit. He was enough of an Earthman to get angry gooseflesh at the sight of a robot doing a man's job. There had been R. Daneel Olivaw, who had partnered with him in the Spacer murder affair, but that had been different. Daneel had been—

"You will follow me, please," said the robot, and a white light flooded a path toward the ship.

Baley followed. Up the ladder and into the ship, he went, along corridors and into a room.

The robot said, "This will be your room, Plainclothesman Baley. It is requested that you remain in it for the duration of the trip."

Baley thought: *Sure, seal me off. Keep me safe. Insulated.*

The corridors along which he had traveled had been empty. Robots were probably disinfecting them now. The robot facing him would probably step through a germicidal bath when it left.

The robot said, "There is a water supply and plumbing. Food will be supplied. You will have viewing matter. The ports are controlled from this panel. They are closed now but if you wish to view space—"

Baley said, with some agitation, "That's all right, boy. Leave the ports closed."

He used the "boy" address that Earthmen always used for robots, but the robot showed no adverse response. It couldn't of course. Its responses were limited and controlled by the Laws of Robotics.

The robot bent its large metal body in the travesty of a respectful bow and left.

Baley was alone in his room and could take stock. It was better than the plane, at least. He could see the plane from end to end. He could see its limits. The spaceship was large. It had corridors, levels, rooms. It was a small City in itself. Baley could almost breathe freely.

Then lights flashed and a robot's metallic voice sounded over the communo and gave him specific instructions for guarding himself against take-off acceleration.

There was the push backward against webbing and a yielding hydraulic system, a distant rumble of force-jets heated to fury by the proton micro-pile. There was the hiss of tearing atmosphere, growing thinner and high-pitched and fading into nothingness after an hour. They were in space.

It was as though all sensation had numbed, as though nothing was real. He told himself that each second found him thousands of miles farther from the Cities, from Jessie, but it didn't register.

On the second day (the third? --there was no way of telling time except by the intervals of eating and sleeping) there was a queer momentary sensation of being turned inside out. It lasted an instant and Baley knew it was a Jump, that oddly incomprehensible, almost mystical, momentary transition through hyperspace that transferred a ship and all it contained from one point in space to another, light-years away. Another lapse of time and another Jump, still another lapse, still another Jump.

Baley told himself now that he was light-years away, tens of light-years, hundreds, thousands—

He didn't know how many. No one on Earth as much as knew Solaria's location in space. He would bet on that. They were ignorant, every one of them.

He thought freezingly: What if there is no Solaria? What if I am being taken somewhere for some reason?

That faded, too.

There was the feel of deceleration and the robot entered. Its somber, ruddy eyes took in the details of Baley's harness. Efficiently, it tightened a wing-nut; quickly, it surveyed the details of the hydraulic system.

It said, "We will be landing in three hours. You will remain, if you please, in this room. A man will come to escort you out and to take you to your place of residence."

"Wait," said Baley, tensely. Strapped in as he was, he felt help-

less. "When we land, what time of day will it be?"

The robot said, at once, "By Galactic Standard Time, it will be—"

"Local time, boy. Local time! Jehoshaphat!"

The robot continued smoothly, "The day on Solaria is twenty-eight point thirty-five Standard hours in length. The Solarian hour is divided into ten decads, each of which is divided into a hundred centads. We are scheduled to arrive at an airport at which the day will be at the twentieth centad of the fifth decad."

Baley hated that robot. He hated it for its obtuseness in not understanding; for the way it was making him ask the question directly and exposing his own weakness.

He had to. He said, flatly, "Will it be daytime?"

And after all that, the robot answered, "Yes, sir," and left.

It would be day! He would have to step out onto the unprotected surface of a planet in daytime.

He was not quite sure how it would be. He had seen glimpses of planetary surfaces from certain points within the City; he had even been out upon it for moments. Always, though, he had been surrounded by walls or within reach of one. There was always safety at hand.

Where would there be safety now? Not even the false walls of darkness.

And because he would not display weakness before the Spacers—he'd be damned if he would—he stiffened his body against the webbing that held him safe against the forces of deceleration, closed his eyes, and stubbornly fought panic.

## II

Baley was losing his fight. Reason alone was not enough.

Baley told himself over and over: Men live in the open all their lives. The Spacers do so now. Our ancestors on Earth did it in the past. There is no real harm in wall-lessness. It is only my mind that tells me differently, and it is wrong.

But all that did not help. Something above and beyond reason cried out for walls and would have none of space.

As time passed, he knew for certain he would not succeed. He would be cowering at the end, trembling and pitiful. The Spacer they would send for him—with filters in his nose to keep out germs, and gloves on his hands to prevent contact—would not even honestly despise him. The Spacer would feel only disgust.

Baley felt ashamed.

When the ship stopped and the deceleration harness automatically uncoupled, while the hydraulic system retracted into the wall, Baley remained in his seat. He was afraid and he loathed himself for being afraid.

He looked away at the first quiet sound of the door of his room opening. There was the eye-corner

flash of a tall, bronze-haired figure entering; a Spacer, one of those proud descendants of Earth who had disowned their heritage.

The Spacer spoke. "Partner Elijah!"

Baley's head turned toward the speaker with a jerk. His eyes rounded and he rose almost without volition. By the barest hair, he avoided crying out a name. After all, it was impossible.

He stared at the face; at the broad, high cheekbones, the absolute calm of the facial lines, the symmetry of the body, most of all at that level look out of nerveless blue eyes.

It wasn't impossible at all. It was possible. It was so!

Baley stammered, "D . . . daneel."

The Spacer said, "It is pleasant that you remember me, Partner Elijah."

"Remember you!" Baley felt relief wash intensely over him. This being was a bit of Earth, a friend, a comfort, a savior. He had an almost unbearable desire to rush to the Spacer and embrace him, to hug him wildly and laugh and pound his back and do all the foolish things old friends did when meeting once again after a separation.

But he didn't. He couldn't. He could only step forward, and hold out his hand and say, "I'm not likely to forget you, Daneel."

"That is pleasant," said Daneel, nodding gravely. "As you are well aware, it is quite impossible for me, while in working order, to forget you. It is well that I see you again."

Daneel took Baley's hand and pressed it with firm coolness, his fingers closing to a comfortable, but not painful, pressure and then releasing it.

Baley hoped earnestly that the creature's unreadable eyes could not penetrate the outer skin of Baley's mind and see that wild moment, just past and not yet entirely subsided, when all of Baley had concentrated into a feeling of an intense friendship that was almost love.

After all, one could not love as a friend this Daneel Olivaw, who was not a man at all, but only a robot.

The robot that looked so like a man said, "I have asked that a robot-driven ground-transport vessel be connected to this ship by air-tube—"

Baley frowned. "An air-tube?"

"Yes. It is a common technique, frequently used in space, in order that personnel and material be transferred from one vessel to another without the necessity of special equipment against vacuum. It would seem then that you are not acquainted with the technique."

"No," said Baley, "but I get the picture."

"It is, of course, rather complicated to arrange such a device between spaceship and ground vehicle, but I have requested that it be done. Fortunately, the mission

on which you and I are engaged is one of high priority. Difficulties are smoothed out quickly."

"Are you assigned to the murder case, too?"

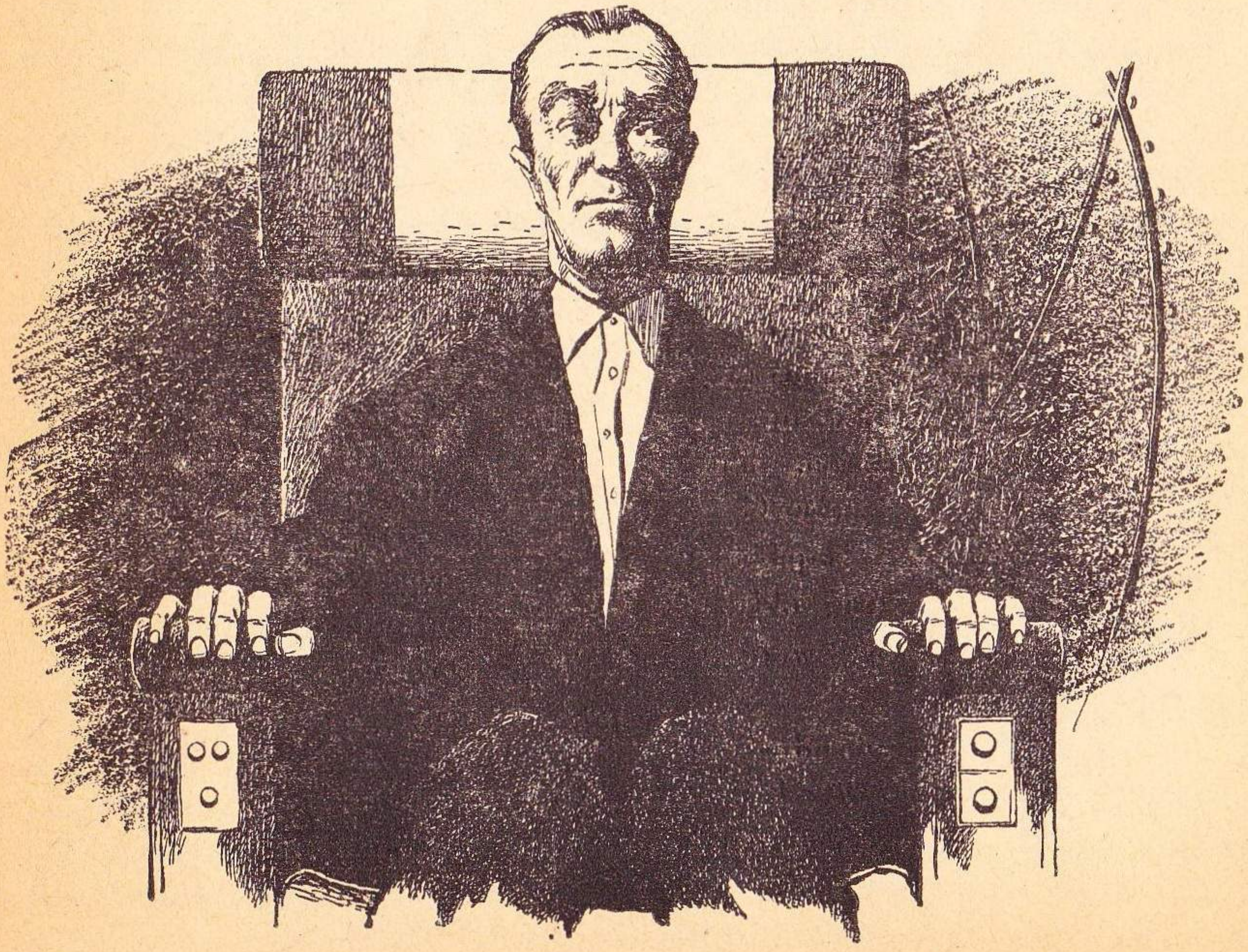
"Have you not been informed of that? I regret not having told you at once." There was, of course, no sign of regret on the robot's perfect face. "It was Dr. Han Fastolfe, whom you met on Earth during our previous partnership and whom I hope you remember, who first suggested you as an appropriate investigator in this case. He made it a condition that I be assigned to work with you once more."

Baley managed a smile. Dr. Fastolfe was a native of Aurora and Aurora was the strongest of the Outer World. Apparently, the advice of an Auroran bore weight.

Baley said, "A team that works shouldn't be broken up, eh?" (The first exhilaration of Daneel's appearance was fading and the compression about his chest was returning.)

"I do not know if that precise thought was in his mind, Partner Elijah. From the nature of his orders to me, I should think that he was interested in having assigned to work with you one who would have experience with your world and would know of your consequent peculiarities."

"Peculiarities!" Baley frowned



and felt offended. It was not a term he liked in connection with himself.

"So that I could arrange the air-tube, for example. I am well aware of your aversion to open spaces as a result of your upbringing in the Cities of Earth."

Perhaps it was the effect of being called "peculiar," the feeling that he had to counterattack or lose caste to a machine, that drove Baley to change the subject sharply. Perhaps it was just that life-long training prevented him from leaving any logical contradiction remain undisturbed.

He said, "There was a robot in charge of my welfare on board this ship; a robot"—a touch of malice intruded itself here—"that looks like a robot. Do you know it?"

"I spoke to it before coming on board."

"What's its designation? How do I make contact with it?"

"It is RX-2475. It is customary on Solaria to use only serial numbers for robots." Daneel's calm eyes swept the control panel near the door. "This contact will signal it."

Baley looked at the control panel himself and since the contact to which Daneel pointed was labeled RX, its identification seemed quite unmysterious.

Baley put his finger over it and in less than a minute, the robot, the one that looked like a robot, entered.

Baley said, "You are RX-2475?"

"Yes, sir."

"You told me earlier that someone would arrive to escort me off the ship. Did you mean him?" Baley pointed at Daneel.

The eyes of the two robots met. RX-2475 said, "His papers identify him as the one who was to meet you."

"Were you told in advance anything about him other than his papers. Was he described to you?"

"No, sir. I was given his name, however."

"Who gave you the information?"

"The captain of the ship, sir."

"Who is a Solarian?"

"Yes, sir."

Baley licked his lips. The next question would be decisive.

He said, "What were you told would be the name of the one you were expecting?"

RX-2475 said, "Daneel Olivaw, sir."

"Good boy! You may leave now."

There was the robotic bow and then the sharp about-face. RX-2475 left.

Baley turned to his partner and said, thoughtfully, "You are not telling me all the truth, Daneel."

"In what way, Partner Elijah?" asked Daneel.

"While I was talking to you earlier, I recalled an odd point. RX-2475, when he told me I would have an escort said a *man* would come for me. I remember that quite well."

Daneel listened quietly and said nothing.

Baley went on. "I thought the robot might have made a mistake. I thought also that perhaps a man had indeed been assigned to meet me and had later been replaced by you, RX-2475 not being informed of the change. But you heard me check that. Your papers were described to him and he was given your name. But he was not quite given your name at that, was he, Daneel?"

"Indeed, he was not given my entire name," agreed Daneel.

"Your name is not Daneel Olivaw, but R. Daneel Olivaw, isn't it? Or, in full, Robot Daneel Olivaw."

"You are quite correct, partner Elijah."

"From which it all follows that RX-2475 was never informed that you are a robot. He was allowed to think of you as a man. With your manlike appearance, such a masquerade is possible."

"I have no quarrel with your reasoning."

"Then let's proceed." Baley was feeling the germs of a kind of savage delight. He was on the trace of something. It couldn't be anything much, but this was the kind of tracking he could do well. It was something he could do well enough to be called half across space to do. He said, "Now why should anyone want to deceive a miserable robot? It doesn't matter to it whether you are man or robot. It follows orders in either case. A reasonable conclusion then is that the Solarian captain who informed the robot, and the Solarian officials who informed the captain, did not themselves know you were a robot. As I say, that is one reasonable conclusion, but perhaps not the only one. Is this one true?"

"I believe it is."

"All right, then. Good guess. Now why? Dr. Han Fastolfe, in recommending you as my partner allows the Solarians to think you are a human. Isn't that a dangerous thing? The Solarians, if they find out, may be quite angry. Why was it done?"

The humanoid robot said, "It was explained to me thus, Partner Elijah. Your association with a human of the Outer Worlds would raise your status in the eyes of the Solarians. Your association with a robot would lower it. Since I was familiar with your ways and could work with you easily, it was thought reasonable to allow the Solarians to accept me as a man without actually deceiving them by a positive statement to that effect."

Baley did not believe it. It seemed like the kind of careful consideration for an Earthman's feelings that did not come naturally to a Spacer, not even to as enlightened a one as Fastolfe.

He considered an alternative and said, "Are the Solarians well-known among the Outer Worlds for the production of robots?"

"I am glad," said Daneel, "that

you have been briefed concerning the inner economy of Solaria."

"Not a word," said Baley. "I can guess the spelling of the word Solaria and there my knowledge stops."

"Then I do not see, Partner Elijah, what it was that impelled you to ask that question—but it is a most pertinent one. You have hit the mark. My mind-store of information includes the fact that of the fifty Outer Worlds, Solaria is by far the best known for the variety and excellence of robot models it turns out. It exports specialized models to all the other Outer Worlds."

Baley nodded in grim satisfaction. Naturally, Daneel did not follow an intuitive mental leap that used human weakness as a starting point. Nor did Baley feel impelled to explain the reasoning. *If* Solaria turned out to be a world expert in robotics, Dr. Han Fastolfe and his associates might have purely personal and very human motives for demonstrating their own prize robot. It would have nothing at all to do with an Earthman's safety or feelings.

They would be asserting their own superiority by allowing the expert Solarians to be fooled into accepting a robot of Auroran handiwork as a fellow-man.

Baley felt much better. Strange that all the thought, all the intellectual powers he could muster, could not succeed in lifting him out of panic; and yet a sop to his own vainglory succeeded at once.

The recognition of the vainglory of the Spacers helped, too.

He thought: *Jehoshaphat, we're all human; even the Spacers.*

Aloud, he said, almost flippantly, "How long do we have to wait for the ground car. I'm ready."

The air-tube gave signs of not being well adapted to its present use. Man and humanoid stepped out of the spaceship erect, moving along flexible mesh that bent and swayed under their weight. (In space, Baley imagined hazily, men transferring weightlessly from ship to ship might easily skim along the length of the tube, impelled by an initial jump.)

Toward the other end, the tube narrowed clumsily, its meshing bunching as though some giant hand had constricted it. Daneel, carrying the flashlight, got down on all fours and so did Baley. They traveled the last twenty feet in that fashion, moving at last into what was obviously a ground car.

Daneel closed the door through which they had entered, sliding it shut, carefully. There was a heavy, clicking noise that might have been the detachment of the air-tube.

Baley looked about curiously. There was nothing too exotic about the ground car. There were two seats in tandem, each of which could hold three. There were doors at each end of each seat. The glossy sections that might ordinarily have been windows were black and opaque, as a result, undoubtedly, of

appropriate polarization. Baley was acquainted with that.

The interior of the car was lit by two round spots of yellow illumination in the ceiling and, in short, the only thing Baley felt to be strange was the transmitter set into the partition immediately before the front seat and, of course, the added fact that there were no visible controls.

Baley said, "I suppose the driver is on the other side of this partition."

Daneel said, "Exactly so, Partner Elijah. And we can give our orders in this fashion." He leaned forward slightly and flicked a toggle switch that set a spot of red light to flickering. He said quietly, "You may start now. We are ready."

There was a muted whirr that faded almost at once, a very slight, very transitory pressing against the back of the seat and then, nothing.

Baley said, in surprise, "Are we moving?"

Daneel said, "We are. The car does not move on wheels but glides along a diamagnetic force field. Except for acceleration and deceleration, you will feel nothing."

"What about curves?"

"The car will bank automatically to compensate. Its level is maintained when traveling up or downhill."

"The controls must be complicated," said Baley, dryly.

"Quite automatic. The driver of the vehicle is a robot."

"Um-m-m." Baley had about all he wanted on the ground car. He said, "How long will this take?"

"About an hour. Air-travel would have been speedier, but I was concerned to keep you enclosed and the aircraft models available on Solaria do not lend themselves to complete enclosure as does a ground car such as that in which we are now riding."

Baley felt annoyed at the other's "concern." He felt like a baby in the charge of its nurse. He felt almost as annoyed, oddly enough, at the other's complicated sentences. It seemed to him that such needlessly complicated sentence structure might easily betray the robotic nature of the creature.

For a moment, Baley stared curiously at R. Daneel Olivaw. The robot, looking straight ahead, was motionless and unselfconscious under the other's gaze.

Daneel's skin texture was perfect, the individual hairs on head and body had been lovingly and intricately manufactured and placed. The muscle movement under the skin was most realistic. No pains, however extravagant, had been spared. Yet Baley knew, from personal knowledge, that limbs and chest could be split open along invisible seams so that repairs might be made. He knew there was metal and silicone under that realistic skin. He knew a positronic brain, most advanced, but only positronic, nestled in the hollow of the skull. He knew that Daneel's "thoughts" were only short-lived positronic currents flowing along paths rigidly designed

and fore-ordained by the manufacturer.

But what were the signs that would give that away to the expert eye that had no foreknowledge? The trifling unnaturalness of Daneel's manner of speech? The unemotional gravity that rested so steadily upon him? The very perfection of his humanity?

But he was wasting time. Baley said, "Let's get on with it, Daneel. I suppose that before arriving here, you were briefed on matters Solarian?"

"I was, Partner Elijah."

"Good. That's more than they did for me. How large is the world?"

"Its diameter is nine thousand five hundred miles. It is the outermost of three planets and the only inhabited one. In climate and atmosphere it resembles Earth; its percentage of fertile land is higher; its useful mineral content lower, but of course less exploited. The world is self-supporting and can, with the aid of its robot exports, maintain a high standard of living."

Baley said, "What's the population?"

"Twenty thousand people, Partner Elijah."

Baley accepted that for a moment, then he said, mildly, "You mean twenty million, don't you?" His scant knowledge of the Outer Worlds was enough to tell him that although the worlds were underpopulated by Earthly standards, the individual populations *were* in the millions.

"Twenty thousand people, Partner Elijah," said the robot again.

"You mean the planet has just been settled?"

"Not at all. It has been independent for nearly two centuries, and it was settled for a century or more before that. The population is deliberately maintained at twenty thousand, that being considered optimum by the Solarians themselves."

"How much of the planet do they occupy?"

"All the fertile portions."

"Which is, in square miles?"

"Thirty million square miles, including marginal areas."

"For twenty thousand people?"

"There are also some two hundred million working positronic robots, Partner Elijah."

"Jehoshaphat! That's . . . that's ten thousand robots per human."

"It is by far the highest such ratio among the Outer Worlds, Partner Elijah. The next highest, on Aurora, is only fifty to one."

"What can they use so many robots for? What do they want with all that food?"

"Food is a relatively minor item. The mines are more important, and power production more important still."

Baley thought of all those robots and felt a trifle dizzy. Two hundred million robots! So many among so few humans. The robots must litter the landscape. An observer from without might think Solaria a world

of robots altogether and fail to notice the thin human leaven.

He felt a sudden urge to see. Panic had receded constantly with the arrival of a familiar person, with his deductive success, with ordinary conversation. He inspected the upper portion of the ground car.

He said, "Is this thing a convertible, Daneel?"

"I beg your pardon, Partner Elijah, but I do not follow your meaning?"

"Can the car's top be pushed back? Can it be made open to the . . . the sky?" (He had almost said "dome" out of habit.)

"Yes, it can."

"Then have that done, Daneel. I would like to take a look."

The robot responded gravely, "I am sorry, but I cannot allow that."

Baley felt astonished. He said, "Look, R. Daneel" (He stressed the R.) "let's rephrase that. I order you to lower the top."

The creature was a robot, man-like or not. It *had* to follow orders.

But Daneel did not move. He said, "I must explain that it is my first concern to spare you harm. It has been clear to me on the basis both of my instructions and of my own personal experience that you would suffer harm at finding yourself in large, empty spaces. I cannot, therefore, allow you to expose yourself to that."

Baley could feel his face darkening with an influx of blood and at the same time could feel the complete uselessness of anger. The creature *was* a robot, and Baley knew the First Law of Robotics well.

It went: *A robot may not injure a human being, or, through inaction, allow a human being to come to harm.*

Everything else in a robot's positronic brain—that of any robot on any world in the galaxy—had to bow to that prime consideration. Of course, a robot had to follow orders, but with one major, all-important qualification. Following orders was only the Second Law of Robotics.

It went: *A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.*

Except where such orders would conflict with the First Law!

Baley forced himself to speak quietly and reasonably. "I think I can endure it for a short time, Daneel."

"That is not my feeling, Partner Elijah."

"Let me be the judge, Daneel."

"If that is an order, Partner Elijah, I cannot follow it."

Baley let himself lounge back against the softly-upholstered seat. The robot would, of course, be quite beyond the reach of force. Daneel's strength, if exerted fully, would be a hundred times that of flesh and blood. He would be perfectly capable of restraining Baley without ever hurting him.

Baley was armed. He could point a blaster at Daneel but except for perhaps a momentary sensation of

mastery, that action would only succeed in greater frustration. A threat of destruction was useless against a robot. Self-preservation was only the Third Law.

It went: *A robot must protect its own existence, as long as such protection does not conflict with the First or Second Laws.*

It would not trouble Daneel to be destroyed if the alternative were breaking the First Law. And Baley did not wish to destroy Daneel. Definitely not.

Yet he did want to see out the car. It was becoming an obsession with him. He couldn't allow this nurse-infant relationship to build up.

For a moment, he thought of pointing the blaster at his own temple. Open the car-top or I'll kill myself. Oppose one application of the First Law by a greater and more immediate one.

Baley knew he couldn't do it. Too undignified. He couldn't bear the picture conjured up by the thought.

He said, wearily, "Would you ask the driver how close in miles we are to destination?"

"Certainly, Partner Elijah."

Daneel bent forward and pushed the toggle switch. But as he did so, Baley leaned forward, too, crying out, "Driver! Lower the top of the car!"

And it was the human hand that moved quickly to the toggle switch and closed it again. The human hand held its place firmly thereafter.

Panting a bit, Baley stared at Daneel.

For a second, Daneel was motionless, as though his positronic paths were momentarily out of stability in their effort to adjust to the new situation. But that passed quickly and then the robot's hand was moving.

Baley had anticipated that. Daneel would remove the human hand from the switch—gently, not hurting it—reactivate the transmitter and countermand the order.

Baley said, "You won't get my hand away without hurting me. I warn you. You will probably have to break my finger."

That was not so. Baley knew that. But Daneel's movements stopped. Harm against harm. The positronic brain had to weigh probabilities and translate them into opposing potentials. It meant just a bit more hesitation.

Baley said, "It's too late."

His race was won. The top was sliding back and pouring into the car, now open, was the harsh white light of Solaria's sun.

Baley wanted to shut his eyes in initial terror, but fought that. He faced the enormous wash of blue and green, incredible quantities of it. He could feel the undisciplined rush of air against his face, but could make out no details of anything. A moving something flashed past. It might have been a robot or an animal or an unliving something caught in a puff of air. He couldn't

tell. The car went past it too quickly.

Blue, green, air, noise, motion—And over it all, beating down, furiously, relentlessly, frighteningly, was the white light that came from a ball in the sky.

For one fleeting split-moment, he bent his neck and stared directly at Solaria's sun. He stared at it, unprotected by the diffusing glass of the Cities' uppermost-level sunporches. He stared at the naked sun!

## III

Baley was back in the safety of enclosure. Daneel's face wavered before his eyes, and it was splotched with dark spots that turned to red when he blinked.

Baley said, "What happened?"

"I regret," said Daneel, "that you have suffered harm despite my presence. The direct rays of the sun are damaging to the human eye, but I believe that the damage due to the short exposure you suffered will not be permanent. When you looked up, I was forced to pull you down and you lost consciousness."

Baley grimaced. That left the question open as to whether he had fainted out of overexcitement—or fright?—or had been knocked unconscious. He felt his jaw and head and found no pain. He forebore asking the question direct. In a way, he didn't want to know.

He said, "It wasn't so bad."

"From your reactions, Partner Elijah, I should judge you had found it unpleasant."

"Not at all," said Baley, stubbornly. (Peculiar, was he?) The splotches before his eyes were fading and they weren't tearing so. "I'm only sorry I saw so little. We were moving too fast. Did we pass a robot?"

"We passed a number of them. We are traveling across the Kinbald estate which is given over to fruit orchards."

"I'll have to try again," said Baley.

"You must not, in my presence," said Daneel. "Meanwhile, I have done as you requested."

"As I requested?"

"You will remember, Partner Elijah, that before you ordered the driver to lower the top of the car, you had ordered me to ask the driver how close in miles we were to destination. We are ten miles away now and shall be there in some six minutes."

Baley felt the impulse to ask Daneel if he were angry at having been outwitted if only to see that perfect face become imperfect, but he repressed it. Of course Daneel would simply answer, no, without rancor or annoyance. He would sit there as calm and as grave as ever, unperturbed and imperturbable.

Baley said quietly, "Just the same, Daneel, I'll have to get used to it, you know."

The robot regarded his human partner. "To what is it that you refer?"

"Jehoshaphat! To the . . . the outdoors. It's all this planet is made of."

"There will be no necessity for facing the outdoors," said Daneel. Then, as though that disposed of the subject, he said, "We are slowing down, Partner Elijah. I believe we have arrived. It will be necessary to wait now for the connection of another air-tube leading to the dwelling that will serve as our base of operations."

"An air-tube is unnecessary, Daneel. If I am to be working outdoors, there is no point in delaying the ordeal." (Peculiar was he?)

"There will be no reason for you to work outdoors, Partner Elijah."

They stared at each other; the man angry and the robot untouched by any emotion.

It was Baley who looked away first. He thought: *I'll settle this later.*

And he tried not to ask himself if he had given in because in actual truth, he would rather *not* face the naked sun again; if he weren't allowing the robot to be the master so that he, Baley, might remain safely enclosed.

His face grew grim even at the glancing touch of that thought. He would face air, sun, and empty space yet! He would!

Elijah Baley felt like an inhabitant of one of the smaller Cities, say Helsinki, visiting New York and counting the Levels in awe. He had thought of a "dwelling" as something like an apartment unit, but this was nothing like it at all. He passed from room to room endlessly. Panoramic windows were shrouded closely, allowing no hint of disturbing day to enter. Lights came to life noiselessly from hidden sources as they stepped into a room and died again as quietly when they left.

"So many rooms," said Baley, with wonder. "So many. It's like a very tiny City, Daneel."

"It would seem so, Partner Elijah," said Daneel, with equanimity.

It seemed strange to the Earthman. Why was it necessary to crowd so many Spacers together with him in close quarters. He said, "How many will be living here with me?"

Daneel said, "There will be myself, of course, and a number of robots."

Baley thought: He ought to have said, a number of *other* robots.

Again, he found it obvious that Daneel had the intention of playing the man thoroughly even for no other audience than Baley, who knew the truth so well.

And then that thought popped into nothing under the force of a second, more urgent one. He cried, "*Robots?* How many *humans?*"

"None, Partner Elijah."

They had just stepped into a room, crowded from floor to ceiling with book films. Three fixed viewers with large twenty-four-inch viewing panels set vertically were in three corners of the room. The

fourth contained an animation screen.

Baley looked about in horror. He said, "Did they kick everyone out just to leave me rattling around alone in this mausoleum."

"It is meant only for you. A dwelling such as this for one person is customary on Solaria."

"Everyone lives like this?"

"Everyone."

"What do they need all the rooms for?"

"It is customary to devote a single room to a single purpose. This is the library. There is also a music room, a gymnasium, a kitchen, a bakery, a dining room, a machine shop, various robot repair and testing rooms, two bedrooms—"

"Stop! How do you know all this."

"It is part of the information pattern," said Daneel, smoothly, "made available to me before I left Aurora."

"Jehoshaphat! Who takes care of all of this?" He swung his arm in a wide arc.

"There are a number of household robots. They have been assigned to you and will see to it that you are comfortable."

"But I don't need all this," said Baley. He had the urge to sit down and refuse to budge further. He wanted to see no more rooms.

"We can remain in one room if you so desire, Partner Elijah. That was visualized as a possibility from the start. Nevertheless, Solarian customs being what they are, it was considered wiser to allow this house to be built—"

*"Built!"* Baley stared. "You mean this was built for me? All this? Specially?"

"A thoroughly roboticized economy—"

"Yes, I see what you're going to say. What will they do with the house when all this is over?"

"I believe they will tear it down."

Baley's lips clamped together and his face hardened in resentment. Of course! Tear it down! Build a tremendous structure for the special use of the contaminated Earthman and then tear down everything he touched. Sterilize the soil the house stood on! Fumigate the air he breathed! Thanks to the damned Spacers for nothing!

Daneel seemed to read his thoughts, or to interpret his expression at any rate. He said, "It may seem to you, Partner Elijah, that it is to escape contagion that they will destroy the house. If such are your thoughts, I suggest that you refrain from making yourself uncomfortable over the matter. The fear of disease on the part of Spacers is by no means so extreme. It is just that the effort involved in building the house is, to them, very little. Nor does the waste involved in tearing it down once more seem great to them.

"And by law, Partner Elijah, this place cannot be allowed to remain standing. It is on the estate of Jannis Gruer and there can only be one legal dwelling place on any estate,

that of the owner. This house was built by special dispensation, for a specific purpose. It is meant to house us for a specific length of time, till our mission is completed."

"And who is Jannis Gruer?" asked Baley.

"The head of Solarian security. We are to see him on arrival."

"Are we? Jehoshaphat, Daneel, when do I begin to learn anything at all about anything. I'm working in a vacuum and I don't like it. I might as well go back to Earth. I might as well—"

He felt himself working up into a fury and cut himself short.

Daneel never wavered. He merely waited his chance to speak. He said, "I regret the fact that you are annoyed. My general knowledge of Solaria does seem to be greater than yours. My knowledge of the murder case itself is as limited as is your own. It is Agent Gruer who will tell us what we must know. The Solarian government has arranged this."

"Well, then, let's get to this Gruer. How long a trip will it be?" Baley winced at the thought of more travel and the familiar constriction in his chest was making itself felt again.

Daneel said, "No travel is necessary, Partner Elijah. Agent Gruer will be waiting for us in the conversation room."

"A room for conversation, too?" began Baley, wryly. Then, in a louder voice, "Waiting for us now?"

"I believe so."

"Then let's get to him, Daneel!"

Jannis Gruer was bald, and that without qualification. There was a fringe of hair at the outskirts of the skull. It was completely naked.

Baley swallowed and tried, out of politeness, to keep his eyes off that skull, but couldn't. It affected him strongly. On Earth, there was the continuous acceptance of Spacers at the Spacers' own evaluation. The Spacers were the unquestioned lords of the galaxy; they were tall, bronze of skin and hair, handsome, large, cool, aristocratic.

In short, they were all R. Daneel Olivaw was, but with the fact of humanity in addition.

And the Spacers who were sent to Earth often did look like that; perhaps deliberately.

Baley thought: Deliberately! For the psychological effect of it!

But here was a Spacer who might have been an Earthman for all his appearance. He was bald. And his nose was misshapen, too. Not much, to be sure, but on a Spacer even a slight asymmetry was noteworthy.

Baley said, "Good afternoon, sir. I am sorry if we kept you waiting."

No harm in politeness! He would have to work with these people and that was going to be miserable enough without exacerbating their dislike for his Earthmanship by being overcompensatingly arrogant.

He had the momentary urge to step across the expanse of room—how ridiculously large—and offer his hand in greeting. That was easy to fight off.

A Spacer certainly would not welcome such a greeting. What? Offer a hand covered with Earthly germs?

Gruer sat gravely, as far away from Baley as he could get, his hands resting within long sleeves, and probably filters in his nostrils. Baley couldn't see them, but he was morally certain they were there.

It even seemed to him that Gruer cast a disapproving look at Daneel as though to say: You're a queer Spacer, standing that close to an Earthman.

Of course, that meant Gruer simply did not know the truth. And Baley noticed suddenly that Daneel was standing at some distance, at that; further than he usually did.

Of course! Too close, and Gruer might find the proximity unbelievable. Daneel was intent on being accepted as human.

Gruer spoke in a pleasant, friendly voice, but his eyes tended to remain furtively on Daneel; looking away, then drifting back. He said, "I haven't been waiting long. Welcome to Solaria, gentlemen. Are you comfortable?"

"Yes, sir. Quite," said Baley. He wondered if etiquette would require that Daneel as the "Spacer" should speak for the two, but rejected that possibility resentfully. Jehoshaphat! It was he, himself, who had been requested for the investigation and Daneel had been added on afterward. Under the circumstances, Baley felt he would not play the secondary to a genuine Spacer; it was out of the question when a robot was involved, even such a robot as Daneel.

But Daneel made no attempt to take precedence over Baley, nor did Gruer seem surprised or displeased at that. Instead, he turned his attention at once to Baley to the exclusion of Daneel.

Gruer said, "You have been told nothing, Plainclothesman Baley, about the crime for which your services have been solicited. I imagine you are quite curious about that." He shook his arms so that the sleeves fell backward and he clasped his hands, now revealed, loosely in his lap. "Won't you gentlemen sit down?"

They did so and Baley said wryly, "We *are* curious." He noted, with a slight shock, that Gruer's

hands were not protected by gloves. Strange! That did not seem right!

Gruer went on. "That was on purpose, plainclothesman. We wanted you to arrive here prepared to tackle the problem with a fresh mind. We wanted no preconceived notions. You will have available to you shortly a full report of the details of the crime and of the investigations we have been able to conduct. I am afraid, plainclothesman, that you will find our investigations ridiculously incomplete from the standpoint of your own experience. We have no police force on Solaria."

"None at all?" said Baley, explosively.

Gruer smiled and shrugged. "No crime, you see. Our population is tiny and widely scattered. There is no occasion for crime; therefore no occasion for police."

"I see. But for all that, you *do* have crime now."

"True, but the first crime of violence in two centuries of history."

"Unfortunate, then, that you must begin with murder."

"Unfortunate, yes. More unfortunately still, the victim was a man we could scarcely afford to lose. A most inappropriate victim. And the circumstances of the murder were particularly brutal."

Baley said, "I suppose the murderer is completely unknown." (Why else would the crime be worth the importation of an Earthly detective?)

Gruer looked particularly uneasy. He glanced sideways at Daneel, who sat motionless, an absorptive, quiet mechanism. Baley knew that Daneel would, at any time in the future, be able to reproduce any conversation he heard, of whatever length. He was a recording machine that walked and talked like a man.

Did Gruer know that? His look at Daneel had certainly something of the furtive about it!

Gruer said, "No, I cannot say the murderer is completely unknown. In fact, there is only one person that can possibly have done the deed."

"Are you sure you don't mean only one person who is *likely* to have done the deed?" Baley distrusted overstatement and had no liking for the armchair deducer who discovered certainty rather than probability in the workings of logic.

But Gruer shook his bald head. "No. Only one possible person. Anyone else is impossible. Completely impossible."

"Completely?"

"I assure you."

"Then you have no problem."

"On the contrary. We do have a problem. That one person couldn't have done it either."

Baley said calmly, "Then no one did it."

"Yet the deed was done. Rickain Delmarre is dead."

*That's something,* thought Baley. *Jehoshaphat, I've got something. I've got the victim's name.*

He brought out his notebook and

solemnly made note of it, partly out of a wry desire to indicate that he had scraped up, at last, a nubbin of fact, and partly to avoid making it too obvious that he sat by the side of a recording machine who needed no notes.

He said, "How is the victim's name spelled?"

Gruer spelled it.

"His profession, sir?"

"Fetologist."

Baley spelt that as it sounded and let it go. He said, "Now who would be able to give me a personal account of the circumstances surrounding the murder? As first-hand as possible."

Gruer's smile was rather grim and his eyes shifted to Daneel again, and then away. "His wife, plainclothesman."

"Then Delmarre is married."

"Yes. Her name is Gladia." Gruer pronounced it in three syllables, accenting the second.

"Any children?" Baley's eyes were fixed on his notebook. When no answer came, he looked up. "Any children?"

But Gruer's mouth had pursed up as though he had tasted something sour. He looked sick. Finally, he said, "I would scarcely know."

Baley said, "What?"

Gruer added hastily, "In any case, I think you had better postpone actual operations till tomorrow. I know you've had a hard trip, Mr. Baley, and that you are tired and probably hungry."

Baley, about to deny that, realized suddenly that the thought of food had an uncommon attraction for him at the moment. He said, "Will you join us at our meal?" He didn't think Gruer would, being a Spacer. (Yet he had been brought to the point of saying "Mr. Baley" rather than "Plainclothesman Baley" which was something.)

As expected, Gruer said, "A business engagement makes that impossible. I will have to leave. I am sorry."

Baley rose. The polite thing would be to accompany Gruer to the door. In the first place, however, he wasn't at all anxious to approach the door and the unprotected open. And in the second, he wasn't sure where the door was.

He remained standing in uncertainty.

Gruer smiled and nodded. He said, "I will see you again. Your robots will know the combination if you wish to talk to me."

And he was gone.

Baley cried out sharply.

Gruer and the chair he was sitting on were simply not there. The wall behind Gruer; the floor under his feet; changed with knife-edge suddenness.

Daneel said, calmly, "He was not there in the flesh at any time. It was a trimensional image. It seemed to me you would know. You have such things on Earth."

"Not like this," muttered Baley.

A trimensional image on Earth was encased in a cubic force-field that glittered against the back-

ground. The image itself had a tiny flicker. On Earth, there was no mistaking image for reality. Here—

No wonder Gruer had worn no gloves. He needed no nose-filters for that matter.

Daneel said, "Would you care to eat now, Partner Elijah?"

Dinner was an unexpected ordeal. Robots appeared. One set the table. One brought in the food.

"How many are there in the house, Daneel?" Baley asked.

"About fifty, Partner Elijah."

"Will they stay here while we eat?" (One had backed into a corner, his glossy, glow-eyed face turned toward Baley.)

"It is the usual practice," said Daneel, "for one to do so in case its service is called upon. If you do not wish that, you have only to order it to leave."

Baley shrugged, "Let it stay!"

Under normal conditions, Baley might have found the food delicious. Now he ate mechanically. He noted abstractedly that Daneel ate also, with a kind of unimpassioned efficiency. Later on, of course, he would empty the fluorocarbon sac within him into which the "eaten" food was now being stored. Meanwhile, Daneel maintained his masquerade.

"Is it night outside?" asked Baley.

"It is," replied Daneel.

Baley stared somberly at the bed. It was too large. The whole bedroom was too large. There were no blankets to burrow under, only sheets. They would make a poor enclosure.

Everything was difficult! He had already gone through the unnerving experience of showering in a stall that actually adjoined the bedroom. It was the height of luxury in a way yet, on the other hand, it seemed an unsanitary arrangement.

He said, abruptly, "How is the light put out?" The headboard of the bed gleamed with a soft light. Perhaps that was to facilitate book-viewing before sleeping, but Baley was in no mood for that.

"It will be taken care of once you're in bed, if you compose yourself for sleep."

"The robots watch, do they?"

"It is their job."

"Jehoshaphat! What do these Solarians do for themselves?" Baley muttered. "I wonder now why a robot didn't scrub my back in the shower?"

With no trace of humor, Daneel said, "One would have, had you required it. As for the Solarians, they do what they choose. No robot performs his duty if ordered not to, except, of course, where the performance is necessary to the well-being of the human."

"Well, good night, Daneel."

"I will be in another bedroom, Partner Elijah. If, at any time during the night, you need anything—"

"I know. The robots will come."

"There is a contact-patch on the

side-table. You have only to touch it. I will come, too."

Sleep avoided Baley. He kept picturing the house he was in, balanced precariously at the outer skin of the world, with emptiness waiting just outside like a monster.

On Earth, his apartment, his snug, comfortable, crowded apartment sat nestled beneath many others. There were dozens of levels and thousands of people between himself and the rim of Earth.

Even on Earth, he tried to tell himself, there were people on the topmost level. They would be immediately adjacent to the outside. Sure! But that's what made those apartments low-rent.

Then he thought of Jessie, a thousand light-years away.

He wanted terribly to get out of bed right now, dress, and walk to her. His thoughts grew mistier. If there were only a tunnel, a nice, safe tunnel burrowing its way through safe, solid rock and metal from Solaria to Earth, he would walk and walk and walk—

He would walk back to Earth, back to Jessie, back to comfort and security—

*Security!*

Baley's eyes snapped open. His arms grew rigid and he came to his elbow scarcely aware that he was doing so.

Security! This man, Jannis Gruer, was head of Solarian security. So Daneel had said. What did "security" mean? If it meant the same as it meant on Earth, and surely it must, this man Gruer was responsible for the protection of Solaria against invasion from without and subversion from within.

Why was he interested in a murder case? Was it because there were no police on Solaria and the Department of Security would come the closest to knowing what to do about a murder?

Gruer had seemed at ease with Baley, yet there had been those furtive glances, again and again, in the direction of Daneel.

Did Gruer suspect the motives of Daneel? Baley, himself, had been ordered to keep his eyes open and Daneel might very likely have received similar instructions.

It would be natural for Gruer to suspect that espionage was possible. His job made it necessary for him to suspect that in any case where it was conceivable. And he would not fear Baley overmuch, an Earthman, representative of the least formidable world in the galaxy.

But Daneel was a native of Aurora, the oldest and largest and strongest of the Outer Worlds. That would be different.

Gruer, as Baley now remembered, had not addressed one word to Daneel.

For that matter, why should Daneel pretend so thoroughly to be a man. The earlier explanation that Baley had posed for himself, that it was a vainglorious game on the part of Daneel's Auroran designers seemed trivial. It seemed obvious

now that the masquerade was something more serious.

A man could be expected to receive diplomatic immunity; a certain courtesy and gentleness of treatment. A robot could not.

But then why did not Aurora send a real man in the first place. Why gamble so desperately on a fake?

The answer to that suggested itself instantly to Baley. A real man of Aurora, a real Spacer, would not care to associate too closely or for too long a time with an Earthman.

But if all this were true, why should Solaria find a single murder so important that it needs must allow an Earthman and an Auroran to come to their planet.

Baley felt trapped!

He was trapped somehow in the midst of a Spacer conflict, the nature of which he did not understand, in the midst of an environment he could scarcely endure, with Earth depending on him to do he knew not exactly what.

## IV

He slept at last. He did not remember when it happened. There was just a period when his thoughts grew more erratic and then the headboard of his bed was shining and the ceiling was alight with a cool, dayish glow. He looked at his watch.

Hours had passed. The robots who ran the house had decided it was time for him to wake up and had acted accordingly.

He resented that! No one had bothered to consult him about the matter.

What if he called a robot, bawled all hell out of it, told it to darken the room and keep it dark till he called it.

Well, what if he did? It would obey and that would be all. There could be no satisfaction in browbeating a robot.

What difference did it make? He didn't feel like sleeping, anyway.

He thought of showering again, but it was a lonely job in this kind of one-man setup. On Earth, even though there was no talking Community baths, there was always the sound of spurting water, of shuffling feet, of coughing, gargling, yawning, all the miscellaneous sounds of men meeting the new day.

He wondered if Daneel were awake and at once felt self-consciously foolish for having the thought. Daneel could not sleep. Baley wondered if he had mimicked sleep as part of the role he was playing. Had he undressed and put on bedclothes?

And thinking of Daneel, he remembered his thoughts of the night before. He inspected them to see if they still made sense after a period of sleep, or if they would fade and grow ridiculous as night-thoughts often did.

These did not. They stayed and kept their strength. Baley thought again.

Daneel had not spoken of the murder. He had discussed the social and economic structure of Solaria only in answer to direct questioning. About his only spontaneous actions were to try to keep Baley from seeing anything outside the ground car that had brought them here yesterday? Was that purely concern for Baley? Just First Law?

Or did Daneel have special instructions? Was Baley only a convenient stalking horse, serving to introduce an Auroran into spying position. Having served that purpose was Baley to be kept as ignorant and harmless as possible.

If so, Baley thought grimly, if so, they'll have a fight on their hands.

"Good morning, Partner Elijah."

Baley looked up. Daneel was completely dressed and his face was set in perfect repose. He said, "Did you sleep well?"

"Yes," said Baley, dryly, "did you?"

He thought: *Suppose I just asked him to repeat his instructions to me. Suppose I said, What are you really doing on Solaria? What are you trying to find out? What am I doing here? And, Jehoshaphat, what is the murder about, if anything?*

For a moment, he thought quixotically: Is *there a murder at all? Is* anything *what it's supposed to be?*

Actually, there would be no use to any of that. Part of Daneel's instructions would undoubtedly be to the effect that if Baley asked him what his instructions were, he was to answer that they consisted of this, that, and the other thing. And the whole would be a cleverly worked out story-thread of lies and inconsequentials.

Baley got out of bed and tramped into the bathroom for a shave and for the remainder of the morning ritual. He shouted, "If a robot comes in to shave me, send him out again. They get on my nerves. Even if I don't see them, they get on my nerves."

He came out, mopping his face, and because he knew Daneel could not be affected and because it helped his own state of mind, he said, "You, too. *You* get on my nerves."

He sat down on the bed, pulling on his trousers over fresh shorts. (Robots had supplied him with all essentials.)

Daneel said, quite predictably, "I regret your annoyance, Partner Elijah. If you have any suggestions as to how I may minimize this annoyance I cause you, it would be my pleasure to follow them as far as it is possible for me to do so."

"No suggestion," said Baley, "other than that you answer my questions frankly."

"As you know, Partner Elijah, I answer all questions to the best of my knowledge."

*Or to the letter of your instructions,* thought Baley. He said, "Why are there only twenty thousand people on Solaria?"

"That is a mere fact," said Daneel. "A datum. A figure that is

the result of a counting process."

"Yes, but you're evading the matter. The planet can support millions; why then only twenty thousand. You said the Solarians themselves considered it optimum. How is that possible?"

"It is their way of life."

"You mean they practice birth control."

"Yes."

"And leave the planet empty?" Baley wasn't sure why he was pounding away at this one point, but the planet's population was one of the few hard facts he had learned about it and there was little else he could ask about.

Daneel said, "The planet is not empty. It is parceled out into estates, each of which is supervised by a Solarian."

"You mean each lives on his estate. Twenty thousand estates, each with a Solarian."

"Fewer estates than those, Partner Elijah. Wives share the estate."

"No Cities?" Baley felt cold.

"None at all, Partner Elijah. They live completely apart and never see one another except under the most extraordinary circumstances."

"Hermits?" Baley felt the gathering of nausea.

"In a way, yes. In a way, no."

"What does that mean?"

"Agent Gruer visited you yesterday by trimensional image. Solarians visit one another freely that way and in no other way."

Baley stared at Daneel. He said, "Does that include us? Are we expected to live that way?"

"It is the custom of the world."

"Then how do I investigate this case? If I want to see someone—"

"From this house, Partner Elijah, you can obtain a trimensional view of anyone on the planet. There will be no problem. In fact, it will save you the annoyance of leaving this house. It was why I said when we arrived that there would be no occasion for you to feel it necessary to grow accustomed to facing the outdoors. And that is well. Any other arrangement would be most distasteful to you."

"I'll judge what's distasteful to me," said Baley, sharply, and felt the force of the statement blunt against the robot's impassivity.

Baley said, "First thing today, Daneel, I get in touch with this Gladia woman, the wife of the murdered man. And if the trimensional business is unsatisfactory then I warn you I'm going out to her place. Personally. I will not be stopped."

"We shall see what is best and most feasible, Partner Elijah," said Daneel, noncommittally. "I shall arrange for breakfast." He turned to leave.

Baley stared at the broad robotic back. He felt a prisoner with Daneel Olivaw as his jailer.

*R.* Daneel Olivaw!

Twenty-four hours earlier, he had greeted the robot as a friend and brother. Now he seemed his worst and most immediate enemy.

He thought: *Suppose I just tell*

*Gruer that my friend here is a robot.*

Well, suppose he did. In the first place, would Daneel give him a chance to say so? And if he did, would the Solarians believe the statement? Would they dare to? It would be an Earthman's word against a Spacer's. Baley could suggest an X ray, but then Daneel would stand on his diplomatic immunity and how could the Solarians chance offending Aurora. Maybe even if they thought he *was* a robot, it might be safer for them to pretend he was human.

Another thing; even if Baley could smash the machinery of whatever plot Daneel was part of, would it be wise to do so before learning what the machinery was designed to do.

Probably not.

Scowling, Baley decided he could do nothing but wait. He followed Daneel out to breakfast.

Baley said, "Now how does one go about establishing trimensional contact?"

"It is done for us, Partner Elijah," said Daneel, and his fine-textured finger sought out one of the contact-patches that summoned robots.

A robot entered at once.

Where do they come from, Baley wondered. As one wandered aimlessly about this uninhabited maze, not one robot was ever visible. Did they scramble out of the way as humans approached? Did they send messages to one another and make clear the path.

Yet whenever a call went out, one appeared without delay.

Baley stared at this one. Till now, he had avoided the Solarian robots, glanced at them briefly out of an eye-corner, embarrassed at their eternal interference.

But if they were the enemy, he would have to face them squarely, so he made himself stare.

The robot was sleek, but not glossy. Its surface was in a rather muted, grayish finish, with a checkerboard pattern on the right shoulder as the only bit of color. Squares in white and yellow—silver and gold, really, from the metallic luster—were scattered in an aimless pattern.

Daneel said, "Take us to the Conversation room."

The robot bowed and turned, but said nothing.

Baley said, "Wait, boy. What's your name?"

The robot faced Baley. It spoke in clear tones and without hesitation. "I have no name, master. My serial number," and a metal finger lifted and rested on the shoulder patch, "is ACX-2745."

Daneel and Baley followed into the large room which Baley recognized as having held Gruer and his chair the day before.

Another robot was waiting for them with the eternal, patient nonboredom of the machine. The first bowed and left.

Baley compared shoulder patches

during the short interval when both robots were present. The pattern of silver and gold was different. The checkerboard was made up of a six-by-six square. The number of possible arrangements would be $2^{36}$ then or seventy billion. More than enough.

Baley said, "Apparently, there is one robot for everything. One to show us here. One to run the viewer."

Daneel said, "There is much robotic specialization of Solaria, Partner Elijah."

"With so many of them, I can understand why." Baley looked at the second robot. Except for the shoulder patch, and, presumably, for the invisible positronic patterns within its spongy platinum-iridium brain, it was the duplicate of the first. He said, "And your serial number?"

"ACC-1129, master."

"I'll just call you boy. Now I want to speak to a Mrs. Gladia Delmarre, wife of the late Rickain Delmarre— Daneel, is there an address, some way of pin-pointing her location?"

Daneel said gently, "I do not believe any further information is necessary. If I may question the robot—"

"Let me do that," Baley said. "All right, boy, do you know how the lady is to be reached?"

"Yes, master. I have knowledge of the connection pattern of all masters." This was said without pride. It was a mere fact, as though he were saying: I am made of metal, master.

Daneel interposed, "That is not surprising, Partner Elijah. There are less than ten thousand connections that need be fed into the memory circuits and that is a small number."

Baley nodded. "Is there more than one Gladia Delmarre, by any chance? There might be that chance of confusion?"

"Master?" After that, the robot remained blankly silent.

"I believe," said Daneel, "that this robot does not understand your question. It is my belief that duplicate names do not occur on Solaria. Names are registered at birth and no name may be adopted unless it is unoccupied at the time."

"All right," said Baley. "We learn something every minute. Now see here, boy, you tell me how to work whatever it is I am supposed to work; give me the connection pattern, or whatever you call it, and then step out."

There was a perceptible pause before the robot answered. It said, "Do you wish to make contact yourself, sir?"

"That's right.'

Daneel touched Baley's sleeve gently. "One moment, Partner Elijah."

"Now what is it?"

"It is my belief that the robot could make the necessary contact with greater ease. It is his specialization."

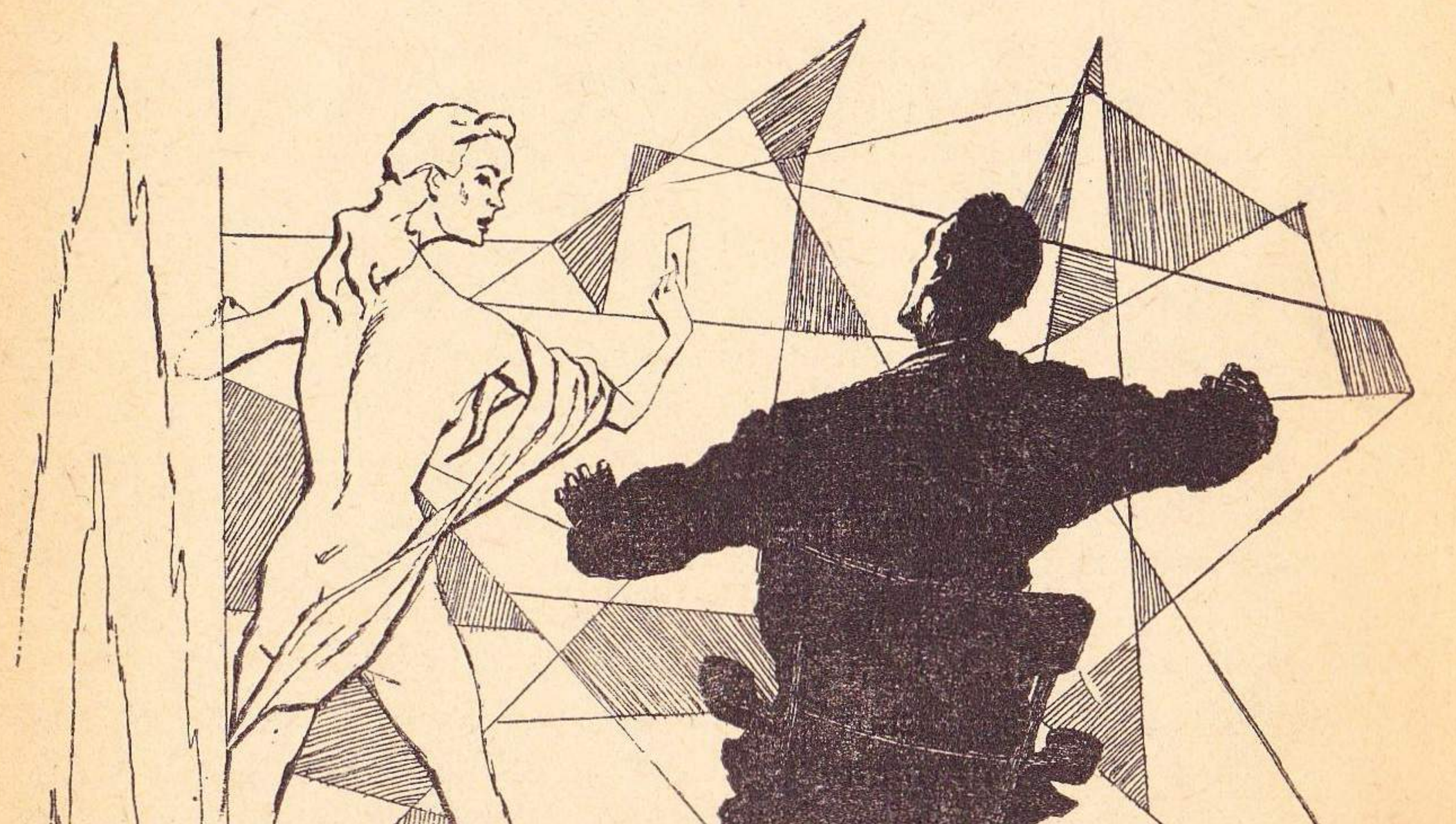
Baley said grimly, "I'm sure he

can do it better than I can. Doing it myself, I may make a mess of it." He stared levelly at the impassive Daneel. "Just the same, you stated last night that any robot would refrain from doing his job if ordered to refrain. I'm ordering that. The robot is a robot and I am a human and I prefer to make contact myself, whether I do it well or botch. Do I give the orders or don't I?" He could feel himself growing intransigeant and unreasonable. This was going to be a test-case and he was going to have his way.

Daneel said, "You give the orders, Partner Elijah, and your orders, where First Law permits, will be obeyed. However, with your permission, I would like to give you what pertinent information I have concerning the Solarian robots."

"Then you *will* give me information? How kind of you!" (Baley knew sarcasm to be lost on Daneel, yet could not resist.)

Daneel said, "Far more than on any other world, the robots on Solaria are specialized. Although Solarian robots are physically capable of many things, they are heavily equipped mentally for one particular type of job. To perform functions outside their specialty re-



quires the high counter-potential produced by direct application of one of the Three Laws. Again, for them *not* to perform the duty for which they *are* equipped also requires the direct application of the Three Laws. A direct order not to do their job would do."

"Well, then?"

"However, the counter-potential set-up in that fashion is unpleasant. Ordinarily, the matter would not come up, since almost never does a Solarian interfere with the day-to-day workings of a robot. For one thing, he would not care to do a robot's work; for another, he would feel no need to."

"Are you trying to tell me, Daneel, that it hurts the robot to have me do its work?"

"As you know, Partner Elijah, pain in the human sense is not applicable to robotic reactions."

Baley shrugged. "I would not know, since I am not a robot. I'll leave that part of the analysis to you."

"Nevertheless," went on Daneel, with no sign of hurt or discomfort at Baley's dig, "the experience which the robot undergoes in such a case is analogous to human pain."

"I'm afraid it's got to be that way, anyway," said Baley.

"And moreover," said Daneel, "to cause pain to a robot might be considered on the part of our hosts to be an act of impoliteness since in a society such as this there must be a number of more or less rigid beliefs concerning how it is proper to treat a robot and how it is not. To offend our hosts would scarcely make our task easier."

Baley frowned.

Daneel went on with quiet remorselessness. "In addition to all that, the controls that operate trimensional viewing are so complicated that it may well prove impossible for you to manage them without intensive instruction for which we lack the time."

"All right," snapped Baley. "Let the robot do its job and you stop lecturing."

If this were a test case, he had lost. He felt more a prisoner than ever. A prisoner of everything; of Solaria, of the emptiness outside, of his robot partner, and of just robots, millions of them.

Half a wall slid aside and the control-panel that was revealed would have done justice to a City Section power station. At least, Daneel had not misrepresented the complications involved.

Baley watched the robot and longed for his pipe. He had been early briefed that smoking on non-smoking Solaria would be a terrible breach of decorum, so he even had not been allowed to take his fixings. Well, that more incentive to be through quickly with this job.

The robot was working quickly, adjusting variable resistances a trifle here and there and intensifying field-forces in proper pattern by quick finger-pressures.

Daneel said, "It is necessary first

to signal the individual one desires to view. A robot will, of course, receive the message. If the individual being signaled is available and wishes to receive the view, full contact is established."

"Are all those controls necessary?" asked Baley. "The robot's hardly touching most of it."

"My information on the matter is not complete, Partner Elijah. There is, however, the necessity of arranging, upon occasion, for multiple viewings and for mobile viewings. The latter particularly, call for complicated and continuing adjustment."

The robot said, "Masters, contact is made and approved. When you are ready, it will be completed."

"Ready," growled Baley, and as though the word were a signal, the further half of the room was alive with light.

Daneel said at once, "I neglected to have the robot specify that all visible openings to the outside be draped. I regret that and we must arrange—"

"Never mind," said Baley, wincing. "I'll manage. Don't interfere." (Damn it, he *wasn't* peculiar. If he only had time to grow used—)

It was a bathroom he was staring at, or he judged it to be so from its fixtures. One end of it was, he guessed a kind of beautician's establishment and his imagination pictured a robot—or robots?—working with unerring swiftness on the details of a woman's coiffure and on the externals that made up the picture she presented to the world.

Some gadgets and fittings he simply gave up on. There was no way of judging their purpose in the absence of experience.

The walls were inlaid with an intricate pattern that all but fooled the eye into believing some natural object was being represented before fading away into an abstraction. The result was soothing and almost hypnotic in the way it monopolized attention.

What might have been the shower-stall, a large one, was shielded off by nothing that seemed material, but rather by a trick of lighting that set up a wall of flickering opacity.

No human was in sight.

Baley's glance fell to the floor. Where did his room end and the other begin. It was easy to tell. There was a line where the quality of the light changed and that must be it.

He stepped toward the line and after a moment's hesitation pushed his hand beyond it.

He felt nothing, any more than he would have had he shoved the hand into one of Earth's crude trimensionals. There, at least, he would have seen his own hand still; faintly, perhaps, and overlaid by the image, but he would have seen it. Here it was lost completely. To his vision, his arm ended sharply at the wrist.

What if he stepped across the line altogether? Probably his own

vision would become inoperative. He would be in a world of complete blackness. The thought of such efficient enclosure was almost pleasant—

A voice interrupted him. He looked up and stepped backward with an almost clumsy haste.

Gladia Delmarre was speaking. At least, Baley assumed it was she. The upper portion of the flickering light across the shower stall had faded and a head was clearly visible.

It smiled at Baley. "I said, hello, and I'm sorry to keep you waiting. I'll be dry soon."

Hers was a triangular face, rather broad at the cheekbones—which grew prominent when she smiled—and narrowing with a gentle curve past full lips to a small chin. Her head was not high above the ground. Baley judged her to be about five-feet-two in height. (This was not typical. At least not to Baley's way of thinking. Spacer women were supposed to lean toward the tall and stately.) Nor was her hair the Spacer bronze. It was light brown, tinging toward yellow, and worn moderately long. At the moment, it was fluffed out in what Baley imagined must be a stream of warm air. The whole picture was quite pleasing

Baley said, in confusion, "If you want us to break contact and wait till you're through—"

"Oh, no. I'm almost done, and we can talk meanwhile. Jannis Gruer told me you would be viewing. You're from Earth, I understand." Her eyes rested full on him, seemed to drink him in.

Baley nodded. "My companion is from Aurora."

She smiled and kept her glance fixed on Baley as though *he* remained the curiosity nevertheless and of course, Baley thought, so he was.

She lifted her arms above her head, running her fingers through the hair and spreading it out as though to hasten drying. Her arms were slim and graceful. Very attractive, Baley thought.

Then he thought uneasily: Jessie wouldn't like this.

Daneel's voice broke in. "Would it be possible, Mrs. Delmarre, to have the window which we see polarized or draped. My partner is disturbed by the sight of daylight. On Earth, as you may have heard—"

The young woman—Baley judged her to be twenty-five but had the doleful thought that the apparent ages of Spacers could be most deceptive—put her hands to her cheeks and said, "Oh, my, yes. I know all about that, and agent Gruer reminded me, too. How ridiculously silly of me. Forgive me, please, but it won't take a moment. I'll have a robot in here—"

She stepped out of the drying cabinet, her hand extended toward the contact patch, still talking. "I'm always thinking I ought to have more than one contact-patch in this room. A house is just no good if it doesn't have a patch within reach

no matter where you stand . . . say not more than five feet away. It just— Why, what's the matter?"

She stared in shock at Baley who, having jumped out of his chair and upset it behind him, had reddened to his hairline and hastily turned away.

Daneel said, calmly, "It would be better, Mrs. Delmarre, if, after you have made contact with the robot, you would return to the stall or, failing that, proceed to put on some articles of clothing."

Gladia looked down at her nudity in surprise and said, "Well, of course."

## V

"It was only viewing, you see," said Gladia, contritely. She was wrapped in something that left her arms and shoulders free. One leg showed to mid-thigh, but Baley, entirely recovered and feeling an utter fool, ignored that stoically.

He said, "It was the surprise, Mrs. Delmarre—"

"Oh, please. You can call me Gladia, unless . . . unless that's against your customs."

"Gladia, then. It's all right. I just want to assure you there was nothing repulsive about it, you understand. Just the surprise." Bad enough for him to have acted the fool, he thought, without having the poor girl think she inspired horror or nausea in a man. As a matter of fact, it had been rather . . . rather—

Well, he didn't have the phrase, but he knew quite certainly that there was no way he would ever be able to talk of this to Jessie.

"I know I offended you," Gladia said, "but I didn't mean to. I just wasn't thinking. Of course I realize one must be careful about the customs of other planets, but the customs are so queer sometimes; at least, not queer," she hastened to add, "I don't mean queer. I mean strange you know and it's so easy to forget. Like I forgot about keeping the windows darkened."

"Quite all right," muttered Baley. She was in another room now with all the windows draped and the light had the subtly different and more comfortable texture of artificiality.

"But about the other thing," she went on, earnestly, "it's just *viewing,* you see. After all, you didn't mind talking to me when I was in the dryer and I wasn't wearing anything then, either."

"Well," said Baley, wishing she would run down as far as that subject was concerned, "hearing you is one thing, and seeing you is another."

"But that's exactly it. Seeing isn't involved." She reddened a trifle and looked down. "I hope you don't think I'd ever do anything like that, I mean, just step out of the dryer, if anyone were *seeing* me. It was just *viewing.*"

"Same thing, isn't it?" said Baley.

"Not at all the same thing. You're

viewing me right now. You can't touch me, can you, or smell me, or anything like that. You could if you were seeing me. Right now, I'm two hundred miles away from you at *least*. So how can it be the same thing."

Baley grew interested. "But I see you with my eyes."

"No, you don't see me. You see my image. You're viewing me."

"And that makes a difference?"

"All the difference there is."

"I see," In a way, he did. The distinction was not one he could make easily, but it had a kind of logic to it.

She said, bending her head a little to one side, "Do you *really* see?"

"Yes."

"Does that mean you wouldn't mind if I took off my wrapper?" She was smiling.

He thought: *She's teasing and I ought to take her up on it.*

But aloud he said, "No, it would take my mind off my job. We'll discuss it another time."

"Do you mind my being in the wrapper, rather than something more formal? Seriously."

"I don't mind."

"May I call you by your first name?"

"If you have the occasion."

"What is your first name?"

"Elijah."

"All right." She snuggled into a chair that looked hard and almost ceramic in texture, but it slowly gave as she sat until it embraced her lovingly.

Baley said, "To business, now."

She said, "To business."

Baley found it all extraordinarily difficult. There was no way even to make a beginning. On Earth, he would ask name, rating, City and Sector of dwelling, a million different routine questions. He might even know the answers to begin with, yet it would be a device to ease into the serious phase. It would serve to introduce him to the person, make his judgment of the tactics to pursue something other than a mere guess.

But here? How could he be certain of anything? The very verb "to see" meant different things to himself and to the woman. How many other words would be different? How often would they be at cross-purposes without his being aware of it?

He said, "How long were you married, Gladia?"

"Ten years, Elijah."

"How old are you?"

"Thirty-three."

Baley felt obscurely pleased. She might easily have been a hundred thirty-three.

He said, "Were you happily married?"

Gladia looked uneasy. "How do you mean that?"

"Well—" For a moment, Baley was at a loss. How do you define a happy marriage. For that matter, what would a Solarian consider a

happy marriage. He said, "Well, you saw one another often?"

"What? I should hope not. We're not animals, you know."

Baley winced. "You did live in the same mansion? I thought—"

"Of course, we did. We were married. But I had my quarters and he had his. He had a very important career which took much of his time and I have my own work. We viewed each other whenever necessary."

"He *saw* you, didn't he?"

"It's not a thing one talks about but he *did* see me."

"Do you have any children?"

Gladia jumped to her feet in obvious agitation. "That's too much. Of all the indecent—"

"Now wait. *Wait!*" Baley brought his fist down on the arm of his chair. "Don't be difficult. This is a murder investigation. Do you understand? Murder. And it was your husband who was murdered. Do you want to see the murderer found and punished or don't you?"

"Then *ask* about the murder, not about . . . about—"

"I have to ask all sorts of things. For one thing I want to know whether you're sorry your husband is dead." He added, with calculated brutality, "You don't seem to be."

She stared at him haughtily, "I'm sorry when anyone dies, especially when they're young and useful."

"Doesn't the fact that he was your husband make it just a little more than that."

"He was assigned to me and, well, we *did* see each other when scheduled and . . . and"—she hurried the next words—"if you must know, we don't have children because none had been assigned us yet. I don't see what all that has to do with being sorry over someone being dead."

Maybe it had nothing to do with it, Baley thought. It depended on the social facts of life and with those he was not acquainted.

He changed the subject. "I'm told you have personal knowledge of the circumstances of the murder."

For a moment, she seemed to grow taut. "I . . . discovered the body. Is that the way I should say it?"

"Then you didn't witness the actual murder?"

"Oh, no," she said, faintly.

"Well, suppose you tell me what happened. Take your time and use your own words." He sat back and composed himself to listen.

She began, "It was on three-two of the fifth—"

"When was that in Standard Time?" asked Baley, quickly.

"I'm not sure. I really don't know. You can check, I suppose."

Her voice seemed shakey and her eyes had grown large. They were a little too gray to be called blue, he noted.

She said, "He came to my quarters. It was our assigned day for seeing and I knew he'd come."

"He always came on the assigned day?"

"Oh, yes. He was a very conscientious man, a good Solarian. He never skipped an assigned day and always came at the same time. Of course, he didn't stay long. We had not been assigned ch—"

She couldn't finish the word, but Baley nodded.

"Anyway," she said, "he always came at the same time, you know, so that everything would be comfortable. We spoke a few minutes; seeing *is* an ordeal, but he always spoke quite normally to me. It was his way. Then he left to attend to some project he was involved with; I'm not sure what. He had a special laboratory in my quarters to which he could retire on seeing days. He had a much bigger one in his quarters, of course."

Baley wondered what he did in those laboratories. Fetology, perhaps, whatever that was.

He said, "Did he seem unnatural in any way? Worried?"

"No. No. He was never worried." She came to the edge of a small laugh and buried it at the last moment. "He always had perfect control, like your friend there." For a brief moment, her small hand reached out and indicated Daneel, who did not stir.

"I see. Well, go on."

Gladia didn't. Instead, she whispered, "Do you mind if I have myself a drink."

"Please do."

Gladia's hand slipped along the arm of her chair momentarily. In less than a minute, a robot moved in silently and a warm drink—Baley could see the steam—was in her hand. She sipped slowly, then set the drink down.

She said, "That's better. May I ask a personal question?"

Baley said, "You may always ask."

"Well, I've read a lot about Earth. I've always been interested, you know. It's such a *queer* world." She gasped and added immediately, "I didn't mean that."

Baley frowned a little. "Any world is queer to people who don't live on it."

"I mean it's different. You know. Anyway, I want to ask a rude question. At least, I hope it doesn't seem rude to an Earthman. I wouldn't ask it of a Solarian, of course. Not for anything."

"Ask what, Gladia?"

"About you and your friend . . . Mr. Olivaw, is it?"

"Yes."

"You two aren't viewing, are you?"

"How do you mean?"

"I mean each other. You're seeing. You're there, both of you."

Baley said, "We're physically together. Yes."

"You could touch him, if you wanted to."

"That's right."

She looked from one to the other and said, "Oh."

It might have meant anything. Disgust? Revulsion?

Baley toyed with the idea of standing up, walking to Daneel and placing his hand flat on Daneel's face. It might be interesting to watch her reaction.

He said, "You were about to go on with the events of that day when your husband came to see you." He was morally certain that her digression, however interesting it might have been intrinsically to her, was primarily motivated by a desire to avoid just that.

She returned to her drink for a moment. Then: "There isn't much to tell. I saw he would be engaged, and I knew he would be, anyway, because he was always at some sort of constructive work, so I went back to my own work. Then, perhaps fifteen minutes later, I heard a shout."

There was a pause and Baley prodded her. "What kind of shout?"

She said, "Rickain's. My husband's. Just a shout. No words. A kind of fright. No! Surprise, shock! Something like that! I'd never heard him shout before."

She lifted her hands to her ears as though to shut out even the memory of the sound and her wrapper slipped slowly down to her waist. She took no notice and Baley stared firmly at his notebook.

He said, "What did you do?"

"I ran. I ran. I didn't know where he was—"

"I thought you said he had gone to the laboratory he maintained in your quarters."

"He did, but *I* didn't know where that was. Not for sure, anyway. I never went there. It was his. I had a general idea of its direction. I knew it was somewhere in the west but I was so upset, I didn't even think to summon any robot. One of them would have guided me easily but, of course, none came without being summoned. When I did get there, I found it somehow, he was dead."

She stopped suddenly and, to Baley's acute discomfort, she bent her head and wept. She made no attempt to obscure her face. Her eyes simply closed and tears slowly trickled down her cheeks. It was quite soundless. Her shoulders barely trembled.

Then her eyes opened and looked grayly at him, through swimming tears. "I never saw a dead man before. He was all bloody and his head was . . . just . . . all— I managed to get a robot and he called others and I suppose they took care of me and of Rickain. I don't remember. I don't—"

Baley said, "What do you mean, they took care of Rickain?"

"They took him away and cleaned up." There was a small wedge of indignation in her voice, the lady of the house careful of its condition. "Things were a mess."

"And what happened to the body?"

She shook her head. "I don't

know. Burnt, I suppose. Like any dead body."

"You didn't call the police?"

She looked at him blankly and Baley thought: *No police!*

He said, "You told somebody, I suppose. People found out about the matter."

She said, "The robots called a doctor. And I had to call Rickain's place of work. The robots there had to know he wouldn't be back."

"The doctor was for you, I suppose."

She nodded. For the first time, she seemed to notice her wrapper draped about her hips. She pulled it up into position, murmuring forlornly, "I'm sorry. I'm sorry."

Baley felt uncomfortable, watching her as she sat there helpless, shivering; her face contorted with the absolute terror that had come over her with the memory.

She had never seen a dead body before. She had never seen blood and a crushed skull. And if the husband-wife relationship on Solaria was something thin and shallow, it was still a dead human being with which she had been confronted.

Baley scarcely knew what to say or do next. He had the impulse to apologize and yet as a policeman, he was doing only his duty.

But there were no police on this world. Would she understand that this was his duty? Or was he putting himself in the position of a deliberately sadistic tormentor.

He was angry. What did they expect from him? Jehoshaphat! He was a stranger on a strange world, knowing none of its way!

Slowly, and as gently as he could, he said, "Gladia, did you hear anything at all? Anything besides your husband's shout."

She looked up, her face as pretty as ever, despite its obvious distress. Perhaps because of it. She said, "Nothing."

"No running footsteps. No other voice."

She shook her head. "I didn't hear anything."

"When you found your husband, he was completely alone? You two were the only ones present?"

"Yes."

"No signs of anyone else having been there?"

"None that I could see. I don't see how anyone could have been there, anyway."

"Why do you say that?"

For a moment, she looked shocked. That faded. She said, dispiritedly, "You're from Earth. I keep forgetting. Well, it's just that nobody could have been there. My husband never saw anybody except for me; not since he was a boy. He certainly wasn't the sort to see anybody. Not Rickain. He was very strict; very custom-abiding."

"It might not have been his choice. What if someone did see him without an invitation . . . without your husband knowing anything about it? He couldn't have helped seeing the intruder regardless of how custom-abiding he was."

She said, "Maybe, but he would have called robots at once and had the man taken away. He would have! Besides no one would try to see my husband without being invited to. I couldn't conceive of such a thing. And Rickain certainly would never invite anyone to see him. It's ridiculous to think so."

Baley said softly, "Your husband was killed by being struck on the head, wasn't he? You'll admit that."

"I suppose so. He was . . . all—"

"I'm not asking for the details at the moment. Was there any sign of some mechanical contrivance in the room that would have enabled someone to crush his skull by remote control?"

"Of course not. At least, I didn't see any."

"If anything like that had been there, I imagine you would have seen it? It follows then that a hand held something capable of crushing a man's skull and that hand swung it. Some person had to be within four feet of your husband to do that. So someone did see him."

"No one would," she said earnestly. "A Solarian just wouldn't see anyone."

"A Solarian who would commit murder wouldn't stick at a bit of seeing, would he?"

(To himself, that statement sounded dubious. On Earth, he had known the case of a perfectly conscienceless murderer who had been caught only because he could not bring himself to violate the custom of absolute silence in the community bathroom.)

Gladia shook her head. "You don't understand about seeing. Earthmen just see anybody they want to all the time, so you don't understand it—"

Curiosity seemed to be struggling within her. Her eyes lightened a bit. "Seeing does seem perfectly normal to you, doesn't it?"

"I've always taken it for granted," said Baley.

"It doesn't trouble you?"

"Why should it?"

"Well, the films don't say, and I've always wanted to know— Is it all right if I ask a question?"

"Go ahead," said Baley, stolidly.

"Do you have a wife assigned to you?"

"I'm married. I don't know about the assignment part."

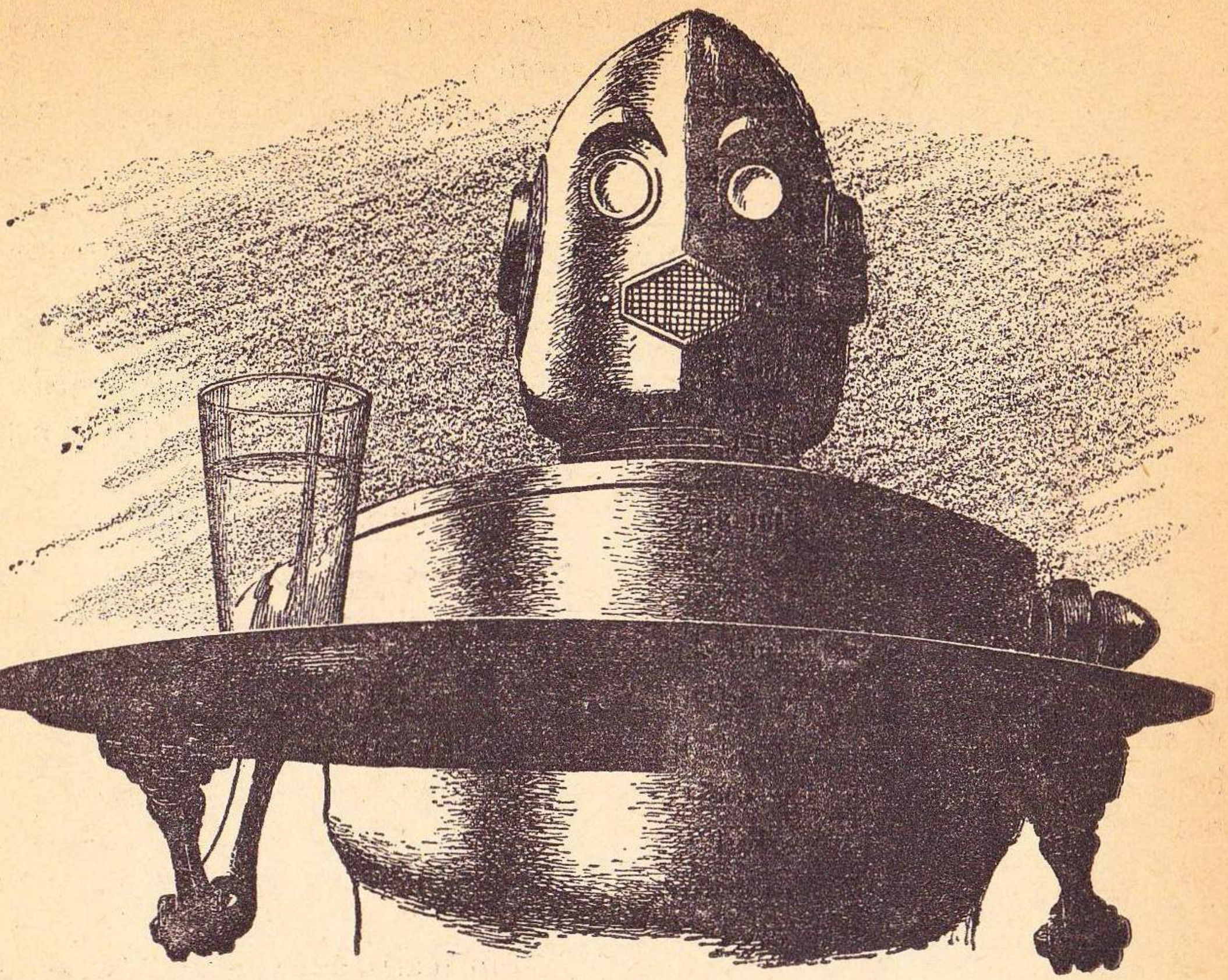
"And I know you see your wife anytime you want to and she sees you and neither of you think anything of it."

Baley nodded.

"Well, when you see her, suppose you just want to—" She lifted her hands elbow-high, pausing as though searching for the proper phrase. She tried again, "Can you just . . . anytime—" She let it dangle.

Baley didn't try to help.

She said, "Well, never mind. I don't know why I should bother you with that sort of thing now anyway. Are you through with me?" She looked as though she might cry again.



Baley said, "One more try, Gladia. Forget that no one would see your husband. Suppose someone *did*. Who might it have been?"

"It's just useless to guess. It couldn't be anyone."

"It has to be someone. Agent Gruer says there is reason to suspect some one person. So you see there must be someone."

A small joyless smile flickered over the girl's face. "I know who he thinks did it."

"All right. Who?"

She put a small hand on her breast. "I."

## VI

"I should have said, Partner Elijah," said Daneel, speaking suddenly, "that that is an obvious conclusion."

Baley cast a surprised look at his robot partner. "Why obvious?" he asked.

"The lady herself," said Daneel, "states that she was the only person who did or who would see her husband. The social situation on Solaria is such that even she cannot plausibly present anything else as the truth. Certainly Agent Gruer would find it reasonable, even obligatory, to be-

lieve that a Solarian husband would be seen only by his wife. Since only one person could be in seeing range, only one person could strike the blow and only one person could be the murderer. Or murderess, rather. Agent Gruer, you will remember, said that only one person could have done it. Anyone else he considered impossible. Well?"

"He also said," said Baley, "that that one person couldn't have done it, either."

"By which he probably meant that there was no weapon found at the scene of the crime. Presumably, Mrs. Delmarre could explain that anomaly."

He gestured with cool robotic politeness toward where Gladia sat, still in view focus, her eyes cast down, her small mouth compressed.

*Jehoshaphat,* thought Baley, *we're forgetting the lady.*

Perhaps it was annoyance that had caused him to forget. It was Daneel who annoyed him, he thought, with his unemotional approach to problems. Or perhaps it was himself, with his emotional approach. He did not stop to analyze the matter.

He said, "That will be all for now, Gladia. However one goes about it, break contact. Good-by."

She said, softly, "Sometimes one says, 'Done viewing,' but I like 'Good-by' better. You seem disturbed, Elijah. I'm sorry because I'm used to having people think I did it, so you don't need to feel disturbed."

Daneel said, "*Did* you do it, Gladia?"

"No," she said, angrily.

"Good-by, then."

With the anger not yet washed out of her face, she was gone. For a moment, though, Baley could still feel the impact of those quite extraordinary gray eyes.

She might say she was used to having people think her a murderess but that was very obviously a lie. Her anger spoke more truly than her words. Baley wondered of how many other lies she was capable.

And now Baley found himself alone with Daneel and was once again ready for a head-on conflict.

He said, "All right, Daneel, I'm not altogether a fool."

"I have never thought you were, Partner Elijah."

"Then tell me what made you say there was no murder weapon found at the site of the crime? There was nothing in the evidence so far, nothing in anything I've heard that would lead us to that conclusion."

"You are correct. I have additional information not yet available to you."

"I was sure of that. What kind?"

"Agent Gruer said he would send a copy of the report of their own investigation. I have that copy. It arrived this morning."

"Why haven't you shown it to me?"

"I felt that it would perhaps be more fruitful for you to conduct your investigation, at least in the

initial stages, according to your own ideas, without being prejudiced by the conclusions of other people who, self-admittedly, have reached no satisfactory conclusion. It was because I, myself, felt my logical processes might be influenced by those conclusions that I contributed nothing to the discussion."

Logical processes! Unbidden, there leaped into Baley's mind the fragment of a conversation he had once had with a roboticist. A robot, the man had said, is logical but not reasonable.

He said, "You entered the discussion at the end."

"So I did, Partner Elijah, but only because by that time I had independent evidence bearing out Agent Gruer's suspicions."

"Did you? What kind of independent evidence?"

"That which could be deduced from Mrs. Delmarre's own behavior."

"Let's be specific, Daneel."

"I intend to be so. Consider that if the lady were guilty and were attempting to prove herself innocent, it would be useful to her to have the detective in the case believe her innocent."

"Well?"

"If she could warp his judgment by playing upon a weakness of his, she might do so, might she not?"

"Strictly hypothetical."

"Not at all," was the calm reply. "You will have noticed, I think, that she concentrated her attention entirely on you."

"I was doing the talking," said Baley.

"Her attention was on you from the start; even before she could guess that you would be doing the talking. In fact, one might have thought she would, logically, have expected that I, as an Auroran, would take the lead in the investigation. Yet she concentrated on you."

"And what do you deduce from this?"

"That it was upon you, Partner Elijah, that she pinned her hopes. You were the Earthman."

"What of that?"

"She had studied Earth. She implied that more than once. She knew what I was talking about when I asked her to blank out the outer daylight at the very start of the interview. She did not act surprised or uncomprehending as she would most certainly have done had she not had actual knowledge of conditions on Earth."

"Well?"

"Since she has studied Earth, it is quite reasonable to suppose that she discovered one weakness Earthmen possess. She must know of the nudity tabu, and of how such a display must impress an Earthman."

Suddenly, Baley found it difficult to speak. "She . . . she explained about viewing—"

"So she did. Yet did it seem entirely convincing to you? Twice she allowed herself to be seen in what you would consider a state of improper clothing—"

"Your conclusion," said Baley, huskily, "is that she was trying to seduce me. Is that it?"

"Seduce you away from your professional impersonality! Certainly! So it would seem to me. And though I cannot share human reactions to stimuli, I would judge from what has been imprinted on my instruction circuits, that the lady meets any reasonable standard of physical attractiveness. From your behavior, moreover, it seems to me that you were aware of that and that you approved her appearance. I would even judge that Mrs. Delmarre acted rightly in thinking her mode of behavior would predispose you in her favor."

"Look," said Baley, uncomfortably, and a good deal more loudly than necessary, "regardless of what effect she might have had on me, I am still an officer of the law in full possession of my sense of professional ethics. Get that straight. Now let's see the report."

Baley read through the report in silence. He finished, turned back and read it through a second time.

"This brings in a new item," he said. "The robot."

Daneel Olivaw nodded.

Baley said thoughtfully, "She didn't mention it."

Daneel said, "You asked the wrong question. You asked if he was alone when she found the body. You asked if anyone else had been present at the death scene. A robot isn't 'anyone else.'"

Baley nodded. If he himself were a suspect and were asked who else had been at the scene of a crime, he would scarcely have replied: No one but this table.

He said, "I suppose I should have asked if any robots were present?" (Damn it, what questions does one ask anyway on a strange world.) He said, "How legal is robotic evidence, Daneel?"

"What do you mean?"

"Can a robot bear witness on Solaria? Can it give evidence?"

"Why should you doubt it?"

"A robot isn't human, Daneel. On Earth, it cannot be a legal witness."

"And yet a footprint can, Partner Elijah, although that is much less a human than a robot is. The position of your planet in this respect is illogical. On Solaria, robotic evidence, when competent, is admissible."

Baley did not argue the point. He rested his chin on the knuckles of one hand and went over this matter of the robot in his mind.

In the extremity of terror, Gladia Delmarre, standing over her husband's body had summoned robots. By the time they came she was unconscious.

The robots reported having found her there together with the dead body. And something else was present as well; a robot. That robot had not been summoned; it was already there. It was not one of the regular staff. No other robot had

seen it before or knew its function or assignment.

Nor could anything be discovered from the robot in question. It was not in working order. When found, its motions were disorganized and so, apparently, was the functioning of its positronic brain. It could give none of the proper responses, either verbal or mechanical, and after exhaustive investigation by a robotics expert, it was declared a total loss.

Its only activity that had any trace of organization was its constant repetition of: "You're going to kill me— You're going to kill me— You're going to kill me—"

No weapon that could possibly have been used to crush the dead man's skull was located.

Baley said suddenly, "I'm going to eat, Daneel, and then we see Agent Gruer again—or view him, anyway."

Jannis Gruer was still eating when contact was established. He ate slowly, choosing each mouthful carefully from a variety of dishes, peering at each anxiously as though searching for some hidden combination he would find most satisfactory.

Baley thought: *He may be a couple of centuries old. Eating may be getting dull for him.*

Gruer said, "I greet you, gentlemen. You received our report, I believe." His bald head glistened, as he leaned across the table to reach a tidbit.

"Yes. We have spent an interesting session with Mrs. Delmarre also," said Baley.

"Good, good," said Gruer. "And to what conclusion, if any, did you come?"

Baley said, "That she is innocent, sir."

Gruer looked up sharply, put down a patty of meat that he had half-lifted and said, "Guilty, you mean."

"Not at all. Innocent."

Gruer said, more gently, "You don't understand, being an Earthman. She was the only one who could see him, the only one who could possibly be within reach—"

Baley said, "If you don't mind, sir, that's been made clear to me. However, no matter how firm social customs are on Solaria, the point is not conclusive. May I explain?"

Gruer had returned to his dinner. "Of course."

"Murder rests on three legs," said Baley, "each equally important. They are motive, means and opportunity. For a good case against any suspect, each of the three must be satisfied. Now I grant you that Mrs. Delmarre had the opportunity. As for the motive, I've heard of none."

Gruer shrugged. "We know of none." For a moment, his eyes drifted to the silent Daneel.

"All right. The suspect has no known motive but perhaps she's a pathological killer. We can let the matter ride for a while. So we continue. She is in his laboratory with him and there's some reason why she wants to kill him. She waves

some club or other heavy object threateningly. It takes him a while to realize that his wife really intends to hurt him. He shouts in dismay, 'You're going to kill me,' and so she does. He turns to run as the blow descends and it crushes the back of his head. Did a doctor examine the body, by the way?"

"Yes and no. The robots called a doctor to attend Mrs. Delmarre and, as a matter of course, he looked at the dead body, too."

"That wasn't mentioned in the report."

"It was scarcely pertinent. The man was dead. In fact, by the time the doctor could view the body, it had been stripped, washed and prepared for cremation in the usual manner."

"In other words, the robots had destroyed evidence," said Baley in disgust, but the other only looked blank. Then Baley said, "Did you say he *viewed* the body? He didn't *see* it?"

"Great Space," said Gruer, "what a morbid notion. He viewed it, of course, from all necessary angles and at close focus, I'm sure. Doctors can't avoid seeing patients under some conditions, but I can't conceive of any reason why they should have to see corpses. Medicine is a dirty job but even doctors draw the line somewhere."

"Well, the point is this. Did the doctor report anything about the nature of the wound that killed Dr. Delmarre?"

"I see what you're driving at. You think that perhaps the wound was too severe to have been caused by a woman."

"A woman is weaker than a man, sir. And Mrs. Delmarre is a small woman."

"But quite athletic, plainclothesman. Given a weapon of the proper type, gravity and leverage would do most of the work. Even not allowing for that, a woman in frenzy can do surprising things."

Baley shrugged. "You speak of a weapon. Where is it?"

Gruer shifted position. He held out his hand toward an empty glass and a robot entered the viewing-field and filled it with a colorless fluid that might have been water.

Gruer held the filled glass momentarily, then put it down as though he had changed his mind about drinking. He said, "As is stated in the report, we have not been able to locate it."

"I know the report says that. I want to make absolutely certain of a few things. The weapon was searched for?"

"Thoroughly."

"By yourself?"

"By robots, but under my own viewing supervision at all times. We could locate nothing that might have been the weapon."

"That weakens the case against Mrs. Delmarre, doesn't it?"

"It does," said Gruer, calmly. "It is one of several things about the case we don't understand. It is one reason why we have not acted

against Mrs. Delmarre. It is one reason why I told you that the guilty party could not have committed the crime, either. Perhaps I should say that she apparently could not have committed the crime."

"Apparently?"

"She must have disposed of the weapon some way. So far, we have lacked the ingenuity to find it."

Baley said dourly, "Have you considered all possibilities?"

"I think so."

"I wonder. Let's see. A weapon has been used to crush a man's skull and it is not found at the scene of the crime. The only alternative is that it has been carried away. It could not have been carried away by Rickain Delmarre. He was dead. Could it have been carried away by Gladia Delmarre?"

"It must have been," said Gruer.

"How? When the robots arrived, she was on the floor unconscious. Or she may have been feigning unconsciousness but anyway she was there. How long a time between the murder and the arrival of the first robot?"

"That depends upon the exact time of the murder which we don't know," said Gruer, uneasily.

"I read the report, sir. One robot reported hearing a disturbance and a cry he identified as Dr. Delmarre's. He was apparently the closest to the scene. The summoning signal flashed five minutes afterward. It would take the robot less than a minute to appear on the scene." (Baley remembered his own experiences with the rapid-fire appearance of robots when summoned.) "In five minutes, even ten, how far could Mrs. Delmarre have carried a weapon and returned in time to assume unconsciousness?"

"She might have destroyed it in a disposer-unit."

"The disposer-unit was investigated according to the report and the residual gamma-ray activity was quite low. Nothing sizable had been destroyed in it for twenty-four hours."

"I know that," said Gruer. "I simply present it as an example of what might have been done."

"True," said Baley, "but there may be a very simple explanation. I suppose the robots belonging to the Delmarre household have been checked and all were accounted for."

"Oh, yes."

"And all in reasonable working order?"

"Yes."

"Could any of those have carried away the weapon, perhaps without being aware of what it was."

"Not one of them had removed anything from the scene of the crime. Or touched anything for that matter."

"That's not so. They certainly removed the body and prepared it for cremation."

"Well, yes, of course, but that scarcely counts. You would expect them to do that."

"Jehoshaphat!" muttered Baley. He had to struggle to keep calm.

He said, "Now suppose someone else had been on the scene."

"Impossible," said Gruer. "How could someone invade Dr. Delmarre's personal presence."

"Suppose!" cried Baley. "Now there was never any thought in the robots' minds that an intruder might have been present. I don't suppose any of them made an immediate search of the grounds about the house. It wasn't mentioned in the report."

"There was no search till we looked for the weapon, but that was a considerable time afterward."

"Nor any search for signs of a ground car or an air vehicle on the grounds?"

"No."

"Then if someone had nerved himself to invade Dr. Delmarre's personal presence, as you put it, he could have killed him and then walked away leisurely. No one would have stopped him or even seen him. Afterward, he could rely on everyone being sure no one could have been there."

"And no one could," said Gruer, positively.

Baley stirred uneasily in his seat. His dour face set in hard lines and anger rose higher.

He said, "One more thing. Just one more. There was a robot involved. A robot was at the scene."

Daneel interposed for the first time. "The robot was not at the scene. Had it been there, the crime would not have been committed."

Baley turned his head sharply. And Gruer, who had lifted his glass a second time as though about to drink, put it down again to stare at Daneel.

"Is that not so?" asked Daneel.

"Quite so," said Gruer. "A robot would have stopped one person from harming another. First Law."

"All right," said Baley. "Granted. But he must have been close. He was on the scene when the other robots arrived. Say he was in the next room. The murderer is advancing on Delmarre and Delmarre cries out, 'You're going to murder me.' The robots of the household did not hear those words; at most they heard a cry so, unsummoned, they did not come. But this particular robot heard the words and First Law made it come unsummoned. It was too late. Probably, it actually saw the murder committed."

"It must have seen the last stages of the murder," agreed Gruer. "That is what disordered it. Witnessing harm to a human without having prevented it is a violation of the First Law and, depending upon circumstances, more or less damage to the positronic brain is induced. In this case, it was a great deal of damage."

Gruer stared at his fingertips as he turned the glass of liquid to and fro, to and fro.

Baley said, "Then the robot was a witness. Was he questioned?"

"What use? He was disordered. He could only say 'You're going to murder me.' I agree with your re-

construction that far. They were probably Delmarre's last words burnt into the robot's consciousness when everything else was destroyed."

"But I'm told Solaria specializes in robots. Was there no way in which the robot could be repaired? No way in which its circuits could be patched?"

"None," said Gruer, sharply.

"And where is the robot, now?"

"Scrapped," said Gruer.

Baley was suddenly overwhelmed. Why fight all this? He had refuted their theory that Gladia was the murderess. He had pointed out the only way the weapon could have disappeared and it made no impression. They destroyed evidence and thought nothing of the matter. He could not penetrate their ways of thought.

He cried, "What am I supposed to do for you people? You have no motive, no means, no witnesses, no evidence. You have nothing. I'm a stranger to your world and to your people and I can do nothing. I demand that I be sent back to Earth."

The thought of Earth was suddenly unbearably sweet to him. An Earth where people acted like people and where he would know the right questions to ask—

Gruer was frowning. He said, "You are disturbed. Mr. Olivaw, won't you please go through the dwelling and make sure all windows are closed and blanked out. Plainclothesman Baley is feeling the effects of open space, I'm sure."

Baley had a savage answer for that. He wanted to order Daneel to keep his place. He was about to, not caring how queer it would seem for an Auroran to obey an Earthman's shouted order, when, on the brink, he caught something of panic in Gruer's voice, something of glittering appeal in his eyes.

The humanoid left the room.

It was as though a mask had dropped from Gruer's face, a mask that left it naked and afraid. Gruer said, "That was easier than I had thought. I'd planned so many ways of getting you alone. I never thought he'd leave at a simple request, and yet I could think of nothing else to do."

Baley said, "Well! I'm alone!"

Gruer said, "I couldn't speak freely in his presence. He's an Auroran. His presence was forced on us." The Solarian leaned forward. "There's something more to this than murder. There are parties on Solaria, secret organizations—"

"What?" Baley stared. "I want nothing to do with your internal politics."

"But we have no experience with that either. To whom can we turn? The men of the other Outer Worlds? They are involved in this, somehow."

"What's this got to do with the murder?"

"Delmarre was a Traditionalist. He believed in the old ways, the good ways. But there are new forces among us. Forces for change. Now Delmarre has been silenced."

"Through Mrs. Delmarre? Or was that just for Mr. Olivaw's benefit?"

"She must have been the tool. There is no way around that. But you must find out the details. Not just how she did it, but who was behind her."

Baley shook his head. "I'm an ordinary detective, sir. And what you're saying is something that is vague and mystical. It's not for me."

"I don't want to be vague, but I can't help it. Rickain Delmarre was on the track of something. I knew him well enough to know him as neither fool nor child. He was a good Solarian with a good, mature mind. He wasn't ready to tell me a great deal. Naturally, he wanted to complete the job and he got close to completion or they wouldn't have dared the risk of having him openly slaughtered by violence. One thing Delmarre told me. The human race was in danger."

Baley tried to snort, but felt himself shaken. If the other was trying to keep him on the job through melodrama, he was making himself sound oddly sincere.

Baley said, "But what can I do?"

"Work with me, and without the Auroran. You're outside the struggle and can view it clearly, perhaps. You're from Earth. And remember this— Delmarre meant something big! I know that. Earth would not escape."

Gruer said that with a fierce intensity and Baley's heart skipped a beat.

Earth? What did Earth have to do with these Spacers and their quarrels. Its role was only to bow its neck and bear insolence with patience.

Gruer finally lifted his long-delayed drink and looked over the rim of the glass at Baley. "Well?" he said. "The Auroran will soon return."

He sipped slowly, his eyes on Baley.

Baley passed the knuckles of one hand against the stubble on his long cheek, rubbing it the wrong way and listening absently to the rasp. "I suppose—"

He didn't finish. He leaped from his chair, preventing himself with difficulty from hurling himself toward the imaged non-presence of the other.

For Gruer, staring wildly at his drink, clutched his throat, whispering hoarsely, "Burning . . . burning—"

The glass fell from his hand, its contents spilling. And Gruer dropped with it, his face distorted with pain.

TO BE CONTINUED

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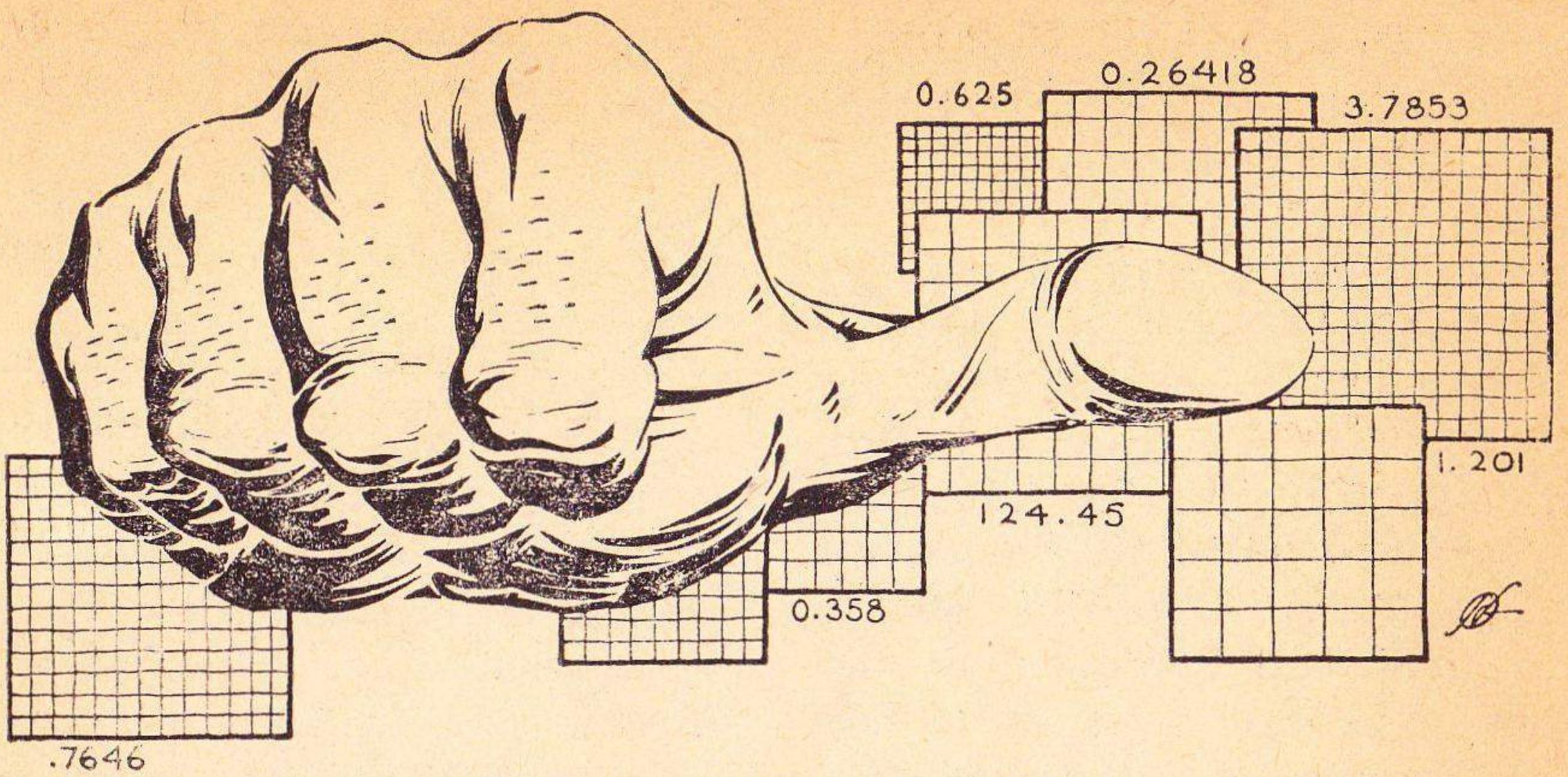



# WHAT THEY'RE UP AGAINST

***The way to defeat an enemy is to face him with a situation that is absolutely intolerable for him. The Martians were logical, so that was easy for human beings!***

## BY JOHN HUNTON

Illustrated by Freas

The patrol moved along quickly in the cover of the low ridge, until its flinty pediment sloped away to nothingness. There they stopped, crouched down beside tattered scraps of camel thorn, to study the open tableland ahead. Their eyes strained out across the barren land, probing the shadows that darted, like living things, in and out from the lean brush and weathered rock.

The Kurdish scout turned for a careful scrutiny of the ridge behind them. Ionization tracks sparkling up above the ridge marked the paths of Martian particle beams deflected by the earth's deep-force barrier. The scout let his gaze follow the tracks, up to where the aurora created by the barrier danced in pinks and greens across the sky. "Allah akbar," he murmured, awed to affir-

mation of the greatness of God. His eyes closed for a space of seconds before his will summoned them back to the service of the moment.

Satisfied at last that the flickering land only seemed alive, the men slipped out from the shelter of the ridge, moving in spurts and starts, like the shadows. They had almost gained the ragged gully across the exposed area when the Martian tracer breached the deep-force curtain. The first three men flung themselves into the gully. The fourth man stumbled, and the tongue of luminescent flame licked over him. The men in the gully squirmed and twisted on toward the black patch of tamarisk farther down below them, holding their bodies tight against the spiny ground, gasping in the acrid, ozone-laden air.

The scout led the way under the matted tamarisk, down a passageway that stopped behind a rock. "La Allah il Allah," he whispered. "Lord God of Israel, there is no God but you," the countersign came back.

The men filed through the door that opened and into a long hall, guiding their steps with hands pressed against the walls on either side. Through another door, then the semi-obscurity of a sentry station, and they were in Advance Observation Post 17 of the UN Field Command.

The room sprang to life. Beyond the acoustic shield the radio operator readied the disk of nonsense syllables that alerted the Communications Center at Command Headquarters. A doctor began a careful consultation with the men, passing a scintilloscope over their heads, chests, and feet.

Captain Jarvis, in command of the Post detail, waited impatiently behind the doctor. "They got Jake?" he asked when the doctor stepped out from between them.

"Yeah. At the head of the gully." The lieutenant spoke dully, futilely. Then his voice rose in bitterness as he found a whipping boy on whom he could take out his hurt. "And not a sign of Witt."

The captain turned away, anger bringing the blood up into his face. "The dirty traitor's got away," he said, and walked stiffly back to a table in the corner of the room. The Americans from the patrol followed him to the table and slumped down wearily. The captain spread out a contour plat and began assembling into a bulletin the data the patrol had gathered.

The Kurdish scout went over to squat down between the Bedouin and the Yaqui Indian sitting cross-legged on a carpet. The Bedouin handed him a tiny, steaming cup. He sucked in the thick, black coffee, and let his hot breath hiss out between his teeth. "There will be a message for you to send out, in your language that no one understands," he told the Indian. "The treacherous dog escaped into the stronghold of the enemy. Doubtless he is even now telling them of this place."

The Indian stared at the pattern on the carpet, his face expressionless. *At least Jake died like a warrior,* he thought. *Not like a rat in a trap.* It had, at first, been a source of pride that all radio messages between military units were transmitted in Yaqui. He had eagerly studied Spanish, Portuguese and Italian, while his fellow tribesmen were learning languages from Armenian to Urdu. But now his pride suffered, for others pitted their skill against the weapons of the enemy, while he sat out the impatient minutes before the radio.

The scout rolled the coffee around the lip of his cup, watching the brown stain darkening the sides. "Is this not 1405, the year of the bjolah?" he mused. "Yezidis is accounting to Satan for his stewardship over the earth."

*Strange the significance people give to numbers for the years,* the Yaqui thought. *It is 1405 on the Moslem lunar calendar, 1985 on the Gregorian calendar, 1984 on the Julian, Hebrew year 5745. But in reality it may be the same year, the last one, for all of us.*

Across the room, the captain had finished drawing up the bulletin, and was ordering the evacuation of the post, back to their prepared secondary position. "Two at a time, in five-minute intervals," he was saying. "Slim, you and Mike first—"

The Yaqui got up and moved lithely over to the transmitter. He was sitting at the microphone, waiting stolidly, when the captain came in with the bulletin. He read it to himself, black eyes flicking back and forth the only movement in his impassive face.

The bulletin began with Witt's escape, and ended with the data brought in by the patrol. "Function at surface, 16,200 foot-g's; barometric pressure at blast point, 14.7 psi; temperature, 57.9 F . . ." When the Indian finished studying the bulletin, he pressed a switch at the base of the microphone and began to speak, his nasal singsong erupting at intervals into the sneezing polysyllables that intersperse the Yaqui tongue.

Before the Indian had finished the message, Lieutenant "Slim" Symnes and Mike Shotkin, PFC, were crawling through the patch of tamarisk, out into the desert night. Beyond the edge of the tamarisk, they followed the deepening gully into a rocky defile that twisted away from the beachhead area. Over them a stuttering roar grew and died away.

"A P-111," the lieutenant muttered, stopping to look up. He could see nothing in the sky but the dancing lights. "Must be looking for him," he added.

"They're too late," Mike said. "What can they do now?"

"Nothing." The lieutenant shrugged helplessly.

The gunner in the plane was setting his missile-control sight on a dimly glowing object about eighteen miles up that had returned their radar beam. If the object were only

a Martian ship, and Witt were only on it . . . He lined up the instrument readings and ran them into his consol line-and-track computer. The object was at a slant range of 92,000 yards, making 635 miles per hour on a level track, cutting theirs at a clock azimuth of 260.5 degrees.

"Bill," he buzzed the navigator. "Have you got my range-wind and cross-wind corrections?" The gunner was used to getting his wind data from the meteorologist, but here, of course, the metro-message was not working. Now he would have to work his degrees backwards. Meteorological practice counted the direction the wind was blowing from. The navigator's wind arrow showed the direction the wind was blowing to.

The navigator came in with the dope himself. He watched the gunner reverse his gauge, moving it back 180 degrees, grumbling at the unaccustomed direction. His degree gauge set, the gunner rapped on his consol computer irritably, converting the lead for his sight from degrees to artillery mils, 17.8 mils per degree. He set the sight, itching to launch the deadly sub-deb, restrained by fear that all he saw was a noctiluscent cloud. "Curse that Witt!" he exploded again, his desire, frustrated by his fear, demanding some release.

At Witt's name the navigator's jaw clamped grimly shut. Forgetting the question he had meant to ask the gunner, he went back at once to check his instruments. Their barometric height showed a minus twenty-one inches, reckoned from the conventional height of the barometer for standard conditions at sea level. The radar altimeter on the pilot's panel read 37,000 feet. "Close enough for jazz," he said to himself, but half aloud.

The pilot turned around, and grinned ironically. The navigator hardly needed to read the words formed by the pilot's lips, "Got the time, Bill?"

The navigator's mouth twisted in sour acknowledgment. It was a stale joke, but it served to keep the tension down. He went through the routine expected of him, checking in turn the Greenwich time and the elapsed time watches strapped to his left wrist and the sidereal time watch on his right wrist. Three watches, and he never knew what time it was. "Time to go back," he said. The pilot nodded to begin the determination of their position and the estimated time back to the base.

The air-speed indicator showed 1,100 miles per hour, and the climb indicator 300 feet per second. The navigator pulled open the drawer underneath his chair, getting out the tables for converting feet per second to statute miles per hour. Once air speed, climb speed and wind speed were all reduced to miles per hour, he spun his circular computer, solving two triangles to find his ground speed. He then converted ground speed in miles per hour to knots; i.e., minutes of arc on the

surface of the earth per hour of time.

Dividing map-distance to destination, in nautical miles, by speed in knots, he got his time, in hours, from check-point to destination. Multiplying by sixty, he had a figure in minutes. Subtracting four minutes of elapsed time from check-point, he had a remaining time to destination. He hurriedly scratched, "R.I.D., 33 min." on a note pad and handed it to the pilot.

The Yaqui radio operator was sitting beside the pilot now, sending back the dimensional readings on the beachhead area, translating from a paper propped up in front of him. "Beachhead barrier," the paper began, "extends 47.6 miles from base point. South azimuth, 232 degrees West—"

The messages from the observation post and from the plane reached GHQ almost simultaneously. They were translated at once and sent on over the "Urgent Message" interoffice teletype, the notification of Witt's escape to General Forer in G-2, the beachhead data to the Operational Conversion Section.

There was no one to take the taped message when it came pushing out across Ray Witt's desk in OCS. The teletype began a mounting "beep-beep," but the alarm was lost in the rattle of the M-1 computing machine and the whirr of computation slips through the tubes that fanned out from Witt's desk in all directions.

Al Merton, Witt's assistant, had taken over in OCS after Witt's disappearance. Merton was now at the M-1, his sensitive face knotted in concentration, back-tracking on the positional analysis of the American and Russian Atlantic fleets. American Admiral Shurtz stood at Merton's right and Russian Admiral Sverdlov at his left.

Their message had come down to OCS by special messenger. "American and Russian fleets at code juncture position, but can't find one another. Why not?" The admirals had followed their message down almost immediately, each bringing his interpreter with him. While Merton ran the computations that had set the code juncture position, the admirals' verbal exchange about the error became increasingly acrimonious.

"Did not your commander report a proximity warning?" Admiral Shurtz asked. Both interpreters started out with the translation, but Admiral Shurtz waved his man to keep still.

"Da," the Russian began testily.

"Yes." "Yes." Both interpreters spoke up quickly. This time the Russian admiral silenced his man.

"Silence, idiot," the American interpreter translated the Russian admiral's words at once.

Admiral Shurtz grabbed his man by the arm and spun him back. "Keep out of this," he yelled. "Unless he makes a mistake."

"Commander Versky's exploratory missile proved the source of the

warning to be a floating concrete radar beacon, of British origin." The Russian interpreter gave the admiral's answer.

"He better cut out those exploratory missiles," Admiral Shurtz warned. "The IFF pattern identifies as friend only objects emitting GHQ frequency waves. Everything else is foe." The admiral's voice, trained to carry over the roar of waves and naval guns, rose against the clatter of the computer and the communication tubes. "If the grid of search-and-strike missiles over our fleet gets a 'foe' signal, they'll blow you out of the water."

The Russian admiral's hairy scowl thickened ominously as he listened to the translation. "The first of your missiles that comes within three hundred kilometers of our fleet will set off our U.I.M. rockets. You will be smashed to atoms."

The computer began to spit out computation slips. Merton picked them up one at a time to study them. Everything checked but the longitude base point reading. Merton compressed his lips and shook his head. He should have known it. He held out the slip to the admirals, marking the source of error with his thumb.

"The American navigators work with longitude in hours and minutes of time," he explained. "The Russians in degrees and minutes of arc. Whoever plotted their base points here assumed they both used the same units." Merton noted the basic equivalents on the margin of the tape. "Fifteen minutes of arc is one minute of time. Four seconds of time is one minute of arc."

Admiral Shurtz stared at the telltale slip, choking in helpless rage. When words came to end his incoherence, he began on Witt, his curses exploding through the room like shrapnel. The Russian admiral, needing no translation, joined in the imprecations.

The alarm on Witt's desk signaled in increasing urgency that the bulletins from the front demanded attention. Now! Merton left the spluttering admirals and skidded over to take the teletype. Almost four feet of tape had snaked out across the desk. He grabbed the dangling end and began to scribble furiously:

"47.6 miles × 0.625 = kilometers
× 0.358 = li
× 0.663 = versts—"

By the time the end of the message had come through, Merton had caught up with the computation notations. He tore off the tape and rushed back to line up the digits on the M-1. The machine ground through the computations, while Merton fidgited nervously in front of it, his finger pressed on the duplicate-copy button. When the completed slips shot out, he grabbed them and started at once for the Dimensional Analysis Section.

In the hallway, a junior mathematician from the Logistics Conversion Section panted by, benzidramine inhaler clutched in his hand, mutter-

ing to himself, "3.7853; 0.26418 . . ." Merton recognized the multipliers for converting United States gallons to and from liters. The figure for United States to British gallons was 1.201. Moving supplies of jet fuel on tankers of fifteen nations to air bases at Alexandria, Bombay and Sevastopol was a major logistics problem.

Beyond the Logistics Section stretched the Dimensional Analysis offices. Merton stopped in front of a door marked, "Dr. A. J. Allingham, Chief Physicist." Hearing nothing to indicate that he would be interrupting, Merton went in.

Dr. Allingham, one of the brilliant young physicists turned out in the American "Operation Scientist" ten years before, had a mind like a steel trap and a face like a hatchet. She was rubbing her forehead with one hand and jabbing impatiently at a paper in front of her with a pencil held in the other. When she heard the cough that Merton summoned, she slid back in her chair, her arms resting limply on her desk.

"XXXXXX," she said, her voice thin with anger and frustration. "Those XXXXXX engineers and their XXXXXX language."

"Yours is still earthy. Salty even," Merton smiled pleasantly.

"Oh, XXXXXX. I don't mind a harmless figure of speech now and then." She compressed her lips to a rigid line. "But terms like circular mils are something else again. The Army Engineers send in electrical resistance data in ohm-feet per circular mil. You'd think it would be enough to give a simple diameter in mils. Even then, I'd have to convert to United States Standard gauge sizes for steel and Brown and Sharpe gauge sizes for copper wire."

"Rough, eh?" Merton said sympathetically, and handed her the computation slip. "Here's the latest dope on the beachhead area."

Dr. Allingham frowned at the slip, and her sharp face sharpened even more. "Now I've got to switch the gravitational constant from slugs to cgs units." She stared fiercely at Merton. "Why do engineers use those XXXXXX slugs?"

"Why not?" Merton asked. "A slug is just 32.2 pounds. Just a g-pound."

"A g-pound, XXXXXX." She forced her breath out through her thin lips in a quivering sigh. "Speaking of slugs," she said, remembering.

Merton got up, resentful that she had brought Witt's name up in that way. "One of us may be next," he said. "You still get those messages?"

"What if I do?"

"Maybe he couldn't control himself." Merton wished he could believe what he was saying. "Maybe it was some kind of radio-wave hypnosis."

Dr. Allingham snorted, sarcastically. "Tell it to G-2," she said.

"That's just what I'm—" Merton started, but Dr. Allingham was staring at the computation slip, her forehead knitted in concentration. "Pounds per square inch to Newton's per square meter," Merton

heard her saying as he hurried out. "Foot pounds to ergs, $10^7$ takes it to kilogram-meter basis; horsepower to kilowatts; XXXXXX—"

Merton went on down the long hall, carrying the duplicate computation slip, toward the offices of the Joint Chiefs of Staff. He turned in at the G-2 suite, across a high-domed room, and through a door on which "General Forer" was etched in gilt. From beyond another door a blustering voice declaimed: "I've said it before and I'll say it again. We must teach them a lesson. We must show them what they're up against; the power and resources of the earth."

General Forer's cold, penetrating voice answered. "I have two questions about that thesis of yours, Marshal Le Farge. One: Just what are they up against? Two: How do we show them?"

The girl at the reception desk in front of Merton broke in so that he missed the rest of the exchange. "Well?" she asked, her face mirroring the hauteur she assumed and the suspicion she felt.

"The general is expecting me," Merton explained stiffly. This was the first staff meeting he had attended in Witt's place. Still, the receptionist should have known who he was. "Here is some data he's waiting for," he added, holding out the beachhead area computations.

"Wait," the girl commanded. She gave the slip a disdainful glance as she headed for General Forer's office. In less than a minute she was back. "HE wants you to come in," she said incredulously.

"Of course he does." Merton's resentment increased. "Somebody's got to do their conversions for them."

"Oh!" The girl's face hardened. "Now I remember."

Merton knew what she remembered. Why did everyone take Witt's defection out on him? He clenched his fists and plunged on through the door.

Across the room, six generals and two interpreters were gathered in front of a map of the beachhead area. One general was holding a pencil at the lower vertex of a shaded square near the center of the map. "Their barrier begins 4,762 yards from base point X," the general said, and, suiting his action to his words, moved the pencil in from the border of the shaded area. His brisk action slowed uncertainly as he studied the distance scale in the corner of the map.

"Damnation!" he burst out. "How many chains are 4,762 yards?"

Merton punched the computer, and the answer, "216.46," flashed on the screen. When would the new map be ready, he wondered. Having to use old maps made by civilian surveying crews certainly complicated matters. Everything in rods and chains. The general went on to plot the data received from the plane, and Merton's attention wandered to the discussion going on between General Forer, Professor Erdman of the Scientific Advisory Committee,

and the red-faced marshal who owned the blustering voice.

"Their meson beam broke through and cut off one of our scouts." General Forer was talking.

"What happened to our deep-force defense?" the marshal wanted to know.

"The deep-force barrier can't stop them." General Forer spoke with slow deliberation. "Against their high-penetration stuff, we're helpless."

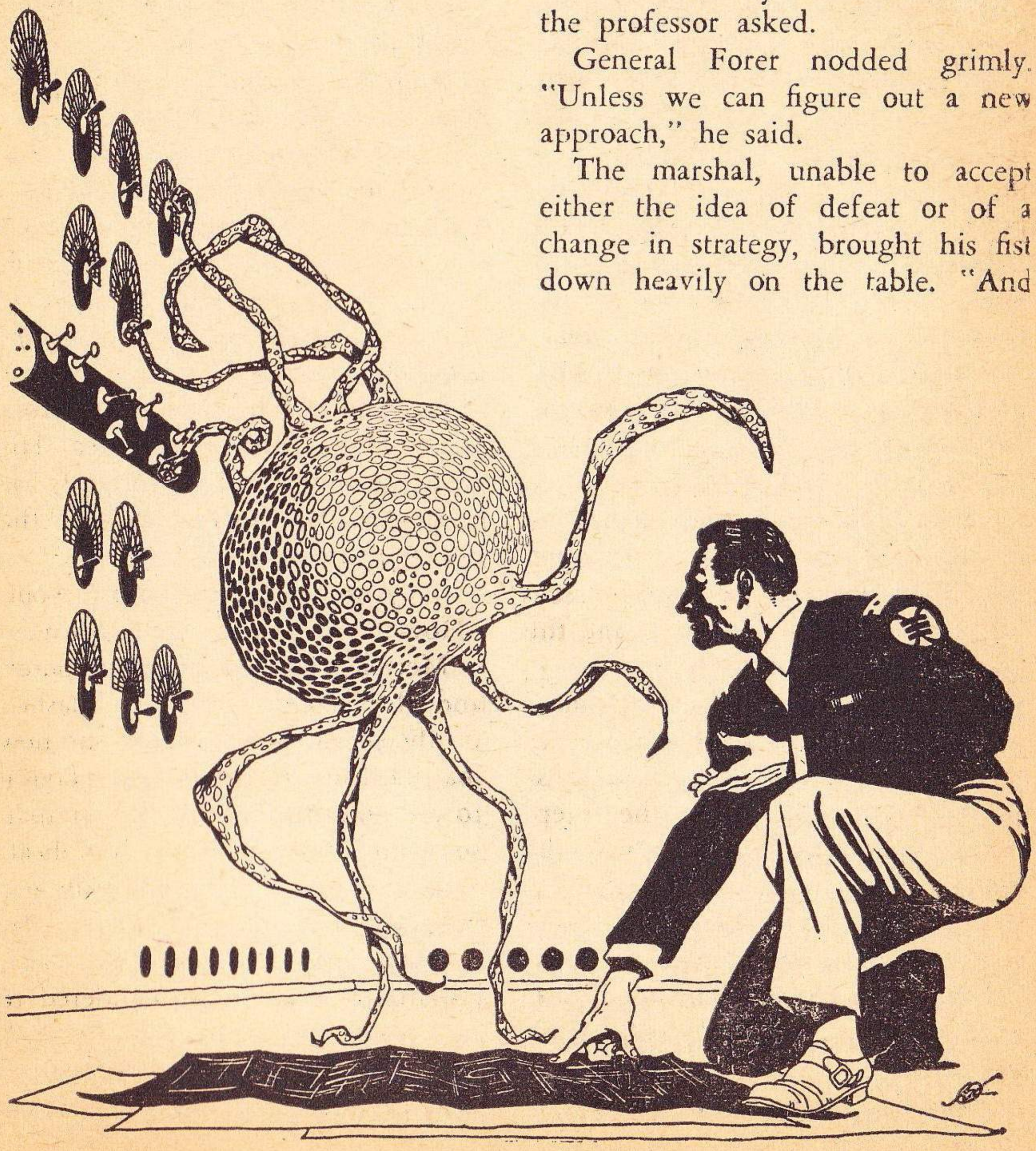
"Then what's holding them back?"

"Some basic indecision," General Forer said, and shook his head. "There is some key to their hesitation that we don't know about."

"Then it's only a matter of time?" the professor asked.

General Forer nodded grimly. "Unless we can figure out a new approach," he said.

The marshal, unable to accept either the idea of defeat or of a change in strategy, brought his fist down heavily on the table. "And



that foul quisling," he shouted. "He'll shorten what time we've got."

General Forer looked at the marshal coolly. "What do you think he's telling them now?" the general asked. "He left here with diagrams of the scientific sections of GHQ."

Witt had the diagrams spread out on the pale, mauve floor. In front of him was the pale, mauve ball, bracing tentacles thrust out against the floor. Four tentacles extruded from its upper side to fix on dials projecting from the wall. The general interrogation had ended, and they were, Witt believed, convinced that he was telling the truth. Now they would want the top-secret information he had with him, in his head and in the papers on the floor.

"Our offer was for information of use to us." Witt agreed with the technicians who thought the voice mechanically produced.

"These are prints and diagrams of the scientific offices of GHQ," Witt said. "This," he pointed to a block of squares on the righthand edge of the top print, "is the Operational Conversion Section. All weapons progress, defense plans, and related military information come in to GHQ through this section."

"What is the source of power for your exchange-force shield?"

"Infra-nuclear radiation from delta generators."

"So we had tentatively concluded. Can you locate your generator plants for us?"

"They are being moved constantly. But I can give you some idea."

Tentacles stretched out from the front of the ball to hover over the diagram. "Essential Raw Materials Unit," the voice read carefully. "What does this unit do?"

"Most of our tungsten comes from China," Witt explained. "There they figure weight in catties. The tungsten is shipped from China on American and Norwegian freighters. If on American ships, the catties are converted to pounds and the pounds to long tons. If on Norwegian ships, the catties are converted to kilograms and the kilograms to metric tons. When the tungsten is unloaded, these weights must be converted to volume units, like cubic yards or meters, or lasts, or pecks or barrels, of the country where it will be stored."

The tentacles turned up from the diagram, pointing directly at Witt's face. His scalp began to tingle. He brushed his hair down with his hand, and felt it come back up, straight in the air, after his hand had passed. *Now they're coming to what they really want to know,* he thought nervously.

"About these units of measurement," the voice began again, "what is the rationale of their establishment?"

Witt lowered his head, trying to formulate an answer.

"We will be frank," the voice went on. "The scientific basis of your measurements has thus far eluded us. Until we know what this basis is, we cannot proceed in confi-

dence that our scientific analyses are sound."

Witt still fumbled for words to make his answer clear.

"We know that this is the key secret of your defense." The voice paused. "We must have the answer. Tell us." Tentacles above the ball began to glow, generating a purple haze between them. "What is the basis of your unit called a foot?"

"The foot was the length of the foot of Hercules, or so our mythology tells us."

"It is no use to try and mislead us," the voice warned. "Your life cannot mean much to your race. There are so many of you. However, to you yourself it must have a certain importance."

"I do not want to mislead you," Witt said hastily. "The facts may be misleading, but I tell you the facts as I know them."

"Facts are never misleading."

"You can judge that best. But I must add to what I said that there is reasonable doubt that Hercules ever lived."

The hazy, purple light began to sparkle. Witt wet his lips, and talked quickly on to hide his fear. "The inch and the yard have more certain antecedents. The inch was the width of the thumb of an English king. The yard was the length of his arm."

"And the mile? Your kings had appendages so long?"

Witt could sense the sneer behind the measured syllables, and felt the sweat turn cold against his forehead. "The mile was one thousand double paces of the Roman soldier," he began. "It—"

"Look," the voice interrupted. "Measurement is a scientific tool, not the plaything of kings. *Our* units of length are based on the wavelength of the bright line in the spectrum of hydrogen that you call H-alpha. Our units of time are based on the frequency of this line. The ratio of our units of length and time is the universal constant, c, the speed of light in air-free space. Now, upon what factors do your scientists base their system of measurement?"

"Our most widely-used system of measurement is set up in somewhat the same way." Witt was relieved to see the purple cloud diminish in intensity. "One result of the revolution of the French people against their king was the establishment by French scientists of the metric system. The basic unit of length, the meter, is very nearly one ten-millionth of a quadrant of the earth. Other quantities, like mass, and pressure, have units derived from this. And the entire system proceeds in multiples of ten."

"Why ten? A numerical system based on twenty-four, as ours is, is much more flexible. Ten is divisible only by two and five. Twenty-four is divisible by two, three, four, six, eight and twelve."

"Our decimal system exists only because men have ten fingers." Witt held out his hands.

"Do your kings have sixty fingers

then? Or how do you explain your measurement of time?"

"The early Chaldeans believed the number sixty to be divine. This belief derived, in part, from their recognition of the identity of the sum, one plus two plus three, and the product, one times two times three, of the factors of the number six. Because of Chaldean superstition, there are sixty seconds in a minute, and sixty minutes in an hour. And three hundred and sixty degrees in a circle, each degree divided into sixty minutes and each minute into sixty seconds. The hour—" Witt stopped talking as the tentacles that had been poised above the prints weaved over to move up and down his body. When they returned to the diagrams his breath escaped in a shrill sigh.

"What does it mean, '47 P'?" the voice asked.

" 'P' stands for personnel. There are forty-seven persons in that particular unit."

The tentacles passed quickly across the prints. "Do you mean that there are over five thousand things like you in the Operational Conversion Section?"

"Five thousand one hundred and sixty-four when I left," Witt answered. "No doubt there are more now."

"More than the entire sentient population of Mars." The voice gave no indication of the musing quality of the statement. "Incredible, the numbers of you uni-structural organisms."

"Oh, that's not many." Witt was quick to press what seemed to be an advantage. "War conversions are relatively easy. It's the economic conversions that take the work, and the personnel. Of course, you may not think that important now, but you'll see it is when you come to supervise the earth's affairs.

"Each country has its own medium of exchange." Witt was talking faster now. "Take the British as a good example of a commercially dedicated country. Their system of money begins with the farthing. Four farthings make a penny, twelve pennies make a shilling, twenty shillings make a pound sterling, though twenty-one shillings, sterling, make a guinea. The value of the pound in dollars varies, but is now about $2.80."

Witt saw that the purple haze had vanished from the area of the tentacles above the ball. A crackling sound from them indicated that some kind of communication was in progress. He kept on with his explanation nevertheless, hoping that some of what he had to say would get through. "Some prices are figured in weights and some in volumes. For instance, the price of wheat in America is set in dollars per bushel. A bushel is the volume of eighty pounds of water; one bushel of wheat weighing about sixty pounds. In Argentina, the price may be in pesos per quintal, which weighs 101 pounds; in Turkey, in piastres per kantar, weighing 124.45 pounds; in Greece, in drachmas per mina, 99.16

pounds; in Java, rupiahs per picul, 136 pounds."

The crackling sound from the antenna of the tentacles intensified to a steady buzz. Witt drew in a deep breath and hurried on. "In Russia, in rubles per pood, a ruble being worth about twenty-six cents and a pood weighing about 36.1 pounds . . ."

The Kurdish scout lay motionless, next to the hummock of dirt and sand that crowned the ancient tell. Out before him, where the aurora met the ground, he thought he could make out the wavy outlines of a darkening shape. The shape danced on toward the scout, while to the west, behind him, an orange glow crept up the flickering sky. He had washed himself with sand and turned toward the Kaaba for the evening prayer when the sun went down, like the crest of a pillar of flame, below the black rim of the world.

The shape became a man, and the man came on. The scout, his prayers spoken, began to back, inch by inch, into the shelter of the tell. He was waiting there when the man came past its rounded base. "You have returned," the scout said tonelessly. "Like the accursed flea to its host." He gestured Witt on in front of him, toward the rocky defile.

Witt was staggering under the dual load of fatigue and shock when they reached the observation post. Inside the post, he collapsed on a duffle bag near the doorway, hardly conscious of the angry faces that ringed him in. "Water," he whispered, hoarsely. The guard reached out to jerk him to his feet, but Captain Jarvis shook his head.

"Just a minute, Al," the captain said.

The radio operator had already sent GHQ the word of Witt's return, and in a minute came running out. "General Forer on dc," he waved excitedly. "He wants to talk to him."

"Watch him," Captain Jarvis said to Lieutenant Symnes, and went in to take the message.

Witt licked his parched lips with his swollen tongue, and tried to speak again. The men watched his vain attempt in blank hostility.

Then Jarvis was back, running into the glowering circle. "Get him a drink," he yelled. "Hurry, you dopes. He's all right." He had Witt by the shoulder now. "Hey, he says you're O.K. Have a drink."

Witt gulped down the water, and then the cup of Kumis the Bedouin handed him. The hot stimulant roused his shocked senses. He tried his voice again. "They're going back," he croaked.

When Witt got in to the transmitter, General Forer had been joined by Marshal Le Farge and Admiral Rocas of the Joint Chiefs of Staff. "They're giving up," Witt said into the microphone.

In the direct communication unit of GHQ, General Forer turned to

Marshal Le Farge. "It was just as you said," the general told the marshal. "We had to show them what they were up against. That was what Witt volunteered to do." To Witt the general said, "I never doubted that you would do it."

Marshal Le Farge got on to speak for the Joint Chiefs of Staff. Witt took another drink with the marshal's congratulations. "When will they meet with us to draw up the armistice?" the Chiefs of Staff wanted to know.

"They won't," Witt said. "They've suffered a kind of sophistic trauma. They never want to see us again. At least not for a thousand years or so."

The marshal's comment was not printable, in any language, but the words of peace, being broadcast in 531 basic and 472 secondary tongues and dialects, set bells to ringing all over the world.

THE END

# THE ANALYTICAL LABORATORY

We received plenty of letters the last two months—but not as many reports on stories as I'd like. Look, friends—*you* determine who gets the one cent and half a cent a word bonus for extra merit; *you,* by your votes, determine which author deserves the encouragement of a very real reward of additional cash money. Understandably, authors have a tendency to keep an eye on what wins the cigar; you reader-voters, then, have a long-range control on what you get.

The last two months the letters were plentiful, discussed vigorously, were very interesting. But while psionic is darned interesting, it's a side-line hobby, not a main-line business. How about discussing the stories, too?

The score, however, for the June and July issues stands:

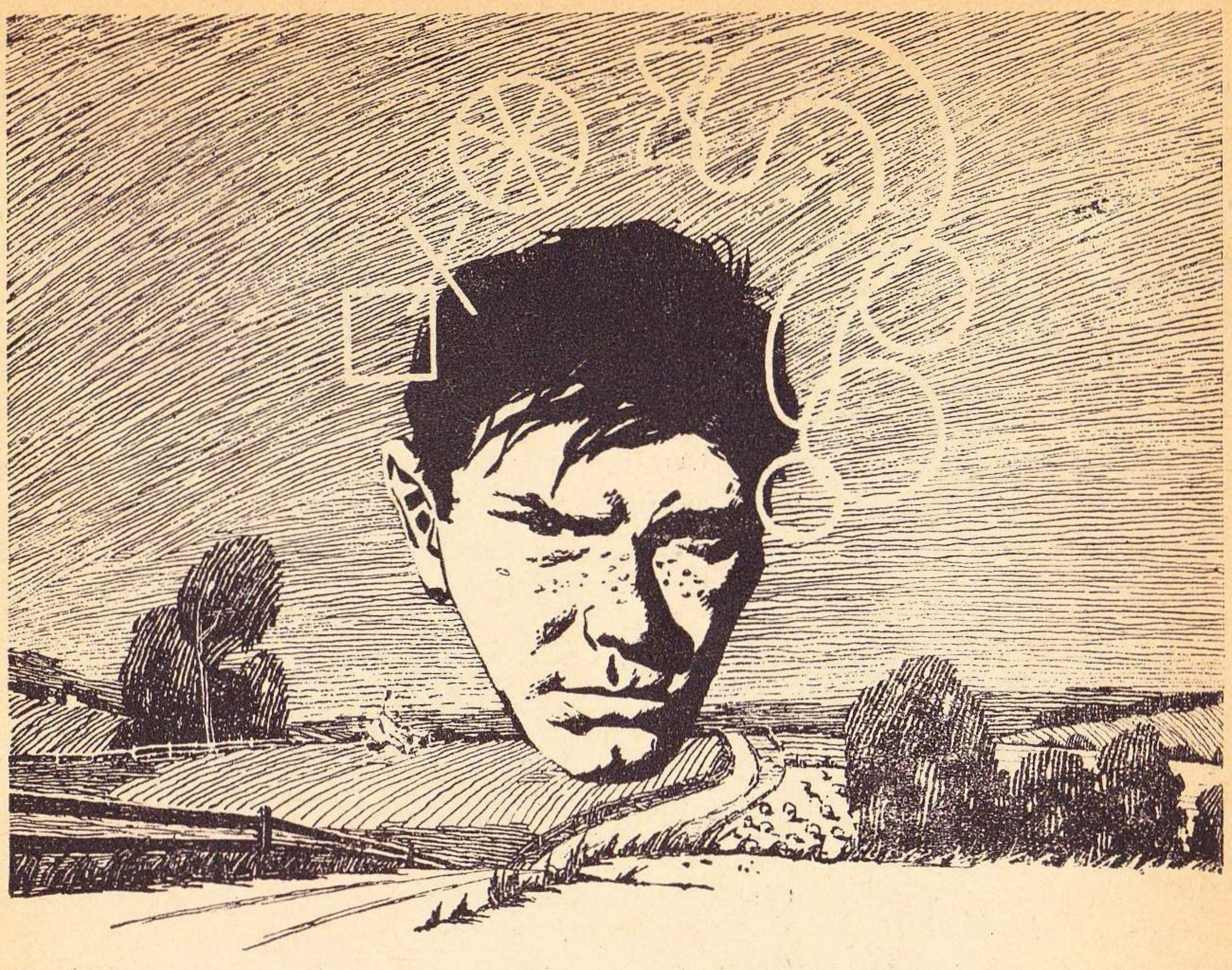
JUNE 1956

| PLACE | STORY | AUTHOR | POINTS |
|---|---|---|---|
| 1. | Plus X | Eric Frank Russell | 1.9 |
| 2. | The Chosen People | Robert Randall | 2.4 |
| 3. | The Live Coward | Poul Anderson | 3.0 |
| 4. | The Peasant Girl | Paul Janvier | 3.3 |
| 5. | Sea Change | Thomas Scortia | 4.4 |

JULY 1956

| | | | |
|---|---|---|---|
| 1. | Critical Difference | Murray Leinster | 2.6 |
| 2. | Machine Complex | Randall Garrett | 2.9 |
| 3. | Wild Modesty | Allen Lang | 3.0 |
| 4. | A Little Thing for the House | F. L. Wallace | 3.1 |
| 5. | Tomb Tapper | James Blish | 3.6 |

THE EDITOR.



# DEATH MARCH

***That something highly undesirable was planned for him seemed fairly certain—but he could scarcely have been expected to guess just how thoroughly his own nature trapped him.***

## BY ALGIS BUDRYS

Illustrated by Van Dongen

### I

When Kenn Haffey was twenty years old, a thoughtfully cruel man confirmed an already probable destiny and condemned him to death by slow torture. But Kenn didn't know that as he walked down the road to Bessmer.

The road from Inglistone to Bess-

mer was a yellow, clayey track that began in the forested mountains. As the country sloped down toward the rocky coast and the broad reach of Bessmer Bay, the road began to run between the white fences and long fields of dairy country, bright with the green of springtime.

The air was clear and light, gently stirred by a soft breeze. Soft, dazzling clouds floated overhead, and in the fruit trees beside the road, the nesting birds were chirruping sharply in the morning.

Kenn Haffey walked along with long, enjoyable strides, his pack on his back and the short bit of his pipe clenched between his teeth. He walked at an easy, steady pace, as he'd been doing for the two days past, his head turning as he looked from side to side, watching the countryside come to life under the climbing sun, listening to the gentle whisper of young grass beside the road. From time to time, he rubbed the itch of the temporary mark tattooed on his forehead.

He was on his way into Bessmer to get his permanent classification and his permanent mark. Somehow, he'd managed to pass the Inglistone district agent's preliminary maturity test, gotten his Candidate's mark, identification papers, and travel permits, and as much to his own surprise as anyone else's, he was on his way.

He puzzled over that as he walked along.

Nobody was more conscious of his shortcomings than he was; he'd been dead sure it'd be at least years before the agent let him go to Bessmer—possibly never. When his twentieth birthday came around, he took the preliminary test because everybody started taking them at twenty. Very few people passed it the first time. Of all people you wouldn't expect to; a kid who couldn't do any kind of work without getting it wrong, who couldn't get the simplest instructions through his head, who was thoughtless and couldn't seem to keep his feet on the ground—

He'd passed it. And now, here he was, on the road to Bessmer.

He remembered his uncle's amazed look at the district agent.

"He *passed* it! *Him?*"

The district agent was a tall, iron-haired man with deep, brooding eyes and a thin, twisted mouth.

"That's right, Haffey," he said flatly. "He passed it."

Kenn saw the agent's glance flicker over toward him and rest on his face for a minute. It was a peculiar look. The agent's eyes seemed to set themselves even deeper into his skull, and his mouth jerked as though something was chewing at his guts. It wasn't the first time the agent had looked at him like that.

"Now, look, sire," Sam Haffey had said in a strained voice, "Kenn's a good boy. We all like him. But, my gosh, sire! He—" Sam's face grimaced uncomfortably, and he shifted his feet uneasily. "Well . . . well, look, we had him in the mill for a while. He was willing—I'll say

that for him—he was willing." Sam reached over and patted Kenn's shoulder. "But he wasn't there two hours before he ruined the best blade we had, through not keeping his eye on the grain. You know how much time we lost, getting a new blade shipped out and mounting it. You know about that—he was just standing there, thinking—said he was wondering whether plywood siding wasn't better than the slabs he was cutting. He was so busy trying to figure out a waterproof glue, he was only keeping half an eye on his work."

"Plywood *is* better, in some cases."

"Well, my gosh, sire, maybe it is! Maybe so! But he was supposed to be cutting slabs. He was supposed to watch the blade. Whether plywood's better or not isn't any of his business! He was given a job. He was supposed to do it—deciding what's better or isn't is somebody else's job."

Kenn had stared shamefacedly down at the floor. The thing was, he hadn't even really been thinking about it like that—not deliberately, or anything. His mind just seemed to go off by itself, and before he knew it he was in the middle of some fool-headed dream. There might be some excuse for him if he set out on purpose to figure up things like a good plywood glue or a new way to saw a log. That was a job you could probably get classified for. But he did that with everything—not just with lumbering, which was what Inglistone did. He couldn't set his mind to anything. Likely as not, if he *was* classified to being a technician in the mill, he'd spend half his time thinking about some new way to build roads.

Sam was right. He shouldn't ever have passed that test. Sam was a good man, with lots of common sense. He was the best sawyer in Inglistone—even when Kenn's father was alive, before the accident in the mill, people had figured Sam to be much the better of the two. Kenn respected Sam. And Sam treated him pretty decently, considering how disappointed he was in him.

Kenn didn't know what to do. He looked from Sam to the district agent. He should have been happy about his luck at passing the test—even if something might have gone wrong in the machine. And he was, a little. But he knew Sam was right. So he didn't know what to do.

"Sam Haffey," the agent said, "sawyering is your job. Passing Candidates up to the Bessmer tests is mine." He locked his eyes on Sam's, and there was something a little too close to death in them.

Sam's arm jerked up and he touched the deep, burned in lumberman's classification mark above his eyes. He nodded his head. "Yes, sire."

The agent nodded frostily, and Sam dropped the salute.

"Kenn passed," the agent said. "He's going to Bessmer." For just a second, he looked at Kenn again, and this time Kenn thought there

was a twisted kind of pity in the look.

The agent had gone a long way in the Bessmer tests. Long enough to be an unmarked man. Long enough to be a district agent. But he had marks of a kind on his forehead; deep, slashing furrows that creased the skin and came up like two knife-cuts over his nose, where his eyebrows were drawn together by a pinched, constant look of agony.

## II

As the day grew, he began to meet occasional people with dairymen's marks on the road, or pass them as they stood in farmyards or worked in the fields. He always raised a hand in greeting, and they always answered back. Some of them stopped work long enough to call to him when they made out his mark:

"Good luck, Candidate! Where're you from?"

"Inglistone. Lumber town.'

"What're you hoping for?"

"Timber cruiser."

"What's that?"

"Oh . . . you go out in the woods and look for the right kind of trees to cut."

"Sounds like a soft job."

He grinned back. "Yep!" He waved and went on.

It *was* a soft job. You went out into the woods alone, for weeks at a time, hunting your food and dipping your water out of ice-cold springs and running brooks. And there wasn't any way you could make any mistakes and ruin something for somebody else. Kenn knew he'd waste a lot of time; he wouldn't be much of a good man at it. But at least he'd be out of everybody's way.

He was pretty sure he'd get it. The Bessmer tests were fair. A machine that was something like the district agent's computer asked you what you wanted, and it read your feelings. It knew what you really liked doing, and whether you'd be any good at it. Of course, if it saw that you were really better at something else, it classified you for that, instead—but that was all right, because that turned out to be a job you liked even better than the one you thought you wanted. The machine went down deep—deeper than a man himself could go, sometimes.

He was pretty sure it'd classify him for timber cruising. He liked being alone. And he wasn't any good for anything else.

He walked along, down the road between the white fences. Of course, there was the main maturity test to pass before you took the classification tests. They wouldn't test you unless you were grown up enough to be at least a little settled in your own mind.

He chewed on his lip. You could just get a postponement, and come back later and try again. Or you could get a permanent failure.

Suppose the agent had made a bad mistake with him? Suppose he'd get an X mark after all, in Bessmer instead of at home? Kenn didn't know

what it'd be like if that happened. Well, being a mill helper or something like that for the rest of his life wasn't something he looked forward to—but if he got it, he deserved it, and he guessed there was a fair chance he did.

He passed by the district mansion, where the district noble lived with his ladies, set far up from the road on a high hill in the middle of an immense meadow that was like an island among the farms. The permit inspection box beside the road buzzed and passed him as it sorted out the pattern radiating from his permit for this district, packed in the bundle with the other permits in his pack.

Kenn looked idly at the box as he walked by it. It was a big, heavy box made out of metal, and anchored far down into the ground. There was no way of getting into it or knocking it over.

Well, why would you want to? Well—no, you wouldn't—but suppose . . . suppose you wanted to get over into the next district—well, you'd get a permit. Suppose you didn't have a permit? Well, if you couldn't get a permit, why did you want to go? Well . . . suppose you had a reason? What *kind* of reason? Well—

He shook his head at himself. There it was again. Drifting off, and waking up in the middle of some wild fancy.

Well—all right, but suppose—Well, maybe if you walked across exactly beside a man with a permit? Or sat on his shoulders? No—no, the way the line worked ought to be able to get around that. Anyway, it would if it was any good, and if it wasn't any good, it wouldn't be there. Lots of things—electricity, light, heat or cold; things like that—could skip right through or around a man and touch the man beside him.

He shook his head again. Now what would a man want to cross into another district *for*, that he couldn't go to his agent, get a test from the agent's computer, and have the agent give him a permit? And how many people ever went in the first place? That was like trying to think about what lumbering would be like if there weren't any trees.

Kenn Haffey, he thought to himself, half the time you think like a chipmunk.

That was about right, he guessed. If he didn't watch his thinking, it slipped away from him and jumped and bobbed around every which way.

He remembered Sam telling him that, once. He guessed his father must have had a little of the same thing in him, or he wouldn't have had that accident. Everybody pretty much agreed that he wouldn't have fallen into the saw if he'd watched where he was stepping.

It was too early in the day for the maintenance squad to have come along and cleaned up. There was a dead rabbit lying in the middle of the road, half across the line marking the district border. Kenn nudged it into the ditch, and crossed the white line that ran across the road

and off over the fields and hills to either side as far as the eye could see.

## III

A delivery truck came into sight, up on the mansion's hill, and Kenn stopped, watching it come down the drive toward the road. When it turned into the road in his direction, he stepped to one side to let it go by, but it stopped, instead, and the driver leaned over and put his head out the window.

"Going into Bessmer, Candidate?"

His voice was a tight, indrawn sound. His face, which had once been strong, had gone to seed under pads of soft chubbiness, and deep, petulant lines had worked themselves in around his mouth. And he had a mark. It was a small circle, which was a classification Kenn didn't recognize, but what mattered was that he had a mark and was driving a truck.

"Want a ride, Candidate?" There was something bitter in the man's voice, and a touch of spitefulness. "You're going into Bessmer for your tests, aren't you?"

Kenn nodded. "Oh . . . yes. Yes, thanks." He climbed awkwardly up through the open door and sat down nervously, not knowing how he was going to take to riding.

"Not used to it, huh?" the driver said peculiarly as he put the truck in motion again. "Nobody but an unmarked man rides, huh? Where would a marked man have to go, that he'd need transportation? Isn't that right, Candidate?" He laughed sharply and worked the gears. "Well, for once you're going somewhere. It's only an errand truck, but you might as well get a taste of how the other half lives."

Kenn looked at him in complete confusion.

"Where're you from, Candidate? One of those farms back there?"

Kenn shook his head. "Inglistone. Lumber. That's in Forestry District 8."

The driver nodded. "You don't look like one of those clover kickers. What's your name?"

"Kenn Haffey." Kenn wasn't sure he should have taken this ride. There was something unpleasant about the driver's chubbiness and the high, fiddle-string tension in his voice. There was something nobody could like about the way he put his words together, and the look on his face. You couldn't be near him without getting jumpy yourself.

"Haffey," the driver repeated. "I don't recognize the name." Now he was making a big show out of pretending to search his mind seriously. Kenn thought he recognized a streak of contempt.

"Maybe you're a cousin of the Hollingsworth family? No?" the driver put an amazed look on his face, even though Kenn hadn't answered. "The Bartrams? Or maybe the Southwarks? Or maybe the . . . excuse me, Candidate . . . the rustic branch of the Metersills?"

Kenn shook his head, getting more

and more annoyed. "No. I've never heard of any of them."

The driver nodded to himself. "I was afraid of that," he said, pretending to be worried. "Well, Candidate, don't hurry."

"I don't get you."

"No, I guess not," the driver said. He looked up and down at Kenn's clothes. "I guess there's a lot that doesn't get through to the back country. You know your district noble's name?"

Kenn shook his head. "Never seen him. District agent's named Ball."

The driver's forehead wrinkled around the deep mark where the cauterizing iron had burned, and this time he looked like he was actually thinking. "Let's see . . . Bartram, I think. No, Hollingsworth. Your noble's a Hollingsworth. Mine's a Southwark. How many people in your town?"

"About a hundred."

The driver nodded again. "Yep. They're still keeping you split up. Divide and— But, that's no business of mine." He laughed sharply. "Where's your family from?"

"Inglistone."

"Before that."

Kenn shrugged. "Some Earth or the other." He didn't want to get into any arguments with anybody. He hated fighting—fists or words. That was something else that was wrong with him. He never stood up for his rights. But he wasn't too sure of what his rights were. What about a man who gave you a ride, and then talked to you in a wild way that didn't make sense but sounded like he was trying to insult you? He'd done you a favor—did he have a right to climb on your back for it? Kenn shifted his feet uneasily. The driver was making him jumpier and jumpier. Maybe he ought to have him stop the truck and walk it from here.

"Some Earth or the other, eh?" the driver was saying. "Don't you know which one? Every planet gets to be called 'Earth' if it's been lived on long enough."

Kenn shook his head. "It's been long enough on this one. Who's going to remember that far back?"

The driver laughed. "Some people do. The Bartrams and the Southwarks do. So do the Hollingsworths and the Metersills. They all came from *the* Earth."

"The *first* one?"

"That's right, Candidate—the very first one. In an unbroken line. What d'you think of that?"

"It's been hundreds of years—maybe a thousand. Who's going to remember that far back?"

"It's easy, Candidate," the driver said with a twist in his mouth. "If your family's never been split up through a thousand classifications . . . if you've all lived in one place and kept records . . . if kids grow up where their great-grandfathers were born and know their great-grandchildren are going to live in the same place—then, it's easy."

"But—"

"But what, Candidate? Aren't you

going to Bessmer to try for the same status?" The driver's face twisted into a mockery of surprise and horror. "You mean you *don't* expect to get all the way to the top? What're you going for, Candidate?"

"Timber-cruiser classification."

"*Timber-cruiser!* Sakes alive, Candidate! Don't you have any *ambition?*"

"Ambition? What kind?"

"Don't you know *everybody* has to take the tests? Even the Hollingsworths and the Metersills?"

Kenn looked at him open-mouthed. "Sure, I know everybody's got to take them!" Then it came to him. "You mean—why don't *I* try to be a *noble?*"

The driver nodded, his mouth a bitter, leering slash. "*That's* it, Candidate! Why don't you try to be a noble? Of course, your name's Haffey and your family's a bunch of backwoods lumberjacks, but why should that be anything against you? The test's fair, isn't it? There's nothing that says you have to be what your father is."

"My father's dead," Kenn said absently, his mind still all mixed up.

The driver thought that was funny. He fought down a broad laugh. He reached over and clapped Kenn on the shoulder, not paying any attention to Kenn's twitch as he tried to pull away. "Well, don't worry, Candidate. They won't do *that* to you, anyway. They might do quite a few things, but they don't kill off a pair of working hands. And as long as you're alive, everything's all right, isn't it? I mean—you're alive, you've got to eat; you can't just sit down and die, can you?"

Kenn moved as far over as he could, and stared straight out the window. An O mark must mean somebody who wasn't right in the head. Or something close to it. It didn't mean anything easy to read. It wasn't like a forester's pine or a dairyman's cloverleaf. It was an O—a nothing. Not even an X. He wondered if they might give him an O.

He caught himself. His mind had drifted away from him again. He was letting himself think all kinds of idle things, when what he should have been doing was trying to think of how to get away from this man.

Be a *noble!* Why not try to be a rainbow?

He realized his hands were trembling. He was nervous as a cat. What was this man trying to do to him? How was he ever going to take the tests with something like this running around in his mind?

He shouldn't have taken this ride. Now he'd fail for certain.

Well, he deserved it. He should have had the spirit to stop the driver's talking, or else get out. He'd wanted to. But he couldn't even do that. His mixed-up mind had wanted to stay and hear the driver out. His mind, that wouldn't learn to tend to its own business!

The driver jerked the truck to a stop. Kenn's eyes focused, and he saw they were beside the main highway into Bessmer, at the next district

line. There was another truck pulled up on the other side of the line, with a man standing and waiting beside it.

"This is as far as I go, Candidate," the driver said. "Maybe the other fellow'll oblige you to Bessmer."

"Thanks," Kenn said shortly, fumbling with the handle until he got his door open. He climbed out quickly and slammed the door, while the driver got out the other side. They walked toward the line. Kenn crossed it with a buzz from the inspection box, but both drivers kept well clear of it.

"Give the Candidate a ride, will you?" the first driver said.

The second driver was a lean, sure-looking man, who looked like he did his job, did it well, and knew how to stay out of trouble. His mark was a spoked wheel. He looked at Kenn and grinned.

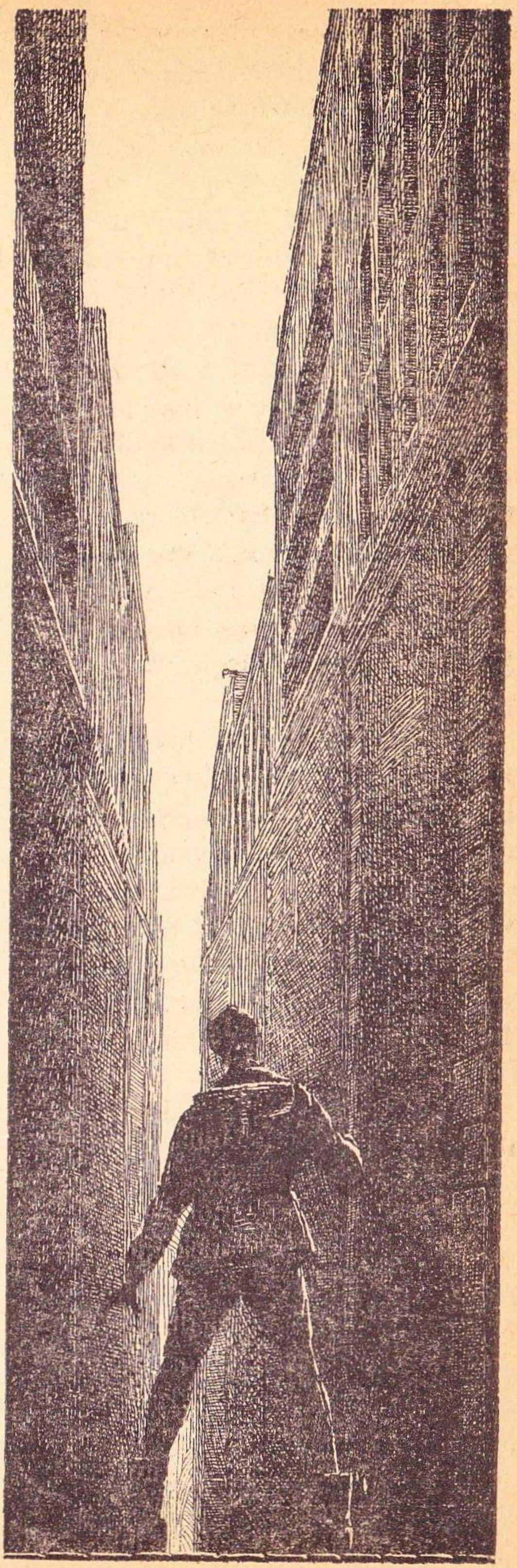
"Sure." He winked at Kenn. "Get there fast, get your classification faster, huh, Candidate?"

Kenn smiled back, feeling a lot better. This man was pretty much like his uncle and the rest of the men in Inglistone. "Thanks."

"Nothing to it, Candidate." He turned toward the first driver. "Got your order here, Mule."

"I can see it," Mule answered. "Well, hurry up with it!"

The new driver grinned and pushed a box across the line with a long plastic rod. Mule picked it up, scribbled a receipt on the metal line-clearance tag, tore it loose, and scaled it over. The driver caught it expert-



ly in midair and stuck it in his pocket.

"What's in there, Mule?" he asked. "Smells good. Smells like a woman. Perfume for the Southwark ladies?"

Mule scowled. "That's none of your business, Driver! And it better be in undamaged condition, or the noble'll see to you."

"Bushwah, Mule! I do my job. Nobody sees to you as long as you're doing your job. If that stuff's gone bust, some packer's in dutch. Not me." He grinned. "And how'll the ladies know it wasn't you that did it?"

"The ladies know me better," Mule grunted. He turned toward his truck.

"And how *are* the ladies Southwark today, Mule?" the driver asked, giving Kenn a mysterious dig in the ribs. "Safe and sound?"

Mule shot him a murderous look. "We do our job." He strode toward the truck, flung his door open, and slid the box onto the seat beside him. Then he slammed the door behind him.

"Thanks for the ride, Mule," Kenn called politely as he started the motor.

Mule put his head through the window and looked at him for a moment. Then he said: "My name's not Mule," in his tight, strangling voice. Then he twisted the truck's wheel, and began the drive back toward the mansion.

The driver chuckled beside Kenn. "Well, let's go, Candidate," he said.

Kenn climbed into the truck, and they drove toward Bessmer.

## IV

Bessmer was a big, sprawling city that curved around the bay like a long arm. The road topped a line of cliffs a mile from shore and began to wind down, and Kenn, watching from his seat, saw the broad ships waiting beside the piers and the high buildings rising up in a jagged pile against the blue of the ocean, some of them so tall they had to be seven or eight stories high.

"Big, isn't it, Candidate? Must be close to fifty thousand people, counting Baystone, Newalk and Bessmer Center together. Ever seen anything like it?"

Kenn shook his head. "No," he said absently. He was so far away that the driver's voice barely got through to him.

Well, so Mule didn't have a permit to go over the line. Neither did this driver.

Two trucks instead of one. Two men. That doesn't make sense. Unless they don't trust Mule—the Mule—for some reason.

Well, if they don't trust him, what's that mean?

Well—nothing, but . . . he's classified, isn't he?

So?

So they don't trust a classified man. If they don't trust one classified man, how about—?

You know what you're saying?

I'm just thinking. I'm not *saying*

anything. But they don't trust this driver, either.

He came to himself with a snap. He stood off to one side and looked at himself in dry-throated apprehension.

He was getting worse about it. He wasn't just letting his mind get off on something like a new saw design.

He clenched his fists, and little beads of perspiration cropped up on his upper lip. What kind of a classification could he expect out of the tests? The test machines looked *into* your mind. They saw how it worked. What kind of a freak was he, anyway, to not be able to think straight —to have a mind that wasn't any good for anything useful?

He wrenched his mind back toward the driver, listening intently to what the man was saying, trying to shut himself up. Divide and—

Divide and what?

He twisted uneasily in his seat. He concentrated on the driver as hard as he could, sick over what he deserved to have happen to him in the tests.

"Yes, sir," the driver was saying. "That's Bessmer. The only one of its kind. I live right outside of Baystone. Practically in it."

"Haven't you ever been in it?"

"I have for my tests, sure."

"Never since?"

The driver looked at him. "Not my district," he said. Then he grinned softly. "You know, young fellow, you shouldn't puncture a man's pride like that."

Kenn looked at him, not getting what he was driving at. "Like what?" he asked.

The driver frowned a little. "Like when somebody's trying to sound like a big shot," he said gruffly. "Putting it on a little thick, like he knew all there was to know about the town."

"But you don't, do you?" Kenn asked, all mixed up.

The driver's jaw clamped. "Listen, Candidate, I gave you your ride. Now don't press your luck." The driver stared straight ahead through the windshield.

"But—look," Kenn said, trying to get it straight, "it's not your fault if you're not more than you are."

The driver turned back toward him. "*You* look, Candidate," he said in a level voice. "You make one more crack about me, and you're walking. Is that clear?"

Kenn nodded, ashamed of himself. "All right. I'm sorry." He looked down at his hands, flushing. He was always saying things to get people mad. That was something else that was wrong with him. No matter how close a watch he kept on himself, he couldn't get himself to be like other people.

What's wrong with me? he thought in panic. What's twisted up in my head? Other people don't act like this. My brothers don't get themselves in trouble all the time, and I look just like them. Sam's one of the best men in Inglistone. Everybody likes him, and he's my uncle.

What's going to happen to me

during my tests? They'll see what I am. They won't even make me a timber-cruiser. They won't make me anything.

"O.K., Candidate," the driver said a little less angrily. "But you better watch yourself during your tests." He shook his head. "You're pretty young."

Kenn worried his upper lip between his teeth. "Can you tell me something?" he asked after a while.

"Depends. What?"

"What do you think about the Southwarks and the Hollingsworths? And the"—he searched his memory—"Bartrams and the Metersills?"

"What do I think about—!" The driver stared at him. "What am I supposed to think, Candidate? They have umpteen nobles among them. Nobles tell the agents what to do, and the agents tell me. I do my job. What d'you mean, what do I think? What do *you* think?"

Kenn shook his head. "I never heard of them before today."

The driver stared even harder. "You never heard of them?"

"Well—" Kenn tried to explain, "back in Inglistone, we didn't see our noble. Just our agent. I guess . . . well, I guess we just never thought much about it. We worked in the mill, or we jacked lumber, and that was that."

"Right! You did your jobs, you did 'em so good nobody *ever* bothered you; you got your food issue and your housing, and you didn't have any trouble." The driver frowned at him. "So why ask me questions like that?"

I don't know. Kenn looked out through the windshield as the truck came off the long grade down the cliffs and began to roll across the flats toward Bessmer. He shrugged. "I don't know," he said aloud, in a different tone of voice than the one he'd used to himself. He was beginning to learn how to get along, a little. "Just something to talk about, I guess."

The driver shook his head. "You sure can pick some funny things to talk about." He looked at Kenn. "Well, you're pretty young."

They rode on silently, until they reached the driver's depot, just outside the line into District 1 of Newalk. The driver pulled up in front of the building.

"That's Bessmer, Candidate."

Kenn got out, and looked toward the entry gate in the line. He turned back to the driver. "Thanks for the ride."

"You're welcome, Candidate. And good luck," he added doubtfully. "Say—what're you trying for, anyhow?"

"Timber-cruising, I guess," Kenn said in a voice that came out sounding as hopeless as he'd gotten to feel.

The driver looked at him sharply. "You guess? You better have a better idea of it than that, son."

"I know," Kenn answered. "That is what I started out wanting, anyhow. Well, whatever the tests give me, it'll be all right."

The driver grinned. "Attaboy, Candidate," he said, losing some of his worried and puzzled look. "I guess you'll be all right. It's always easy to do your job, because it's always a job you like. Well—keep your chin up!"

"I will," Kenn said, and walked away toward the line.

## V

Well? he asked himself, in a nervous, frightened voice.

What? he answered angrily, trying to stop himself.

Well, what had the Mule meant by all the things he said? And what about the Mule? Was *he* happy? Did *he* like his job, whatever it is?

What difference does it make?

He wiped his hand over his face. Why am I doing this? he thought. Why am I making it worse all the time? Why don't I stop?

But he *couldn't* stop. The harder he tried, the more his mind wandered. The more he tried to be like other people, the farther he lost himself. His mind kept putting things together, one on top of the other, like something growing in a nightmare. He couldn't forget a single thing, or leave it alone, once it got into his mind. He had to keep turning it over and over, trying to fit it to some other piece, like a crazy stonemason.

What's wrong with me? Am I crazy? Am I going to wind up like the Mule? I deserve to.

If the Mule was a failure, he wouldn't be happy. But he's some kind of special failure—he has to be. He's got a job—a job that's got something to do with the noble's ladies. That's an important job, whatever it is.

Well, if he's got an important job, how can he be wrong in the head?

Why can't I leave it alone? What's going to happen to me?

"Hey, there, Candidate! Sleepwalking?"

He stopped and turned a panic-stricken face toward the man on the other side of the line. His heart was jumping.

The man moved closer, and Kenn saw he didn't have a mark. There was something familiar about him, too. Kenn looked at him searchingly.

"Something wrong, Candidate?" The man stepped across the line, and the inspection box didn't buzz.

Kenn shook his head. "No . . . no, just tired, I guess," he said quickly.

The man looked at him steadily, and Kenn realized it was the look in his eyes that made him seem familiar, even if he was a lot younger than the district agent in Inglistone and had light hair.

"Sure, Candidate? If you're feeling sick, say so."

Kenn shook his head again. "No, I'm all right. I've come a long way."

"All right." The agent went back across the line and waited beside another metal box like the inspection box. "Let's have a look at your identification."

Kenn nodded and looked up at the marker beside the line, that read:

"Borough of Newalk, Bessmer. District 1. Precision Instruments. District 1 classifications only."

"That's not for Candidates," the agent said. "Come across the line."

Kenn moved forward. The box buzzed as he passed it, and the agent's face softened a little as Kenn came up to him.

"That's better. All right, Candidate, I'll look at your identification now." He looked sharply at Kenn's face. "And relax, Candidate."

Kenn touched his mark. "Yes, sire." He reached behind him and fumbled in his pack. He pulled out the identification card and handed it over.

The agent pushed it into a slot in his box without looking at it. He motioned Kenn over to stand on a marked square on the ground.

The box buzzed, and a plate lit up in its top. The agent glanced at it casually, then looked closer. He gave Kenn a sudden look and checked the plate again.

"Kenn Haffey," he said slowly. He straightened up and pulled the card out of the box. The lines between his eyes drew together, and he took another look at Kenn that was the same as the way the Inglistone agent looked at him.

Kenn dropped his eyes away from the look. The agent handed him the card, and he put it away in his pack.

"Straight down this street, Candidate. It's a long walk. If you get hungry, any food issue center'll service you," the agent said in a tired-sounding voice. "There's one in every block. If you want some rest, you're entitled to dorm space. You'll see signs for both places. Your permits're only validated for this street, and in one direction only. When you get to the test center, go right in." He stopped for a moment, and Kenn looked up.

"Welcome to Bessmer, Candidate." The agent's eyes were troubled. "And—good luck."

"Thank you, sire," Kenn said, his throat dry. He half-raised his hand, let it fall, and began to walk down the street between the blocky buildings. As he walked away, he felt the weight of the agent's eyes on his back.

District 2, the next block, was marked "Frames." District 3 was "Shells." Four was "Engines," and 5 was "Sub-Assemblies." There was an inspection box on each corner of every street, but there were no more identity card checks. Kenn kept on his way, following the walks that rumbled from the vibration of the product conveyors underfoot.

He passed through District 6, which was classified for "Final Assembly," and 7, which was "Finishing." There was no one else on the walks, and only an occasional unmanned trolley passed him on the streets. From behind the blank walls beside him, he heard the sounds of working machines. There were no windows until what must have been the fourth story. Then they ran in triple rows around the buildings, all the same size.

He walked without looking around for more than a few moments, and he walked slowly.

He knew he was scared. He didn't know exactly what happened to you when you failed. You went back home, but what happened before that? He wished he was nineteen again, or he wished the agent in Inglistone hadn't made his mistake and passed him through the preliminary test. He wished he could turn around and walk back up the narrow street, with the heavy buildings pressing in on both sides but with the open daylight of the country ahead of him, at least.

No—he didn't wish that. Well—he did. He did, but he didn't wish it to mean it. He was here, now.

He was scared, wasn't he? Then why didn't he turn around and run? He wanted to, didn't he?

Yes, and he wasn't afraid of the district lines. If what he wanted to run from was true, the lines were the best answer. But you could be scared and still want to go on, he guessed. Maybe he wanted to see for himself what was going to happen to him.

He walked along, not swinging out the way he'd done on the road down the foothills, but walking. The sound of his steady footsteps came back to him from the building walls.

He'd given up trying to stop his mind. It'd carried him a little too far. There wasn't any more hope of passing the tests. He was going to be a failure. The only thing left to wonder about was whether he was going to be sent back to Inglistone with an X burned into his forehead or whether he was somehow going to get the same classification as the Mule. Probably, it was going to be the X. Mules did something important, whatever it was.

It felt a little better, not arguing inside his own head any more. He couldn't do anything about what was already there, but at least he wasn't trying. When the machines looked into his mind, they'd see how twisted he was inside, and whatever happened would be over soon.

There was no getting out of the trap your mind could set for you. Once it began not paying attention to what it was supposed to, there was no stopping it.

He came to a wider street, and stopped for a minute. There was another gate in the line, and another agent waiting beside it. It was marked "Borough of Baystone, Bessmer. District 1. Sorting. District 1 classifications only."

He crossed the street, and came through the gate. The inspection box buzzed, and he took out his identification card and handed it to the agent.

"Why so glum, Candidate?" the agent asked cheerfully. He was a short, bushy-haired man with glasses, and he glanced curiously at Kenn as he fed the card into the ID confirmation box. "Afraid you won't get your right classification?" he chuckled.

Kenn shook his head. "No, sire. I know I'll get it."

"Oho! You *know,* do you? Well, most of 'em do, most of 'em do." He looked down at the plate in the box. His face fell, and his mouth turned white. "Oh." He jerked the card out of the box and thrust it into Kenn's hand. "Here. Straight on. I suppose you know about where to get food and a bed?"

Kenn nodded.

"Well, get going, then!" the agent said shrilly. "What do you want to stand around me for?"

"Yes, sire." Kenn put the card back in his pack and walked away. The agent had been clenching his fists and trembling.

District 2 in Baystone was classified "Washing." Three was "First Boiling." Four was "Canning." Five was "Pressure boiling." Six was "Sealing and Labeling," and the conveyors rumbled underfoot.

Kenn walked along. It was near noon, and he was getting hungry. His face was set, and his walk was steady enough to be mechanical.

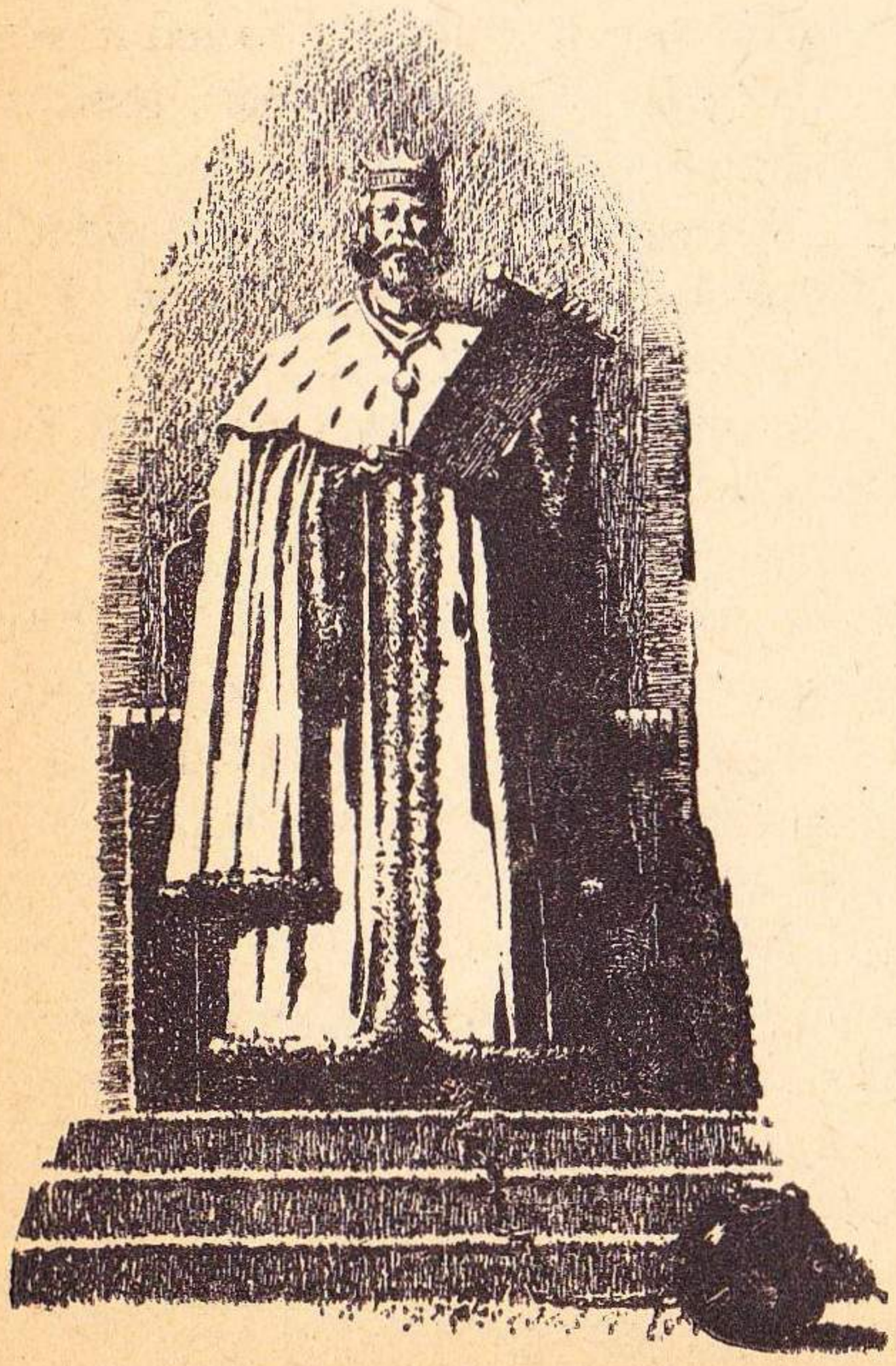
## VI

Baystone was the biggest of the three boroughs. It had over forty districts in it, and it was past one o'clock when he crossed the line into Bessmer Center. The agent at the borough gate hadn't been much like the one at the Baystone line. He'd been an older man, and he only gave Kenn's card back with a grunt and a nod, pinching his thin mouth together.

This part of Bessmer Center was the fabric processing organization. Kenn walked along, getting hungrier and cursing himself for wondering what it was in a man that let him get hungry when the last thing he wanted to do was eat. But finally, in the fourth district he came to, he turned into a food issue center, following an arrow that pointed up a flight of stairs and through a door in a setback above the street.

He pushed through the door and looked around.

The room was fairly big, with long tables running the length of it. There were about fifty people in it, eating and talking, and he guessed this was half of the working force in this district.



Why don't I ask somebody, he thought tiredly to himself, and, with a bitter quirk to his mouth, turned toward the issue counter.

The girl behind the counter smiled at him. "Well! A Candidate! Where from?" She began loading a tray for him, working efficiently, her hands moving quickly and precisely.

"Inglistone," he said, finding a smile somewhere inside him.

"Where's that, Candidate?"

"Up in the mountains."

"Must be lonely."

"No," he started to say, "not for most people." But the girl had already given him his tray and moved off to do something else, humming to herself, throwing him a farewell smile.

He shrugged and grinned, picking up his tray and carrying it to the empty end of a table. Sitting down, he began to eat. The food was tasty, and appetizing. He ate it quickly, keeping his head down.

There wasn't anything to think about. It was all settled, done. There was a strange slowness to his thinking, even while he sat thinking about not thinking. He shook his head. The tricks you could play with a mind were as complicated as a snarled rope. He could sit here and realize he was probably too numb to think at all.

He was about to stand up and go on his way when he saw a Mule sitting at the next table, with nobody near him. The chubby face was even more twisted than the other one's had been, just as the bone structure under it was finer.

Kenn sighed. Well, why not? He leaned over. "Excuse me. Can I ask you something?"

The Mule looked up, and his mouth stretched into a grim smile. "Hello, Candidate. Go ahead."

"Well . . . look, I know this is something I shouldn't ask, but I'm about to fail my tests." He grinned lopsidedly.

The Mule raised his eyebrows. "Welcome to the fold, brother. What makes you so sure?" He looked interested in Kenn for the first time.

"I—" Kenn shrugged. "Anyway, I'm sure. Did you mean you failed, too?"

The Mule barked a laugh. "If you want to call it a test, I failed it, yes."

Kenn blinked. "What does that mean?"

"I passed it, Candidate. I went all the way through to the top. I did everything right. And when I was all finished, the machine said 'Fail.' So I failed it."

Kenn looked at him. "Is it true that if you go all the way through, you're a noble?" he asked in a bewildered voice.

The Mule nodded.

"You got to be a noble, and they made you a Mule?"

The Mule shook his head. "I *told* you. I did exactly what each test situation called for. I know, because if you don't make one, you stop there and don't go on. But I was

never a noble. To be a noble, you've got to get the machine to say you passed."

Kenn's mind was spinning again. "Do you . . . do you think there's something wrong with the test machines?"

The Mule shook his head. "No." He laughed suddenly. "Look, Candidate, can't you see it? The world's ruled by a hereditary nobility, and the tests are so much window-dressing."

"What's a hereditary nobility?"

The Mule looked at him pityingly. "Don't even know the concept, do you? You're the product of six centuries of it, but you don't recognize it." He shook his head. "I failed that test, Candidate," he said slowly, "not because I had the wrong name, or because I was a dolt like you. I failed it because I made the mistake of telling my respected relatives I thought there was no further purpose in maintaining the farce. My mistake was in being less of a self-deluded hypocrite than they were."

He was clutching the table with both hands, and his knuckles were mottled pink and dead white. "So, when I took the test in accordance with the charming social compulsion, I failed. I failed, and they made sure I'd never haunt them again." He smiled with the deepest bitterness Kenn had ever seen on anyone's face.

"They disposed of me the same way they dispose of those of you who manage to get all the way through the test. But it would have been quite awkward for me to take my . . . classification's normal place in society. I could hardly serve the ladies of my former associates."

Kenn felt his jaw clench and then relax. "You're from one of the noble families?"

The Mule grinned. "That's right. And there are very few others like me." He waved a hand in an inclusive gesture. "We erred on the side of candor, and consequently we work in this . . . this animated factory, precisely the same as those of you to whom this is the peak of aspiration. We differ from them not one whit in status—except that we, unlike your kind, are not" he grimaced "happy."

Kenn pushed himself back from the table, feeling sick. He stood up clumsily. "Thanks," he said in a choked voice. "I just wanted to know."

## VII

Test Center was a low, gray building in the middle of the first lawn Kenn had seen in Bessmer. There were other Candidates walking over the park toward it. They were the first he'd met, but he didn't bother to look at their faces and see whether any of them had the same look in their eyes as he did.

He just walked forward, moving woodenly until he was climbing the short flight of steps up to the main doors.

He took one quick look at the windowless walls and the gray of its stones, and then he walked through

the archway into a long, high-ceilinged hall.

There was a row of desks lined up against one wall, and he walked down until he came to one without a Candidate standing in front of it and handed his identification card to the unmarked man sitting behind it.

The man smiled at him. "Sit down, Candidate," he said.

"Yes, sire." Kenn took the chair and sat looking straight ahead.

"So you're Haffey."

Kenn looked directly at the man for the first time. The interviewer's face was deeply lined. His lackluster brown hair was sparse, and his eyes were almost lifeless, but there was a touch of sadness in them.

"Yes, sire."

"We've been waiting for you."

"Sire?"

"We've got a long report on you. Tell me, what did you see on your Candidate's journey? Did you enjoy your walk through Bessmer?"

Kenn didn't answer. His mouth was a tight line, and his fingertips dug into his thighs.

The interviewer waited a minute. Then he sighed. "You must have seen quite a lot. We thought you might." He waited another minute. "If you've wondered—there's no variation. It's the same all over the world, whatever you've seen." He smiled with a painful hook of his mouth. "For that matter, it's the same throughout this solar system." He smiled sadly. "So, you see, there's no escape."

"I know that. I'd like to take my tests as soon as possible," Kenn said. He sat stiffly.

"You will," the interviewer said. "Tell me, Kenn—what do you expect from your tests?"

"What do you think I expect? I expect to fail. I expect to get my mark and go back to Inglistone or into some factory."

"What you really expect is to be put somewhere where you can't tell anyone what you've seen, isn't it?"

Kenn nodded slowly. He felt a cold knot tighten around his chest.

"I rather think you will be," the interviewer said. He stood up. "Come on, Kenn. We might as well cut this short."

Kenn looked around.

The interviewer shook his head. "There's no running away. Not from what's caught you." Kenn got up numbly, and followed him down the hall to the room where the testing machines were. He watched with wooden detachment while they connected the machine leads to his nervous system and lowered the dome over his head, and he took one deep breath as they closed the first switch.

Something was impossibly wrong. The maturity test he should have failed out of hand was far behind him, and so were the job qualification sections. He'd been a hundred people, done a hundred things in a hundred situations. He'd acted at whim and at random, not caring, and still he was far past the point at which almost everybody failed.

It wasn't possible. Pure chance would never have gotten him through those sections. There was only one answer to it; the test was being rigged in his favor.

At the same time he realized that, the test became a nightmare. A switch turned, and he assumed still another personality.

He was a noble. Or, rather, he was a man who had assumed the supervision of a people. A thousand years before, the wave of human expansion into the stars had faltered —the Union, tenuous and extended through a tremendous volume of space—had fragmented and broken as, in the scattered regions, isolated by enormous distances, a hundred different viewpoints and philosophies developed, reached out to gather in as many solar systems as they could, and then clashed.

The battle was a battle of good will.

Men had always tried to find the best way to live. Every step they'd ever taken was an attempt to learn how to deal with the universe and themselves on the best possible terms.

And each group, cut off by time and distance from its neighbors, left alone for centuries, sometimes, knew it had at least made progress in the right direction.

When those necessarily divergent ideologies had touched, they had conflicted. On a minor scale, at first, as the more vigorous ideologies, sparked by the more forceful, more idealistic individuals, absorbed their lesser neighbors. Then there was a struggle on a scale that wiped the sun out of the sky until it flickered down and died from lack of fuel, waiting for a fresh wave of expansion and centuries-long recovery to begin the cycle again.

Kenn, in the test, was one of the individuals who had to find an answer.

He was given this much data to work with:

The ideologies that were the most fanatically established were the ones that were deadliest.

The individual leaders who were most convinced of their own righteousness were the ones who built the most vigorous ideologies.

The more single-minded the man, the more fiercely he clung to his beliefs.

Urgency pumped into Kenn's system. There had to be an answer! And his awareness of himself flickered down. The situation stopped being a test, and became agonizingly real as the test machine stepped up the power.

Part of an answer suggested itself to him.

Somewhere, there had to be men who hated—to rule but who were capable of ruling.

And if there weren't enough of them, breed for them.

It had to be done. A handful of planets had to suffer for a few centuries so that a galaxy full of Men could become a reality for millennia.

Kenn felt the leads being withdrawn, and retched. He slid feebly

off the table and stood on tottering feet, clutching his stomach.

He shook his head weakly. "No."

The interviewer's face was wrenched with sympathy. "You got the answer," he said.

"So . . . so what!" Kenn choked. "You rigged the test. The machine gave it to me."

The interviewer nodded. "We did. The whole test has to be run. It's set in the machines. But for some individuals, that's a waste of time. We don't want you for timber-cruising, Kenn. The last part is the only important one."

"So you gave me the right answer and I passed. Which means I fail, according to your rules."

The interviewer shook his head. "No. You pass. You're a noble—or an agent, depending on which you train for. It's not arriving at the answer that's important—getting the answer's part of the test. It's your reaction to it that counts.

"You're going to despise yourself every moment of your life from now on," the interviewer said, his eyes mirroring the tortured implacability in his voice. "Or, at least, to some degree at all times and to an intense degree usually. There's not much peace for us. You're conscious of your own shortcomings—or what you consider shortcomings whether they are or not. You know how terribly prone to error every human being must be. You know how confused you are within yourself, and still you're going to be in a position of complete, autocratic authority over human beings who believe implicitly in the rightness of your station. You're going to administer the answer that makes you sick."

Kenn shook his head. "No. I won't do it."

"You *will* do it. You don't dare not to. It's working, at least, and no better answer has ever been found. You don't dare reject this answer—you're trapped. If you refuse, you'll have refused a chance to help mankind."

Kenn looked dully at the interviewer. "If it works, it's the end to most human misery."

"That's right. And you're abnormally sensitive to human misery. So you'll administer the plan.

"Some of it, we'll teach you. The rest we all have to learn."

"Who did this to me?"

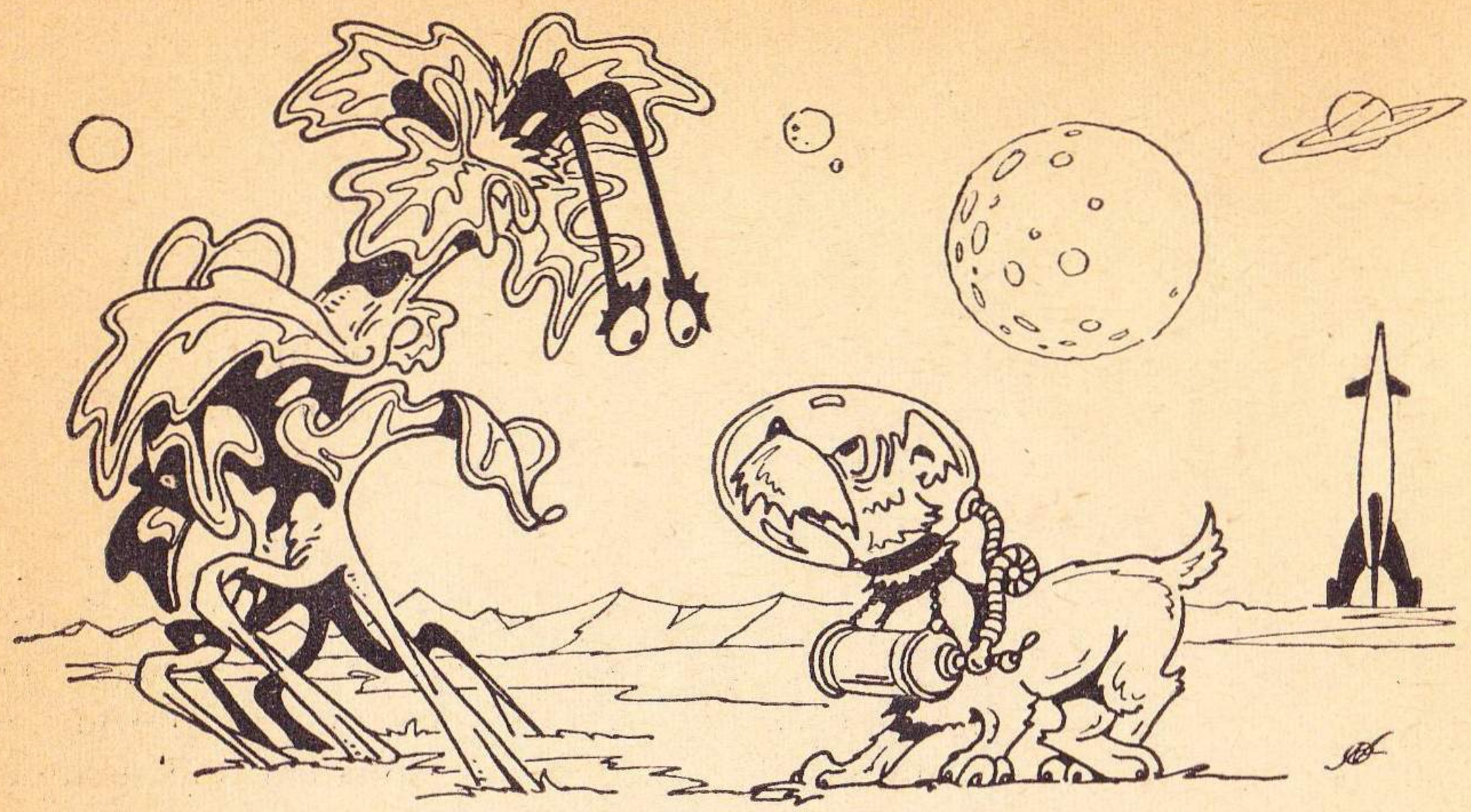
"You did," the interviewer said in a gentle voice. "First you were born, and then you learned to think."

Most of the people were happy, Kenn reminded himself. They didn't *want* to be nobles.

"Listen," he said, "if we're all like this—we can't ever be *sure* we're right about anything. We can't ever be *completely* sure that what we're doing to the people isn't the most monstrous thing that's ever been done to human beings."

The interviewer nodded. There was infinite, uncertain pain in his eyes. "That's right."

THE END



# THOSE IMPOSSIBLE AUTOTROPHIC MEN

***Careful consideration indicates that a man adapted to living on sunlight, via the chlorophyll mechanism, comes out looking like a tree. Including roots and immobility!***

## BY V. A. EULACH

Illustrated by Freas

Every now and then in science fiction the more or less human beings arriving from outer space turn out to be green. Like plants, they contain chlorophyll, and like plants they are independent of outside sources of food—that is, they are what biologists call autotrophic organisms. Unless we want to let our science fiction roam into the realm of the completely fantastic and impossible, the question arises as to just how probable such humans or other animals could be. Could there be humans with chlorophyll in their skin? If so, would they be able to carry on sufficient photosynthesis to supply all the foods they would need? And if they could, might there not be some planet on which all life could consist of self-sufficient animals with none of the plants on which the humans and other animals of the Earth are so dependent for their food and their oxygen and indeed their lives?

There are, of course, on Earth a few autotrophic animals. A minority of the single-celled animals, or protozoa, contain chlorophyll and live at least largely on the food they produce by photosynthesis. Some slightly more complex animals, like the green hydra, have single-celled green algae living symbiotically within their tissues and so are at least partly independent of outside sources of food. Also, there are a few species of bacteria—really plants rather than animals—which can synthesize their own food. Some contain a purple pigment, rather than chlorophyll, by means of which they trap light energy for their photosynthesis. Others use energy secured from the oxidation of mineral salts, rather than light energy, for synthesizing their food. However, with these few exceptions all animals and all non-green plants such as the bacteria, molds and mushrooms are entirely dependent on green plants as the ultimate source of their food. No very large, very advanced, or very complex animal is in any way autotrophic.

Now it is by no means implausible that a human or other animal might have a mutation which would result in the ability to produce chlorophyll, since the haemoglobin of the blood is chemically very similar to chlorophyll. The haemin, part of the haemoglobin differs chemically from chlorophyll only in minor details, one of which is that it contains iron while chlorophyll contains magnesium. It would not take much of a change in synthetic abilities for a human to produce chlorophyll, though apparently such a mutation has never occurred. In such a green animal the chlorophyll would probably be restricted to the skin, in a layer no thicker than the ordinary leaf, for light is generally necessary for chlorophyll synthesis as well as for photosynthesis. The question is, could a human or other large animal with such a chlorophyll-containing skin carry on enough photosynthesis so that enough food would be produced to provide all needed in respiration and assimilation, thus making the animal independent of outside food supplies?

We can easily provide the answer to this question by taking a quantitative look at the problem. In the first place, we must consider the maximum rate at which plants can produce sugar by photosynthesis under the most favorable natural conditions. The figure is about 20 milligrams per square decimeter of leaf area per hour. Actually, the usual photosynthetic productivity of most plants, even under favorable conditions, is only a fraction of this. The highest rate of photosynthesis ever measured was 52 milligrams of sugar per square decimeter per hour, but this was achieved by supplying the plants with 5 per cent carbon dioxide, rather than the 0.03 per cent present in the air. Suppose that we generously grant that animals might be able to produce sugar at the 20 mg rate, and that we are similarly generous in our other estimates.

An outside estimate of the amount of human skin suitably exposed to light would be 170 $dm^2$. Accepting this figure, the photosynthetic production would be 2.4 grams of sugar per hour, or 28.8 grams per twelve-hour-day. This is considerably more than might be reasonably expected, for we are assuming uniformly favorable conditions of light and other factors throughout the day. Though the light period is greater than twelve hours in the summer, it is less than that in the winter, and the twelve-hour figure is an annual average. However, to get a round figure and one as optimistic as possible suppose we accept 30 grams as the average daily sugar production.

This 30 grams of sugar contains about 112 calories—kilogram—of energy. How far will this go toward supplying the food requirements of our green man, for both energy and body-building material? If you have ever been concerned with your daily calorie consumption, you have already noted that this food supply is completely inadequate. An average-sized man uses from fifteen hundred to eighteen hundred calories per day in his basal metabolism alone, that is, when he is completely at rest. This is the energy required to operate such automatic body processes such as the beating of the heart, peristaltic movements, and breathing. In addition, any activity will require at least five hundred more calories of energy, while a man doing heavy work would require around two thousand more calories. In other words, a man's daily energy expenditure will range from about two thousand to about four thousand kilogram calories.

Let us accept the minimum figure as the energy requirements of our photosynthetic man, for he would not need to be very active. Relieved of the necessity of securing food—assuming for the moment that he could synthesize all he needed—he would neither have to secure his food by his own direct efforts, nor would he have to work to secure money with which to buy food. Indeed, he probably would not have to work at all. To take advantage of his photosynthetic skin he would have to shun any clothing, and he would have to live in a tropical climate where he could comfortably expose himself to the sun the year around. Thus there would be no need for shelter or fuel for heating.

His only needs external to himself would be those required by plants—carbon dioxide and oxygen from the air, water, and mineral salts. The latter would perhaps be present in sufficient quantities in at least some of the water he would drink, though he might have difficulty at times in securing them in sufficient quantity. However, in addition to photosynthesis, our green men would also have to acquire several other synthetic abilities restricted to plants. Most important of these would be the ability to synthesize vitamins and amino acids,

the latter for use in building up proteins. While animals are able to make some amino acids from others, only plants can synthesize amino acids from sugar and inorganic salts of nitrogen and sulfur. However, there is no reason why animals could not carry on these processes if they simply had the proper enzymes.

We have been assuming that the green men could produce enough sugar by photosynthesis to meet their daily energy needs. The assumption is, of course, not valid, as our figures indicate. The maximum of 30 grams of sugar produced daily by photosynthesis would provide only one hundred twelve of the basic two thousand calories needed. The green men would rapidly starve to death if they attempted to rely solely on their photosynthesis for their entire food supply.

Now suppose we attempt to propose structural and physiological modifications of the green men which would make them self-sufficient as far as food is concerned. The first obvious suggestion would be an increase in surface area so that more photosynthesis could be carried on. An increase in size would not help at all, for as size increases volume increases faster than surface area. A decrease in size would help, but the decrease would have to be so drastic that we would end by having an animal no larger than the small photosynthetic animals which actually exist.

A more fruitful possibility would be thin tissue extensions from the body, which would greatly add to the photosynthetic surface without adding too much tissue which would itself require additional energy for its respiration. In other words, the green men would have what would really amount to leaves. Considering the fact that our two thousand calorie goal represents only the energy used in respiration, and does not include the food required for building of the body tissues in growth and repair, the surface area would have to be at least twenty times that of the present skin, or 3,400 $dm^2$ rather than 170 $dm^2$. This extensive display of "leaves" would greatly hamper such movements as the green men would have to make, and there would be constant danger that they would be injured or broken off. The result would be that those men who would, like plants, engage in the minimum amount of movement would be in the best position to survive.

Another approach to the problem of making the green men self-sufficient would be to reduce the rate of basal metabolism, and so the daily calorie requirement. One logical place to start would be the digestive tract, which no longer would be needed for the taking in, digestion and absorption of food. However, some provision would have to be made for means of securing water and mineral salts. Perhaps the most logical proposal would be a system of projections extending into the soil—roots, if you will. This would, of course, anchor the

organism to the soil and make muscles used in moving from place to place unnecessary, saving more energy expenditure. The energy used in supplying the nervous system which controls these muscles would also be saved. The heart would still be expending considerable energy pumping blood, so it might be well to replace it with the type of system by which water and food are transported by plants.

By this time we would have an organism which could easily be able to produce all its needed food, and then some, by photosynthesis. But we no longer would have an animal, let alone a man. The result would be what anyone would call a plant—something not too different from plants as they exist on Earth. In attempting to devise a workable photosynthetic animal we have lost the animal, and have gotten right back to a plant. The moral is, of course, that in any conceivable biological scheme, even remotely resembling that on Earth, plants are an absolutely essential component. There must be such a group of organisms which have the ability of synthesizing foods from things which are not foods, and which also have a low enough energy requirement of their own so that they can make an abundance of food for their own requirements and for those of the animal population as well.

Just how good a job are the plants of the Earth doing along this line? A few figures will tell the story. It is estimated that in a year the plants of the Earth produce some $270 \times 10^9$ *tons* of sugar by photosynthesis, that is, 270 billion tons. Other estimates have run as high as 376 billion tons, but at any rate the figure is immense. That photsynthesis is by far the greatest production process on Earth is indicated by the fact that the annual mining and manufacturing product of the Earth is only about one billion tons, while the agricultural productivity is another billion. Despite this immense photsynthetic productivity, plants use in photosynthesis only about one or two-tenths of one per cent of the total light energy of the sun falling on the Earth in a year.

If plants make 270 billion tons of sugar in a year they are also producing 288 billion tons of oxygen which are added to the air, and they are using 396 billion tons of carbon dioxide and 162 billion tons of water in photosynthesis. Without this continued addition of oxygen to the air the atmosphere would eventually become devoid of oxygen as it would be used in various oxidation processes. This is why astronomers consider the presence of oxygen in the atmosphere of a planet to be an indication of the presence of plant life. Since carbon dioxide constitutes only 0.03 per cent of the air it may seem that photosynthesis would soon exhaust it. However, the atmosphere contains about 600 billion tons of carbon dioxide.

More important, there are 50,000

billion tons of carbon dioxide dissolved in the waters of the oceans and 66 million billion tons tied up in limestone rocks. Since these supplies are in chemical equilibrium with the carbon dioxide of the air the potential supply is inexhaustible. The amount of carbon dioxide added to the air annually by the respiration of plants as well as animals and by combustion is relatively insignificant, totaling altogether only about 33 billion tons. It is obvious that animals are not essential for maintaining the carbon dioxide level of the air for plants, as is sometimes assumed, when we realize that only 11 of these 33 billion tons of carbon dioxide are added to the air by animals, including humans.

The 270 billion tons of sugar produced annually by plants is a net figure, or what is left after plants have used perhaps a tenth of this amount in their own respiration. The 270 billion tons is used in making the cell walls and protoplasm of the plant cells, and what is left from this accumulates in the plant, principally in the form of carbohydrates and fats. Animals consume only about one billion tons of these plant tissues as food each year, so it is obvious that the photosynthetic productivity of plants is keeping well ahead of the food requirements of animals, even despite the fact that some plant tissues such as wood are not fit food for most animals.

One other fact of interest in this connection is that some 90 per cent of all photosynthesis is carried on by plants of the ocean, while our land plants carry on only the remaining 10 per cent. The bulk of this great ocean food production is carried on by microscopic plants. This rather amazing statistic points up the fact that even today, after billions of years of evolution, the bulk of all life, animal as well as plant, still lives in the ocean. As far as a source of human food is concerned, the ocean is still largely an untapped source. This is a point well to remember when prophets worry about widespread starvation as the human population keeps increasing from century to century.

We have wandered away from our green men and have become involved with green plants, but this is a necessity in a discourse such as this, just as it is in any workable biological scheme. If there is life on other planets, the organisms may be quite different from those on Earth. There could well be planets with no form of life comparable with our animals, but if there is life at all beyond the simplest sort of thing comparable with viruses or bacteria we can be pretty sure that there will be something comparable with our plants. We can also be sure that there is no planet populated with photosynthetic animals of any size or complexity and devoid of plant-type organisms.

THE END

# SOUND DECISION

## BY

## RANDALL GARRETT AND ROBERT SILVERBERG

Illustrated by Van Dongen

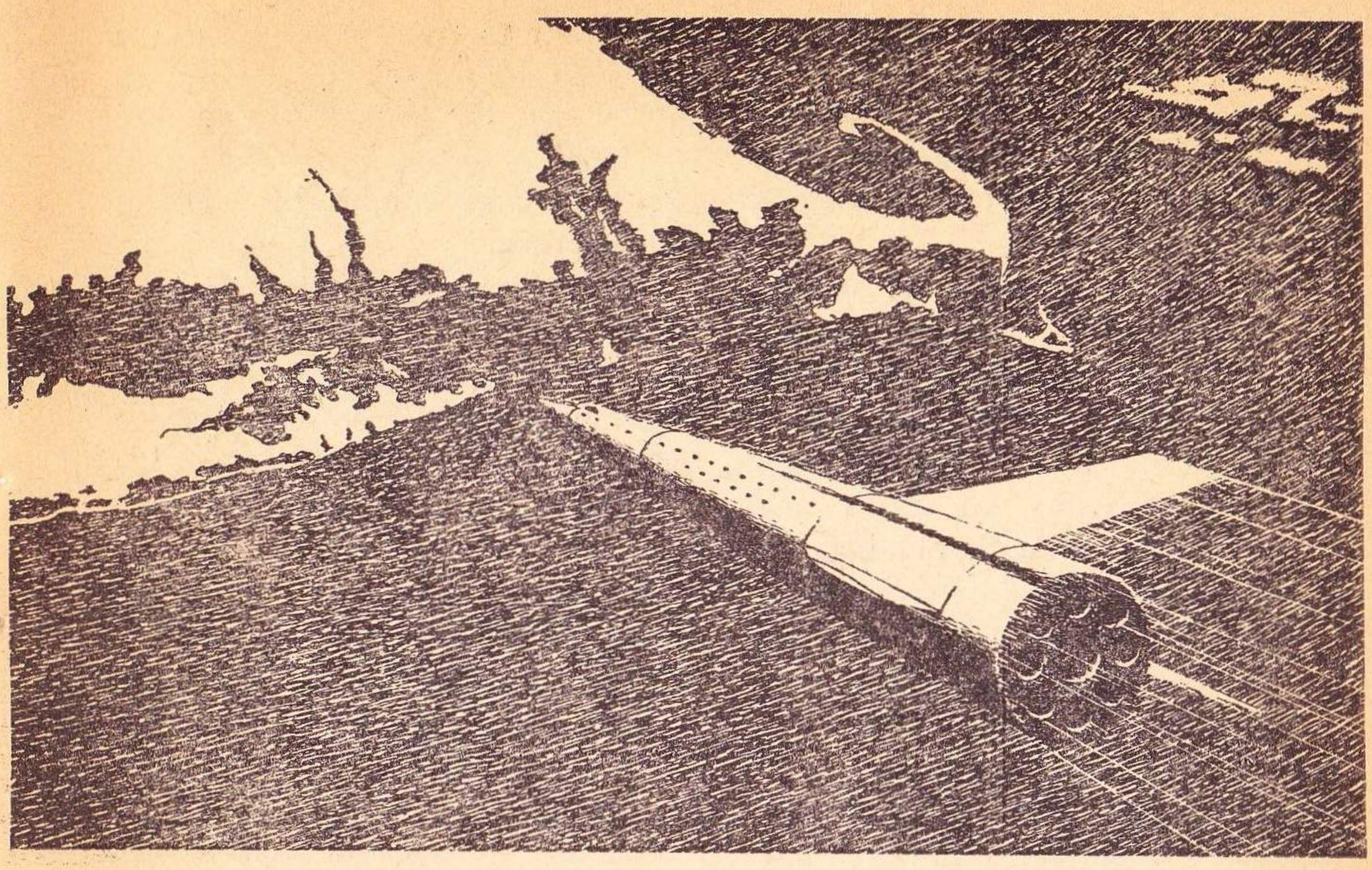
***Usually, Man acts on the basis of "We'll cross that bridge when we get to it." But when crossing it means deliberately ordering the annihilation of 180 human beings, and no policy has been established . . . who has the courage to cross the bridge first?***

"There are millions of laws
legislators have spoken;
A handful the Creator sent.
The former are being continually
broken;
The latter can't even be bent."
—David Gordon
*The Ballad of Ways and Means*

What happened to the space liner *Martian Queen* was, on the surface of it, highly improbable. For a velocity vector to exactly cancel out an acceleration is something that no one in his right mind would imagine happening accidentally, and certainly no sane gambler would bet on its probability, no matter what the odds.

But yet, if you inspect the picture a bit more closely, it becomes readily apparent that *any* given incident is highly improbable. The unfertilized egg, after all, has a few hundred million spermatozoa to choose from; what are the odds that you will be *you?*

It's futile, however, to compute the probability of an event after the event has already taken place. You might come up with figures that



proved it didn't happen, and in the realm of cause and effect *ex post facto* legislation is worthless.

The statistics *were* against it—but it happened.

The *Martian Queen* was a luxury liner of some five hundred metric tons, belonging to Barr Spaceways. She was, at the time, making a "short-run" orbit from Mars to Earth, carrying a hundred and fifty passengers and a crew of thirty, including stewards.

Just exactly what went wrong with the drivers isn't known or knowable; the four men who might have known were dead within seconds after it happened. There are several things that could have caused the disaster —an accident which, except for the level-thinking of one man, might have caused the deaths of many more than the mere handful who died in a sudden blaze of light.

## I

"How much longer?" snapped Mrs. Natalie Ledbetter. She looked round-headed and wattled like a turtle; her words snapped out and were snapped off at the end, as though she begrudged the question mark at the end of an inquiring sentence.

"A few hours yet, Mrs. Ledbetter," said Parksel with the infinite patience of a man who has borne more than his share and is willing to bear more indefinitely—as long as it pays.

Mrs. Ledbetter pulled a cigarette

out of a gleaming platinum case, struck it, and drew in a lungful of pungent smoke. "I hate spaceships," she said. "It's not the crowded little cabins; it's not that there's nothing to do; it's not those—"

She scowled at the gently sighing air intake which seemed to scoop the tobacco smoke out of the room and carry it out of sight. "No. I have plenty to do; I can keep in touch with my directors on Earth and Mars. No. The thing that bothers me is the feeling that I'm on a roller-coaster. I rode on one of those things once—just once. It's a penned-in feeling, a knowledge that you can't get off. That's what I'd like to do! Get off this thing! Get a breath of fresh air. But there isn't even any *stale* air out there!" She waved a hand straight down, toward the outer hull of the ship.

Parksel was a big, heavy man with a look on his face that was neither boredom nor idiocy, but an expression of blank acquiescence, revealing nothing whatever of the workings of the mind behind the face. As a combination bodyguard, and private secretary, he left little to be desired, insofar as Mrs. Ledbetter was concerned. He was well-paid and had been told that he was mentioned in her will—provided she did not die by violence. He wasn't particularly concerned over that. Even Mrs. Ledbetter's tough old frame didn't have much longer to go; she was a hundred and nine, and beginning to show it. The gerontologists had her held together like a carefully-articulated and highly valuable fossil.

"Get out the chessmen, Parksel," she said. "And mind you don't walk into that queen-knight trap like you did last time."

"Yes, Mrs. Ledbetter." He walked across the small cabin and got out the set. After arranging the ivory pieces on the table, he looked up at her. "It's your move first, I think."

"Yours," she said testily. "I took you with white last time."

He reached out a hand just as the speaker blared:

*Your attention please! In three minutes, the gyros will begin to cut down the spin on the ship. We have to stop the spin around the longitudinal axis in order to apply thrust along it for deceleration. Please get into your bunks and fasten your safety belts. You will be warned again in two minutes.*

"Damn!" said Natalie Ledbetter.

Without a word, Parksel leaned forward and began scooping up the precious carven antiques and restoring them to their plush-lined niches, inwardly happy. The musty, oppressive smell of the old woman was starting to bother him, and he was glad to get away from the table.

*Still,* he thought, *it's a living.*

George MacBride stood listening to the announcement, then grinned down at his wife. "You heard what the man said, honey—back to bed."

Marian MacBride's pleasant face assumed an impish look of pseudo-shock. "George!"

MacBride looked innocent. "That's what the man up there said. It wasn't my idea. *I'm* not captain of this tub." The grin did nothing to soften the angles in his face; his head and features looked as though they had been carved in mahogany by an expert sculptor who, unfortunately, had had to use a lumberman's axe for the job. He was of average height and built like a wrestler with a slight paunch. At forty-five, he considered the paunch more or less excusable.

Marian MacBride was ten years younger, and could pass for thirty easily, or even twenty-eight. Her face was round, soft, and glowing with vitality where it lacked mere prettiness. "It's too bad it had to end so soon," she said gently. "It was such a wonderful trip."

MacBride walked over and patted her on the shoulder. "We'll go again. Maybe Venus next time. After all, Breckmann's Incorporated sends only its best men out. Meaning me, naturally."

Marian smiled. "Sure. But are they going to let you take me? This is your fifth trip. It's my first. And probably my last."

"But, honey—"

She shook her head. "You don't kid me, Georgie-Porgie. You had to pull every wire you could get your hands on to get the company to pay for my passage to space. They'd never do it twice."

MacBride looked thoughtful. "Well . . . we could save the money—"

Marian walked over to the bunk and lay down. "Don't be silly, George. If you think I'm going to save money for a second trip, you're crazy. For a first one . . . well, I might. But I've had my fling now, and I'm not going to toss away your salary for fun. If I never go again, I'll still remember this one."

MacBride's face suddenly beamed with pleasure and pride. "Honey, you're wonderful. And just for that, I'm going to let you in on a little secret. You remember that get-together at Old Man Feld's place? Yeah? Well, the Old Man said that he thought it was fine that I'd brought you along. Said he thought it was good politics for a sales engineer to bring his wife. He's going to make a recommendation to Breckmann in Austria."

Marian sat bolt upright. "George!" She blinked, as if there were a possibility of tears. "That's what you've been working on! Those group-psychology courses! That—"

"That's right." He nodded happily. "I—"

*Your attention please! In one minute, the gyros will begin to cut down the rotation of the ship. The gravity will drop to zero in twenty-one minutes. Please strap yourselves in your bunks. A steward will check you shortly.*

"Comfortable, darling baby?" asked Fred Armbruster, as he looked solicitously at his pretty wife.

Ruby smiled across the space that separated the two bunks. "Uh-huh. I'll be all right, sweetheart."

"Sure you will, baby duck. You didn't feel too bad during the take-off, did you?"

"No," she lied. "I'll be all right."

Fred Armbruster was lean and tall and rich and in love. Ruby had been deathly sick every time the gravity switched, even though she thought the rest of the trip was simply wonderful. *Maybe,* Fred thought, *I could get her mind on that—*

"It's been a wonderful trip, hasn't it?" he asked.

"Best honeymoon a girl could ask for," she said sincerely. "I'd never thought Mars could have been beautiful. I'd always pictured it as a dried-up, nearly airless ball of clay. But the purple sky and the red-and-yellow desert—" Her voice trailed off.

"And remember that one sunset?" Fred hazarded. "The one with the dust storm?"

Ruby smiled at the fond memory. "It was wonderful. All blue and violet and crimson and streaked with—"

The door popped open and a head stuck in. "Everyone secure? Fine." The door closed.

"Crewman," Fred said bitterly. "Always a crewman has to stick his head in where it isn't wanted. If I were running this ship, I'd—"

"Don't be that way, sweetheart."

Fred frowned. "I still don't think every crewman ought to have a copy of that master key. If it were the captain who—"

*Your attention please! The gyros will start in three seconds. Please stay in your bunks during the entire time. There will be a five-second interval of weightlessness, after which the gravity will be shifted for deceleration.* There was a brief pause, then: *Gyros on. Please remain in your bunks.*

Edouard Descartes André blew a cloud of blue cigarette smoke toward the ceiling. "Will I be glad to get home!" he said vehemently, "Mars! Canned air and stinks! Dopey-looking fat beetles that claim to have brains!"

In the next bunk, Jerry Hammermill relaxed, his hands folded behind his head and cradling it. "Don't yap, Eddie, old mug. You made a shivering good bankroll on that shivering planet. And don't disparage our Martian friends; they may look pretty shivering ugly, but they've lined your pocket for you."

"I wish you wouldn't talk so loud, you idiot!" André grumbled unhappily. "I still think they could have those cabins wired."

"Don't be a shivering fool," Hammermill said mildly. "In the first place, my instruments don't lie, and in the second, the taped stuff I'm feeding into these steel walls would foul up any shivering pickups yet invented. And besides, I haven't given them any details."

"Yeah," said Edouard Descartes André. "Sure, you're the smart one—the smart one who's going to land us in the brig yet."

"The smart one," Hammermill pointed out, "who made us a quarter

of a million chips apiece. Besides, if we don't make any direct evidence against ourselves, the World Government can't touch us. Martians can't testify in court."

"I hope you're right," said André. He leaned back and glared meaningfully at his companion.

They fell silent. And, slowly, as the spin eased off, orientation was lost. "Up" and "down" gently began to merge with each other, until they vanished and became one with every other direction.

*Acceleration in five seconds,* said the speakers.

Captain Bernard L. Deering, a tall, massive man whose iron-gray hair was cropped in a stiff brushcut, and into whose hands the hundred seventy-nine other voyagers aboard the *Martian Queen* had entrusted their lives during the journey across space, sat in the astrogation dome watching the stars circle around him. Captain Deering had been in the service of Barr Spaceways for some twenty years, after a distinguished career in military service. He knew his ship, and he knew his job.

As the ship's spin decreased and the gravity dropped, the stars circling the dome slowed to a halt. When they finally stopped altogether, Captain Deering snapped: "Bearing!"

The astrogator, a prune-faced, angular man named Bliven, who had gone into space straight from M.I.T. and who had been part of Deering's team for eleven years, instantly called out a string of numbers, and the captain smiled. "Dead on," he said. "Feed in the tape and start her at schedule."

The automatic landing tape snaked into the computer which fed exactly-timed impulses to the engine room. There was a nearly subsonic hum—the sort heard by the skin rather than the ear. Gradually, gravity returned, this time at right angles to its previous pull. Inside the cabins, the bunks rotated in their frames. While the spin was on, they had been twin beds bolted to the yellow floor, next to a blue wall. Now they became tiered bunks, one above the other, bolted to a yellow wall above a blue floor. The crewmen referred to spin as "yellow gee" and longitudinal thrust as "blue gee," because of the code coloring of the walls.

The accelerometer climbed swiftly to 980 and held steadily at that. "One of these days," said the astrogator, "some bright guy is going to have sense enough to define a Standard Gravity as one thousand centimeters per second squared. That'll relieve us of having to bother with these figures."

"You want to re-define the centimeters?" Deering asked, grinning.

"Nope. I want to say that the pull at the surface of Earth is point nine eight Standard Gees."

"I'll go for that," agreed the captain.

And that was when it happened. There was a loud *thump!* that shook the *Martian Queen* from engine compartment to astrogation dome.

The ship pitched wildly as though she'd been hit by an artillery shell—a big one. The accelerometer needle lurched like a crazy thing and began to climb as though it were going to twist itself around the pin. It reached nine thousand before it suddenly stopped and fell to zero.

The ship was silent. For nearly a minute, no one spoke. The few seconds of exposure to nearly nine gravities had taken the breath out of everyone. Captain Deering coughed and grabbed at the intercom.

"Engines! What happened?"

There was no reply from the engine room.

"Enkers! Chivers! Tance! Punz!" he shouted. "What's going on back there?"

There was no answer. There couldn't be. The captain didn't know it yet, but his engine crew had died in the glare of heat and light, the moment's flash of radiance, that had wrecked the engine room.

## II

White Sands Spaceport covered four hundred square miles of New Mexico desert. It was a great, hard, white, smooth blank spot of land, surrounded by clumps of yuccas and cactus and not much else. At the eastern end, a full square mile of the area was devoted entirely to the Administration area—a neatly-arranged group of shining frosty-white buildings whose irradiated polyethylene walls gleamed brilliantly in the sunlight. The sparkling shower of diamond-bright beams that cascaded from the walls directly in the path of the sun's rays was hard on the eyes, but it made the spaceport remarkably easy to spot from a few hundred miles up, surrounded as it was by the yellow-brown of the desert.

Neil Stanley looked out of the window of his office and winced at the sun's heat. He had been working since dawn, and hadn't realized that the sun had shattered the soothing coolness of the desert morning. He touched the polaroid control gently and the window dimmed, reducing the light to a bearable level.

He didn't object to the desert as such, but he did object to the heat and the sun. Fortunately, a major general of the Space Service rated an office complete with air-conditioning and window controls, and as Base Coordinator for the commercial flights out of White Sands, his duties didn't call for much work that couldn't be handled in his office.

Stanley liked his job simply because it was about as un-military as a job could get. Physically big, quick-witted and impressive-looking, Stanley had mastered military routine fully. He had served at the military spaceport in Nevada, but when the chance had come to take on the difficult task of handling the commercial traffic, he had jumped at it.

The military spaceport in Nevada was remarkably smooth in its operation. Routing was simple; a few well-placed orders did the trick, and

they were *followed*—to the letter.

Civilians didn't listen to orders half as well, even in situations involving the dangerous business of landing spaceships. Their remarkable obstinacy at times increased the headaches, but it was the constant surprises that made the job fun.

Stanley turned from the window and looked up at the schedule on the wall. The top line read MARTIAN QUEEN—1404 : 9 ± 2. That was the next ship due in. Underneath it was the arrival time of the *Aphrodite,* due in the next morning.

He checked his watch automatically and computed the time. The radar tower ought to have a fix on the *Queen* any minute now.

When the phone rang, he grinned. In the matter of predicting what a spaceship is going to do, there's not much trick in being an honorable prophet. The laws of gravity are as inexorable as the march of time; in order to land a ship in the right place at the right time, there are certain things that have to be done, and certain times to do them.

Stanley picked up the phone. "Stanley here."

"General, we've got the fix on the *Martian Queen.*"

"What's the ETA?" Stanley asked.

There was a pause at the other end of the line. "We haven't computed the ETA, sir," the voice said hesitantly. "There's s o m e t h i n g wrong. The position is off, and the velocity is constant. The —"

"Never mind," Stanley said, cutting the man off in mid-sentence. "I'll be right over." He slammed the receiver down and pushed the phone away.

He left his office on a dead run, his lips clamped together in a grim scowl. When a radar fix can't compute the Estimated Time of Arrival of a spaceship instantly, there is something wrong—*deadly* wrong.

He spun down the flight of stairs from his second-story turret, whirled through the swinging glass doors, and vaulted the two steps that led down to the ground. The pavement was warm beneath his feet, and the hot, dry air swept parchingly into his lungs.

His jeep was waiting for him a little way off, and the driver was half dozing in the nearby shade. But when he saw the major general coming toward him at better than double time, he vaulted into the driver's seat and had the engine running by the time Stanley got there.

"Radar Tower One," Stanley snapped. "And gun it!"

The jeep shot off almost instantly. Stanley leaned back, staring at the black tufts of hair on the backs of his fingers, wondering stonily what story was going to be written today, what record of disaster and/or heroism. He didn't know. He didn't know what was going to happen. All he knew was the *Martian Queen* had gone haywire and wasn't doing what it should be doing, up there in the sky.

The radar tower was a spidery structure whose struts and girders

stood outlined sharply against the sky, metallic gray against bright, painful blue. The jeep pulled up short in front of the tower, and Stanley climbed out almost in the same instant. "Stay here," he called to his driver, as he went inside.

Three bleak-faced men waited for him there.

"Sir, do you think—?" began Sokolow, a thin, sandy-haired technician whose face creased in a perpetual scowl.

"Never mind," Stanley said crisply. "Time to talk later." He pushed back his cap and walked past them without bothering to ask questions.

"Chart," he murmured.

They complied. Stanley looked at the blip on the scope and checked the reading against the chart, frowning worriedly. Something was definitely w r o n g; the blip wasn't moving, which indicated a constant velocity. The *Queen* should have started decelerating long before this.

A bead of sweat trickled down his heavily-tanned forehead, and he brushed it away impatiently. The data was there. The *Queen* wasn't decelerating. Why? Who knew? Who cared? All that mattered was the bare fact.

"Get me a direct line to Captain Deering!" Stanley said sharply, without looking up from the charts.

"Yes, sir," Sokolow said.

Stanley rubbed his chin. The ETA charts were simplicity itself. The readings on the screen could be checked against the charts and the time for landing was right there; the figures had been computed long before. All the radar man needed to know was the ship's position, velocity, and negative acceleration.

But this ship was off position and had no negative acceleration, and the charts weren't set up for a situation like that. Preconceived rules are nice things to have, but they simply don't work in an emergency.

While the radio man upstairs tried feverishly to get a direct communication to the *Martian Queen,* Stanley reached across the desk, pounced on the phone, grabbed it toward him, and dialed Routing.

"Stanley here. I want a computation fast." He glanced at the screen and rattled off the bearing, velocity, and direction of the blip on the radar. "I want to know when and where she'll hit if she doesn't decelerate. Got that?"

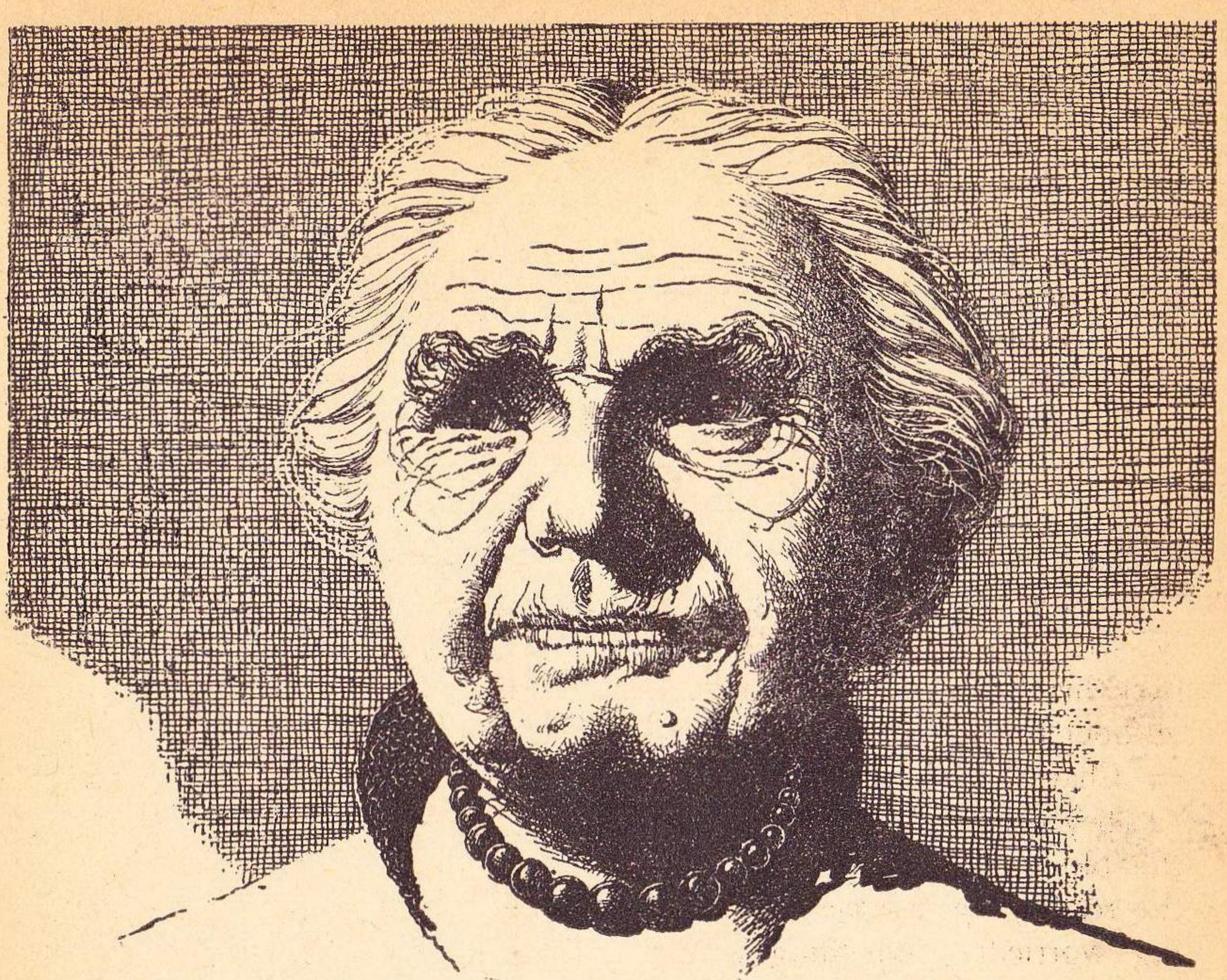
*When and where she'll hit.* He said the words in a clipped, business-like manner, concealing the feeling that lay behind them. It was impossible for him to get hysterical over the situation, but he certainly appreciated its ugliness. Spaceships are big, heavy things, traveling at fantastic speeds, and a man who had worked with them half his life knew exactly what potential danger each one carried.

"Got it, general. We'll feed it into the DIRAC right away."

"Make it fast. I want that information yesterday, if not sooner."

He slammed down the phone.

There were footsteps behind him.



"I've got Captain Deering, sir," said the radio man.

*Attention! There has been a slight change in the landing procedure. Please remain in your bunks until you are given the all-clear. There is nothing to be alarmed about; there will simply be a slight change in landing time. Repeat: there is nothing to be alarmed about.*

Captain Deering frowned as he listened to the voice of Lieutenant Bessemer over the speaker. That final repeat, he thought, was unnecessary, even if it was good procedure. Civilians were sure to get suspicious if they were told too earnestly that all is well.

He hoped the words would be effective. *A slight change in landing time.* It sounded fine, but, chillingly enough, it was perfectly true. If the *Queen* couldn't be straightened out, there would not only be a change in landing time, but a different velocity as well. The velocity of the *Martian Queen* was a long way from being zero with respect to the Earth.

The intercom buzzed loudly. "Captain? Hagerty here. We can't get into the engine room, sir. The place is hotter than a Roman candle."

"Radioactivity or thermal?"

"Both. The scintillation counters are fizzing all over the place, and the temperature's running close to three hundred Fahrenheit. Couldn't be anyone left alive in there."

Captain Deering thought fleetingly of his four-man engine crew, and said, "Get out one of the suits and send a man in there for a look around. Don't overexpose him, but try to get an estimate of the damage. We've got to get this bird back under control, and we've only got minutes to do it!"

Marian MacBride turned her head to smile at her husband. "This gravitylessness isn't so bad, is it? Once you get used to it, I mean."

George grinned. "'Gravitylessness,'" he mimicked. "Now, there's a word I like. Couldn't we add a few more syllables, just for effect?"

"Don't tease, George. What I mean is, I think it's fun."

"*Fun,* she says!" MacBride laughed. "If that's your idea of fun, you can have it, honey. Me, I like to know which way is down. Close your eyes and try to imagine you're hanging on the ceiling. Or floating around in the air, or—"

"Stop it, George," she said petulantly. "What are you trying to do? Make me sick?"

"Yup. I figure that if you're sick, I'll be so worried about it that I won't have a chance to be able to think about being sick myself."

"Fine sentiment!" Then she paused. "What do you suppose is the matter? That was an awful shake we had."

"Meteor, probably," George said. "A big rock can do a lot of damage to a ship if it hits it, you know."

"Oh," she said. "Well, as long as the ship doesn't lose its air, we're all right. I've read about meteor collisions. All the air goes out, and everybody smothers, or something. I wouldn't like to die that way."

"It does seem a rather stuffy death," agreed George. "But these new ships can spot anything big a long way off. There's nothing to worry about. The death rate for spaceships is a lot lower per capita than even aircraft." He stopped suddenly, realizing that the conversation was frightening both of them a little, and aware that what he was telling her so solemnly was probably scientific hogwash anyway. Their voices were getting tense.

He put his hands behind his head. His fingers were cold.

"It *does* seem a rather stuffy death," he said, trying to make his voice sound cheerful the second time. "You recognize the allusion, don't you, Marian?"

She thought for a moment. "That was that music thing you were in last year, wasn't it? The Gilbert & Sullivan operetta?"

"Yes," he said. "Remember, Yum-Yum says it to—"

He glanced at her. She wasn't at all interested.

"Anyway," he said, "if we stopped to avoid the meteor, it's not going to hit us, is it?"

"Do you think—"

"No, sweetheart. I can guarantee we won't hit it."

Ruby Armbruster was being violently sick. Her face was buried in the mouth of the collapsible plastic emergency bag, and her body seemed to be trying to tear itself apart with the racking convulsions that surged through it.

Fred had unstrapped himself from his own bunk and lowered himself to where his wife lay. Her dry, harsh coughs showed that her stomach was, by now, completely empty; only the automatic nervous reaction kept up the terrible nausea.

"You'll be all right, dear," he said soothingly. "You'll be all right. The gravity will come on pretty soon. You'll be all right."

Over and over he repeated it, trying to lull her into relaxation, trying to stop the awful, twisting convulsions of her abdomen.

Finally, the nausea subsided a bit. She turned, looked up, Her face was beaded with sweat, and she was trembling all over. She sighed gently, struggling to regain control over herself.

"Oooohhh . . . Ohh, Fred—"

"Easy, honey."

"I feel as though I'd lost everything. I . . . I . . . ooohh . . ." Her voice trailed off.

"Feel bad, honey?"

"Horrible. There's no up— Hold me, Fred. Hold me. I think . . . I mean, it feels like I'm falling." Her voice told of terrible, primitive fear welling up from somewhere in the recesses of her subconscious. "Don't let me fall, Fred. Please—*don't let me fall!*"

Sobs had replaced the retching, but her body still shook.

Fred cradled her in his arms tenderly. "Don't worry, sweetheart. I'll hold you. You aren't falling, so don't worry. You aren't falling. You aren't falling."

Natalie Ledbetter leaned over the edge of her bunk and looked down. "What's the matter with you?" she asked, in her dry, deep man's voice. "Sick?"

Parksel's face assumed an expression of stolid imperturbability. "No, ma'am. I'm afraid I have hiccups. Just hiccups, that's all." The sentence was punctuated occasionally by a muffled *hic!*

"Well, stop it!" she said insistently. "There's no reason to make *me* feel ill! Parksel, I'll have to take this up with Barr Spaceways! Imagine letting us lie like this in . . . ah . . . what is it? Free fall. That's it: free fall. I'll speak to Gregory Barr about it!"

"Yes, ma'am," Parksel said. "*Hic!*"

"Stop it, I say! Stop it!"

"Yes, ma'am." His eyes rolled in pain, revealing the battle going on within him as he struggled to retain the hiccup. "*Mmmmph!*" he finally said.

Jerry Hammermill was unbuckling his safety belt with flying fingers.

His mumbled blasphemies seemed to be more an aid to breathing than an actual attempt at communication.

"What's eating you?" grumbled Edouard André from the bunk below.

Hammermill pushed himself out of the bunk toward the door and paused, while a muscle quivered in his cheek. When he spoke, his voice was tight and dry.

"No deceleration. There's something wrong. This shivering ship is in trouble, make no mistake. We're in free fall. Get that? *Free fall!*"

"Huh?"

"I'll put it in words of hardly any syllables for you. Unless we're in an orbit around Earth, we're headed for the worst crack-up this planet has ever seen."

André grinned with the superb self-confidence of the man who is shrewd and calculating but at the same time a complete idiot. "What are you worried about? They said everything was all right, didn't they? Didn't they? Then what are you worried about, huh?"

Jerry Hammermill stopped at the door and glared piercingly at his companion. He was silent for a moment, contempt gathering on his face. "Sure they told us everything was all right, you bird-brained blockhead! What did you expect them to say? Something like: 'We're all going to die in a few minutes, so please be patient.' Is that what you expected?"

He opened the door and was out in the corridor before the white-faced André could say anything.

Captain Deering's jaw muscles tightened as he heard the words coming over the intercom.

"Hagerty here. The engine room's a wreck, captain. I sent Palmer in, but he couldn't stay long; it's too hot down there. We didn't find out much."

"What about the main converter?" Deering asked anxiously.

"Almost completely gone. It's a wonder it didn't blow into fragments when it went. God only knows what happened. The engine crew's gone—died almost instantly, I'd guess."

"What's the converter like?" Deering asked. He'd long ago forgotten about the lamentable but irreparable death of his engine crew; the important thing now was getting the engine room back together, not giving the four men a proper burial. That could come later—if there was any later to come.

"The converter's a mess," Hagerty said. "Mostly molten metal, according to Palmer, though it's beginning to solidify now. The shielding has kept the radiation from the rest of the ship, and it's slowly dying out now."

"And the engines?" Deering asked, knowing that only a miracle could have preserved them. "Any chance of starting them?"

"What engines?" Hagerty's voice told the story without need of further explanation. "There aren't any engines left to start."

Deering drummed on his uniform-cuff with the fingertips of his left hand. His mind was racing ahead, trying to figure out the probable courses of action to take. The trouble was that no answer seemed like a workable one.

"What about the—" Captain Deering started to say. But the voice of Lieutenant Bliven interrupted.

"There's a direct call from General Stanley at White Sands, sir! Can you—"

Deering whirled impatiently, fighting to rein in his self-control. He was staying as cool as possible; this was the first major accident he'd had in twenty years, but he was a level-headed enough man to know how to behave—he hoped. "Just a second!" he snapped. "Tell Stanley to hold it! Hagerty! Is there any chance of getting the secondary converters going?"

"No, sir," came the flat reply. "They've blown, too, and—"

"The general says it's urgent, sir," the astrogator persisted. "Says he must talk to you at once."

"Damn!" the captain shouted, letting some of his tight control relax. "Tell him to wait!" He turned back to the intercom. "Hagerty?"

"Yes, sir."

"Listen, do everything you can. Understand? Get this ship operating, if you possibly can."

Deering listened to his own words, heard his own deep voice bouncing around the cabin, knowing as he spoke them that they were utterly futile. Hagerty was a good man, but he was no magician.

He turned away from the intercom and grabbed the radiophone, feeling as if there were cannons to the right and cannons to the left of him. "Deering here!" he barked. "What do you want, Neil?"

"Buddy? Stanley here. What's going on up there? Man, you've got to stop that thing!"

Stanley's voice held an ominous, imperative ring. Deering grinned sardonically. "Any suggestions? Black magic, maybe?"

"What's the trouble?"

"Main converter shot all to hell, and so is the secondary. Engines out. I'm just getting moving on the thing. What's our course?"

Stanley's voice was harsh. "Never mind now. What happened?"

"God knows!" Deering said. "We'd just stopped spin for deceleration and something blew in the engine room. We're powerless. Hagerty says there's nothing but slag down there!"

Stanley was silent for a moment, and Captain Deering stared impatiently at the radiophone in his hand. He felt a little better about things now that he knew Stanley of White Sands was with him. There was something reassuring about contact with the big catlike man, even when you were riding a spaceship straight to hell and he was sitting down there comfortably in an air-conditioned turret.

"O.K., feed me your co-ordinates," Stanley said at last.

Deering glanced up at Lieutenant Blivens. The prune-faced astrogator was standing by tensely. "Course," Deering demanded.

The astrogator threw him a sheet of paper, from which Deering read figures. "That's as close as I can get," he said, when he was through. "Do you have a fix on us?"

"Checking it now," said Stanley. "I've got some other things to do right now, but keep the line open. Off."

Deering said nothing. He clenched his fists and stared out the astrogation dome at the diamond-hard stars. They looked back at him from their black-velvet settings, utterly unconcerned.

The captain sat back and let the tenseness drain out of him. The figures were starting to shape up, and the returns were coming in. He turned to the intercom.

"Hagerty?"

"Yes, chief?"

"What's going on?"

"Nothing, sir. There's nothing I can do."

"O.K." Deering said. "Keep trying."

The words were futile. The *Martian Queen* was falling toward Earth—powerless. Deering took the situation in, and he knew there was little sense in ordering Hagerty to work a miracle. There was nothing in space that could save the ship.

## III

Neil Stanley turned toward the radioman. The air was hot and close in the radar tower, and it seemed to him a dull odor of ozone hung overhead. "Keep that line open," he ordered. "No matter what happens, keep it open!"

He gripped the phone again and dialed routing, his thick fingers having trouble with the dial in his haste. He heard the click, then a voice.

"What's happening to that data?" he asked.

"Coming out now, sir," someone at the other end said. "We fed DIRAC the figures you gave us. They're not too accurate, but—Wait! Here it is now."

There was a long silence at the end of the line, while Stanley chafed his fingers impatiently together. "Sir!" came the voice finally. "They aren't going to miss Earth!"

"*What?* That checked?"

"Yes, sir. Whatever happened, it threw them off course just enough so that they'll still crack up on Earth even if they don't decelerate. It's a million-to-one fluke that they should be—"

"Can it," Stanley said. "What's the intersection point of the two orbits?"

"Somewhere along the East Coast, sir. We can't get it any closer than that without more precise data. I'd say that it'll hit somewhere near New York City if it doesn't slow down!"

"It figures," said Stanley tightly. "It figures. How long before she hits?"

"A little better than a half hour,

sir. Can you get us more accurate data?"

"As soon as possible," Stanley said.

*Near New York City,* he thought. *Of course. As long as it has to be a wild coincidental thing, it might just as well come down on New York, and not in the Atlantic or out here in New Mexico or up in Alaska.*

He turned back to the radioman. "Get me Deering," he ordered. "I don't want to talk to him; just tell his astrogator to give me positional and velocital data as soon as possible. Tell him I want it down to the last decimal place he can possibly squeeze out of it, and then a couple more!" He stopped talking, and a frown passed over his face. "Then give the data to Routing," he said after a pause. "Tell them I want an orbit that's as close as skin. I've got something to do."

"Yes, sir."

"And by the way," he added. "Keep this under your hat. This is not to go out to anyone—not anyone!"

He left the radar tower at high speed, bursting out into the open again. The sun was now high overhead, and it was hot.

The driver still had the motor of his jeep going. Stanley vaulted in, and the gears buzzed as the driver released the brake and shoved hard on the accelerator.

"Experimental!" Stanley ordered. "And double quick." The jeep roared off across the compound toward the Experimental Drive building.

Almost before they had started, they were there. The jeep's wheels had barely stopped moving when Stanley sprang out of it and toward the building.

Colonel Arthmore jerked his head up in surprise as the major general slammed into the room. The colonel didn't even have time to give a proper salute before Stanley said:

"Is that XV-19 ready to go? Can we have it in space within the next twenty minutes?"

The colonel blinked and nodded. "I think so, sir, if we rush it. We—"

"Rush it, hell!" Stanley snapped. "I want you to move faster than that ship can. It's the highest acceleration ship we've got, isn't it?"

"Yes, sir. We—"

"I want it ready to leave inside ten minutes. Take that as an order!"

"Yes, sir." The colonel had fully come to life now; he'd been galvanized into the same sort of quivering perpetual motion that was driving Stanley right now.

"And I don't want a word of what's going on to leak out of here," Stanley said. "Is that understood? If one word leaks, or if that ship isn't ready to go, I'll see to it that you'll never wear those birds on your shoulder again. Is that clear?"

"Yes, sir," said the colonel. "Anything else, general?"

"Nothing. Just stand by for further orders. Keep your phone open to Radar Tower One. This is a double - A - double - prime emer-

gency, and if we don't work it right a lot of people are going to die. Now move!"

But the colonel was already gone.

Stanley grinned at the retreating officer for a moment, then turned and headed back outside. He stood in front of the Experimental Drive building for a few moments, planning his next steps, wondering, extrapolating.

*XV-19,* he thought. *Arthmore should have it ready to go almost at once.* He cracked a knuckle reflectively, enjoying the feeling of knowing that for the next two minutes he could breathe freely. Things were moving, now; plans were under way.

The ship was coming down in New York or vicinity thereof, eh? That was a top-flight emergency—and called for emergency action.

He looked at his watch. It was hardly more than a few minutes since the whole thing had started, and it seemed like days. The hot New Mexico sun was still climbing toward noon, and the thermometer wasn't yet at its maximum for the day.

*No,* he thought. *The heat's yet to come.*

"Let's get back to the radar tower," he said to his driver.

As he plunged into the big room that made up the heart of the tower, two voices hit him at once.

"Captain Deering is yelling for you, general!"

"Data is in on the *Queen,* general!"

He grabbed the sheet of paper that the second man held out and ran toward the microphone that had been set up for direct contact with the *Martian Queen.* He grabbed it, started to say something, then covered it with his hand. "Did you say anything to Deering?"

"No, sir." The sergeant's smile looked twisted, as though he were worried. Everyone in the room knew pretty much what the situation was by now, and the tenseness was starting to spread through the men like a virulent epidemic. The air seemed to crackle.

"We figured that was your baby," the sergeant said.

Stanley grinned. "Thanks, sergeant." He took his palm off the microphone.

"Buddy? Neil here. How are things?" His voice was calm.

There was a moment of silence. Stanley let his eyes flick around the room, and he saw the expression of horror registered on the sergeant's face. Obviously the sergeant was thinking that Stanley had no right to be so calm in this sort of situation. He must have been even more shocked when he heard Captain Deering's voice come in after the time-lapse.

"Same old stuff, Neil. No propulsion, no escape. How do we go down there?"

"We've got your co-ordinates down pat now," Stanley said. "We can tell you almost to a hair where you'll hit."

A moment of silence. Then:

"Hit? You're sure we'll hit Earth, then?"

"No doubt about it, buddy," Stanley said. "If nothing happens between now and—*then*, you'll get a hot dunk in the ocean." He glanced again at the papers the sergeant had handed him. "Give or take a mile or so, you'll land in Long Island Sound about ten miles southwest of Bridgeport, Connecticut. Right in the drink, buddy—right in the drink."

There was a silence of a few seconds a third time—and Stanley waited patiently, knowing that the time-lag each time meant long seconds of agonized thought as Deering struggled to say what he had to say. Finally: "We can't let that happen, can we?"

"Nope." Stanley's voice was quiet and controlled. "You don't want your passengers to have an unexpected bath, do you?"

"No," said Deering. "Can you get a rocket up here in time?"

"Plenty of time," said Stanley. In the background, a large wall chronometer stroked off the seconds, ticking with consummate mechanical precision. "Don't worry about it."

## IV

Jerry Hammermill pushed himself unsteadily down the long corridor that led from his cabin to the Common Room of the ship, that large and congenial room in which the passengers of the *Martian Queen* tried to pretend that they were almost anywhere but aboard a spaceship.

He pushed open the hatch and swam into the middle of the room, hovering there in midair for a moment, his hands holding to the electrical unit in the ceiling.

He knew the danger he was in. At any moment, the ship could start accelerating, which would throw him to the deck with smashing force. But, somehow, that didn't worry him. Still, his fingertips were quivering, and his face felt stiff, as though it had been coated with varnish.

Jerry Hammermill had had a pleasant and profitable existence up to now, and the idea of having it all end through some freak accident didn't appeal to him at all.

Pushing himself away from the ceiling, he headed toward the bar. There was no bartender on duty during free fall, of course, so Hammermill helped himself. He groped behind the bar until he found a plexiplast globe of Scotch. He broke the seal and squirted the liquid into his mouth in hot, smooth jets.

Then he turned and pushed his way toward the nose of the ship, up where the captain would be. He felt a little better about things—but first he wanted to see Captain Deering and find out, first hand, exactly what was going on.

"Hammermill!" the captain shouted as he saw the passenger drift around the corner of the door.

"You heard, I believe, the order confining everyone to cabins."

Hammermill braced himself against the door and looked coldly at the blue-and-white uniform of the officer. Barr Spaceways wasn't exactly pretty when it came to uniforms, but it was impressive. He looked at Deering's tight, drawn face, and the hard eyes told him the answer immediately. His stomach crawled into a cold, hard knot.

"Well? What is it, Mr. Hammermill?" Deering asked angrily.

"Tell me this, captain," Hammermill said hoarsely, *"Why aren't we decelerating?"*

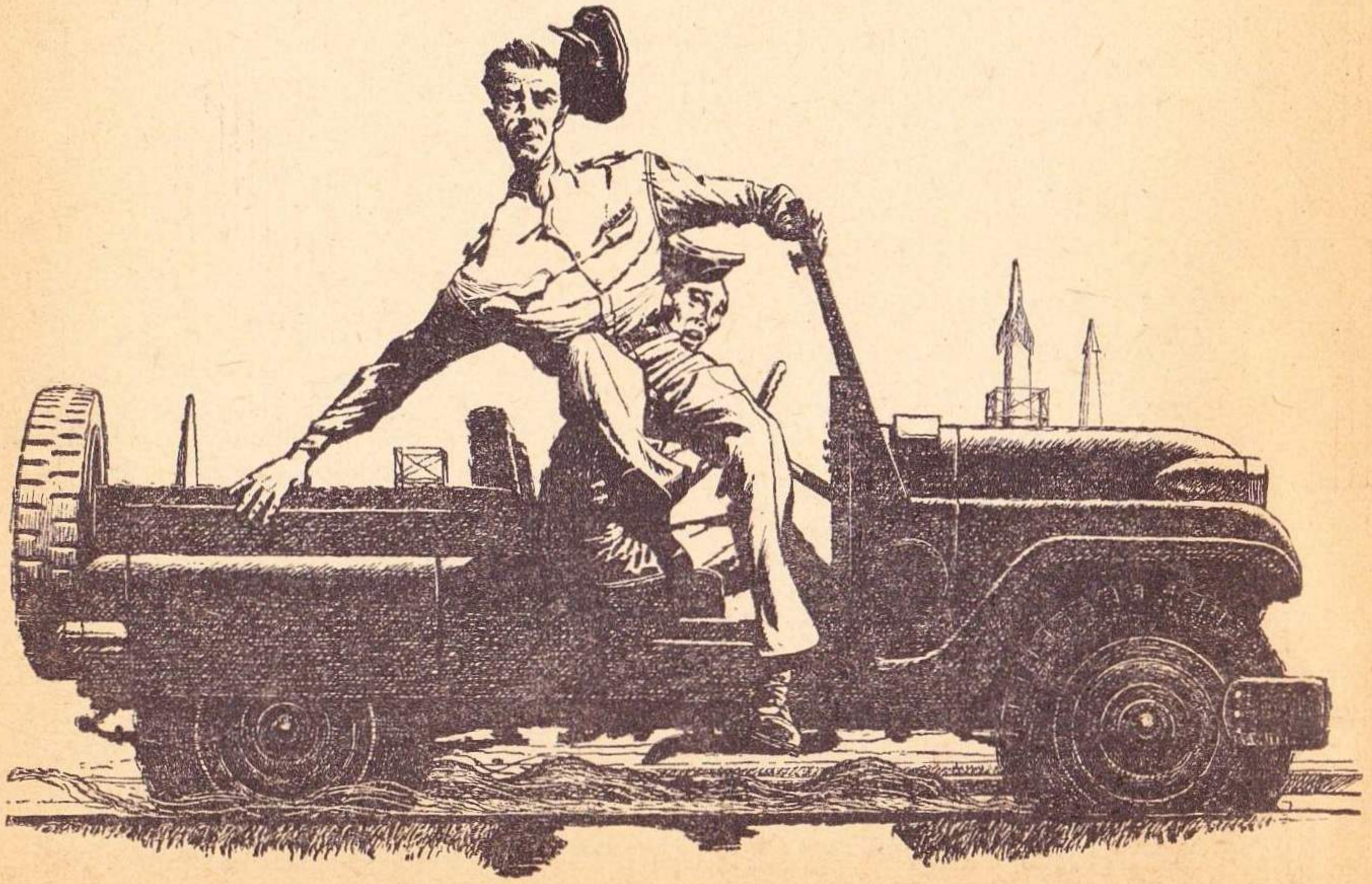
The blunt question echoed around in the captain's cabin, bouncing from the walls, turning Deering and Astrogator Bliven even paler. Hammermill looked as hard and inflexible as the captain as he waited for an answer.

"Technical difficulties, Mr. Hammermill," Deering said. "Everything will be taken care of shortly. You don't want to be caught on your feet if we start to accelerate." He glanced at Lieutenant Bessemer, standing to one side. "Would you show Mr. Hammermill back to his cabin, lieutenant?"

"You can't do this to me, Deering! I demand to know exactly what's happening aboard this ship."

"Mr. Hammermill, rest assured that everything will be taken care of. Bessemer, show him to his cabin."

The lieutenant moved forward



and clamped a hand on Hammermill's arm.

Hammermill's lean face became expressionless as he allowed himself to be propelled out of the cabin and pushed into the corridor.

"O.K., lieutenant," he said as the door to the captain's cabin shut behind them. "I'll go quietly. I didn't really mean to ask any embarrassing questions."

Bessemer gave Hammermill a shove, and drifted back into the cabin. Hammermill, floating along the corridor, glared bitterly backward and muttered a curse.

Then he frowned and swam on. He had learned absolutely nothing —except that they were in one hell of a mess. Deering had been utterly transparent.

The ship wasn't decelerating, and Hammermill knew enough about space travel to know that a spaceship an hour or so outside of Earth *ought* to be slowing down before it came in for a landing.

Were they heading for Earth, heading for the biggest pyrotechnic display in man's history, or would they miss the planet and head out on a hyperbolic curve to nowhere? Hammermill didn't know. But he did know they were in trouble.

"Deering didn't say a thing?" Edouard André asked.

"Not a thing," Hammermill said. "Except that what he accidentally told me between the lines is that the ship's out of control and going to stay out of control."

Mrs. Ledbetter glared at Parksel. "Is what this man says true?"

"You heard him yourself, Mrs. Ledbetter," Parksel said.

"What should we do?" asked someone else.

Hammermill surveyed the group he had hastily assembled in his cabin. There were ten of them, the first ten people he could find. He had gone around knocking on cabin doors, getting passengers to come together, and then he had told them the story, explaining carefully and precisely to them just what it meant not to be decelerating. Their faces registered blank disbelief, horror, shock anger, dismay—anything but determination.

Determination was what was needed, Hammermill thought.

Out loud he said, "I think there's a conspiracy on the part of the officers of this ship to keep us from full knowledge of what's been taking place here."

"Maybe they're just trying to prevent a riot," suggested George MacBride ominously. "Maybe they don't dare tell us."

"Probably," Hammermill admitted. "But at least some of us ought to know—this committee of passengers, at least. A few of us ought to know the score."

"What good will that do?" André demanded.

"I don't know," said Hammermill bitterly. "But at least we'll know what's coming off. Our lives may be at stake, and we're not being told anything."

From the corner of the room came a slow, muffled sobbing. Hammermill frowned. He didn't want hysteria complicating things.

"Why don't we all go to the captain?" he said. "He can't lie to all of us."

"Good idea," someone said.

"Let's go!" said another.

Excitement started to spread through the group—terrible, irrational excitement of people who believed that if they only made enough noise, they would be saved.

Captain Deering studied the sweeping red second-hand of the chronometer on his wall. Then he turned to face Bessemer.

"I'm going up to the astrogation dome with Bliven. I expect Hammermill to stir up some trouble, and there'll probably be more passengers coming down to ask questions."

"What should I say, sir?"

"Tell them nothing," Deering said firmly. "There's no reason why they should find out we're going to smack into the Sound until the split-second we do it—and we won't have to worry about that if Stanley can get his rocket up here."

"You think White Sands can get a rocket up here in time?" Bessemer asked.

Deering nodded. "I don't doubt it," he said. He watched the lieutenant's eyes light up at the thought that the catastrophe off Bridgeport might yet be averted, and turned away. "Keep the paying customers calm and collected, Bessemer. And don't bother me unless it's absolutely necessary."

Edouard Descartes André, left alone, stared feverishly at the row of shining rivets studding the wall immediately in front of him.

*It's all a trick,* he told himself. *They've found out somehow that Hammermill and I were running that con game with the beetles on Mars, and they know that if they can get us before we reach Earth soil they have us. They must have changed the orbit of the ship somehow in order to drop the two of us off at that Space Station instead of taking us to Earth. That way they can extradite us somehow right back to Mars. Oh, the stinkers. The dirty stinkers,* he thought.

He kicked savagely against the wall. The recoil shot him instantly across the cabin, where he fetched up against the other wall with a gentle thump.

*The dirty stinkers,* he thought.

Mrs. Ledbetter's thoughts were running the same way:

*If I don't get back to Earth, my nephews divide up my money and even Parksel gets some of it and . . . Oh, no, Parksel won't get back either . . . and that deal with Consolidated will fall through, and isn't General Enterprises going to love that?*

*Oh, those swine! Could General En be low enough to sabotage this whole ship just to keep that deal from coming off?*

Across the cabin from her, Parksel was frowning nervously. He was worried, too.

*Even if I get out of this alive and she doesn't I lose out on the will. I don't inherit if she dies violently. Damned codicil.*

"It's all right, Ruby, baby," Fred Armbruster said almost desperately. "We're going to come through it all right."

Ruby looked at him sharply. "There's no sense trying to talk it away, Fred. Hammermill says we're going to crash, and we'll all be killed." Her eyes were red-rimmed from crying, but she wasn't crying now. She was poised and cool in the face of death, long past the point of hysteria—or so it seemed. In that moment, Fred felt suddenly proud of her.

Then the veneer cracked. "God, I don't want to die!" she screamed. "Can they get a rescue ship up here? Fred, do something! Do something!"

"There's nothing I can do, baby," he said dully.

On the other side of the ship, those same words were being spoken by George MacBride. "There's nothing I can do, Marian."

"Do you think Hammermill's right? We're not decelerating, he says. We're still in free fall."

"The Space Service knows what it's doing," MacBride said hopefully. "They'll get us out of it. You wait. I'll bet a rescue rocket's been dispatched from Earth already."

"Will it get here on time?" Marian asked.

"I hope so," MacBride said. "It better."

The other passengers were going through much the same thing, as the rumors filtered through the *Martian Queen*. Word was spreading, now. As the ship plunged onward at twenty miles per second toward Earth, seventy-five pairs of passengers discussed and re-discussed the situation, while Captain Deering remained holed up in the astrogation dome with Bliven, and while, on Earth, Major general Neil Stanley crumpled the memorandum that told him the XV-19 was ready, and dropped the wad of paper into his pocket.

The rocket was ready to go. *Good,* he thought.

He grabbed the phone and dialed Experimental.

"Colonel? Stanley here. Received memo. Confirmation?"

"Confirmed," Colonel Arthmore said.

"Fine," said Stanley. "We're ready to send the XV-19 up, then." He gave the officer full and explicit instructions, and recradled the phone. Nothing further remained to do except talk to Washington.

"How's that call to the Pentagon coming?" he asked the sergeant.

"No reply yet, sir. They said this was a high-level decision; the staff would have to assemble."

Stanley glanced at his wrist watch and grinned without humor.

There was still time—not much, but enough. "Sure," he said. "Well, relay it to my office when it comes through. I want full vision on the phone; this has to be impressive as all blazes."

"Yes, sir."

"Meanwhile, let me talk to Deering."

"Yes, sir."

The radio was open, but there was a delay of a few seconds before the captain of the *Martian Queen* spoke.

"We've got trouble at this end," Deering said quickly when he came on. "The passengers know we're in trouble. I've got a hundred and fifty hotheads on my hands now. The situation's ready to blow."

"How did it get out?" Stanley demanded.

"We couldn't keep it secret, Neil; you know that. There was bound to be someone aboard who knew enough to realize we were in trouble, and didn't know enough to keep his mouth shut."

"Well, it'll be easy enough to quiet them down," Stanley said. "Just tell them that a rocket is on its way. See what I mean?"

There was an odd sort of grim humor in Deering's voice. "I'll tell them. Can you send up a teletype to that effect? It'll look more reassuring on paper."

"I'll get it up right away." Stanley paused and took a deep breath. "When the XV-19 gets up there, you may have to guide her in. Can you do that?"

There was no hesitation at the other end. "Sure. Easy. Good luck, Neil. You'll need it."

"I know. And good luck to you."

There was a faint chuckle in Deering's voice as he said: "That sounds like Pooh-Bah's toast to Nanki-Poo. *'Long life to you—'* "

"I didn't mean it that way," Stanley said.

"I know. So long, Neil."

Stanley nodded wordlessly and stood up. "Sergeant, as soon as that call comes from Washington, relay it to my office."

He turned and strode out the door.

## V

Lieutenant Bessemer stood his ground in the Common Room as best he could. He had one hand braced tightly against the wall behind him, and the other doubled up into a fist at his side.

There were over a hundred people in the Common at the time, milling uncertainly in the strange free-fall situation, but Bessemer was addressing his words to Jerry Hammermill.

"You've been spreading rumors, Hammermill," the lieutenant said loudly. "You've gotten these people all excited over nothing."

Hammermill started to say something, but a fat man near the bar bellowed, "I wouldn't call it nothing! If we're all in danger, we ought to know about it! We ought to get into the lifeboats!"

Hammermill turned and showed his teeth in a hard grin.

"You're not on an ocean liner, mister. This is a spaceship. There aren't any lifeboats on a spaceship."

A woman was sobbing in the background. No—it was a man.

Mrs. Natalie Ledbetter said quietly, "Will we need parachutes, young man?"

*"Parachutes?"* Hammermill almost laughed. "Parachutes? At twenty miles a second? No, grandma, no parachutes."

The old lady flashed a withering glance at Hammermill. "I was talking to the officer, young man. I'll thank you to shut your silly face; you've caused quite enough trouble already." She looked at the lieutenant again. "Just what is the situation, young man?"

Bessemer clenched and unclenched his fist. "We are in some trouble," he said, trying to keep his voice cool. "I can't deny that. But the captain has authorized me to tell you that we absolutely will not crash. The ship will not hit Earth."

Fred Armbruster waved a hand in the air. "That's a lie!" he shouted. "That's a dirty lie! Have any of you looked out the viewport? You can see Earth! And we're falling towards it—directly towards it! It covers half the sky dead astern!"

George MacBride turned to face Armbruster. "Keep your mouth shut! You're as bad as Hammermill."

Armbruster's eyes blazed. "Don't tell me to . . . hey, I know you. You work for Breckmann. I can tell you right now, buster, *you're fired!*"

Marian MacBride gasped. George's blocky face assumed a nasty grin. "As long as I'm being fired," he said slowly, "I might as well be fired for something worthwhile." His fist came up in a crashing arc and landed on the point of Armbruster's chin. Armbruster went into a high, curving backflip that brought him up against the farther wall.

MacBride, on the other hand, found himself drifting backwards from the force of the blow. Unable to check his ride, he slammed into Edouard André.

"Who ya shovin'?" André yelled angrily, throwing a punch in sheer reflex action.

It caught MacBride in the ribs, just under the heart, and the Irishman doubled up as he spun in air. Marian MacBride saw what had happened and grabbed an enameled red-and gold ashtray from the bar. She hurled it with unerring aim at André's head. The plastic bowl bounced off André's skull and hit another man nearby.

Everyone's nerves were stretched to maximum tension anyway, and at this show of violence, nerves which had been vibrating like violin strings suddenly snapped. Somebody pushed somebody else. Fists began to piston out at faces. There were screams and oaths. Within two seconds, the Common Room was boiling over with a full-fledged riot. A mob of semi-hysterical people was finally getting

the action it wanted. Subconsciously, each and every one of them knew that action had to be taken, and this was the only type of action it was possible to take.

Mrs. Ledbetter received a foot in the stomach and went flying wildly backwards across the bar. Parksel saw it, and something in his mind clicked. He had thought he hated the old harridan for years—and it wasn't until that moment that he realized exactly how much affection he actually did have for her. He launched himself across the room, kicking off against the rivet-studded bulkhead, and slammed headfirst into the back of the kicker.

Fighting in free fall is not the easiest thing in the universe to do. A well-placed punch has as much effect on puncher as it does on punched. The room was full of floating, drifting, moving bodies which were doing their best to inflict violence on every other body in the vicinity. Only a few people had sense enough to hold on to something.

Ruby Armbruster's stomach was no longer queasy. Her legs were clamped tightly around the cold, streamlined metal of a decorative pillar, and her eyes were hard and cold as she swung her small fists to keep people away from the unconscious body of her husband.

Lieutenant Bessemer had acted almost immediately. His fist had smashed into Jerry Hammermill's face, and without waiting for further argument he had turned to get out of the room. Screaming raucously, Edouard André launched himself at Bessemer's back, and the two of them slammed against the nearby door. The lieutenant, however, was a spaceman, used to handling himself in free fall, and André was not. Bessemer came out of the scramble with a black eye, but André was unconscious, hovering two feet off the floor, dazed by a rabbit punch to the neck.

Captain Deering was s t a r i n g through the transparent dome in the nose of the ship at the bright, hard dots of the unmoving stars outside. It was good, he thought, that the ship was falling tail first; having to look at the green bowl of Earth ballooning up towards them would have been unnerving, even for him.

He turned from the dome just as Bessemer burst into the room.

"I told you not to—"

"Sir," B e s s e m e r interrupted, "those people have gone nuts down there! They're tearing up the Common Room—and each other!"

Deering frowned. "You look like you got one in the eye yourself," he said. "They're really cutting up, eh?"

Bessemer nodded. His left eye was bruised and blackened. "They've lost all control of themselves."

"Hm-m-m." Deering handed the lieutenant a sheet of teletype flimsy. "Get on the PA system and read them this. Then take it down there and let them get a look at it. Don't try to explain anything."

Bessemer saluted, took the flimsy,

and went down the catwalk to the master-control panel for the Public Address network. He flipped the switch and took the microphone from its niche.

*"Your attention please! Your attention please! The ship is falling out of control, but there is absolutely no danger of our hitting Earth. A rocket from the spaceport will be here in two minutes. Repeat: a rocket from the spaceport will be here in two minutes. Please wait quietly, and be ready for it when it comes."*

He cut off the PA system and turned to find Deering standing behind him.

"Was that right, sir?"

"That was exactly as it should have been phrased," Deering said. "Take the flimsy down now and show it to them. That ought to quiet them down a little."

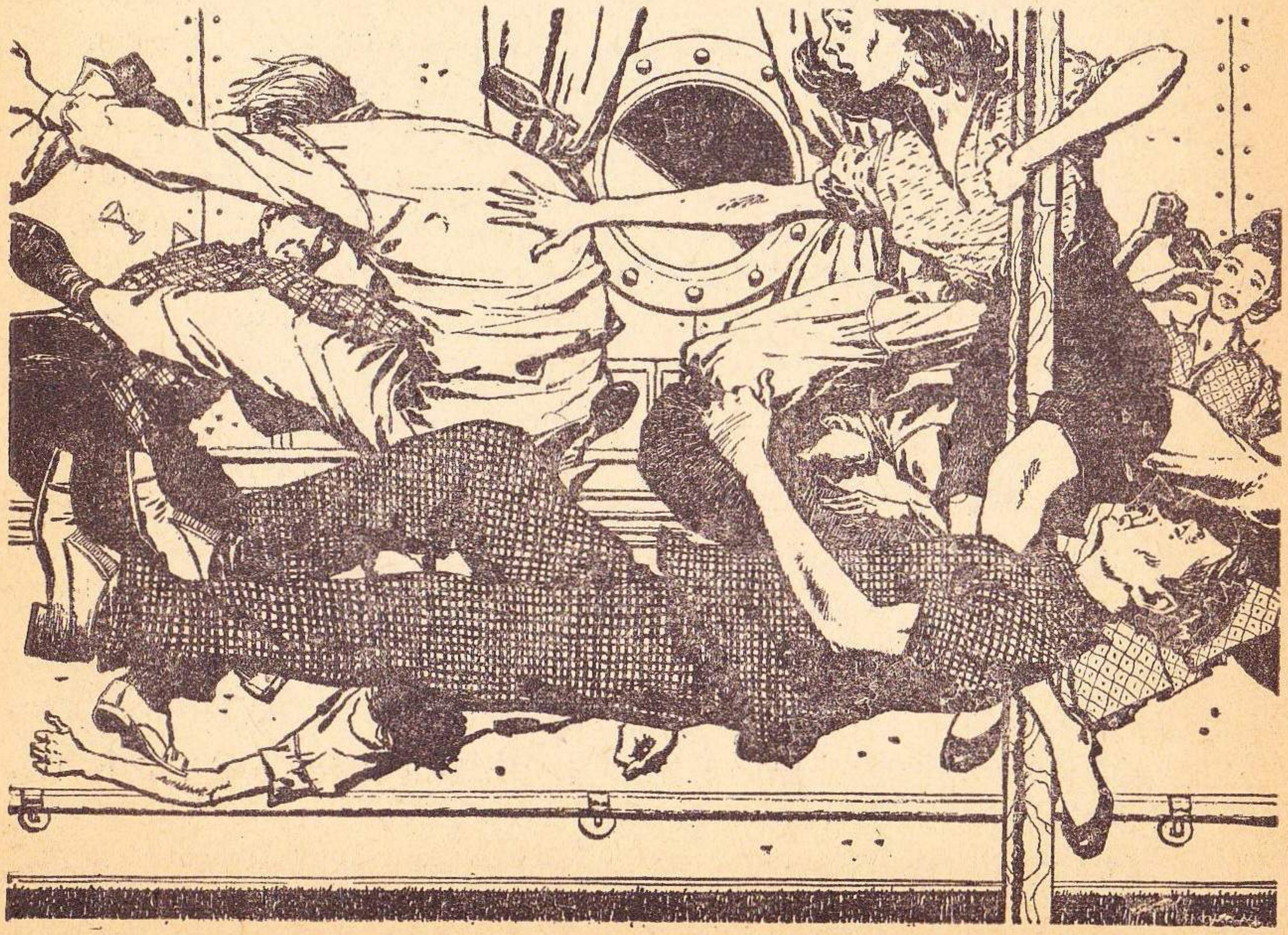
Bessemer nodded wordlessly.

The lieutenant made his way through the corridor back to the Common Room, grasping the handholds along the ceiling to rush his passage.

The Common Room was strangely quiet when he entered. Everybody who was still conscious was looking at the door as the officer came through it.

He unfolded the teletype flimsy. "Here's the message," he said crisply.

George MacBride, who was nearest Bessemer, took it, and read it. A



slow smile crossed his face. "Two minutes, eh? Doesn't give us much time to pack."

"It's a minute and forty-five seconds now," Bessemer said. "You won't be able to take any personal possessions with you, I'm afraid."

"But does that mean we have to leave our money and baggage here? Can't we take anything along on the rocket?" asked Mrs. Ledbetter. She had a fortune in blue-white Mars diamonds along with her, and she didn't care to lose them without an argument.

"I don't see how you can take anything with you," Lieutenant Bessemer said. He glanced at his watch.

His eyes roved around the Common Room. Over against the wall was a broad-shouldered man who had simply kept himself out of the free-for-all.

"Father," Bessemer said, "the lives of everyone on this ship are in danger. I wonder if you would lead us in prayer."

The priest nodded gravely.

*"Our Father, who art in Heaven—"*

## VI

Major general Neil Stanley lifted his eyes from the screen before him, and glanced wearily at the clock on the wall above it.

*Twenty-three minutes!* Had it been only twenty-three minutes since the *Martian Queen* had gone out of control? Had it been only a little more than a quarter of an hour since all hell had broken loose?

Outside, the sun was near its peak height, and blazing down brilliantly on the baked sands of the spaceport. Stanley looked back at the television screen, where the images of five men were pictured—three civilians, and two five-star generals.

*Five stars. It would have been nice to get five stars,* Stanley thought. Five? It would have been nice to get two. But that would never happen now.

General Hagopian was a short, dark, hawk-nosed man whose chocolate-brown eyes reflected shrewd intelligence. He looked out of the screen and said, "The ship will land in Long Island Sound, then?"

"If it's not stopped, yes," Stanley said, for what must have been the twenty-seventh time.

One of the civilians—no one had bothered to tell Stanley exactly which high-level members of the Administration he was dealing with—said, "Is there any way at all to get the drive of that ship going again? Don't they carry repair technicians, or something like that?"

"I have Captain Deering's report," Stanley said. "He states flatly that the main converter and the secondaries are absolutely and completely ruined. It would be, I assure you, impossible to fix them in the next fifteen minutes, even with the best intentions."

The civilian ignored the sarcasm. "Well, how about a rescue ship?

Couldn't we get one up there in time to take those people off?"

Stanley paused and said, "Sending up a rescue ship is impossible, sir."

"Why's that?"

"It would never make it. They would have to accelerate to take off, decelerate to match velocity with the *Queen,* and then accelerate again to keep from hitting Earth. Counting the time it would take to get all the passengers and the crew off of the *Queen,* it would require"—he made a rough mental computation—"more than an hour, even if we used all the acceleration the passengers could stand. I'm afraid it won't work."

General Hagopian said: "Then there's absolutely no way we can save them?"

"None whatsoever, sir. There just isn't time."

Another of the civilians said: "We're just lucky this time, I suppose."

"What's that?" Stanley asked.

"I mean, it's too bad all those people have to die, but at least they'll only hit the Sound. It would have been catastrophic if they'd hit a populated area. Only by the merest whisker of fate did that ship aim for the Sound instead of any of the cities on the Eastern Seaboard! Can you imagine what would have happened if the ship had landed in—"

"I'm afraid you don't understand, sir," Stanley said. "It isn't the Sound we have to worry about—it's the *sound.*"

The five men blinked.

"What nonsense is this?" asked General Hagopian.

"Just exactly what I said, sir. It doesn't matter whether that ship lands in the water or not, because it's never going to land in one piece anyway. That ship is coming into Earth at twenty miles per second. When it hits the atmosphere, it's going to go to pieces in a hell of a hurry. It will burn and collapse.

"But its actual impact with Earth's surface isn't going to be the thing that will do the damage. It won't matter whether it comes down in Long Island Sound or in Times Square—it's the impact with the atmosphere that will cause about twenty million deaths."

No one said anything. The five men in the screen looked at him in blank-faced horror.

"You know what happens when a jet plane goes over a city too low?" Stanley said. "A supersonic jet can break windows. What sort of sound wave do you think a five-hundred-metric-ton spaceship will cause at—*seventy-two thousand miles an hour?*

"I'll tell you. It would flatten every structure for miles around. If that ship hits Long Island Sound, New York City will be toppling in ruins before it ever arrives! Every town on Long Island is going to be pancaked. From Newark, New Jersey, to Hartford, Connecticut, that shock wave will knock over everything standing. This isn't a matter

of a few people in a ship dying; it's a matter of millions!"

The civilian looked at General Hagopian.

"He's right," said the general, in a strangled voice.

"How much time do we have left?" the civilian demanded, white-faced.

"Only a few minutes," Stanley said coldly. He looked at his watch. "Hardly any time at all."

"Why didn't you call us before this?"

"I called as soon as I heard," Stanley said. "It took time to get all you people together. It took time to compute what was going to happen."

In the background of his screen, he saw two of the civilians engaging in some rapid-fire exchange of conversation.

"Can we evacuate?" the third civilian asked.

"In five or six minutes? Don't be silly." Stanley seemed utterly cool now, in sharp contrast to the five who faced him. "We couldn't have gotten all those people out of that area even if we'd started evacuating the moment the *Queen* had its accident—or half a day before, for that matter."

The civilian looked angry, but he said nothing.

"What do you suggest, general?" said Hagopian.

"There's only one thing to do," Stanley said levelly. "We'll have to send up a rocket with an atomic warhead and blast that ship into gas before it hits."

There was a stunned silence. Stanley counted five before anyone spoke. This was the moment he had waited for—the moment when he had to give the brass the only answer to the problem of what to do with the oncoming *Queen*. The reaction was as expected.

The civilian said: "*Are you crazy?* Blow up a hundred and eighty innocent people? There must be some other way."

"But there isn't," Stanley said flatly. "There never has been. There is only one thing to do."

"But we can't permit that!" the civilian protested. "It's murder!"

"Murder? Is it murder to kill people who are already doomed? Is it murder to save the lives of twenty million people? Pardon me for being melodramatic, but I don't like the idea any better than you do. It was difficult for me to convince myself that t h e r e was no other way."

"There *must* be another way," said the civilian frantically. "Send up a rescue ship immediately! Hagopian, order him to send up a—"

Stanley's jaw muscles stood out. Without waiting for the civilian to finish speaking, he said, "Look here, you blockhead. Do you understand that it's *impossible* to send up a rescue ship? Do you understand that I can't pull miracles out of a hat? It's as impossible to send up a rescue ship as it is to catch the *Martian Queen* with your bare hands."

"You can't talk to me that way, general!"

Stanley glanced at Hagopian. The military man was saying nothing, but there was the faint suggestion of a smile around his thin lips.

"I'm simply trying to get you to understand," said Stanley. "All of you. *There is no other way out!* None! Those people are going to die. D-I-E. It would be better if they died without taking a few million people with them. Is that clear?"

Stanley waited for a reply, and, sure enough, it was forthcoming. One of the other civilians said, "Couldn't we divert it from its course somehow?"

"Not without destroying it," Stanley said. "Which is exactly what I want to get permission to do."

"I'm afraid that's impossible, general. The public would never sanction—"

*"The public be damned!* It's the public who is going to die! Die! Do you understand that? Twenty million people! Twenty million corpses to dig out from under ten thousand square miles of rubble!"

"That's ridiculous!" said the third civilian. They were doggedly trying to talk Stanley out of insisting on this thing, it seemed. "How could a shock wave do all that?"

"How could it do it? It's done it! Didn't you ever hear of the Great Siberian Meteor that landed around 1908? It only came in at a speed of ten miles a second or so—half the *Queen*'s—and it laid waste hundreds of square miles of forest. Trees fell like matchsticks. And this ship is going about twice as fast!"

"There must be something else we can do," said the first civilian stubbornly.

"All right," Stanley said. "Start making suggestions."

"Well—"

"Exactly. There is nothing else we can do," he repeated. He glanced again at the clock. "Do I have your permission to send up an atomic warhead, then?"

"No!" came the answer. The first civilian was doing all the talking now. "That's out of the question. There must be another way."

"There isn't," Stanley said. "And wishing won't make it so. You can't wish away the laws of the universe —you've got to obey them. And that's exactly what the *Martian Queen* is doing! And that's exactly what New York is going to do when that shock wave hits!"

He paused and stared at them. "I ask you again: Do I have permission to send up that bomb?"

"I hardly see how we can sanction it, general. We'll have to find some other way."

Stanley looked at the clock and sighed.

"It's too late now anyway," he said softly. "While we've been haggling, the *Queen* has been falling. It couldn't wait. Even if you ordered it, I couldn't get a bomb up there now."

Two of the men looked fearfully

out of the window toward the north. Stanley caught the gesture; he couldn't see the window on his screen, but he knew what they were looking for. From Washington, such a display would be easily visible.

"Oh, it won't land," said Stanley. His voice sounded old and tired. "There won't be any crash. I sent up an XV-19 under robot control several minutes before you gentlemen got together. It was loaded with a thermo nuclear warhead. Captain Deering will—or I should say *has*—guided it in. The *Martian Queen* was vaporized over a minute ago. It was the only thing to do."

One of the men covered his face with his hands. Stanley wondered who he was.

"I presume you know what this means," asked General Hagopian quietly.

"I know," said Stan.ey. "If I get out of it with a whole skin, I'll still lose everything I've ever worked for. It doesn't matter. At the court-martial, I can still know that I've saved the lives of millions of people."

General Hagopian nodded. "That will be a point in your favor. But there's nothing else we can do; you can see that. You'll have to roast." Then Hagopian looked steadily at Stanley. "You're a very brave man, general. It's too bad that most people will never understand what you did—and why."

Stanley forced a smile. "The people who matter will understand, general. And they're the only ones who count."

THE END

# IN TIMES TO COME

The solutions to the problems of living that three billion years of evolution has worked out here on Earth are, obviously, valid. They work. That is—they work, here on Earth. But on other planets, equally workable, but bafflingly different systems may be encountered. Intelligence *seems* to be a single thing—as obviously singular as the one and only one parallel line through a given point of Euclidean geometry.

That one, however, has turned out to be not quite so universal as it was "obvious."

James Schmitz's back, with "Sour Note on Palayata"—and a question about the "obvious, inevitable" nature of intelligence. Be with us in the next issue—with a cover by Kelly Freas.

THE EDITOR.

# CERAMIC INCIDENT

## BY THEODORE L. THOMAS

***Even when a crew is anxious to go home...there are some things that so blaringly demand attention they have to stay. Like a quite silly set of advertisements, for instance....***

Illustrated by Freas

Four years is a long time to be away from home. Too long. It matters not what wondrous spectacles daily greet the eyes, what fascinating lore daily confronts the mind. There finally comes a time when a man is satisfied with the awesome wonders of the galaxies, when a new planet is just another cosmic mote. The most fascinating of explorations begins to pall after a while. And four years is too long to be away from home.

Scott sat at the controls and began to jockey the explorer ship *Beagle* into orbit. The skipper sat alongside him studying the huge planet below and listening to Moody call off the characteristics of the planet over the intercom.

"Diameter eighty thousand miles. Total atmospheric pressure six hundred millimeters. Partial pressure of oxygen one hundred millimeters."

The forty-one men aboard groaned as one, and Moody continued, "I heard that and you're right. It means spacesuits for you girls if we have to stop off and explore this one. Hah! Here's the rest. Water content of atmosphere two per cent. Ozone, chlorine, methane, sulfur oxides less than one part per million. Carbon dioxide Point two per cent. Speed of rotation thirty-two hours. Gravitation—get this, about two gee's."

Scott looked over at the skipper questioningly. The skipper shrugged his shoulders and said, "I don't get it. That's way too low for a planet that srze." He pushed the switch for the spectroscopist's lab and said, "Moody, why the low gee?"

Moody answered over the intercom so all the ship could hear. "No heavy metals, skipper. The mass is small for its size."

Scott continued the tedious job of jockeying the ship into optimum observation orbit. The rest of the men fell quiet waiting for their work to begin.

Swetland, the linguist, stared morosely at the screen that showed the outlines of the planet below. He was a slight wiry man, quick of speech and nervous of manner. He shook his head sharply and said to Pond, the metallurgist, "Doesn't look very promising, does it?"

Pond shook his head, a broad smile on his heavy face, "Nope. And need I point out my unbounded joy? If this planet is of no interest to us, we'll be on our way home in a day or two."

"Nuts," said Swetland. "You metallurgists have no sense of duty. You have no interest in the unknown."

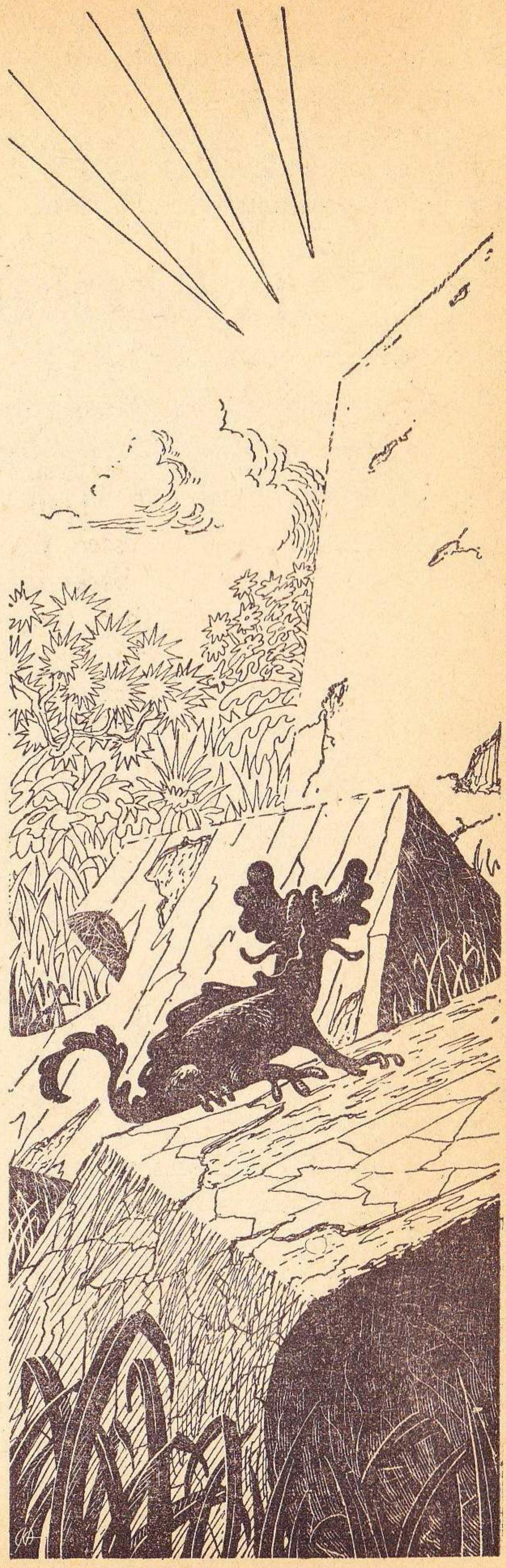
Pond threw back his head and laughed. "What you really mean is that we metallurgists don't have a deputy sheriff waiting for us to set foot on Earth. We're just dull law-abiding citizens who never have women chase us with subpoenas."

"Nuts," said Swetland again. "Can I help it if women find me fascinating? Anyhow I like it out here. Where else can you—"

"Orbit," came Scott's voice over the intercom. "Man observation posts. Observation procedure."

"So long," said Swetland as Pond got up to join the spectroscopic team. "I hope you find something for me to do."

"Not me," said Pond. "I hope



all you have to do from here on out is sit on your dead duff. It doesn't look like your services will be required on this planet. No signs of life below. Why don't you fall asleep or something?" And he got out before Swetland could reply.

For two hours the forty men worked hard at their posts. The zoom lenses swept in and out picking out broad and fine detail. Cameras made a permanent record of the more important planetary features. High-frequency beams licked out and gently caressed the planet's surface, sending back information to the orbiting ship, spectroscopes probed deep and added their information to the total.

At the end of the two-hour period the crew sat back and relaxed. The skipper and Scott sat down at an open mike and discussed their findings with the whole crew listening in.

"I make it this way," said the skipper. "The planet is old. There is no intelligent life on it now although it had such life thousands of years ago; the ruins and those blocks show that. There is some vegetation and some animal life, but nothing significant. It does not look as if we will have to stop here but . . ."

A whoop broke out of the men, and the skipper went on:

". . . But in view of those blocks and the markings on them we will have to see what they say. They seem to be some kind of route markers for air travel; they stretch up along the length of the longest continental mass. We'll send a team down to take a look at those blocks and a couple of the ruins. If nothing really significant turns up we'll be Earthbound in three days. Team Number One prepare to go below. That is all for now."

Pond returned to the tiny room he shared with Swetland and said, "Well, I guess you got yourself a three-day delay anyway. Have a good time down there and I hope you suffocate in your suit."

"Thanks, friend. I'll see you later." And Swetland went off to join the planetbound party.

The exploration proceeded with the swift sureness born of long and successful teamwork. Each man plunged into his own specialty with an eye cocked for those things which might be important to a different specialist. This co-ordinated and intense study seldom failed to throw a vivid light on any culture studied. It did not fail this time. In ten hours the team was back aboard the *Beagle* with an excellent resumé of one hundred thousand years of history.

Scott and the skipper took up their positions in front of the mike so all the experts could listen.

"Nothing too promising," said the skipper. A sigh of relief went through the ship. "They must have lived under a big handicap with no metals except a little copper. Their entire society was based on ceramics. Krewson picked up a fragment

that may give us a new ceramic; he's working on a sample now to see what it is. That fragment has some writing on it so Swetland will see if he can decipher the language. The people died thousands of years ago apparently because the birthrate fell off. There's not very much left down there so it would be a real task to try and find out about some specific detail. Anyhow, as we see it now all we have to hang around for is to see what those markings on the big blocks are. That's all for now till we hear from Swetland."

Pond got out of the room so Swetland could work better. But every now and then one of the other men would drift into the room to see how Swetland was doing. He put up with it simply because he had to. The sentiment for going home was so strong that a lone dissenter like Swetland couldn't very well stand against it.

Finally Pond stepped in. "How's it going my misanthropic friend?" he said.

"If you guys would only let me alone for a while, I'd have this thing cleaned up," Swetland snapped. "I've just about got it now."

"Well," said Pond, "I thought I ought to let you know how the crew feels. I understand that if you turn anything up that keeps us here the men are inclined to make you eat that little piece of ceramic you are working on."

"Oh, they are, are they? Well you tell them for me that I'll try harder than ever now. And keep them out of my hair for a while."

"O.K.," said Pond, heading out the door. "But they're half serious about this, particularly since Krewson has found out what the ceramic is. It's a simple thing—seems it won't kill you at all, just make you sick. Hurry up. I want to get cleaned up." And he slid the door shut behind him.

Half an hour later Swetland came out with the job done. "Nothing to get excited about," he said. "I can read the words but they don't make a great deal of sense. They must have been used as some sort of reminder to fliers. Look here. Take that series of eight markers going up the mainland."

He walked over to the sketch board on the bridge. As many as could fit followed him with the rest crowding in the adjoining corridors. "The word on the marker at the top," he said, "is 'yours' or 'for you.' The fourth one from the top is the name of a person, apparently. It translates best as 'Jarfs.' The word at the bottom is 'nothing' or its equivalent. I can understand all the words fine, but they do not have a great deal of significance. So I'm afraid I must say that I do not think those markers are worth spending any time on. I have nothing to suggest."

The crew broke into broad smiles and looked at the skipper for the orders home. The skipper rubbed

his cheek reflectively. Pond broke the silence by saying:

"Well. You all figure it out. I'm going to get myself a nice shave."

Swetland stared at him, mouth open, eyes wide. "Wait," he shouted, "that's it. Shaving cream. I knew I'd seen something like this before. Remember? Out in the rural areas on Earth. Those signs along the road, the ones with a jingle on a series of signs along the road telling you about a shaving cream. That's what these markers are. Look here."

He wrote rapidly on the board, erasing occasionally, and referring frequently to his notes. The others watched closely. In a very short time he said, "That's it all right. You read up from the bottom. See? Here's what it says." And he held up a sheet of paper for them to read.

It said, "No matter / what you / think / or do / Jarf's / is just / the thing / for you. / "

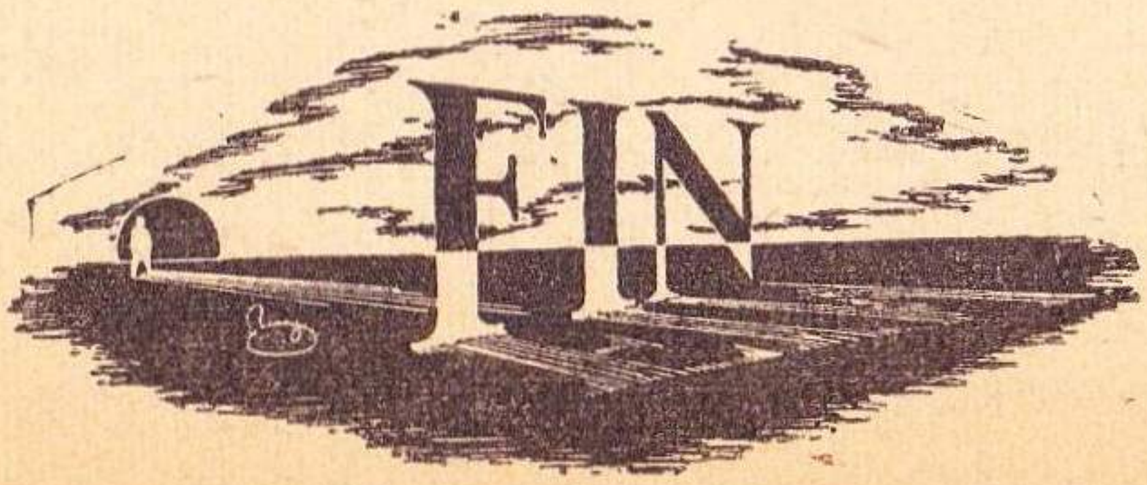
"That's all it is," said Swetland. "Nothing but an advertising jingle. Hardly worth the effort to read it."

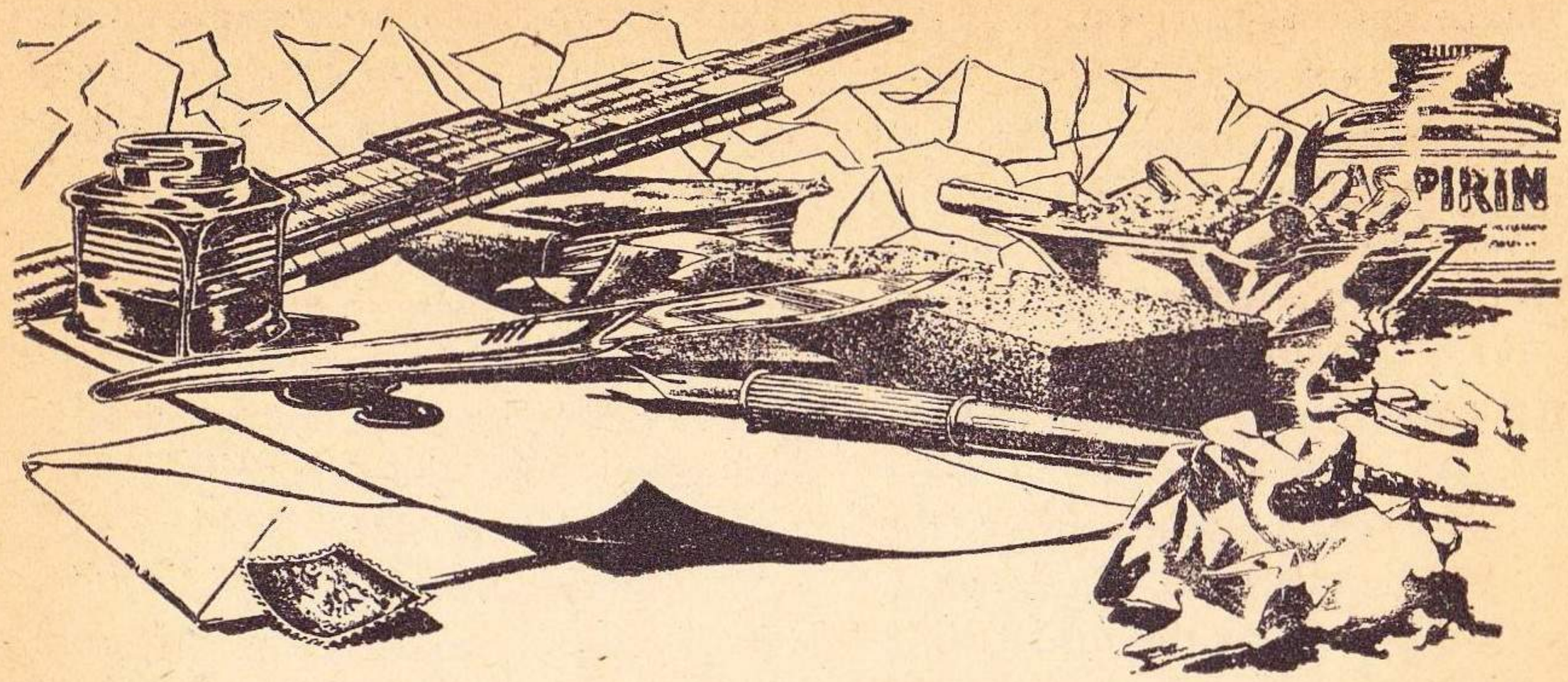
The crew whooped and howled and pounded each other on the back. Their voices made a bedlam in the crowded interior, "Haven't seen my son since—" "Dinner at Antoin's and—" "Old Howard, here I come." The tumult increased in tempo until those nearest the skipper noticed that he and Scott were soberly staring at one another. Gradually their ominous silence spread throughout the entire crew. And pretty soon the silence was so thick it was oppressive.

The skipper spoke in a voice so soft it almost couldn't be heard. "I've seen those shaving-cream signs on Earth. They were about twenty-five to fifty yards apart, depending on how fast traffic could travel on that particular road. These signs are about five hundred miles apart. How fast do you have to go to read signs spaced like that in a smooth easy sentence?" He paused a moment and then went on. "What kind of ceramic will allow you to build that kind of aircraft?" Again a pause, then very softly, "We'll have to stay and find out."

The stunned crewmen looked at each other. Gradually all eyes swung to Swetland. He backed slowly out the door and then suddenly turned and ran. The crew bellowed after him in his wake.

Pond caught up with him first.






# BRASS TACKS

Dear Sir:

Re: Registered Trade Mark MY-CALEX

I have just read your article entitled, "Psionic Machine—Type 1," appearing in the June, 1956 issue of *Astounding* Science Fiction. On page 104, you have used the word "micalex" and have described an insulating material made of mica which is bound by glass. Undoubtedly, you are referring to glass-bonded mica manufactured by our client, Mycalex Corporation of America, under its registered trade mark MYCALEX. It seems that you have mistakenly used the word "micalex" in a generic sense and this is clearly improper and contributes to watering down the value of this registered trade mark.

We appreciate that you had no intention of harming the valuable property rights of Mycalex Corporation of America. However, in order for us to protect our trade-mark rights, it is necessary for us to call to your attention such a misuse of our registered trade mark. We should appreciate your noting this in your records in order to prevent error and confusion in the future.

Thank you for your co-operation in this matter.—Myron Cohen, Hubbell and Cohen, Counsellors at Law, Patents and Trade Marks, 8 West 40th Street, New York 18, N. Y.

*Sorry for the slip; I had never seen the word spelled out!*

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Dear Mr. Campbell:

Being for the moment unable to recall who wrote the memorable story, "Gift of Gab," I am writing to you. Perhaps you will be able to pass the letter along to the author.

Some time ago, I read an article titled "Darwin Was Wrong" wherein it was argued that the capacities of the human brain must have been developed in anticipation of the uses to which they could be put in modern culture. The theory was that these capacities could not have been fully exercised under primitive conditions, and, hence, that the organ of thought could not have been called upon to develop, on the Darwinian basis of survival-value.

This proposition, in itself, will probably raise enough heated controversy to satisfy any contentious spirit, but I wish to raise only one point. May it not be that the unformulated survival problems of primitive nature, impinging upon an untrained, though elaborate nervous system, make more demands upon the organization of that system than the formulated problems of an advanced culture, except in the most competitive echelons of the culture? Might not an Einstein, growing up alone on an untamed island, without even having instruction in language, find more demands upon his talents than the position of patent-office clerk would ever have made?

Various naturalists assert that the lesser whales, and particularly the white whale of the northern seas, possess larger and more complex brains than man. These creatures, it appears, are rather solitary, and have numerous natural enemies.

It is exciting to think that here may be beings of vast potential intelligence, or, rather, actual intelligence, which simply require "Gift of Gab" techniques to make them active partners, perhaps even leaders, in the planetary brotherhood of intellectual attainment.

Of course, the problems of sensorimotor equipment would seem more formidable in the case of the whales than in the imagined case of the story-creatures with their numerous motile arms. It may be doubted whether whales can imitate any sounds they can hear, and their facilities for gesturing look very poor indeed. Still, there may be a solution.

In closing, I wish to offer one other suggestion—that discovery of intellectual peers among supposedly humbler creatures might just so puncture human vanity as to divert our racial thoughts from plans for mutual destruction.—Thomas Ross, 809 15th Ave. N., Seattle 2, Wash.

*Communication would indeed be a whale of a problem.*

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Dear Mr. Campbell:

Anent the recent interest in psi phenomena, first let me say that I greatly appreciate your sober approach to the subject, and your sound ccunsel for would-be experimenters. I can't help feeling that the dianetics episode matured a lot of us.

Several years ago, I came across the concept of the Magic Answer, and have found it very useful to me. The Magic Answer is kissing-kin to

the Easy Way, but not quite the same thing. The Magic Answer is the child of our daydreams and often we demand it to the exclusion of work, mental or physical.

The great dreams of men which have come to pass, arrive on the scene in somewhat different form than originally conceived. We fly, but neither with the wings or grace of birds. We possess the seven league boots in several forms, all of which have their own strict limitations. No doubt we will go to the Moon, but it won't be with magnets or Cavorite.

The point is that we have learned to do the things we really want to do, but they cost much in time, effort and money, and the end products are considerably more mundane than the dream. One might say that it loses something in the translation.

I am quite confident that psi phenomena will prove worthwhile and controllable, and am equally sure that we won't go effortlessly floating down the street, casually move mountains, or, perish the greedy thought, cause money to disappear from the bankers' hand.

I suppose that this is a plea for serious work by those interested and don't be disappointed if it takes a week to recover after you finally move that one gram weight a centimeter or two. The dispensers of magic have been out of business for a long time.—Carroll Camden III, 4321 Cynthia, Bellaire, Texas.

*The curious fact seems to be that achievements are made by discovering limitations, not freedoms! The atomic bomb works because there is a limit to the possible size of a sphere of U-235.*

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Dear Mr. Campbell:

The Hieronymus tactile detector plate is probably in the public domain. I recall seeing a device in use in California in the thirties by chiropractors called, I believe, a Radionic Analyzer. This apparently entirely bogus device was used to detect various body conditions by passing a sensing element—on the end of an electric cord—over the body AND WHEN A GLASS PLATE WAS STROKED WITH THE FINGERS —this was the machine "detection" element—IT BECAME STICKY FEELING WHEN "TROUBLE" WAS INDICATED!

I think, but am not sure, that I saw this gadget in use by a Dr. W. Roe, Chiropractor in Alameda, California in 1930 or 1931.

Have you stopped to consider that the Hieronymus Detector effect may be a form of articifial gravity, in that it attracts—e.g. feels sticky—human flesh which is a pretty inhomogenous, chemical mixture which is certainly not ferromagnetic and which only responds to a gravity field force. Perhaps a better engineering exploration of the Hieronymus detector effect would turn up an idea for reversing its attractive force and—bingo, the antigravity jackpot maybe maybe maybe.—F. L. Avera, Chemi-

cal Engineer, 1809 Yale Drive, Alameda, California.

*One or another tactile mechanism has been used in various psionic machines. The Drown Laboratories machine also uses a tactile detector.*

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Dear Mr. Campbell:

The content of numerous letters appearing in Brass Tacks since you published T. O. Jothun's letter last September, plus your very pointed Editorials are ample evidence of a great and sincere interest in practical research in the field of Psionics.

Sincerity of interest, however, is not sufficient. Active and intelligent work is required to discover and understand the relationship between the effects and manifestations of the force we now call Psionic. In one of your recent Editorials, you stated the facts quite clearly when you wrote, "It is not necessary to PROVE THE EXISTENCE OF MENTAL FORCE." The problem is HOW DOES IT WORK.

We Amateurs can probably make progress in this work, if we will organize our efforts and work together on the problem. This can be accomplished by correspondence almost as well as though we were working together in a subsidized Laboratory. But it is necessary for someone to accept the responsibility and labor of organizing and co-relating your views, opinions and information.

We, the readers of science fiction, cannot expect the Editorial Office of A.S.F. to carry this load. And it will be a load, without question.

To push this reader-interest off dead center, I hereby invite correspondence from any or all interested persons which have any personal direct evidence of reproducible Psionic phenomena.

Mr. Jothun's experiments, reported in the Sept. '55 A.S.F. are of a type and scope which I would personally nominate for a "Good-risk" status, and I cordially invite him to report in greater detail. (I trust all concerned are aware of the F.C.C. control of electromagnetic wave propagation.)

I shall set up a file for your letters. The information therein will be studied and classified and indexed for cross reference. A letter report will be prepared and sent to A.S.F. for publication periodically. As indicated by your individual wishes, names and addresses can be held as protected information or included as the case may be.

For the readers' information, my qualifications for organizing and conducting research and development work are partially based on fifteen years of group-leader activity in Government supported Laboratories. By Mr. Campbell's analysis I class myself as a Tyro, or class II Amateur. I am neither helped nor hampered by orthodox academic degrees, but I have competed successfully in the R & D game with those who are

so blessed. I've worked with and directly under several of this country's top Scientists to our mutual advantage. And I'm immune to raised eyebrows.

My personal attitude toward psionics places the experimenter with a reproducible experiment on par with the first man to notice and be curious about the way one piece of reddish rock liked to snuggle up to another similar rock. And other red rocks didn't— From our position on the ladder of knowledge it is obvious that he had some magnetite and some plain ferrous ore. And we also know that he held in his hands evidence of a phenomenon which is a part of the whole science of electricity.

We Amateurs have a lot more tools and knowledge to work with than did our ancient man with his lodestone. We are interested in making a break-through into the field of Psionics. Let's get busy trying to use what we have.

You can aid in the work of analyzing your letters by furnishing me with clear statements of your observations and beliefs. A statement covering your background in the field in which your observed phenomena occurred will lend a degree of reliability to your observations.

If you wish to take an active part in the forthcoming activity, please answer the following questions:

1. Are you trained in the conduct or observation of Laboratory Experiments?
2. Do you own, or have access to chemical, photographic, optical, electrical or electronic instruments or equipment?
3. Do you know how to use such equipment?
4. Are you prepared to conduct experiments?
5. Are you willing to freely contribute your knowledge and findings to a general pool, to be used by others as they may?

And finally, a reproducible phenomenon in the psionic field is not easily defined, but ought to have better than a 100 to 1 reproduction rate.

It's your move.—Donald G. Reed, 3880 Greenwood Street, San Diego 10, California.

*It's my hunch that no one man can crack the problem. Anyone want to co-operate?*

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Dear Mr. Campbell:

I read your article on Psionic Machine—Type One and found it most interesting. I was just wondering, however, if perhaps the tactile effect you noticed on the plastic detector was nothing but a common effect quite familiar to people who handle plastics. We use a lot of plastics in our shop and the static charge that builds up on them whenever they are polished is something fierce. In fact special antistatic waxes are sold for use in polishing these plastics in order to keep dust from sticking to them.

If you rub a bit of plastic with a cloth the "sticky" feeling you de-

scribe is quite noticeable. The sensation disappears quickly but the plastic will still attract dust for quite a long while. Perhaps the output of the amplifier, going through the coil, is building up a static charge on the plastic thus producing the peculiar feel. A simple test would be to disconnect the apparatus feeding the amplifier and feed any signal into the input. Then, if you still get the sensation, it would be reasonable to suspect that static electricity is causing the effect you mention. You might also try connecting the detector to any 250 Volt supply—D. C. radio supply—by itself without any other input.—Arthur Barber.

*That one I checked. It will still work when damp. Bakelite works as well as polystyrene, too.*

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Dear Mr. Campbell:

This letter has been sitting in my notebook for a month now; it occurs to me that if it is going to serve any purpose it had better move from the bread-board to the production stage and be placed on the market.

I see from ASF for May—and June—that your papers on psionics have stimulated a very strong response, one which—to me—reflects a thoughtfulness above the normal high level of your editorial correspondence.

I agree that there may very well be something here. I also agree that the would-be founders of a science will do well to walk a knife-edge between authoritarianism and downright crankery; perhaps it is well to build our pot and fire it before we crack it.

The Labor Day Convention in New York, it seems to me, would be a logical time for those interested to get together and compare notes. Some worthwhile plans might develop over beer which would die a-borning if left to the mails. If the organizers of the convention would not feel I was trying to encroach on their preserves, I'd be happy to act as a kind of informal co-ordinator of a brain-storming session of this kind. Would you let me have your thoughts?—Robert W. Perkins, 331 East 52nd Street, New York 22, New York.

*Making it a psions-fiction convention?*

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Dear Mr. Campbell:

I have read with much interest your article on the "Hieronymus Machine" in the June issue of Astounding, and would certainly like to see more of the same thing. The detector mechanism was of primary interest to myself, since I have been experimenting in the field of "Psionic Detectors."

Some interesting theories present themselves: In any atom containing more than one proton and/or neutron there is a "binding energy"

which holds these particles together. If not, the protons would fly apart, since like charges repel, leaving only neutrons. *This binding energy has not yet been defined.*

I have been working under the assumption that Psionic Radiation—to give it a name—is associated with this unknown binding energy. If this is the case, *Psionic Radiations would then be identifiable by element,* since the binding energy required for each element varies according to the composition of the element.

This binding energy is also associated with the movement of ion pairs, since a positive ion is, in reality, an atom which is short one or more electrons. Thus, the energy might well be associated with an electromagnetic field, a quantum of photons, or with the movement of electronic fields in general.

To carry this line of reasoning further, if this so-called binding energy can be transmitted, amplified, and imparted to another substance, it would then react on that substance according to some unknown law of Nuclear Physics. The question here appears to be "What happens to a nuclide when it is confronted with an *excess* of binding energy?" It is possible that it would compress the nuclide still further, resulting in more "empty space" between the nuclide and its associated electron fields. This, then, could affect the tactile qualities of the substance, as well as any other quality.

There are, of course, many other theories concerning this type of energy and its effects on atomic structure, but to go into these in detail would result in a major thesis. I am experimenting with various detectors by applying concepts of solid state electronics and nuclear radiation physics to each basic design. The results so far have been inconclusive, but there is a definite trend toward the concepts given above.—A. R. Pedrick, 1720 Miriam Street, Montgomery, Alabama.

*I have a hunch we'd do better to start with the assumption that "there is a reality-field other than, and different in nature from, that we know as Science."*

*The psionic machines appear to be inherently nonscientific. If so—what are they?*

---

Dear Mr. Campbell:

I read your article on the Hieronymus machine with great interest. Like you, I think that Mr. H. has something but not what he thinks he has and I doubt if anyone knows for sure just what he does have. Whatever it is, it is most interesting.

I'm a chemist and know very little about electronics. Otherwise I might try building one of the machines myself. If I did, here are some of the things I would like to try. Doubtless, some of them have occurred to you, but possibly some of them haven't.

1. In the first place I would add Mr. H's attenuator. I like to measure

things as accurately as possible. I'm not satisfied to know that, for example, most people are right-handed. I want to know what percentage are left-handed, ambidextrous and so forth.

2. What happens if you replace the pig lead or bracelet with a living thing, such as a mouse? Does it make any difference whether he is alive, anesthetized or dead? The attenuator would show how much difference, if any; or would it?

3. What happens when you put different substances, and various thicknesses of a single substance, in front of the slit?

4. Does the coefficient of friction, reflectivity or any other property of the plastic "detector" change when you get a response?

5. Do inanimate things like bits of paper or dust particles tend to stick to the detector when you get a response? Are they attracted to it? Can small insects escape from it?

6. Can you increase the sensitivity by placing a cylindrical lens in front of the slit?

7. How about a reflector behind the radiator?

8. What happens when you replace the glass prism with one of lucite for example?

9. Now that you know that it works, why not try a photograph instead of the real thing?

10. What happens if you replace the top plate—or merely cover the present one—of the detector with other substances such as glass, dental dam, other plastics, glazed paper, et cetera? In other words, is styrene the best surface to use?

11. This one might cost something. Does a dowser get any response with his wand over the detector when the test material is water? Some dowsers claim to be able to detect other substances so try other things too, including some that a dowser wouldn't ordinarily walk over.

12. Maybe you have done this. Put a sensitive voltmeter or ammeter in the detector circuit. Does it read differently when you are getting a response and when you aren't? Never mind if it doesn't make sense; neither does the detector.

13. Does the number of turns in the detector make any difference? Ditto for the pickup coil $L_1$. Try several wave-length bands.

14. Are so-called psychic people better at detecting a response than those who aren't?

It seems to me that what is needed now is a better detector, one that does something that you can hear or see. Some of the suggestions I have made are intended to get information to that end.

How about inviting T. G. Hieronymus to tell us how he happened to invent such a gadget?

One thing bothers me a lot: So far as Rhine has been able to determine, psi-phenomena seem to be independent of physical laws. If that is so, then how come it is possible to pick up, amplify and detect psionic radiations by means of a machine using optical and electrical, i.e.

physical, principles? The answer might be that the Hieronymus machine isn't really psionic after all. The fact that you get responses from always-dead material like pig lead also bothers me. I have always thought, perhaps mistakenly, that psionic phenomena was a property of the mind or at least of living things. Maybe that is because the only psionic detector we had, before Mr. H., was someone's mind.—John D. Buddhue, 1210 N. Arroyo Boulevard, Pasadena 3, California.

*Good questions? Any of you who built Hieronymus machines tried any of these? If so—how about a report?*

---

Dear John:

Yesterday my old friend and collaborator Fletcher Pratt died suddenly of cancer. I should like to pay a small tribute to his personality, his literary abilities, and his many kindnesses to me and other colleagues.

Fletcher was a native of upstate New York. He was raised on the Seneca Indian Reservation at Tonawanda and was an honorary Seneca. As a youth he worked in Buffalo as a librarian and a flyweight boxer. He attended Hobart College for a year but had to quit for lack of money. Later he worked as a reporter and an editor in Buffalo, Pittsburgh, and New York. He was a feature-writer for Hearst under A. Merritt. When a fire burned out his apartment in New York, he and his wife Inga went to Paris on the insurance money. There Fletcher studied languages at the Sorbonne while Inga got her training as a fashion-artist.

On his return, he began writing and translating science fiction for Hugo Gernsback. His first published story in this genre was "The Octopus Cycle" in *Amazing Stories* for May, 1928. Though his total science-fiction output is modest—perhaps around forty titles—it extended over a quarter-century. Only in the year or two before his death did he stop writing imaginative fiction, that market having greatly shrunk while the demand for nonfiction books and articles bloomed. Imaginative fiction was a sideline with Fletcher, whose main writings are in the fields of history, biography, and military science. Of his fifty-odd books, his best-known include "The Navy: A History"; "Ordeal by Fire"; "Stanton"; "Secret and Urgent: The Story of Codes and Ciphers"; and "The Civil War in Pictures." In his fiction, my favorites are his medieval adventure-fantasies, "The Well of the Unicorn" and "The Blue Star," though neither was commercially successful.

I first knew Fletcher in 1938, when my scientific friend John D. Clark introduced us. John had been corresponding with Fletcher about a naval war-game of which Fletcher was the inventor and guiding spirit. Played with scale models—of which Fletcher made over a thousand—and measuring-devices, its battles were

vociferously fought out on the Pratt living-room floor until they got so big the players had to hire a hall.

My first collaboration with Fletcher was "The Roaring Trumpet," published in *Unknown* for May, 1940. This was the first of the Harold Shea stories, and was combined with its sequel in the book "The Incomplete Enchanter" (Holt, 1941; Prime, 1950). Our last collaboration was the Gavagan's Bar series, of which we had a couple in the works when Fletcher died.

Fletcher was extremely helpful to younger writers. He not only taught me much of what I know about writing; he also got me a Fellowship at the Bread Loaf Writers' Conference, where he instructed for about twenty years. He was as helpful with other writers. His generosity was fabulous. Though he made pretty good money for a writer, he spent it freely on food, drink, and entertainment for his friends and colleagues. For seven years he headed the revered old Authors Club of New York. He kept it going almost singlehanded and, when he finally quit, the club collapsed.

His range of interests was amazing. He raised marmosets in cages in his New York apartment. He spoke French, German, Danish, Swedish, and Portuguese, and read other languages. He belonged to a group that met to read Norse sagas aloud in the original. He was an expert chef, wrote a cook-book, and found a gourmet society, the Trap Door Spiders. He was a war correspondent in World War II, most of his assignments being to Latin America. He was an authority on military intelligence and did one or two hush-hush jobs along that line himself. Once or twice in his later years, tough characters, not knowing they were dealing with an ex-pug, learned to their grief that a small, bearded, gnomish-looking man cannot always be pushed around with impunity. He was an active science-fiction fan and a former officer of the Hydra Club, and reviewed science-fiction books for the *Saturday Review*.

His death is a loss to American letters, to science fiction, and most of all to the friends who valued him as a rich, rare, and complex personality. He was one of those men around whom others revolve like planets.—L. Sprague de Camp, Wallingford, Pennsylvania.

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*An author is more than a writer; the facts about a writer can be communicated. But the personality of a fine human being cannot be.*

# THE REFERENCE LIBRARY

## BY P. SCHUYLER MILLER

## VERDICT OF YOU ALL

Four years ago, when I suggested that you nominate a library of the twenty-five "best" books of science fiction, forty-one of you responded by suggesting two hundred seventy-five different titles. The response seemed small, but it gave what looked like a pretty good list.

This year, with science fiction allegedly in a dying state, one hundred sixty-five of you came up with three hundred eighty-seven usable titles plus another forty-six that were out-and-out fantasy, adventure novels, detective stories—including "The Complete Sherlock Holmes" — factual studies of space-flight or science fiction, and a scattering of serials, novelettes and even short stories that haven't yet been put between hard— or paper—covers. There were three composite lists from organizations: one from thirty-three members of the Elves', Gnomes' and Little Men's Science Fiction, Chowder and Marching Society of Berkeley, California; another from twenty-two members of the Forest Park, Maryland, Science Fiction Club; and a third from fifteen of the Washington Science Fiction Association. I had asked for these club lists, in the hope of building up

the response: it worked, but it led to some anomalies, of which more presently.

There were three other composite lists from husband-and-wife teams, and seven lists from readers outside the United States: Canada, principally, but also England, Belgium and Cuba. One fanzine, "Fantasy Sampler No. 4" published by John Murdock of Kansas City, Missouri, nominated its hall of fame in the form of a lead article. Letters came from critics (August Derleth and Damon Knight —who would like to see a poll of the all-time best stories of any length, and is smart enough not to conduct it himself), lawyers, teachers, schoolboys (and girls), advertisers, and the UN Secretariat. One fan nominated his choice of the seven *worst* books of all time, four of which were on other people's "best" lists and two of which placed quite highly.

Quotes from some of the accompanying letters, and—I hope—a more thorough breakdown of the voting, will have to wait for next time. Most of my spare time for the last two weeks has gone into tallying and cross-checking, until the place is littered with index cards and score sheets—and this is still going to John Campbell late. So let's to the results:

*The same book that was in first place four years ago is your choice in 1956:* "Adventures in Time and Space," edited by Raymond J. Healy and J. Francis McComas. It got one hundred twenty-one out of a possible one hundred sixty-five votes in the complete ballot, or slightly over seventy-five per cent. To date, it has your emphatic stamp of approval as the best science-fiction anthology of all time.

Runner-up is Clifford D. Simak's "City," with one hundred twenty out of a possible one hundred sixty-five. It supplants "Slan," by A. E. van Vogt, which dropped down to sixth place.

Actually, sixteen of your 1952 selections are still in the top of the 1956 voting. Whether this would have been true if another magazine had run the poll, I don't know. It looks as if there is a definite "Astounding Science Fiction" taste in SF—and it's good taste.

Before I give you the actual titles in their order of popularity, there's this matter of the club lists to be discussed. As I said, I suggested that SF clubs send me a composite list in the hope that I could get a statistically bigger sample and hence a more significant one. It worked—but as the scoring proceeded, it became evident that it had worked so well, with seventy out of one hundred sixty-five votes, or forty-two per cent cast for just three lists, that the club voting could easily control the entire poll. It did just that in some cases, boosting five books into the top group which would not otherwise have been there—including two dark horses—and changing the order of the others.

Consequently, I am giving you two "best" libraries here. The first shows the standing in the total vote, clubs and all, which is after all the democratic way of running the poll under

the conditions I set up. The second is the "general" vote, before the seventy club votes were added in. If it means anything, it represents the opinion of unorganized versus organized fandom. The differences are interesting, but not terribly significant: both lists are good and both are representative of the kind of science fiction this magazine has stood for. I hope that by fooling around with charts and correlations I may be able to deduce some kind of pattern to the voting, but that will have to wait for next month: I'm tallied out!

I asked for twenty-five books. I'm giving you twenty-six in both lists. This is simply because the tally came out that way. I have also, as I did last time, boosted some scores arbitrarily by including votes for a number of single titles—principally novels by Wells, Verne and Stapledon—with the vote for a one-volume collection that includes them all.

COMPLETE VOTE (165)

* 1. Raymond J. Healy & Francis J. McComas, ADVENTURES IN TIME AND SPACE (121)
2. Clifford D. Simak, CITY (120)
* 3. Robert A. Heinlein, THE GREEN HILLS OF EARTH (98)
* 4. Robert A. Heinlein, THE MAN WHO SOLD THE MOON (95)
5. Alfred Bester, THE DEMOLISHED MAN (94)
* 6. A. E. van Vogt, SLAN (92)
* 7. Groff Conklin, ed., THE BEST OF SCIENCE FICTION (91)
* 8. A. E. van Vogt, THE WORLD OF NULL A (81)
* 9. John W. Campbell, Jr., WHO GOES THERE? (79)
*10. SEVEN FAMOUS NOVELS BY H. G. WELLS (77)
*11. Ray Bradbury, THE MARTIAN CHRONICLES (70)
12. Theodore Sturgeon, MORE THAN HUMAN (63)
*13. John W. Campbell, Jr., ed., THE ASTOUNDING SCIENCE FICTION ANTHOLOGY (59)
*14. L. Sprague de Camp, LEST DARKNESS FALL (59)
15. L. Ron Hubbard, FINAL BLACKOUT (57)
16. Arthur C. Clarke, THE CITY AND THE STARS (56)
*17. Robert A. Heinlein, BEYOND THIS HORIZON (53)
*18. Jack Williamson, THE HUMANOIDS (49)
*19. Isaac Asimov, FOUNDATION (47)
20. Olaf Stapledon, TO THE END OF TIME (46)
*21. Aldous Huxley, BRAVE NEW WORLD (45)
*22. Ray Bradbury, THE ILLUSTRATED MAN (45)
23. Frederik Pohl & C. M. Kornbluth, THE SPACE MERCHANTS (45)
24. Ward Moore, BRING THE JUBILEE (43)
25. Stanley G. Weinbaum, A MARTIAN ODYSSEY (42)
26. Hal Clement, MISSION OF GRAVITY (42)

The starred titles in this list and the next were also in your Basic Science-Fiction Library of four years ago, reported in ASF for January, 1953. Wells and Stapledon are the only real "classics" in the list: the rest are all examples of the best in modern science fiction, especially as developed in and represented by this magazine.

Now, for comparison, here is the

"general" list, with the seventy club votes left out. This time all but ten were on the old list; in other words, there are a few more recent books in this one, and I think you'll find fewer surprises, though that may be just my own personal taste. I didn't vote, but I'd subscribe to this list rather than the other.

GENERAL VOTE (95)

* 1. Raymond J. Healy & J. Francis McComas, eds., ADVENTURES IN TIME AND SPACE (51)
2. Clifford D. Simak, CITY (50)
* 3. Ray Bradbury, THE MARTIAN CHRONICLES (48)
4. Theodore Sturgeon, MORE THAN HUMAN (48)
* 5. A. E. van Vogt, SLAN (44)
* 6. Robert A. Heinlein, THE MAN WHO SOLD THE MOON (40)
7. Alfred Bester, THE DEMOLISHED MAN (39)
* 8. John W. Campbell, Jr., ed., THE ASTOUNDING SCIENCE FICTION ANTHOLOGY (37)
9. Arthur C. Clarke, CHILDHOOD'S END (35)
*10. George Orwell, 1984 (35)
*11. A. E. van Vogt, THE WORLD OF NULL A (33)
*12. Isaac Asimov, FOUNDATION (32)
13. Olaf Stapledon, TO THE END OF TIME (31)
*14. John W. Campbell, Jr., WHO GOES THERE? (31)
*15. Aldous Huxley, BRAVE NEW WORLD (30)
*16. SEVEN FAMOUS NOVELS BY H. G. WELLS (29)
*17. Robert A. Heinlein, THE GREEN HILLS OF EARTH (28)
*18. Jack Williamson, THE HUMANOIDS (27)
19. Hal Clement, MISSION OF GRAVITY (27)
*20. L. Sprague de Camp, LEST DARKNESS FALL (26)
*21. Isaac Asimov, I, ROBOT (25)
22. Arthur C. Clarke, THE CITY AND THE STARS (23)
*23. Ray Bradbury, THE ILLUSTRATED MAN (23)
24. Frederik Pohl & C. M. Kornbluth, THE SPACE MERCHANTS (23)
25. Ray Bradbury, FAHRENHEIT 451 (22)
26. Arthur C. Clarke, PRELUDE TO SPACE (22)

There isn't space to push the analysis of these lists any further now. I'll have more to say about them next month. By the way, in both cases, books are listed alphabetically *by title* when they received the same number of votes: e.g. Clarke's "City and the Stars"—which includes the vote for the earlier, shorter version, "Against the Fall of Night"—Bradbury's "Illustrated Man," and the Pohl-Kornbluth, "Space Merchants," all with twenty-three votes.

Meanwhile, thanks for the terrific response. I'd like to have answered you all and commented on your lists, but I'm a hopeless correspondent at best, and ninety-eight letters floor me. Especially the set of three from David Blair of St. John's, Newfoundland, who not only gave me his twenty-five but threw in nominations for about sixty anthologies plus lists of one hundred, then two hundred, "bests." They grow 'em rugged up there!

INTERPLANETARY HUNTER, by Arthur K. Barnes. Gnome Press, New York. 1956. 231 pp. $3.00

I know, of course, that Arthur K. Barnes didn't invent BEMs. I remember vividly the beautifully popeyed one on the cover of the second issue of *Amazing Stories*—one of the finest covers Frank R. Paul ever did—and John Campbell made some wonderful contributions along the same lines. But Barnes was one of the first to find gainful employment for the critters, back in *Thrilling Wonder* in the issue for June '37, when he introduced Gerry Carlyle and her universe of wonderful monsters. Now five of the yarns, including the last to appear in 1946, have been collected as "Interplanetary Hunter."

These monsters are frankly and unashamedly monsters. They act monstrously, for the most part, and if they didn't, Huntress Carlyle would have no interest in them, and there would be no story. According to Donald Day's "Index" there were eight of the stories in all, including two cross-fertilized with Henry Kuttner's simultaneously appearing "Hollywood on the Moon" tales. Both of these are included in the Gnome book, though it may be that the Kuttner name appeared by courtesy only, because his touch is not especially apparent.

These, then, are old-line space melodramas of twenty years ago, good fun in their time, and popular, but by no means outstanding. In the first chapter — originally "Green Hell"—Gerry Carlyle turns up on Venus and tangles with some mighty peculiar flora and fauna: her pigheaded courage and quick wits are firmly established, and are just about the only elements of characterization the author ever tried to pin on her. I've been called by a couple of readers for trying to cast Hollywood starlets in SF roles that call for more pulchritude than acting ability, so I won't try it with Carlyle.

On Venus, the future Diana of the zoos also picks up her purely platonic boy friend, Tommy Strike, who accompanies her the rest of the way—to the fifth satellite of Jupiter after flame-burping Caci—to Neptune's "Siren Sateliite," Triton, after critters which must surely have inspired Scheffey's terrific fiendish haystack cartoons in *Imagination*—on a joint expedition with Tony Quade of Nine Planets Films to Almussen's Comet, for the long adventure (maybe Kuttner *was* involved in more than name only) of "The Seven Sleepers"—and finally to Saturn's satellites for a brush with another villainous emissary of Nine Planets Films in what was originally "Trouble on Titan."

Someone, apparently Ed Emsh, has decorated the page starting each episode with sketches of some of the most delightful and fiendish of Gerry Carlyle's BEMs. It's pure entertainment, and the science wouldn't in some cases get past a high-school physics class—jumping off the surface of a rapidly rotating world

"shuts off" the effects of centrifugal force, for one—but who cares?

---

OVERDRAFT ON GLORY, by James Helvick. J. B. Lippincott Co., Philadelphia. 1955. 320 pp. $3.95

Anthony Boucher uncovered and reported this off-beat, borderline novel and I promptly got it. Its closest approximation in flavor, I'd say, is Ward Moore's neglected novel, "Greener Than You Think," but the characterization is much stronger. If Helvick (who wrote the book on which that maligned John Huston film, "Beat the Devil," was based) had bothered to put in more plot—but, then, the plot is really its lack of plot.

We follow the exploits of a self-appreciated mechanical genius, Grant Foraker, who in 1908 almost succeeded in perfecting an invention which would have moved aviation ahead a generation or more, overnight. What the Foraker Principle is, we never find out: my own guess is that it was either jet propulsion, or the still unharnessed force that propels flying saucers. But Grant Foraker, after striding down all kinds of obstacles, was at last defeated by a combination of politics, a fanatical telepath with paranoic delusions, and his own character. Primarily it is because of the latter that aviation is no further advanced than it is: this Mr. Helvick makes clear with all a novelist's skill.

This isn't at all for the reader who wants gadgets and melodrama in his SF. But try it on the non-fan who has a slight taste for off-trail books. It might develop that taste.

---

THE UNKNOWN—IS IT NEARER? by Eric J. Dingwall & John Langdon-Davies. Signet Books, New York. 1956. 160 pp. 35¢

This is by far the sanest and best short appraisal of psi phenomena, and the present state of their investigation, that I have seen. It comes along very opportunely to supplement John Campbell's psionics investigations, and I heartily recommend it as supplementary reading.

The authors, both English—I don't know whether the book has been published over there first—come to the conclusion that we are on the right track and are making slow but certain advances toward the understanding of "the Unknown." This encompasses all the ESP, or psi, or parapsychological effects—telepathy, clairvoyance, precognition, psychokinetics — and also the other psychic phenomena which, as they point out, have had a much longer history of investigation by competent scientists. These include such things, which we here in ASF normally ignore as "fantasy"—it's why I've passed up "Bridey Murphy"—as ghosts, poltergeists, and the powers of mediums.

In every case, evidence pro and

con is presented and discussed lucidly and seemingly dispassionately. It does seem that most of the "good" spontaneous cases described date from a rather long time ago, and that there is a paucity of such phenomena in our own times. But—as the mediums have held all along—there is some evidence from the Rhine and Soal experiments that hostility and disbelief create an atmosphere in which psi effects may be reduced or lost.

The book is not, as the cover states, "the truth about evtrasensory perception"—but it is a very good introduction to a serious consideration of the whole psi-psychic field.

---

LUCKY STARR AND THE BIG SUN OF MERCURY, by Paul French. Doubleday & Co., New York, 1956. 191 pp. $2.50

If it's been any secret that "Paul French" is Isaac Asimov in disguise, the cat will be out of the bag with this fourth in the "Lucky Starr" series, in which the Master's three laws of positronic robots are set forth and used to get the young genius out of a mess. This is also a SF-detective blend reminiscent of Asimov's current experiments in the form: sabotage, attempted murder, successful murder (with gravitation as the weapon), a mad robot (whose madness is the crucial clue), weird Mercutian rocklife—they're all here. And David Starr, roving trouble shooter for the Council of Science, is there with his midget pal, Bigman Jones, to untangle the villainies.

It's not up to the last "Starr" book, and by no means in the Heinlein-Norton class. But what is?

---

PLAGUE SHIP, by Andrew North. Gnome Press, New York. 1956. 192 pp. $2.75

Andre Norton keeps right up there with Heinlein as one of the two people whose nominal juvenile science fiction is as good as most routine adult fare. Her second book as "Andrew North" is several notches above the first of the Dane Thorsen series, "Sargasso of Space," if not quite up to her other memorable books for other publishers.

This, for my money, is the pure romance of strange places that Sam Moskowitz and others—including myself—have been lamenting as lost from present-day science fiction. We open with Free Traders feeling their way into ticklish negotiations with a strange race, on a strange world, that you're made to feel *is* strange in every detail. Young Thorsen blunders into one success, which is almost offset by complete failure—then at the very moment when they seem to have their fortunes made, a mysterious illness strikes down member after member of the crew of the trader *Solar Queen,* until only the four junior members of the crew are left to bring her back to Earth.

Mystery compounds on mystery: why does that grand character, Sinbad the ship's cat, refuse to go near the hypdroponics room? What is the meaning of the "strange behavior of a hoobat"? What is the secret of the Big Burn?

Recommended for teen-agers and for anyone else who doesn't demand social significance in his SF, and likes to be taken back to those easy days when worlds were still strange to us all.

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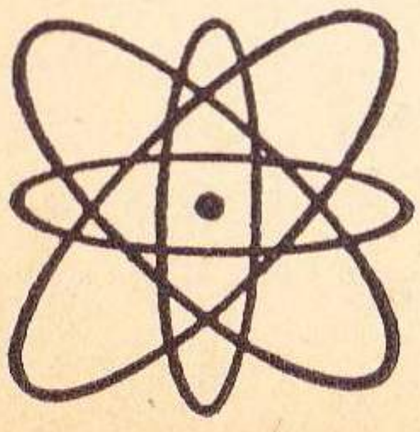
NOTE: William C. McCain and Donn Fileti of West Orange, New Jersey (1 Belgrade Terrace) have served noticed that they are in process of compiling an index of the science-fantasy magazines for 1956. Title will be: "Science-Fantasy Index." Format is approximately six by nine inches, offset-printed. There will be author and title indexes, a magazine checklist, a checklist of science-fantasy motion pictures, and assorted statistics and commentaries. They'll be glad to have your contributions, I'm sure, and I'll report the price when I see the index, early next year.

THE END



(*Continued from page* 7)

explosive stage; when the concentration of creative thinkers reached the critical level, the explosion occurred.

It made a nasty problem—because instead of taking place in a time when the strongest weapons available were strictly hand weapons, it took place when Europe's five-hundred-year lead had produced machine-guns and hand grenades. (It's also much more comfortable to consider the fine old English Yeoman of some five centuries ago than the equally violent Bolshevik of thirty-five years ago.)

As usual, it's been exceedingly hard on the container of the explosive material—the aristocracy and the peasants alike were shattered.

The trouble was, the peasant could exist in the environment of the Czarist government, and the aristocrat could exist—but the creative individual couldn't. He was the one who had "nothing to lose but his chains," not the peasant! The peasant had everything he valued most to lose—the secure and stable round of the seasons, year after year, generation after generation, on the same well-remembered piece of land.

Of course, one way to cause a fine explosion in a peasant-dominated culture is to introduce measures that reduce the death rate, particularly the extremely high infant mortality rate that goes with the peasant way of life. That's bound to cause an explosion, too. A peasant, to be a peasant, must have a piece of land—just as an oyster *must* have a shell to be an oyster. Breed peasants in excess of the amount of land, and there has to be an explosion; something has to give, and you can't make the planet stretch.

A combination of those factors producing desperate men were at work a generation ago in Russia. Creative human beings cannot live in a static environment; either they smash the static system, or it smashes them.

Unfortunately, many peasants find a dynamic culture as deadly, as mind-shattering, as the creative individual finds the absolutely static culture. That makes peaceful coexistence between the two types more than somewhat difficult.

Russia, in this past generation, has been an exceedingly unhappy, miserable place; the creative thinkers were trying to establish a dynamic system, while the peasants were trying to get more land so they could settle back and re-establish the ancient static system. The excess of peasants wanted a system that was dynamic just long enough for them to get land; then they wanted everything to freeze, and stay frozen just that way forever and ever, amen.

The creative individuals were laboring under somewhat of a handicap; they were uniformly heavily tainted with paranoia—they had a deep conviction that everybody was against them. It's a little hard to say whether that was an aberra-

tion, though. After all, if a Jew in Nazi Germany in 1942 said, "They're plotting to kill me—they all hate me! They want to destroy me and all my family!" could you properly say that he was unsane because of his strong paranoid feelings?

The creative individuals who were the leaders of the Russian Revolution were certainly paranoid—but, like the Jew in Nazi Germany, they were making perfectly appropriate evaluations of real events and situations. The government *was* against them. Everybody *was* plotting to destroy them. They grew up in an environment that did in actual fact do everything possible to beat them into mental and emotional submission to the static system that they could not abide.

The resultant mental climate of the post-revolution Russian leadership has been decidedly unhealthy. When an explosion occurs, there is first a violent pressure wave, and then an almost equally violent counter-suction wave. Things don't settle down immediately the pressure is released. The Russian leaders over-reacted; their original conviction that they were being plotted against was sane, rational, and most thoroughly correct. The Czarist government *was* plotting against them. Trouble was, they didn't immediately cease to feel that they were being plotted against after the Czarist government was overthrown.

(Of course, the post-World-War-

I Allied expeditionary effort to restore the Czarist government did nothing to quiet the feelings that they were being plotted against.)

Today, Russia is devoting an enormous amount of its human effort to the creation of a huge technically trained manpower pool —and they're doing a magnificent job. They're doing the greatest piece of work along that line that the world has ever seen. They're encouraging, in every possible way, the development of every potential technician, scientist, engineer, and researcher the population produces. From a nation which sought to suppress every creative thinker, by the most harsh and violent means, in a single generation Russia has become a nation giving every possible encouragement to creative individuals, wherever they may appear.

The peasant hates the creative thinker; he changes things. The peasant, in Russia, has been defeated; the creative thinkers have won a complete victory. The engineers, the scientists, are genuinely being given unstinted support and encouragement. Russian leaders have made mistakes; they were bound to, because their education had been so deeply and corrosively twisted by the oppressive anti-creative forces of the peasant-dominated Czarist culture. You can't expect a man who's gone through that siege of violence to come out of it thinking with the clear, tranquil understanding of a world statesman.

But the evidence is rapidly mounting that Russia has done a magnificent job of raising a nation from a peasant-static culture to a technical-dynamic level in a single generation. The leaders who will be moving into control as the original generation of leaders dies off, will have grown up in a culture that did permit creative thinking; they'll be somewhat twisted, too, of course—but the very fact that technical discipline has been so emphasized will make an enormous difference. You can't be very twisted in your thinking, and still make the Universe do what you want! You learn to find out what is-true-in-fact, whether you like it that way or not, or you don't have science. You may scream, "He's against me!" at another man, and kill him in rage. But you can't destroy the opposition of Natural Law; you learn the lesson of cooperation, or you get absolutely nowhere whatsoever. The mightiest violence of human anger can't make a meter change its mind; it has none to change, and doesn't have the slightest objection to being ground under foot. Of course, you're out one meter, but the meter doesn't mind a bit. It's just as content to measure the force of your heel in the curvature of its bearing-shaft, as to measure voltage in the curvature of its restoring spring.

Russia remains a major world danger; the imprint of the violent times of the past is not gone.

But Russia won a great victory

against Hitler; they felt less desperate after that triumph. Russia tried expanding mightily . . . and its satellites were gained, but have proven somewhat indigestible. East Germany went through change from a peasant-dominate culture centuries ago; it doesn't fit the Russian scheme of things. China has gone over toward the Russian way of life —but while China was a peasant-dominated culture, it was a very different type of culture. It simply won't fit the Russian system, and is far more of a drag than a help.

But most important—Russia has, of its own efforts, achieved a first-rank technical culture. They're doing first-rank work in nucleonics, electronics, cybernetics, and the whole gamut of top-level modern technology. Their chemical and biological work is excellent. Their research installations far ahead of anything in Europe, and just about on a par with those of the United States, despite our much longer period of technical development.

They're turning out highly trained technical people faster than we are; they are, I suspect, encouraging creative potentials in young people considerably more than our educational system does. Having no traditions, they can find out what does the best job, instead of being stuck with ancient traditions.

Example: Why continue the ancient and futile business of teaching Latin to nearly all high school students? A course in linguistics would do enormously more good, would really accomplish what study of Latin is traditionally supposed to do, and a great deal more. With the fundamental principles of linguistics understood, learning modern languages would be enormously easier.

Evidence indicates that the Russian scientists are now being given genuine freedom to explore ideas, that they are not politically dominated any longer.

All this has a meaning somewhat beyond that usually, and fearfully, discussed in the papers and news magazines, I believe.

A desperate man, without possessions and without hopes, is enormously dangerous. A desperate nation, without possessions and un-

able to see any prospects in the future is enormously dangerous.

But a nation with a generation of enormous accomplishment behind it, with immense achievements already gained, and with a growing, and soundly based conviction of its own, internal, self-generated bright future? This is not a desperate nation! This is not a nation of men with nothing to lose, and everything to gain! They have too much of great and real value, and too clear and bright a future to take any but the surest and wisest risks.

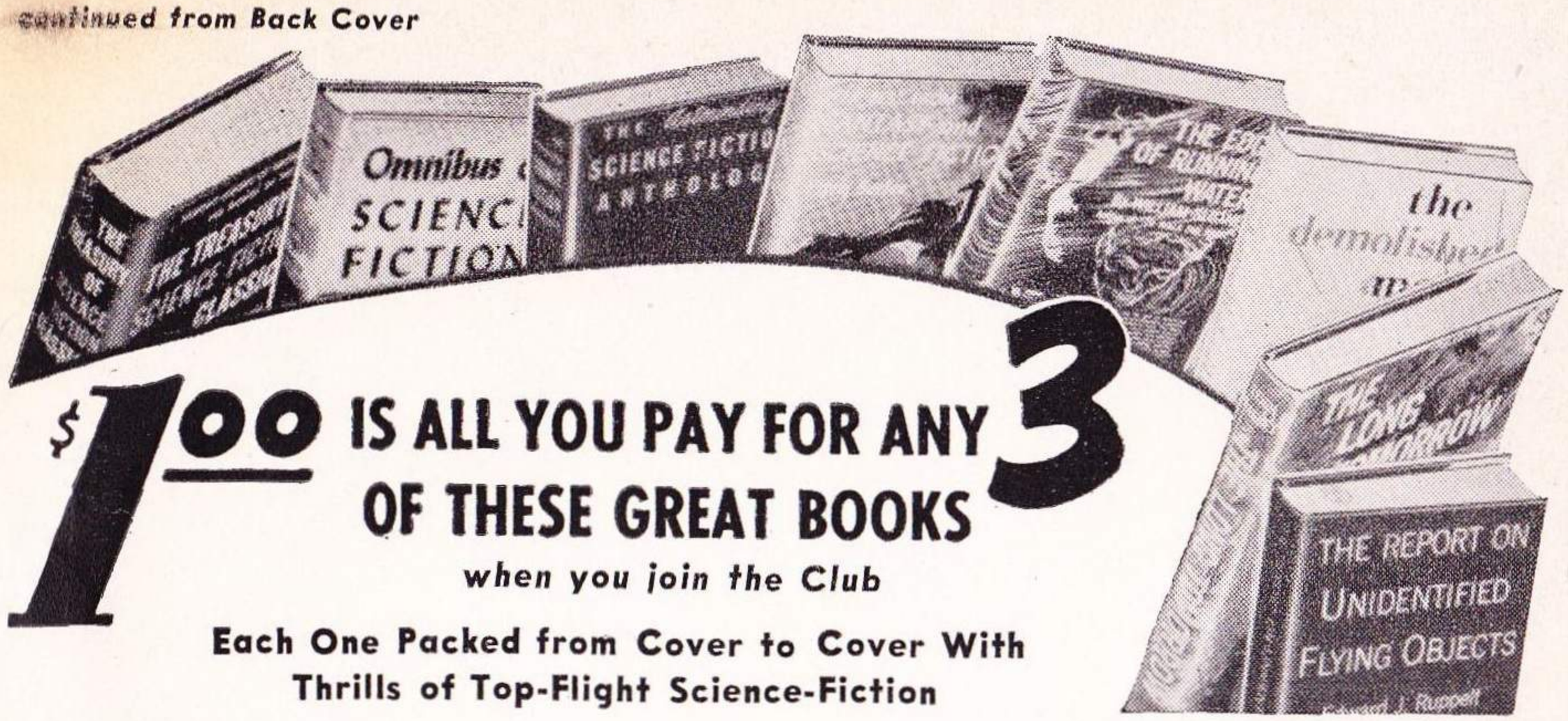
A starving man, or a man dying of an incurable disease, will risk his life on a wild gamble—but not a young, successful, and healthy millionaire!

The danger is not over; the tension remains, because of the imprint of past oppressions and violences that the leadership of Russia has experienced. The experiences were real, harsh, and memorable; it takes time to change the viewpoint of a man, and a new generation must become established before the full shift from memories of desperation is complete.

But peaceful coexistence is possible between two great, truly self-sufficient systems. Short of some appalling blunder of sheer stupidity, the world should stabilize into a fully dynamic culture, in which both major groups have too much in present wealth, and too high a future potential, to risk on a witless gamble.

THE EDITOR.

continued from Back Cover

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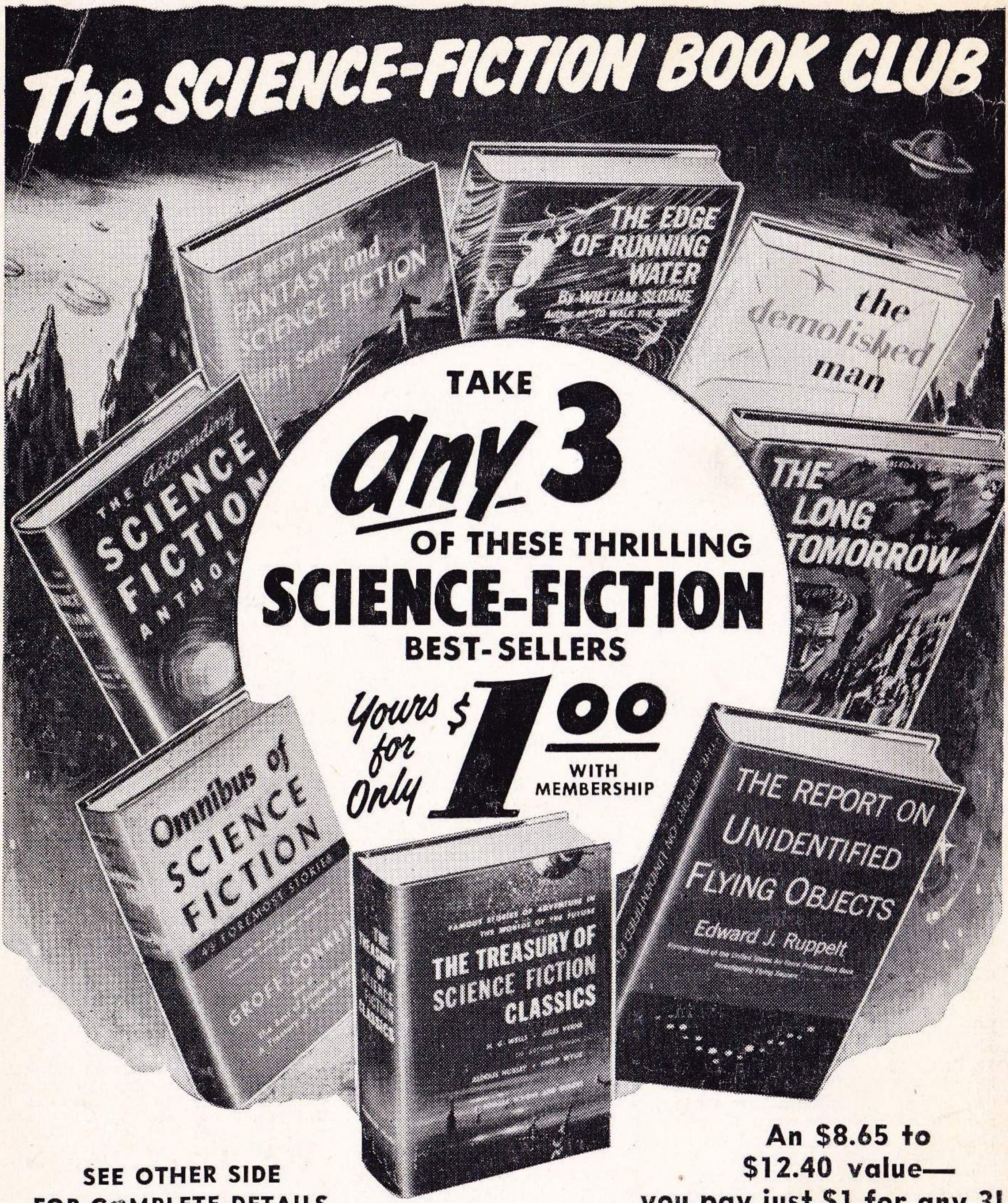


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