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THE WEATHER MAN

A novelette by Theodore Thomas

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Deadly Fantasy

■ He who lives by the sword shall, indeed, die by the sword . . . but history also shows that the death rate among those who seek to live without "the sword"—i.e., without the use of weapons of force—is even higher.

And while Man cannot live without dreams—it's also true that "He who seeks to live by fantasies, shall die by his fantasy."

The United Nations is a strange organization indeed, as of early 1962. It's seeking to live a fantasy—and it is most inevitably going to die, if that fantasy is not rejected. The fantasy is very simply defined: To suggest that all nations *should become* equal is an ideal; to suggest that all nations *are equal* is not merely fantasy, but delusion. And, in a world organization, the delusion is lethal.

The United Nations was originally organized almost entirely at the behest and under the driving determination, of five personalities—five wise old-hand political leaders, who, at a time of great world crisis, had combined to destroy an existent menace—Nazi Germany. Five men—far more than their five nations!—founded the United Nations. It was born in a time of war, and war has remarkable therapeutic powers, when it comes to removing grandiose delusions, and making men see the importance of pragmatic facts. You know the kind—"Any one of us is worth ten of those bastards!" is easy to say, until the battle starts. The fact of war removes that kind of delusion.

And, on the other hand, there is the reverse delusion. "We outnumber them ten to one; we will overrun them by sheer mass!"

That one, incidentally, had its most classic demonstration as a grandiose delusion when 40,000 Aztec warriors met Cortez and his 400 Spaniards on the field of battle. It turned out that one Spaniard—plus a hundred generations of the development of battle-

field technology—was more than the equal of 100 Aztecs.

The United Nations Charter was worked out not exactly *on* the battlefield, but definitely within sound of the roar of transoceanic bombers . . . and the muffled, mightier roar of fissioning U-235.

The five men who directed that development were, of course, Franklin Delano Roosevelt, Winston Churchill, Charles de Gaulle, Joseph Stalin, and Chiang Kai Chek—five remarkable personalities. It doesn't take a "cult of personality" to make it perfectly clear that those five *were* personalities—towering, dominating, autocratic, abnormally competent individuals. For better or worse, each was a tremendous individual—and each was a wise and wily and remarkably hard-headed (and hard-fisted) statesman.

With the diamond-hard facts of War at work right then—as a present thing, not a potential threat—the men who set about drawing up the Charter faced hard, unpleasant facts in a mood that does not remain strong in peacetime. The old Romans said there was truth in wine; the Spaniards call that moment when the bullfighter goes in to kill—or be killed; those horns are not ornamental, as many a dead man, and dead lion could testify!—"the moment of truth". "All's fair in Love and War," . . . because in neither instance is there room for wrist-slapping half-measures. Each is in its own way, a matter of simple survival—genetically in one case, individually in the other. Under those conditions, delusions, illusions, fantasies, and Sweet Ideas appear less desirable; truths can be faced and acted on.

The men who drafted the United Nations Charter were humbled by the immense facts of an immense war—and under those conditions abandoned that lovely peacetime delusion that all nations are equal.

All nations are not equal. They never have been. Conceivably they might, someday, be equal—but they certainly aren't.

In the immediate presence of the Great War—and the just-off-stage presence of the Great Bomb—men of many nations bowed to facts, and established a United Nations Charter that recognized those facts.

There were five Great Nations.

All the lesser nations on the planet combined are not the equal of one of the Great Nations, when "the moment of truth" comes. Only one of the Great Nations can, in any way, seriously menace one of the Great Nations; lesser nations could, at most, annoy a Great Nation acutely.

Cuba, for instance, is an acute irritation to the United States at the moment; it is utterly and lucidly clear that if Cuba constituted a true threat to this nation, Cuba would, in a matter of a few hours, cease to exist. Let's not kid around with simple facts; the United States has on hand weaponry adequate to knock flat the immense power of the Soviet Union. What do you think such powers would do to Cuba?

Iran, Pakistan—a dozen other minor nations—are in much the same way irritating to the Soviets. Does anyone question the Soviet power to annihilate them?

And then there's this lovely little phrase "world opinion would turn against them". "World" opinion—let's stop kidding!—means one and only one thing. The opposing Great Powers would turn against them. If 95 of the 100 United Nations opposed the U.S. or Soviet moves, but the Great Nations were simply uninterested . . . the Congo, maybe, which can't integrate itself as yet, would perhaps bring effective force to bear? Or the Soviets would stop because of the threatened disapproval of the Grand Duchy of Lichtenstein?

Somehow, that doesn't match with the concept of "the moment of truth." It sounds more like the kind of truth one finds in wine.

Then let's consider the matter of "opinion"; it's an interesting question as to how many of the people in the world would know anything about it, for instance. Oh, we talk about the Iron Curtain and the Bamboo Curtain censoring the news their people get. First, let's be honest enough to acknowledge that we get nothing but carefully censored—"for our own good," of course—news in this country. Simplest example was the newspapers' censorship of the news about the training camps for that highly disorganized Cuban invasion attempt. Practically everybody in Russia knew all about those camps—we were the ones who didn't. And the shriekingly funny business, after WWII, that allowed scientists anywhere in the world *except* the U.S. to have full data on the Hiroshima bomb . . . because, naturally, the Japanese had more data on its effects, fission product radioactivity, fission product nucleides, et cetera, than we did. They were right there. And naturally all

Japanese military information became the joint property of the conquering allies . . . including practically the entire world except Italy and Germany. So complete data was circulating freely internationally . . . except that it couldn't leak in to U.S. scientists.

But I'm not considering the limitation of opinion by governmental censorship. I'm considering such simple matters as the fact that there are a number of member nations in the U.N. which haven't been able to determine their illiteracy rate because they haven't enough literate individuals to count the illiterates. And there are areas they don't dare send any literate man or woman to, because the local tribes will serve him or her up for dinner. Do the citizens of these nations constitute effective "world opinion"?

Fortunately, their illiteracy prevents them having opinions on world affairs; you can imagine the breadth of international wisdom they would apply to matters if they did have opinions.

The great advantage the framers of the U.N.'s Charter had was that, during the last days of the Great War, facts of the real world were being clearly illuminated by the light of fire-storms over great cities—by mass bomber raids in which the giant bombers in the night sky literally outnumbered the visible stars! And . . . just off-stage, but well known to the five dominating personalities, the still more brilliant illumination of detonating U-235 and plutonium.

The fantasy of equality of nations was blown away, and the hard facts of the long, tough road to full-scale nationhood more readily seen, then.

So the Charter that was worked up provided a system that recognized these facts.

No Great Nation can afford to act unilaterally—nor can the rest of the world afford to act against the determination of any Great Nation.

Therefore each of the Great Nations was given the Veto Power—and only the Great Nations were, for only one of the Great Nations could, in the real world of actual events, *really* veto the action of any other nation.

Simple—obvious. That's why we haven't slapped that irritating marathon-TV mugger, Castro, away from his favorite microphone. Russia vetoed it.

And that's why the Soviets haven't dispensed with those irritating—and oil-rich—middle-eastern nations. The U.S. vetoed it.

By reason of the Great Power Veto, and no other reason whatsoever, Fidel plays TV star happily—and middle-eastern kingdoms continue to sell their oil to the world.

It makes no difference whatever how the rest of the nations of the world feel about it—what "world opinion" is. The Great Power Veto is real in the real world—and therefore belongs in the mecha-

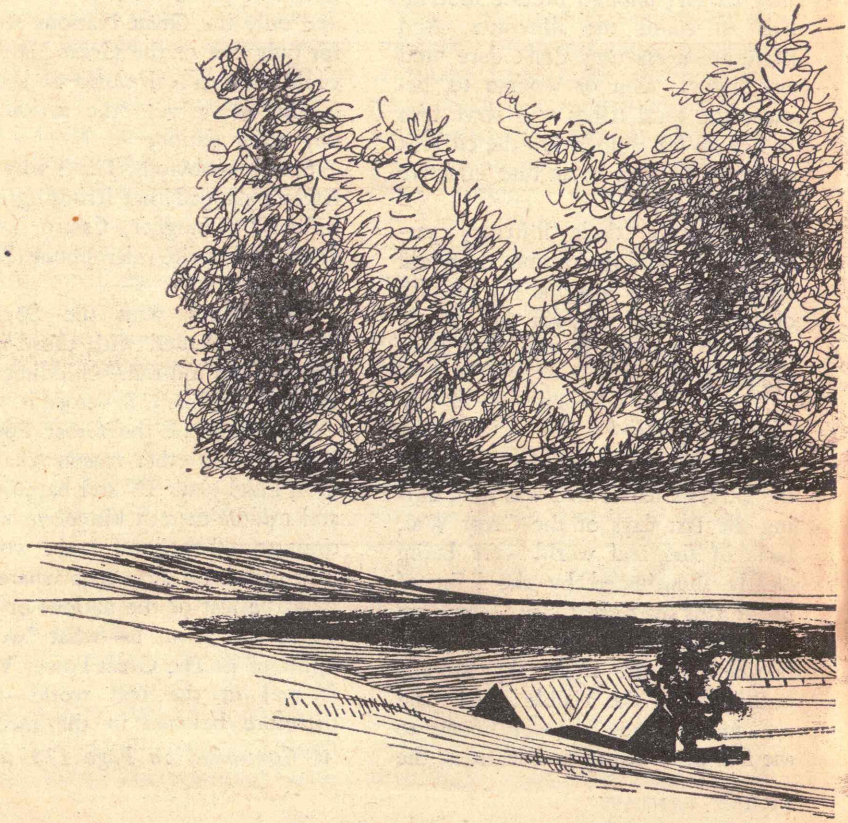
« *Continued on Page 175* »

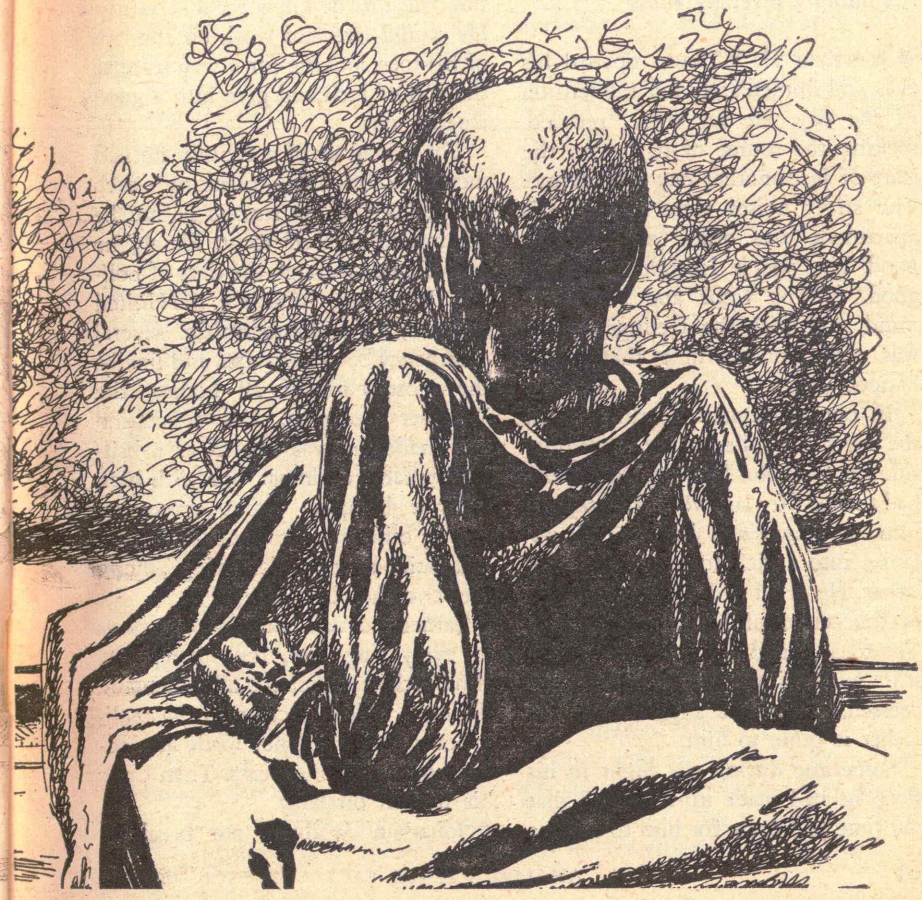
The Weather Man

Weather is the Great Paradox—a thing that is the result of the actions of the whole Earth, of the entire Solar System actually...and is, always, a personal thing to every man...

by Theodore L. Thomas

Illustrated by Schoenherr





". . . And the name 'Weather Bureau' continued to be used, although the organization itself was somewhat changed in form. Thus the Weather Congress consisted of three arms. First was the political arm, the Weather Council. Second was the scientific arm, the Weather Advisors. Third was the operating arm, the Weather Bureau. All three arms were relatively independent, and each . . ."
THE COLUMBIA ENCYCLOPEDIA, 32nd Edition
Columbia University Press

■ Jonathan H. Wilburn opened his eyes and immediately felt the tension in the day. He lay there, puzzled, seeking the source of it. It was the start of just another day in Palermo. The street noises were normal, his apartment was quiet, and he felt good. That was it. He felt good, very good, full of vigor and strong of mind, and with the feeling that he was ready for anything that might happen.

In one movement he threw back the cover and rolled to his feet alongside the bed. Not bad for a man who had turned fifty last week. He stepped into the shower and dissolved his pajamas into a rich foam of cleansing lather. He dried and stood motionless in the center of his dressing room. The tension and the excitement were still with him. He depilated and dressed, and as he slipped into his jacket it came to him.

Sometime during the night in his sleep he had made up his mind that the time had come for him to make a move. He was fifty years old, he had carefully built a good reputation, and he had come as far as he could in the normal course of events. It was now time to push, time to take a chance. To reach the top in politics you have to take a chance.

Wilburn finished slipping into his jacket. He bared his teeth at himself in the mirror. Now he knew why the day felt different. But knowing the reason did nothing to diminish the tension. He would live with it from now on; this he knew for a certainty. He would live and work on the tips of his toes, looking for a way to seize the god of luck and give him a good ringing out.

For a quarter of a century he had moved cautiously, planning each move, insuring its success before he committed himself to it. Slowly he had climbed through the tiers of politics, the House, the Senate, the United Nations, an ambassadorship, several emergency chairmanships, and finally, the most elite of all bodies, the Weather Congress. His reputation was made, he was known as a brilliant, affable diplomat, one with high skill at bringing about agreement among other hostile Councilmen. He had built a strong following among the two hundred members in the Weather Council. But in politics as in everything else, the higher one climbs, the tougher the advancement. Wilburn suddenly came to the realization that he had not made any advancements in four years. Then came his fiftieth birthday.

Jonathan Wilburn ate breakfast with his wife that morning. Harriet was a slim woman, quietly wise in her role of the wife of a member of the Council of the Weather Congress. In one quick glance she saw that her husband was tight as a wire, and she touched the Diner and placed coffee in front of him. While he sipped it she touched out a set of onion-flavored eggs and carefully hand-basted them with the pork sauce he loved so much; she did not trust the Diner to do it right. While she worked she chatted about the news in the morning paper. Wilburn ate his breakfast, part listening, part smiling and grunting responses, and part staring into space. He kissed her good-by then, and went out and stepped on a walk.

He rode the walk through the soft Sicilian air, and then became impatient with standing still. He stepped off the walk and strode alongside, and he felt pleased at the way his legs stretched. Off in the distance he could see the dome of the main Council building, and it brought his mind back to the problem at hand. But, even as he thought it, he knew it was nothing he could reason out in advance. This was something he would have to pick up on the spur of the moment. And he would have to stay alert to recognize it when it came.

Wilburn stepped back on the walk and rode it to the Council.

He entered the Great Hall by the north stairs and walked along the east wall toward the stairs to his office. A group of sight-seers were being guided across the Great Hall by a uniformed guide, and the guide was describing the wonders of the Hall. When the guide saw Wilburn coming, he interrupted his lecture to say, "And coming toward us from our left is Councilman Wilburn of an eastern United States District of whom you have all heard and who will play such an important part in the vote today to reduce the water available to northern Australia."

The sight-seers stopped, stumbling into one another at the unexpected appearance of such a celebrity. Wilburn smiled and waved at them, and this confounded them even more, but he did not stop to talk. He knew from the guide's remarks that none of his constituents were in the group; the guide would have contrived to warn him so that he could act accordingly. Wilburn smiled to himself —an officeholder had many advantages over a mere candidate for office.

Wilburn turned to the stairs and rode up with Councilman Georges DuBois, of middle Europe. DuBois said, "I heard him. Decided yet how you are to vote on this Australian situation, Jonathan?"

"I lean toward an aye, but I don't know. Do you?"

DuBois shook his head. "I feel the same. It is a thing we should do only with the greatest of caution. It is a terrible thing to make men suffer, and even worse to do it to women and children. I don't know."

They rode in silence to the top of the stairs, and just before they parted Wilburn said, "My wife stands with me in everything *I* do, George."

DuBois looked at him thoughtfully for a moment, and then said, "Yes, I understand you. The women there are as much to blame as the men, and deserve punishment as much. Yes, that will help me if I vote aye. I will see you in Council." They nodded goodby to each other in a wordless gesture of mutual respect and understanding. DuBois was one of the thoughtful Councilmen who knew better than most the fearful responsibility carried by the political arm of the Weather Congress.

Wilburn nodded to his staff as he passed through the outer office. Once at his desk he swiftly settled down to take care of the many chores. The small pile of papers stacked neatly in the center of his desk melted away as he picked up one after another, dictated the words that disposed of it, and dropped it on another pile.

He was just finishing when a gentle masculine voice said through the speaker, "Have you time to see a friend?"

Wilburn smiled, and got up to open the door of his office for Councilman Gardner Tongareva. The two men smiled and shook hands, and Tongareva settled back deep into one of Wilburn's chairs. He was a yellow-skinned man, a Polynesian, wrinkled and old and wise. His trousers were full and short, reminiscent of the sarong worn by his ancestors. His hair was white and his face was warm and kindly. Tongareva was one of those rare men whose mere presence brought smiles to the faces of his companions and peace to their hearts. He was a man of enormous influence in the Council solely by virtue of his personality.

His district was 15-30 degrees north latitude 150-165 degrees east longitude, the same fifteen-degree-on-a-side landed area of the Earth as the District of each of the other Councilmen. But in Tongareva's case the land was vanishingly small. The only land in the entire region was Marcus Island, one square mile in area, and supporting exactly four people. This was quite a contrast with the 100 million people living in Wilburn's District of 30-45 degrees north latitude 75-90 degrees west longitude. Yet time after time when the population-weighted votes of the two hundred Councilmen were counted, it was apparent that Tongareva had swayed a large percentage of the entire globe.

Wilburn leaned back in his chair and said to Tongareva, "Have you reached a decision yet about the Australian drought?"

Tongareva nodded. "Yes, I have. I believe we have no choice but to subject them to a year's drought. Naughty children must be spanked, and for two years these people have persisted in maintaining an uneven balance of trade. What is really involved here, Jonathan, is a challenge to the supreme authority of the Weather Congress over the peoples of the world. These people in Queensland and the Northern Territory are a hardy lot. They don't really believe that we can or will chastise them by controlling

their weather to their detriment. They must be punished immediately or other sections of the world will begin acting up, too. At this time a simple drought to take away their lush prosperity for a year ought to serve. Later it might become necessary to make them suffer, and none of us wants that. Yes, Jonathan, my vote will be cast in favor of the Australian drought."

Wilburn nodded soberly. He saw now that the vote almost certainly would be in favor of punishment. Most of the Councilmen seemed to feel it was necessary, but were reluctant to cause suffering. But when Tongareva stated his position as he just had, the reluctance would be put aside. Wilburn said, "I agree with you, Gardner. You have put into words the thoughts of most of us in this matter. I will vote with you."

Tongareva said nothing, but he continued to stare sharply at Wilburn. It was not a discomfiting stare; nothing Tongareva did was ever discomfiting. Tongareva said, "You are a different man this morning, my good friend. Just as you have been still a different man for the last three weeks. You have resolved whatever it is that has been disturbing you, and I am pleased. No," he raised a hand as Wilburn was about to speak, "it is quite unnecessary to discuss it. When you want me, I will be there to help you." He stood up. "And now I must go to discuss the Australian situation with some of the others." He smiled and left before Wilburn could say anything.

Wilburn stared after him, awed at the enormous ability of Tongareva to understand what he had been going through. He shook his head and gathered himself and then went out into his waiting room to talk to the dozen people who were waiting to see him.

"I'm sorry to keep you waiting," he said to all of them, "but things are hectic around the Council this morning, as I guess you know. Please forgive me for not seeing each of you alone, but we will be summoned for Council business in a few minutes. I did not want to miss the chance to see all of you for a moment or two at least. Perhaps we can get together this afternoon or tomorrow morning."

And Wilburn moved around the room shaking hands and fixing in his mind the name of each visitor. Two of them were not constituents. They were lobbyists representing the northern Australian Districts, and they launched into a tirade against the taking of any punitive action against the Districts.

Wilburn held up his hand and said, "Gentlemen, this topic may not be discussed under these circumstances. I will listen to the arguments for and against on the floor of the Council, nowhere else. That is all." He smiled and began to pass on. The younger of the two seized his arm and turned him to face him, saying, "But Councilman you must listen. These poor people are being made to suffer for the acts of a few of their leaders. You cannot—"

Wilburn shrugged away from the restraining arm, stepped swiftly to the wall and pressed a button there. The lobbyist turned pale and said, "Oh, now, Councilman, I meant no harm. Please do not lodge a protest against me. Please—"

Two men in the uniform of the Weather Congress swept in the outer door. Wilburn's voice was calm and his face impassive, but his eyes glinted like ice crystals. He pointed and said to the guards, "This man grabbed my arm to try to force me to listen to his arguments on Council business. I lodge a protest against him."

It all happened so fast the rest of the visitors had difficulty recalling exactly what had happened. But the recording tapes showed, and Wilburn knew that the lobbyist would never again be allowed in the halls of the Weather Congress. The two guards softly hustled him out of the room. The other lobbyist said, "I am sorry, Councilman. I feel responsible for his conduct; he is new."

Wilburn nodded and started to speak, but a low musical chime sounded repeatedly in the room. Wilburn said to the visitors, "Please excuse me. I must go to the Council Floor now. If you wish, you may watch the proceedings from the Visitor's Auditorium. Thank you for coming up to see me, and I hope we can talk more another time." He waved and smiled and went back into his office.

Hurriedly he checked his staff to see that they were ready for the day's business. All were in position, all knew their roles in the coming debate. Wilburn then took the belt to the Floor, walking the last hundred yards out in the public hall where he could be seen. As he came to the main doors several newspapermen asked permission to approach, but he refused; he wanted to get to his desk early and start work.

He went through the doors and down the short wide hall that led to the Floor. He came out into the huge room and went down the main aisle toward his desk. A few Councilmen were already there, and as the Recorder called off Wilburn's name, they looked up and waved at him. He waved back and continued on his way to his high-seniority desk up front. He sat down and began flipping the buttons and switches that put him in touch with everything that was going on. Immediately a light glowed indicating that one of the seated Councilmen wanted to talk to him. Councilman Hardy of 165-180 west longitude 30-45 south latitude—containing most of New Zealand—said to him, "Well, Jonathan, have you talked with Tongareva yet?"

"Yes, George, I have."

"Going to vote the way he wants?"

"Yes, although I want to wait and hear what is said in opposition before I finally make up my mind. Where do you stand?"

There was a perceptible pause, then, "I will probably vote against it, unless someone expresses the extreme reluctance of the Council to vote for drought."

"Why don't you do it, George?"

"Maybe I will. Thank you, Jonathan." And he cut the circuit.

Wilburn looked around the huge chamber, and as always, he became a little awed at what he saw. It was more than the impressive array of the two hundred huge desks, the raised President's chair, the great board that showed the weather at the moment on every part of the Earth's surface, and the communications rooms set off from the main room. There was an aura about this great chamber that was felt by all the men and women who entered it, whether to work in it or simply to visit. The fate of the Earth was centered here, and had been for fifty years. From this chamber flowed the decisions that controlled the world.

The Weather Congress was the supreme body of Earth, able to bend states, nations, continents, and hemispheres to its will. What dictator, what country, could survive when no drop of rain fell for a year? Or what dictator, what country could survive when blanketed under fifty feet of snow and ice? The Weather Congress could freeze the Congo River or dry up the Amazon. It could flood the Sahara or Tierra del Fuego. It could thaw the tundra, and raise and lower the levels of the oceans at will. And here, in this chamber, all the political decisions had been made, and the chamber seemed to acquire some of the feeling that had been expressed over the last half century, from the stormy early days, to the more settled and reflective present. It was a powerful chamber, and it made its power felt by those who sat in it.

A great many Councilmen had seated themselves. Another chime sounded, and the weather requests began to be relayed to the Councilmen. The Recorder read off the requests, and his voice reached each desk through a tiny speaker. At the same time the written request flashed on the big board. In this manner the Councilmen could busy themselves with other duties while keeping an eye on the requests.

The first request, as usual, came from the Lovers of the Lowly Cactus Plant, and they wanted less rainfall and more desolation in Death Valley to keep the Barrel Cactus from becoming extinct.

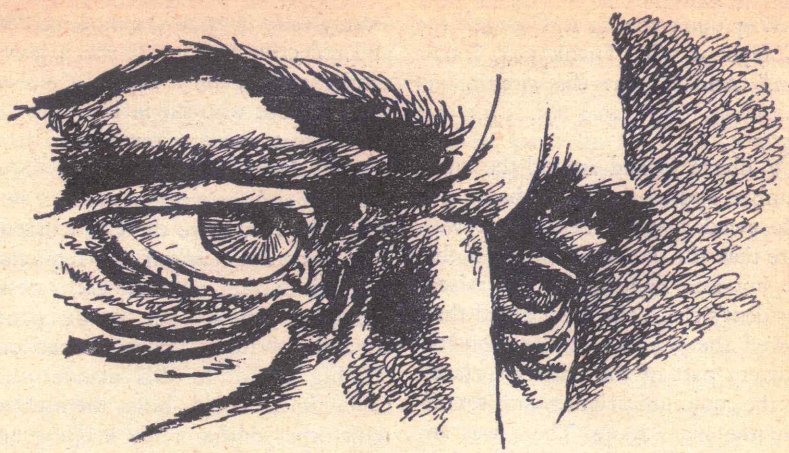
Wilburn rang Tongareva's desk and said, "How many have you talked to, Gardner?"

"About forty, Jonathan. I caught a large group having a cup of coffee."

"Have you talked to Maitland?"

There was a perceptible pause. Maitland seemed always to be against anything Wilburn stood for. His District was 60-75 west longitude 30-45 north latitude, adjoining Wilburn's and including New York City and Boston. Maitland always made it plain that he considered Wilburn unfit for the position of influence he held in the Council. "No," said Tongareva, and Wilburn could see him shake his great head, "no, I did not talk to Maitland."

Wilburn signed off, and listened



and watched. The president of Bolivia complained that the region around Cochabamba was running a little too cool to suit his taste. The mayor of Avigait in Greenland stated that the corn crop was ten per cent lower this year due to an extra two inches of rainfall and too much cloud cover. Wilburn nodded; there was one that should be treated seriously, and he pushed a button on his desk marked "favorable" to insure that it would be considered by the entire Council.

His phone rang. It was a constituent asking him to address the Combined Rotary Club at their annual meeting October 27th next. The clear light flashed as Wilburn's staff, monitoring and checking everything, indicated that he was free on that day. "Why, thank you, yes," said Wilburn, accepting the invitation. "I shall be grateful for the chance to talk to your group." He knew he had made no address in that region for a year, and it was high time. Probably his staff had subtly set it up in the first place.

A farmer outside of Gatrun, Libya, wanted his neighbor's water cut back so that all their crops would be the same height.

Then a conference was called among half a dozen Councilmen to discuss the order of speeches on the Australian situation. While they worked this out, Wilburn noted a request from Ceylon to be allowed to go over from rice in the inland sections to wheat, with the attendant reduction in rainfall and average temperature. He pushed the "favorable" button.

It was decided that George Dubois, of Middle Europe, should introduce the drought resolution, with appropriately reluctant language.

One George Andrews of Holtville, California, wanted to see snow fall again before he died, which would be in a few weeks now, no matter that it was July. He could not leave the semitropical environment of Holtville.

Tongareva would second the resolution, and then they would hear the Councilmen from the Australian Districts present their reasons why the punishment should not be instituted. After that they would play it by ear.

The seaport city of Stockholm requested an additional fifteen centimeters of elevation for the Baltic Sea. Kobdo, Mongolia, complained that there

had been two disastrous avalanches due to the extra snow burden. And it was there that the hairs on the back of Wilburn's neck began to prickle.

He stiffened in his seat and looked around to see the source of the strange sensation. The floor bustled with activity, all of it normal. He stood up, but he could see nothing more. He saw Tongareva looking over at him. He shrugged his shoulders and sat down and stared at the barrage of lights on his desk. His skin almost crawled and the adrenalin poured into his veins and he felt wildly exhilarated. What was it? He grabbed the edge of the desk and closed his eyes and forced himself to think. He blanked out all the activity around him and forced his mind to relax and find the source of the stimulation. Australian problem? No, not that. It was . . . it was something in the weather requests. He opened his eyes, and pushed the playback button and watched the requests again.

One by one, more quickly now, they flashed on the miniature screen on his desk. Avalanches, Baltic Sea level, snow in southern California, Ceylon's rice to wheat, the Libyan farmer, the— Wait. He had it now, so he turned back to it and read it very slowly.

George Andrews of Holtville, California, wanted to see snowfall again before he died soon, and he would be unable to leave the semitropical environment of southern California. The more Wilburn stared at it, the more it seemed to have everything he needed. It had universal appeal: a dying man with a final request. It would be difficult: snow in July in southern California was unheard of; he wasn't even certain that it could be carried out. It was almost completely irrational; the Council had never bothered with such requests in the past. The more Wilburn looked at it, the more he became convinced he had found the proper cause on which to risk his career. People the world over would be behind him if he could bring it off. He remembered how it had been in the tradition of American presidents to show an occasional high concern over some unimportant individual. If he failed, he would probably be finished in politics, but that was the chance to take. And there was something about that name George Andrews, something that set off a vague, disturbing memory in the back of his mind, something that had attracted him to the request in the first place. No matter. It was time for him to call up for action all the forces he could muster.

He cut his entire staff into his circuit, and cut all others out. He said, "I am considering supporting the George Andrews request." He paused to allow the statement to sink in, smiling to himself at the shock to his staff; never had they heard of anything so wild from him. "Check out everything you can about George Andrews. Make certain that his request is bona fide and isn't some sort of trap for an innocent Councilman like me. In particular, make certain that no connection exists between George Andrews and Councilman

Maitland. Check with Greenberg in the Advisors as to the chances of coming up with a solution to the problem of snow in July in southern California in an extremely restricted region. Given that answer, check with the Bureau, probably Heckmer—he's up on the sun right now—and see what the chances are of carrying it out. This must be completed in . . . just a moment." Wilburn looked around him. The weather requests had ended, and Councilman Yardley had left his desk and was walking toward the front of the Floor to assume his role as President. "You have four hours to get all the information. Go, and good luck. We will all need it this time." And Wilburn sat back. There was no time to relax, however.

Calls had piled up while he had set the investigation in motion. He began clearing them as President Yardley called the Council to order, swiftly dispensed with the old business, and then brought up the matter of the censure of Australia. Wilburn kept an ear on the transactions on the Floor as he continued to handle the incoming calls and other demands on his time. The President stated the order of the speeches for and against the drought resolution, and the Council sat back to listen. Councilman DuBois made his preliminary remarks, expressing the deep and abiding regret that the Council found it necessary in this manner to uphold the principles of the Weather Congress. It was a good speech, thought Wilburn. There could be no doubt of DuBois' sincerity, and when he solemnly stated the resolution itself, there were tears in his eyes, and his voice shook. Then the first of the Councilmen from Australia got up to argue against the resolution.

Wilburn pocketed the portable receiver, punched the button that showed he was listening via receiver, and left the floor. Many other Councilmen did the same, most of them heading for the Councilmen's Closed Restaurant where they could have a cup of coffee without having to deal with constituents, the press, lobbyists, or any of a multitude of organizations. They sipped their coffee and nibbled sweet cakes and talked. The conversation was all on the coming vote, and it was easy to see that opinion was hardening in favor of the resolution. The Councilmen talked in low voices so they could follow the trend of the arguments being made back on the floor; each Councilman had his portable receiver with him and each listened through the bone microphone behind an ear. The talk grew louder as it became apparent that the Australian Councilman was advancing nothing more than the same old arguments, don't-cause-suffering and give-us-another-chance. The vote was now almost a certainty.

Wilburn wandered back to the floor and handled some more of the day's business at his desk. He went out for more coffee, and returned. He rose to make a brief speech in favor of the resolution, expressing regret for the necessity. Then, as the arguments pro and con began to draw to-

ward the end, the information on George Andrews began to come in.

George Andrews was one hundred and twenty-six years old with a heart condition, and the doctors had given him six weeks to live. There was no discernible connection between Andrews and Councilman Maitland. Wilburn interrupted to ask, "Who checked on that?"

"Jack Parker," was the answer, and Wilburn heard a slight chuckle, which he forgave. Jack Parker was one of the keenest investigators in the business, and Wilburn noted to himself that the staff member who had thought of putting Parker on that particular investigation was due for a bonus. At least Wilburn could now make a decision without fear of walking into a political trap of some kind. But the report continued.

"As I guess you know, Andrews came very close to being one of the most famous men in the world a hundred years ago. For a while it looked like Andrews would get credit for inventing the sessile boats, but he was finally beaten by Hans Daggensnurf. There used to be a few people around who insisted that Andrews was the real inventor all along, and that dirty politics, shrewd lawyers, unethical corporations, and filthy money combined to make a goat out of him. The name 'sessile boats' was Andrews' name for the sun boats, and the name has stuck. But then, you could never have called them Daggensnurf boats."

Wilburn remembered now, awed that his subconscious mind should have somehow alerted him to the need to check out the name George Andrews. Andrews had been the George Seldon of the automobile industry, the William Kelly of the so-called Bessemer steel process. All were forgotten men; someone else reaped the immortality. In Andrews' case, he had, according to some, been the man who invented the sun boats, those marvelous devices that made the entire Weather Congress possible. Sliding on a thin film of gaseous carbon, the sessile boats safely traversed the hell of the sun's surface, moving from place to place to stir up the activity needed to produce the desired weather. Without the sessile boats there would be no Weather Bureau staffed by lean, hard-eyed men, working the sun to produce the results called for by the Weather Council. Yes, Wilburn was lucky indeed to have dragged out his piece of ancient history just when he needed it.

The report continued, "We checked with the Weather Advisors, particularly Bob Greenberg. He says there is a fair chance they can find a way to pull snow in southern California this time of year, but he's not guaranteeing anything. One of his people has the beginnings of a new theory that might just work, and our request might be the one to test it out. But he doesn' want to be quoted on any of this. He's got a personnel problem with the genius who would do the work if our request was official. I gathered he would like for us to push it through so he could settle things one way or the other with this bright-eyed genius."

Wilburn asked, "How about the Bureau?"

"Well, we talked to Heckmer as you suggested. It is his tour on the sun right now, so he's in close touch. He says they've only got one Boat Master in the entire Bureau with enough guts and imagination, and he's having some kind of trouble at home. But Heckmer says if we come up with something special, he'll find a way to make his man produce."

Wilburn listened to many other details relating to the Andrews situation. His first assistant had added a feature of his own to the investigation, one which showed why he was such a highly paid member of Wilburn's staff. He had supervised a quiet opinion survey to find how Wilburn's constituents would react to his sponsoring a motion to grant Andrews' request. The result was predictable: If the request went through quickly and smoothly, and if the snow fell, Wilburn would be a wise, humane, and generous man. If acrimony developed in a debate and if snow did not fall, Wilburn would be a man who had blundered badly.

The report ended. Wilburn cleared his desk of all activity and took a quick look out at the floor. The debate was winding up. The Councilmen were visibly restless to get on to the voting, and it was now clear that the vote was overwhelmingly in favor of the resolution calling for a drought. Wilburn sat back to think.

But even as he sat back he knew the answer; there was really no need to make a decision here. He was going to do it. The only question was: How? And as he turned his mind to the timing of presenting his motion, he saw that here and now was the time. When better than right at the time the Council was finishing an unpleasant piece of business? He might be able to slip his motion through to help take the unpleasant taste from the mouths of the Councilmen. That was it. Wilburn sat back to wait the vote. In another ten minutes it started.

And in twenty minutes it was over. The vote in favor of the drought resolution was 192 to 8. The President lifted his gavel to adjourn the session, Wilburn stood up.

"Mr. President," he said, "we have just had to carry out a necessary but unpleasant duty. I now wish to move that the Council carry out an unnecessary but pleasant duty. I respectfully direct the attention of the honorable members to Weather Request Number 18, today's date."

He paused while the members, looking puzzled, punched the button on their desks that would play back for them the Andrews' request. Wilburn waited until he saw most of the faces turned toward him in disbelief. Then he said, "I just said that our duty in this matter was unnecessary, but in a larger sense we have never had a more necessary duty in conscience to see that justice . . ." And Wilburn stated his case for Andrews. He briefly traced the history of George Andrews' career, and the debt

owed him by the human race, a debt that had never been paid. As he talked, Wilburn smiled to himself at the phone calls he knew were racing from desk to desk on the Floor. "What's got into Jonathan?" "Has Wilburn lost his mind?" "Watch yourself on this one; he's up to something."

Wilburn stated the difficulty of knowing for certain whether the request was even within the realm of technological possibility. Only the Weather Advisors could tell. And even if it were possible, the Bureau might not be able to carry it out. But such considerations should not stop the Council from trying. And he concluded with an impassioned plea for this act of grace to show the world that the Council was made up of men who never lost sight of the individual.

He sat down amidst silence. Then Tongareva rose, and with soft words and gentle manner he supported the resolution, emphasizing the warmth and humanity of the motion at a time when there would be many who thought the Council too harsh. He sat down, and Maitland rose to the Floor. To Wilburn's astonishment, Maitland, too, supported the resolution. But as Wilburn listened, he understood that Maitland supported the resolution only because he saw disaster in it for Wilburn. It took nerve for Maitland to do it. He could not know what Wilburn had in mind, but Maitland was willing to trust his judgment that a mistake had been made and to try to capitalize on it.

Wilburn answered all the incoming calls from his fellow Councilmen, all of whom wanted to know if Wilburn wanted them to rise in support of the motion. Some of these were his friends, others were those who owed him a favor. To all of them Wilburn urged support in the form of a brief supporting speech. For forty minutes Councilmen bobbed up, spoke for a moment, and then sat down. When the vote came, it was one of the few unanimous votes in the history of the Council. The Australian drought was forgotten, both on the floor and on the video screens of the world. All thoughts were turned to the little town of Holtville, California.

Wilburn heard the gavel adjourn the session, and he knew he was fully committed. His fate was in the hands of others; his work was done for now, possibly forever.

But after all, if one wants to reach the top in politics, one has to take a chance.

Anna Brackney wandered up the broad steps of the Weather Advisors Building half an hour early, as usual. At the top she stopped and looked out over the city of Stockholm. It was a pretty city, sturdy under its heavy roofs, sparkling under the early morning sun, and quiet and restful. Stockholm was a fine place for the Advisors. In fact it was such an excellent choice for the kind of work the Advisors did, Anna wondered all over again how it was possible for men to

have chosen it. She turned and went in.

The Maintenance Supervisor, Hjalmar Froding, directed the Polishing Machine around the lobby. He saw Anna Brackney and immediately guided the Machine to lay down a tic-tac-toe pattern in wax on the floor, and then he bowed to her. She stopped, put her finger in her mouth, and then pointed to the upper right-hand square. The Machine put an "0" on it, and then placed an "X" in the center square for Froding. The game went on until Froding had three "Xs" in a row, and the Machine triumphantly ran a straight line through them. Hjalmar Froding bowed to Anna Brackney, and she bowed to him and went on her way. She ignored the escalator and walked up the stairs, feeling pleased that she again was able to have Froding win in an unobvious manner. Anna Brackney was fond of Froding; he seldom spoke or smiled, and treated her as if she were the queen of Sweden. It was too bad some of the other men around here couldn't be guided as simply.

She had to pass through the main Weather Room on her way to her office. A great globe of the world occupied the center of the room, and it showed the weather at the moment on every part of the Earth. The globe was similar in purpose to the map in the Weather Council, but it had a few additional features. Every jet stream, density variation, inversion, every front, isobar, isallobar, isotherm, precipitation area, clouded area, and air mass showed on the globe. The globe was a mass of shifting colors, undecipherable to the untrained eye, making sense only to the mathemeteorologists who made up the technical staff of the Advisors. The curved walls of the room were covered with the instruments that made up the Weather Net, the senses of the Advisors. The entire room looked like something out of a nightmare with its seething globe and dancing lights and shimmering dials. Anna walked through without noticing with the callousness of long proximity. She headed for the private wire from the Weather Council to see if that strange request had come in yet.

The guard in the Council Communications room saluted and stepped aside for her. She went in and sat down and began to flip through the night's messages from the Council. She picked up the one that related to the imposition of a drought in northern Australia, and read it. She snorted when she finished, and said aloud to herself, "Nothing, no problem at all. A child could figure out how to bring that about." And on down the stack of messages she went.

She found it and read it carefully, and read it again. It was just as the news flashes had reported: Snow in July on a one-square-mile area in southern California. The latitude and the longitude of the area were given, and that was all there was to it. But Anna Brackney felt the excitement grow within her. Here was the nastiest problem to confront the Advisors in decades, one that probably could

not be solved by standard technics. She put her finger in her mouth. Here was what she had been waiting for, the chance to prove out her theory. Now all she had to do was convince Greenberg to give her the problem. She restacked the messages and went to her office.

It was a small office measuring about eight by eight feet, but Anna Brackney still thought it too big. Her desk was in one corner facing one wall to give her the illusion of being more cramped than she really was. Anna could not stand the feeling of open spaces when she worked. There was no window, no picture on any of the walls, nothing distracting against the plain dark gray walls. Other Advisors had different ideas on the proper working environment. Some used bright splashes of color, others used woodland or ocean scenes, Greenberg had his walls covered with a black and white maze, and Hiromaka's walls were covered with nudes. Anna shuddered with disgust as she thought of it.

Instead of sitting at her desk, she stood in the middle of the small room, thinking of how she could persuade Greenberg to assign the Andrews problem to her. This would be hard. She knew that Greenberg did not like her, and she knew it was only because he was a man and she was a woman. None of the men liked her, and as a result her work never received the credit it deserved. A woman in a man's world was never allowed to be judged on the basis of her work alone. But if she could get the Andrews problem, she would show them. She would show them all.

But time was short. The Andrews problem had to be solved immediately. Sometimes the Advisors' weather programs took weeks to put into operation, and if this turned out to be one like that it would be too late. It had to be worked on and solved now to see if there was enough time. She spun on her heels and ran out of the office and down the escalator to the wide steps at the front door of the building. She would waste no time. She would meet Greenberg as he came in.

She had a ten-minute wait, and Greenberg was early at that. Anna Brackney pounced on him as he reached the top step. She said, "Dr. Greenberg, I am ready to start work immediately on the Andrews problem. I feel—"

"You've been waiting for me?" he said.

"I feel I am best equipped to solve the Andrews problem since it will call for new procedures and . . ."

"What on Earth is the Andrews problem?"

She looked at him blankly and said, "Why that's the problem that came in during the night, and I want to be the one who . . ."

"But you've nailed me out here on the steps before I've had a chance to go inside. How do I know what problems came in during the night? I haven't been upstairs yet."

"But you must know . . . you

have heard of it, it's all on the news."

"There's a lot of junk on the news about our work, most of it untrue. Now why don't you wait until I get a look at it so I know what you're talking about."

They went up the escalator together in silence, he annoyed at being accosted in such a manner, and she annoyed at his obvious effort to put off doing what she wanted.

He started to go into his office first, but she said, "It's over in the Council Communications room, not in your office."

He started to retort, but thought better of it, and went on in and read the message. She said, "Now may I have it?"

"Look, damn it. This request is going to be treated like any other until we understand its ramifications. I am going to give it to Upton as I do all the others for a preliminary opinion and a recommendation as to assignment. After I have that recommendation I will decide what to do. Now don't bother me until Upton's had a look at it." He saw her mouth curve down and her eyes begin to fill. He had been through these crying sessions before, and he did not like them. "See you later," he said, and he all but ran to his office and locked the door. One thing nice at the Advisor Building. A locked door was inviolate. It meant the person inside did not want to be disturbed, and the caliber of the work was such that the wish was honored.

Anna Brackney raged back to her office. There it was again. A woman did not stand a chance around here; they refused to treat her like a man. Then she went and waited at Upton's office to explain the whole thing to him.

Upton was a portly man with an easy disposition and a mind like a razor. What's more, he understood the operation of a single-tracked mind. Anna had got out no more than half her tale of woe when he recognized that the only way to get her off his back for the day was to review the Andrews request. He sent for it, looked at it, whistled and sat down at a twenty-six-fifty computer. For half an hour he fed in data and sat back while the computer chewed and then spat out the results. The job grew, so he called in some help and soon there were three men working on the computers. In another three hours Upton swung around to Anna who had been standing behind him the entire time.

He said, "Do you have some ideas on this?"

She nodded.

"Care to tell me something about it?"

She hesitated, then said, "Well, I don't have it all yet. But I think it can be done by"—she paused and glanced at him shyly as if to see in advance whether or not he was laughing at her—"a vertical front."

Upton's jaw fell. "A ver . . . You mean a true front that is tipped perpendicular to the Earth's surface?"

She nodded, and put her finger in her mouth. Far from laughing, Upton stared at the floor for a moment, and then headed for Greenberg's office. He walked in without knocking and said to Greenberg, "There is a forty-six per cent chance of carrying out this Andrews mandate by conventional technics. And by the way, what's the matter with the Council? I've never known them to do such an idiotic thing before. What are they trying to do?"

Greenberg shook his head and said, "I don't know. I had a call asking about this from Wilburn. I've got the uncomfortable feeling that they're trying to see just what we *can* do here, sort of test us before they put some real big problem to us. They voted a drought for northern Australia yesterday, and maybe they are getting ready to put the real squeeze on some region and want to see what we can do first."

Upton said, "Drought in Australia? Well, they're getting a little tough, aren't they? That isn't like the good old easy-going Council that I know. Any difficulty with the Australian drought?"

"No. It was such a standard problem I didn't even bother to give it to you for screening. I turned it right over to Hiromaka. But there's something behind this Andrews thing, and I don't like it. We'd better find a way to carry it out."

Upton said, "Well, Brackney has an approach that's wild enough to work. Let's let her try to work out a solution, and then we can look it over and see if we feel it has a better chance to work than conventional technics."

Anna Brackney had been standing near the door. She came forward and said angrily, "What do you mean 'wild'. There's nothing wrong with it at all. You just don't want me to be the one that solves it, that's all. You just—"

"No, no, Anna," said Greenberg, "that isn't it. You'll be the one to work it out, so don't—"

"Good, I'll start right now," said Anna, and she turned and left.

The two men looked at each other. Upton shrugged his shoulders, and Greenberg raised his eyes to the ceiling, shook his head, and sighed.

Anna Brackney sat herself down in her corner and stared at the wall. It was ten minutes before she put her finger into her mouth, and another twenty minutes before she pulled out a pad and pencil and began scribbling notations. It went fast then. With her first equation set up on a small sheet of paper, she left her office to find a resident mathemeteorologist; Anna refused to use the speaker at her desk to call one of them in.

The residents were all seated at desks in one large room, and when Anna entered they all bent over as if hard at work. Ignoring their behavior, Anna went up to the desk of Betty Jepson and placed the sheet of paper on it. Anna said without any preliminaries, "Run a regression analysis on this," and her finger traced out the equation in the form $y = a_1x_1 + a_2x_2 + \ldots + a_nx_n$, "not-

ing that n equals 46 in this case. Take the observational data from the banks of Number Eighty-three computer. I want a fit better than ninety per cent." And she turned on her heels and returned to her office.

Half an hour later she was back with another equation for Charles Bankhead, then one for Joseph Pechio. With the pattern established, she asked for the aid of a full mathemeteorologist, and Greenberg assigned Albert Kropa to her. Kropa listened to her somewhat disjointed description of what she was trying to do, and then wandered around looking over the shoulders of the residents to see what they were doing. Gradually he understood, and finally he raced to his own office and began turning out the polynomial relationships on his own.

Each equation demanded the full use of a sixteen-fifty computer and its staff under the direction of a resident, plus six hours of time to arrive at even a preliminary fit. As Anna and Kropa turned out more of the needed basic equations, it was apparent that too much time was being used in evolving each one individually. Anna broke off and spent two hours working out a method of programming a twenty-two thirty to explore the factors needed in each regression analysis. The computer began producing the required equations at the rate of one every ten minutes, so Anna and Kropa turned their attention to a method of correlating the flood of data that would descend on them when each analysis was complete. After half an hour it became apparent that they could not finish that phase of it before the data began coming in. They asked for and got two more full mathemeteorologists.

The four of them moved out to the Weather Room so they could be together as they worked. The correlating mathematics began to unfold, and all the remaining residents were called in to help with it. In another hour all the available sixteen-fifties were tied up, and Greenberg called on the University of Stockholm for the use of theirs. This held for twenty minutes, and then Greenberg called on half a dozen industrial computers in the city. But that wasn't enough. The net of computers began widening steadily out to the Continent, reaching in another two hours to the cities on the eastern seaboard of the United States. The overriding authority of the Advisors in the solving of a weather problem was absolute.

It became necessary for Upton to join the group, and when Greenberg himself took a chair at the large circle in the Weather Room there was a brief break in the work for some catcalls and some affectionately sarcastic remarks. Commitment of the Advisors was total.

Anna Brackney seemed not to notice. Her eyes were glazed and she spoke in crisp sharp sentences in contrast to her usual vague and slurred sentences. She seemed to know just a little in advance when a breakdown in the mounting flow of data was impending, and she stepped in and supplied the necessary continuity. It was fifteen hundred before Hiromaka noticed that none of them had eaten lunch. Greenberg sent for food, again at twenty-three hundred, and again at zero nine hundred.

Everyone looked terrible with sunken cheeks and rumpled clothes and great hollows under the eyes. But there was fire in the eyes of all of them, even down to the newest resident, a fire born of participation in the most complex weather problem yet to confront the Advisors.

Upton took over the task of pulling together the mathematical models relating to the planet Earth. He kept under his control the regression analysis results relating to such variables as the various possible distances of Earth from the Sun; the rotational positions of the Earth relating to the Sun; the shape, position, density, variation, and charge of both van Allen radiation belts; the velocity, temperature, direction, width, and mass of fourteen hundred jet streams; the heat flow of the major ocean currents; the effect on air drift of each major land mass; the heat content of the land masses; the Coriolis effect; and superimposed over all these factors and many more, the effect of the existing and programmed weather playing over the face of the entire Earth.

Greenberg took the Sun and worked with the analysis results on the movement of each sunspot; the sun's rotations; fluctuating temperatures and pressures in the photosphere, reversing layer, chromosphere, and corona; spectrum variations; and the relative output from the carbon cycle and the proton-proton chain.

Anna wandered everywhere, now looking over Upton's shoulder, now on the phone to the computers in Washington, D. C., now guiding a resident on his next chore, now inventing a new notational system to simplify feeding newly-derived mathematical models into the computers. She wandered as if in a dream, but when a question was asked or when something slowed down, her responses were far from dreamlike. Many a resident, several computer operators, and Upton himself felt the bite of one of her crisp sentences pointing out what could have been a rather obvious blunder. As time wore on and the work grew more frantic, the normally harsh lines on Anna's face softened, and she walked erect instead of with her usual slouch. Several of the mathemeteorologists, who formerly would not even have talked to her unless it was absolutely necessary, found themselves willingly turning to her for further guidance on their part of the problem.

The first partial solution was fully worked out for the first time at eleven hundred hours the next morning. It had only an eighty-one per cent fit, but that was good for the first time out; more would be coming soon. But Upton found a flaw. "No good," he said. "This solution would also increase that proposed drought in Australia by a factor of twelve. That would be nice. We pull something

like that and we'll all be back reading electric meters."

The remark struck a responsive chord in the group, and the laughter spread and grew more intense. In moments every person in the Advisors Building was convulsed with violent laughter as the long strain finally took its hysterical toll. It was several minutes before the eyes were wiped and the people settled down to work again. Greenberg said, "Well, that's where our danger will be. Not necessarily in Australia, but anywhere. We've got to make sure we don't get a drastic reaction somewhere."

Anna Brackney heard him and said, "DePinza is working on a definitive analysis to insure that there can be no undesirable reaction. He'll have it in an hour." She walked off, leaving Greenberg staring after her.

It was fifteen hundred when the final set of equations was completed. The fit was ninety-four per cent, and the check-out against DePinza's analysis was one hundred and two per cent. The residents and the mathemeteorologists gathered around the large table as Greenberg considered the results. They had finished none too soon. The procedure they had worked out called for sunside operations starting three hours after the beginning of the second shift, and that went on in four hours. Greenberg rubbed the heavy stubble on his face and said, "I don't know whether to let it go or not. We could report that our procedures are untried and ought not to be used all at once."

The eyes of the group turned to Anna Brackney, but she seemed supremely unconcerned. Upton voiced what was in everyone's mind. "There's a little bit of the heart of each one of us in there." He nodded to the equations. "Since they represent the very best that we can do, I don't see how we can report that they ought not to be used. Right now those equations represent the best Advisors output; in that sense they *are* the Advisors. Both we and the people who put us here have to stand or fall on our best efforts."

Greenberg nodded, and handed the two sheets of paper to a resident and said, "Break it down to the sunside procedures and then send it up to the Weather Bureau. I hope they don't have to sweat it out the way we did." He rubbed his face. "Well, that's what we get paid for."

The resident took the sheets and went off. The others drifted away until only Greenberg and Upton were left. Upton said, "This will be quite a feather in Anna Brackney's cap. I don't know where she pulled her inspiration from."

"I don't either," said Greenberg. "But if she sticks her finger in her mouth again, I may quit the business."

Upton chuckled. "If she brings this one off, we'd better all learn to stick our fingers in our mouths."

James Eden rolled out of his bunk and stood poised on the balls of his feet. Yes, there was a faint, barely discernible chatter in the deck. Eden

shook his head; the sun was rough, and it was going to be a bad day. If Base had a chatter, then the sessile boats would be hard to manage. Never knew it to fail. Try something tricky and you had to work in the worst possible conditions; try something routine, and conditions were perfect. But that was what you had to expect in the Bureau. Even the textbooks talked about it—an offshoot of an old Finagle Law.

Eden depilated and dressed, wondering what the job ahead of him would be like. They were always the last to hear anything, yet they were the ones who had to do all the dirty work. The whole Weather Congress depended on the Bureau. The Council was nothing more than a bunch of rich old fat politicians who scratched each other's backs and spent their days cooking up Big Deals. The Advisors were a bunch of nuts who sat on their duffs and read out loud all the stuff the computers figured out. But the Bureau was something else again, a fine body of dedicated men who did a job so that the planet Earth could flourish. It was good to be in the Weather Bureau—and there it was again.

Eden could not keep his thoughts away from the problem that had been nagging at him during this entire tour. He rubbed his forehead and wondered again at the perversity of women. Rebecca, black-haired and black-eyed, with warm white skin, waited for him when his tour was over, but only if he left the Bureau. He could see her now, close to him, looking deep into his eyes, the soft palm of her hand pressed against his cheek, saying, "I will not share you with any person or any thing, even your beloved Bureau. I want a complete husband. You must decide." With other women he could have laughed and picked them up and swung them around and quickly jogged them out of the mood, but not Rebecca, not Rebecca of the long black hair. Damn it!

He swung around and stepped out of his tiny cabin and headed for the mess hall. There were half a dozen men already there when he entered, and they were talking and laughing. But they stopped what they were doing and looked at him and hailed him as he came in through the door. "Hey, Jim." "About time you were rolling out." "Good to see you, boy."

Eden recognized the symptoms. They were tense, and they were talking and laughing too loud. They were relieved to have him join them. They needed somebody to lean on, and Eden pitied them a little for it. Now they would not have to make such an effort to appear normal. The others had felt the chatter in the deck, too.

Eden sat down and said, "Morning. Anything on the Board yet about the shift's work?"

The others shook their heads, and Pisca said, "Not a word. They always wait and tell us last. Everybody on the planet knows what's going on, but not us. All we get are rumors until its time to go out and do it."

"Well," said Eden, "communication with the Bureau is not the easiest thing in the world, don't forget. We can't expect to hear everything as soon as it happens. But I sort of agree with you anyway; seems to me they could keep us posted better as things develop back on Earth."

They nodded, and then applied themselves to the breakfast. They chatted over coffee until a soft chime sounded throughout Base. They rose. It was time for the briefing, and they headed for the briefing room up at the top of the Base. Commander Hechmer was there when they walked in and took their seats. Eden watched carefully as he found a seat and sat down. In the past he had sometimes wondered if Hechmer had taken particular notice of him—an extra glance, closer attention when he asked a question, talking more to him than to the others at a briefing, little things, but important nevertheless.

Commander John H. Hechmer was a legend in the Weather Bureau at the age of forty-five years. It was he who had evolved and perfected the Pinpoint Stream technic in which a thin stream of protons could be extracted from the 4,560-degree level in a sunspot and directed against any chosen sunside part of Earth. In the days when Hechmer was the Senior Boat Master in the Bureau, great strides had been made in weather control. A fineness and detail of weather patterns on Earth had become possible that had astonished all the experts. Hechmer had even guided the Advisors, showing them the broadened scope of the Bureau's abilities. His handling of a sunboat had never been matched, and it was one of the goals in Eden's career—if he chose to stay with it—to be thought of as the man who most nearly approximated Hechmer.

Eden watched, and finally when Hechmer looked up from the table it seemed to Eden that his eyes swept the group to rest for an instant on Eden, and then they moved on. It was as if Hechmer wanted to assure himself that Eden was there. Eden could not be sure of this, but the possibility of it made him sit straighter in his chair.

Hechmer said, "Here is Phase One of the next shift's operation as received from the Advisors." He flashed the requisite portion of the page on the upright panel behind him. It took Eden one quick glance to see that it represented a substantial departure from customary procedure. Immediately he began to slump down in his seat as he lost himself in the problem of studying out how to handle it. He did not notice that Hechmer saw his instant grasp of the problem. It was a moment or two before several low whistles announced that the others had grasped it, too.

Hechmer sat quietly while they studied over the page. All of them were now thinking out how the report had to be modified to place it in useful condition for the Bureau to use. The Advisors always prided themselves on stating their solutions in clear and explicit terminology. But as a practical matter their solutions

were totally unusable as received for they did not mention many of the sun conditions that the Bureau had to cope with. These are accomplishments not explained by mathematics. It was one of the quiet jokes of the Bureau to listen to the talk of an Advisor about the thoroughness of his solution and about the lack of thinking required by the Bureau, and then to ask the Advisor what he knew about "reversing granulation." No one except a working member of the Bureau could experience that strange upwelling sometimes found in the lower regions of the reversing layer.

The silence grew long. Eden's forehead was wrinkled with concentration as he tried to find some way to break into the problem. He finally saw a possible entry, and he pulled over a pad and began trying for a method of breakdown. Hechmer began to polish his own figures while the rest stared at the page on the wall as if hypnotized. It was ten minutes before another of the men finally began to make notes.

Eden sat back and looked over what he had written. With growing excitement he realized that his possible answer had never been tried before. As he looked at it more closely, though, he realized that it might not ever be done; it was a radical approach, calling for Boat performance not mentioned in the Boat specifications.

Hechmer said, "Gentlemen, we must begin. To start things off, here is my proposed answer. Pick it apart if you can."

Eden looked up at it. It was different, too, but it differed in that it called for the use of every single Boat on the sun, a thing never before needed. Hechmer's answer was to carry out the mission by sheer weight of numbers, and by this means to dig from the various levels in the sun's atmosphere the total of the streams and sheets needed to bring about the desired weather on Earth. But as he looked at it Eden began to see flaws. The streams, being taken from different parts of the sun's surface would strike the Earth and its environs at angles slightly different from those that were called for. Hechmer's answer might work, but it did not seem to have as good a chance as Eden's answer.

Hechmer said, "The main feature wrong with this plan is the wide scattering of the impinging streams. Can you think of any way to overcome that?"

Eden could not, but his mind was more occupied with his own plan. If he could be certain that the Boats could stand submersion in the sun's surface for the required length of time, there would be few problems. Oh, communication might be more difficult, but with only one Boat down there would be a much reduced need for communication; the Boat would succeed or not, and no instructions from anywhere else could help.

One of the other men was beginning to suggest the unfeasible modification of having all the Boats work

closer together, a grave mistake since the Boats could not control their toruses with sufficient nicety. Eden interrupted him without thinking. "Here is a possible answer." And he dropped his page on the desk.

Hechmer continued to look at the man who had been talking, waiting politely for him to finish. The man avoided an embarrassing situation by saying, "Let's see what Jim has to offer before we go on with this one."

Hechmer slipped Eden's page into the viewer, and they all studied it. It had the advantage at least of being readily understandable, and they all began talking at once, most of them saying that it couldn't be done. "You'll lose the Boat." "Yes, and the men in it, don't forget." "Won't work even if the Boat holds up." "You can't get a Boat that deep."

Eden carefully watched Hechmer's face while he studied the plan. He saw Hechmer's eyes widen, and then narrow again, and Hechmer realized that Eden was watching him closely. For a moment the room faded from Hechmer's mind, replaced by another similar room, many years ago, when a younger and rasher Hechmer sat and anxiously watched his superior eye a new kind of plan. Hechmer said, without taking his eyes from the projected page, "Assuming the Boat can get down there, why won't this plan work?"

"Well," said the man who had stated it wouldn't work, "the streams and sheets won't necessarily emerge in the direction. . . ." But as he talked he noticed that the energy of the sunspot's field was channeled to serve as a focusing lens, and his words faded.

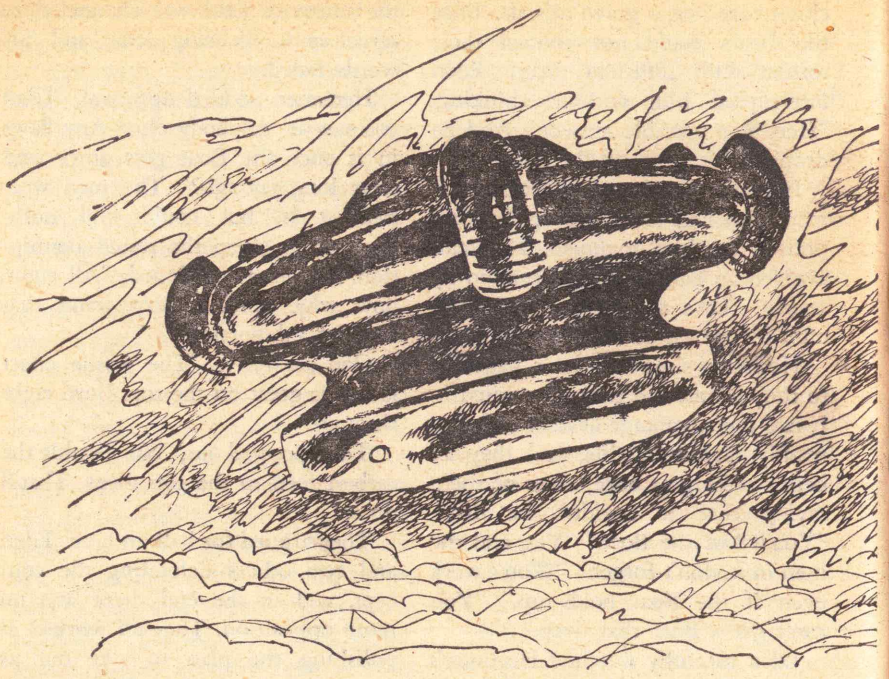
Hechmer nodded approval, "Glad you saw it. Anybody else? Any flaws in it once the Boat gets down and stays long enough?" The men worried at it, but could find nothing wrong, given the stated assumption. Hechmer continued, "All right, now why won't a Boat stand that kind of submersion."

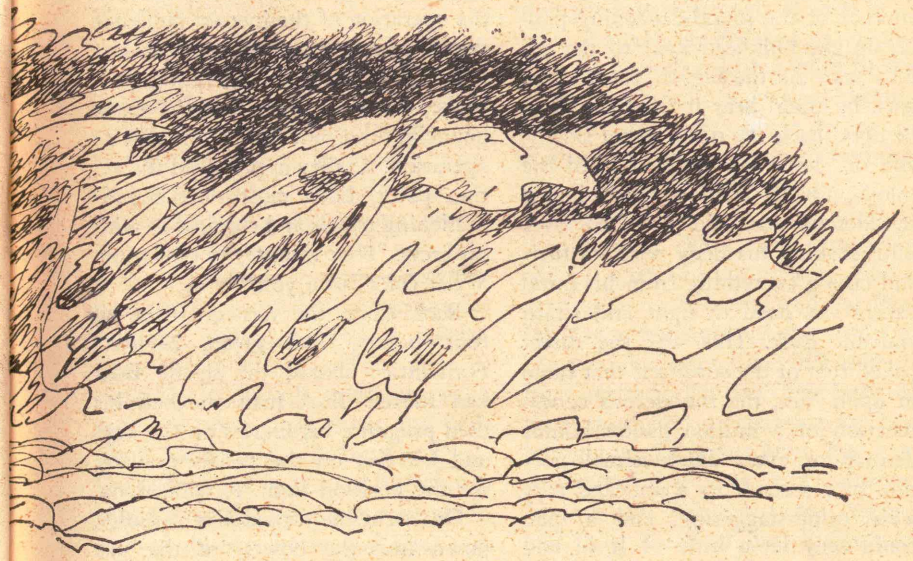
One answered, "The sessile effect is not as great on the top. Burn right through."

Eden popped out, "No. Double the carbon feed to the top torus. That'll do it."

They argued for half an hour. Eden and two others defending the concept, and in the end there was no more opposition. They all worked at polishing the plan to take out as much risk as possible. By the time they finished there really was no decision for Hechmer to make. The group of Boat captains had accepted the plan, and it went without saying that Eden's Boat would be the deep Boat. There was a bare half an hour to the start of the shift, so they went to get ready.

Eden struggled into the lead suit, muttering the same curses every Boatman since the first had muttered. The Boats had ample shielding, and the suits were to provide protection only if a leak allowed in some stray radiation. But on the sun it seemed highly unlikely that a leak would allow in only a little radiation.





It seemed much more likely that a leak would allow in so much of the sun's atmosphere that the men in the Boat would never know what hit them. A lead suit then would be like trying to dam a volcano with a feather. Nevertheless, lead suits were mandatory.

Entering the Boat from Base was always a tricky maneuver. The torus above the joining lock was not a permanent part of the lock, and if it moved, the full gravitational field of the sun could pull at the man, pulling his entire body down into his shoes. Eden slipped through and made the rounds of the Boat on the standard captain's inspection before he went to his chair and began the start-up procedure.

He noted the continuing roughness of the sun. First he checked the carbon supply, the material which vaporized and then in the form of a thin film protected the entire Boat from the searing heat of the sun's surface. The Boats rode the layer of vaporized carbon the way a drop of water rides a layer of vaporized water on a red-hot plate; this was the sessile effect. Next he checked the overhead torus. Here in a circular path there traveled a few ounces of protons at a velocity approaching that of light. At these velocities the few ounces of protons weighed incalculable tons and thus offset the enormous gravitational attraction of the sun itself. The same magnetic tape that supplied the field to maintain the protons in their heavy-mass state also served to maintain a polarity the same as that of the adjacent sun's surface. Hence the torus and the sun's surface repelled each other. Objects under the torus were subjected to two gravitational fields, the one from the torus almost, but not quite, canceling the sun's. As a result men worked in the Boats and in the Base in a 1-G field.

Eden ran down the entire list checking off one by one the various functioning parts of the Boat. His crew of four worked with him, each responsible for a section of the Boat. Five minutes before castoff the board was green, and at zero time on the shift they shoved off.

The Boat felt good under his hands. It leaped and surged as the sun's surface roiled and boiled, but he kept it steadily headed outward, sliding ever downhill on its thin film of carbon vapor.

"How do you ride?" he said into the intercom.

A chorus of "fines" came back, so Eden tipped the Boat a little more to increase her speed. They were on a tight schedule and they had distance to make. As always Eden felt exhila-

rated as their speed increased, and he did the thing he always did when he felt that way.

Carefully, he drew back one after another of the sound-deadening panels on the bulkhead next to the pilot's seat. As the eighth panel drew back he could hear it faintly, and so he drew back the ninth panel slowly, and on the tenth the roar filled the pilot's cubicle. Eden sat bathed in a thunderous roar that washed over him, shaking his body with its fury, and taking everything from his mind except the need to fight and strain and hit back. This was the direct naked roar of the sun itself that came in upon him, the thunderous concatenation of a million fission bombs detonating every infinitesimal portion of a second. Its sound and fury were mind-staggering, and a man could only let a little of it in and keep his sanity. But that little was an awesome sound, cleansing, humbling, focusing a man's attention on the powers he controlled, warning him to mind his business.

This was a thing that Eden had never told to anyone, and no one had ever told him. It was his own secret, his own way of refreshing and replenishing whatever it was that made him the man he was. He supposed that he was the only one of the pilots that did this thing, and since on this one point he did not think clearly, it never occurred to him to wonder how it came about that the only movable sound-deadening panels in the entire Boat happened to be located right alongside the pilot's seat.

For half an hour Eden guided the Boat toward its first action point, easily coping with the usual roughness of the sun's surface. He checked the operation of the inertial guidance system exactly twice as often as was required by standard operating procedure to make sure that the extra bouncing did not affect its precise operation. As they approached the action point, Eden closed the sound-deadening panels and checked in with his crew. "Four minutes to operation. What color have you?"

Back came the answer from all four points, "All green, Master." Formalities aboard the sessile Boat had started. Each man watched his own program, his fingers on the keys and his feet on the pedals, waiting for the position light. It winked on.

Out went the torpedolike capsules, down into the bowels of the sun where the carbon-nitrogen cycle raged. At a temperature of three point five million degrees the ablation head disintegrated and released into the inferno a charge of heavy nitrogen. The heavy nitrogen, appearing as it did at the end of the carbon-nitrogen cycle, disrupted the steady state conditions and produced a flood of helium that served to dampen and cool the fusion reactions in the entire region. The resultant thermal shock to the interior caused an immediate collapse followed by an incredible increase in pressure with the attendant temperature rise. The vast explosion heaved its way to the surface and became a great prominence licking its way toward the

Earth and channeling huge masses of protons toward the preselected site in the vicinity of the Earth. The initial phase of the operation appeared successful.

The next hour passed in moving from site to site and planting the proper charges, now to bring about a vast electron discharge at the correct angle, now to dampen a flare, now to shift the location of a spot. On two occasions the instruments showed that the detonations did not take place at a sufficiently precise location to meet the unusual requirements for accuracy, and so subsidiary detonations had to be made. They were in constant, if difficult, communication with the other three Boats and with Base. None of the Boats was specifically aware of it, but the beginnings of the Australian drought were set in motion during the second hour out.

There was no tension aboard Eden's Boat as the time for the deep operation approached; they were all too busy. When the time came Eden merely checked out over the communication net and reduced the polarity of the magnetic field on the overhead torus. The Boat went down fast, leaving the photosphere behind. Eden kept a careful check on the temperature drop across the walls of the Boat as they fell; when the sessile effect began to diminish, he wanted to know about it. The interior walls began to heat up sooner than he expected, and once they started, the heat-up proceeded ever more rapidly. A quick check showed that the rate of heating was faster than their rate of descent; they could not reach the required depth without becoming overheated. The Boat would not withstand the temperatures that Eden had thought it would. "Too hot, too hot," he said aloud. He checked the depth; they had another half a mile to go. There was no use in even attempting to release the water where they were. It was half a mile deeper, or nothing. The plan was in jeopardy.

Eden did not really pause to make the decision. He simply drastically cut the power to the polarity-control generators to the torus, and the Boat fell like a stone toward the center of the sun. It dropped the half mile in forty seconds, the last few hundred yards in violent deceleration as Eden brought up the power level. The drop was so fast there was little additional heat-up. He hit the water releases and flung the Boat into the pattern that had been worked out, and in ten seconds the disruption was complete and a blast of Oxygen 15 was started on its way to Earth. The plan, at least, was consummated.

Eden brought up the torus power to a high level and the Boat began to rise to the relative safety of the surface. The time at the deeper level had been sufficiently short that the interior temperature of the Boat was at a tolerable 120 degrees F. The control panel showed no signs of trouble until they rose to within a thousand yards of the surface.

The steady rise slowed and drifted to a halt. The Boat sank a little and

then bobbed up and down and finally found a level, and then it remained motionless. There was no way to strengthen the polarity in the torus. The instruments showed that full power flowed to the coils, and it was not enough. Eden began a check-out. He had barely started when a voice spoke in the intercom, "A portion of our right outboard coil is inoperative, Master. Possibly burned away, but I am checking further."

Eden turned his attention to the coils and soon saw the telltale reduced output. He activated all the thermocouples and other transducers in the vicinity of the coil, and in two minutes he understood what had happened. The burn-out had occurred at the point where the coil turned the corner. The sessile effect there must have been slightly less effective than elsewhere. The unexpectedly great heat had pushed past the film of carbon vapor and destroyed a portion of the titanium-molybdenum alloy wires. Full power to the coil was not enough now to increase the polarity sufficiently for the Boat to rise any farther.

Eden cut into the intercom and explained the situation to the crew. A cheerful voice responded, "Glad to hear that there is nothing seriously wrong then. It is just that we cannot move up. Is that what you make of it, Master?"

"So far, yes. Anybody have any suggestions?"

"Yes, Master. I request a leave of absence."

"Granted," said Eden. "Now put in some time on this. We've got to get up."

There was silence aboard the Boat, and the silence stretched out to twenty minutes. Eden said, "I'll try to raise Base."

For ten minutes Eden tried to reach the Base or another Boat with his long-long wave-length radio. He was about to give up when he heard a faint and garbled reply. Through the noise he could just recognize the call of the Boat mastered by Dobzhansky. He transmitted their situation, over and over, so that the other Boat could fill in missing parts of any one message. Then he listened and eventually learned that they understood and would notify Base. But as they listened to the faint retransmission all sound faded. A check of their position showed that they had drifted out of radio range, so Eden tipped the Boat and began a circle. Three quarters of the way around he picked up the signal again and listened. He heard nothing but routine communication.

One of his men said, "Fine thing. We can move in every direction with the greatest of ease except the one direction we want to go."

Base was now coming in through the other Boat, and Hechmer himself was speaking. All he had to say was, "Stand by while we see what we can do about this."

There was no levity aboard the Boat now. The Boat floated a thousand yards beneath the surface of the sun, and they began to realize that there was nothing anybody could do about it. A sharpened corner on a coil, and the Boat was helpless to return to the surface. Each man sat and stared at his instruments.

A dark-haired vision floated in front of Eden's panel, and in his mind's eye Eden could see the reproachful look on her face. This was what she meant, the black-haired Rebecca, when she said, "I will not share you with any thing." He understood, for now she would be sorry for him, trapped in a place where men had never been.

"Lost the Boat again, Master." The words jarred him. He tipped the Boat and began the circle again. The shadow of Rebecca was still on him, but suddenly he grew very annoyed. What was this? The worry of a woman to get in the way of his work? This was not for him; this was not for the Bureau. There could be no cloudiness of mind, no dichotomy of loyalty—and then he saw the way up.

As he completed the circle he checked the charts and found the nearest sunspot. It was an hour away. He came within radio range again and told Dobzhansky he was heading for the sunspot and that he would come up to the surface there. So saying he headed for it. By the most careful operation they cut their time to the spot to fifty minutes. The last ten minutes of time on the way they spent in building the speed of the Boat to the maximum obtainable. A thousand yards beneath the surface of the sun they entered the magnetic discontinuity that defined the sunspot.

They rode into it in a direction opposite to that of its rotation, and the great coils of the Boat cut across the lines of enormous magnetic force. The motion generated power, and the additional power flowed to the torus, and the Boat began to rise. It was a good spot, five thousand miles wide, and still in its prime. The Boat rode against the direction of its rotation and spiraled upward slowly as it went. It took great patience to note the fact that the Boat rose at all, but hour after hour they worked their way up and finally broke out on the indistinct surface. They rode the edges of the spot until Base came for them, and they docked the Boat and went aboard.

Eden reported to Hechmer, and they made arrangements to round off the relatively sharp corners on all coils. Most important of all, the deep technic appeared to be a success; it was added to the list of usable technics.

"Well," said Eden toward the end of the reporting session, stretching his tired muscles, "I see I'm due back on shift again in an hour. That doesn't give me much time to get rested up."

Then Hechmer said the thing that made Eden glad he had decided to stay in the Bureau. "Hm-m-m, that's right," said Hechmer, glancing up at the chronometer, "tell you what you do. You be an hour late getting back on duty."

George Andrews was very tired, and he had to work very hard to draw air into his lungs. He lay propped up on a soft bed out under the hot California sun, and his fingers plucked at the thin cover that lay over him. He was on a hilltop. Then he noticed an odd cylindrical-shaped cloud that seemed to rise from the level of the ground and reach way up through the scattered alto-cumulous clouds that dotted the blue sky. Gerorge Andrews smiled, for he could see it coming clearly now. The vertical cylinder of frothy clouds moved toward him, and he felt the chill as the leading edge touched him. He threw back the cover when the flakes began to fall so the snow could fall on him. He turned his face up to it, and it felt cold and it felt good. But more than that, he felt content.

Here was the snow he had loved so much when he was a boy. And the fact that it was here at all showed him that men had not changed much after all, for this was a foolish thing. He had no trouble with the air now; he needed none. He lay under the blanket of snow, and it was a good blanket. ■

In Times To Come

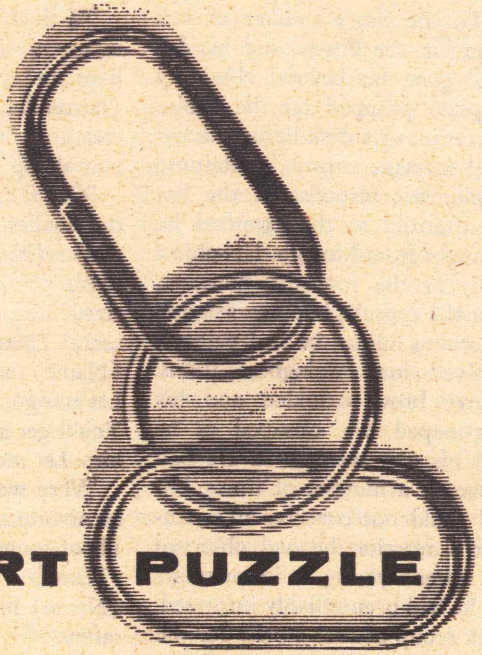
Next month starts Mack Reynolds' new story of Africa in turmoil—"Border, Breed nor Birth."

One of the things constantly overlooked in science-fiction is the fact that revolution is, always, a personal, man-to-man business. No matter what ultra-potent weapons may be developed—revolution will, of necessity, remain a hand-to-hand business.

Because revolution is a struggle to gain control of a population, not of a barren bomb crater. The struggle must be by persuasion, intrigue, and very limited force, very efficiently applied. But most of all, by intrigue and persuasion, for while there is internal struggle, there is always the danger of outside forces deciding that this is the time for them to take over. . . .

And because it is basically man-to-man and persuasion, the Cult of Personality, as the Soviets now call it, is necessary. The barbarian Leader, in one form or another . . . not the super-weapons, planet-busters, or ray-guns. . . .

The Editor.



3-PART PUZZLE

It is so much easier to reason on the simple, clean-cut basis of Yes or No that some people hate the third possibility...

BY GORDON R. DICKSON

■ The Mologhese ship twinkled across the light years separating the human-conquered planets of the Bahrin system from Mologh. Aboard her, the Mologh Envoy sat deep in study. For he was a thinker as well as a warrior, the Envoy, and his duties had gone far beyond obtaining the capsule propped on the Mologhese version of a desk before him—a sealed message capsule containing the diplomatic response of the human authorities to the proposal he had brought from Mologh. His object of study at the moment, however, was not the capsule, but a translation of something human he had painfully resolved into Mologhese terms. His furry brow wrinkled and his bulldog-shaped jaw clamped as he worked his way through it. He had been over it a number of times, but he still could not conceive of a reason for a reaction he had observed among human young to its message. It was, he had been reliably informed, one of a group of such stories for the human young. —What he was looking at in translation was approximately this:—

THE THREE (Name) (Domestic animals) (Name)

Once upon a time there was a (horrendous, carnivorous, mythical creature) who lived under a bridge and one day he became very hungry. He was sitting there thinking of good things to eat when he heard the sounds of someone crossing the bridge over his head. (Sharp hoof-sound)—(sharp hoof-sound) went the sounds on the bridge overhead.

"Who's there?" cried the (horrendous, carnivorous, mythical creature)

"It's only I, the smallest (Name) (Domestic animal) (Name)" came back the answer.

"Well, I am the (horrendous, carnivorous, mythical creature) who lives under the bridge," replied the (horrendous, carnivorous, mythical creature) "and I'm coming up to eat you all up."

"Oh, don't do that, please!" cried the smallest (Name) (Domestic animal) (Name). "I wouldn't even make you a good meal. My (relative), the (middle-sized? next-oldest?) (Name) (Domestic animal) (Name) will be along in a minute. Let me go. He's much bigger than I. You'll get a much better meal out of him. Let me go and eat him instead."

"Very well," said the (horrendous, carnivorous, mythical creature); and (hoof-sound)—(hoof-sound) the (Name) (Domestic animal) (Name) hurried across the bridge to safety.

After a while the (horrendous, carnivorous, mythical creature) heard (heavier hoof-sound)—(heavier hoof-sound) on the bridge overhead.

"Who's there?" he cried.

"It is I, the (middle-sized?) (Name) (Domestic animal) (Name)," replied a (deeper?) voice.

"Then I am coming up to eat you up," said the (horrendous, carnivorous, mythical creature). "Your smaller (relative?) the smallest (Name) (Domestic animal) (Name) told me you were coming and I let him go by so I could have a bigger meal by eating you. So here I come."

"Oh, you are, are you?" said the (middle-sized) (Name) (Domestic animal) (Name). "Well, suit yourself; but our oldest (relative?), the big (Name) (Domestic animal) (Name) will be along in just a moment. If you want to wait for him, you'll really have a meal to remember."

"Is that so?" said the (horrendous, carnivorous, mythical creature), who was very (greedy? Avaricious? Gluttonous?). "All right, go ahead." And the (middle-sized) (Name) (Domestic animal) (Name) went (heavier hoof-sound)—(heavier hoof-sound) across the bridge to safety.

It was not long before the (horrendous, carnivorous, mythical creature) heard (thunderous hoof-sound)—(thunderous hoof-sound) shaking the bridge overhead.

"Who's there?" cried the (horrendous, carnivorous, mythical creature.

"It is I!" rumbled an (earth-shaking?) deep (bass?) voice. "The biggest (Name) (Domestic animal) (Name). Who calls?"

"I do!" cried the (horrendous, carnivorous, mythical creature). "And I'm coming up to eat you all up!" And he sprang up on the bridge. But the big (Name) (Domestic animal) (Name) merely took one look at him, and lowered (his?) head and came charging forward, with his (horns?) down. And he butted that (horrendous, carnivorous mythical creature) over the hills and so far away he could never find his way back to bother anyone ever again.

. . .

The Mologhese Envoy put the translation aside and blinked his red-brown eyes wearily. It was ridiculous, he thought, to let such a small conundrum bother him this way. The story was perfectly simple and obvious; it related how an organization of three individuals delayed conflict with a dangerous enemy until their strongest member arrived to deal with the situation. Perfectly usual and good Conqueror indoctrination literature for Conqueror young.

But still, there was something—a difference about it he could not quite put his finger on. The human children he had observed having it told to them at that school he had visited had greeted the ending with an entirely disproportionate glee. Why? Even to a student of tactics like himself the lesson was a simple and rather boring one. It was as if a set of young students were suddenly to become jubilant on being informed that two plus two equaled four. Was there some hidden value in the lesson that he failed to discover? Or merely some freakish twist to the human character that caused the emotional response to be disproportionate?

If there was, the Envoy would be everlastingly destroyed if he could not lay the finger of his perception on what it was. Perhaps, thought the Envoy, leaning back in the piece of furniture in which he sat, this problem was

merely part and parcel of that larger and more wide-spread anomaly he had remarked during the several weeks, local time, he had been the guest of the human HQ on Bahrin II. . . .

The humans had emerged on to the galactic scene rather suddenly, but not too suddenly to escape notice by potentially interested parties. They had fanned out from their home system; doing it at first the hard way by taking over and attempting to pioneer uninhabited planets of nearby systems. Eventually they had bumped into the nearest Conqueror civilization—which was that of the Bahrin, a ursinoid type established over four small but respectable systems and having three Submissive types in bondage, one of which was a degraded Conqueror strain.

Like most primitive races, the humans did not at first seem to realize what they were up against. They attempted at first to establish friendly relations with the Bahrin without attempting any proof of their own. Conqueror instincts. The Bahrin, of course, recognized Conqueror elements potential in the form of the human civilization; and for that reason struck all the harder, to take advantage of their own age and experience. They managed to destroy nearly all the major planetary installations of the humans, and over twenty per cent of the population at first strike. However, the humans rebounded with surprising ferocity and speed, to drop guerrilla land troops on the Bahrin planets while they gathered power for a strikeback. The strikeback was an overwhelming success, the Bahrin power being enfeebled by the unexpected fierceness of the human guerrillas and the fact that these seemed to have the unusual ability to enlist the sympathy of the Submissives under the Bahrin rule. The Bahrin were utterly broken; and the humans had for some little time been occupying the Bahrin worlds.

Meanwhile, the ponderous mills of the Galactic social order had been grinding up the information all this had provided. It was known that human exploration ships had stumbled across their first contact with one of the Shielded Worlds; and immediately made eager overtures of friendship to the people upon it. It was reported that when the Shielded peoples went on about their apparently meaningless business under that transparent protective element which no known Conqueror had ever been able to breach; (and the human overtures were ignored, as all Conqueror attempts at contact had always been), that a storm of emotion swept over the humans—a storm involving the whole spectrum of emotions. It was as if the rejection had had the equivalent of a calculated insult from an equivalent, Conqueror, race.

In that particular neighborhood of the galaxy the Mologhese currently held the balance of power among the Conqueror races. They sent an Envoy with a proposal to the human authorities.

—And that, thought the Envoy, aboard the returning spaceship as he put aside the problem of the translation to examine the larger question, was the beginning of an educative process on both sides.

His job had been to point out politely but firmly that there were many races in the galaxy; but that they had all evolved on the same type of world, and they all fell into one of three temperamental categories. They were by nature Conquerors, Submissives, or Invulnerables. The Invulnerables were, of course, the people of the Shielded Worlds; who went their own pacific, non-technologic ways. And if these could not be dominated behind the protections of their strange abilities, they did not seem interested in dominating themselves, or interfering with the Conquerors. So the situation worked out to equalities and they could be safely ignored.

The Submissive races, of course, were there for any Conqueror race's taking. That disposed of them. But there were certain elements entering into inter-Conqueror relationships, that were important for the humans to know.

No Conqueror race could, naturally, be denied its birthright, which was to take as much as it could from Submissives and its fellow-Conquerors. On the other hand, there were advantages to be gained by semi-peaceful existence even within the laws of a society of Conqueror races. Obvious advantages dealing with trade, travel, and a reciprocal recognition of rights and customs. To be entitled to these, the one prime requirement upon any Conqueror race was that it should not rock the boat. It might as well take on one or more of its neighbors, or make an attempt to move up a notch in the pecking order in this neck of the galactic woods; but it must not become a bother to the local community of Conquerors as a whole by such things as general piracy, et cetera.

"In short," had replied the Envoy's opposite number—a tall, rather thin and elderly human with a sad smile, "a gentleman's agreement?"

"Please?" said the Envoy. The Opposite Number explained.

"Essentially, yes," said the Envoy, feeling pleased. He was pleased enough, in fact, to take time out for a little dissertation on this as an example of the striking cultural similarities between Conqueror races that often produced parallel terms in completely different languages, and out of completely different backgrounds.

". . . In fact," he wound up, "let me say that personally, I find you people very much akin. That is one of the things that makes me so certain that you will eventually be very pleased that you have agreed to this proposal I brought. Essentially, all it asks is that you subscribe to the principles of a Conqueror intersociety—which is, after all, your own kind of society—and recognize its limitations as well as its privileges by pledging to maintain the principles which are the hard facts of its existence."

"Well," said his Opposite Number, whose name was Harrigan or Hargan,

or some such, "that is something to be decided on in executive committee. Meanwhile, suppose I show you around here; and you can tell me more about the galaxy."

There followed several weeks in which the Envoy found himself being convoyed around the planet which had originally been the seat of the former Bahrin ruling group. It was quite obviously a tactic to observe him over a period of time and under various conditions; and he did not try to resist it. He had his own observations to make, and this gave him an excellent opportunity to do so.

For one thing, he noted down as his opinion that they were an exceedingly touchy people where slights were concerned. Here they had just finished their war with the Bahrin in the last decade and were facing entrance into an interstellar society of races as violent as themselves; and yet the first questions on the tips of the tongues of nearly all those he met were concerned with the Shielded Worlds. Even Harrigan, or whatever his name was, confessed to an interest in the people on the Invulnerable planets.

"How long have they been like that?" Harrigan asked.

The Envoy could not shrug. His pause before answering fulfilled the same function.

"There is no way of telling," he said. "Things on Shielded Worlds are as the people there make them. Take away the signs of a technical civilization from a planet—turn it all into parkland—and how do you tell how long the people there have been as they are? All we ever knew is that they are older than any of *our* histories."

"Older?" said Harrigan. "There must be some legend, at least, about how they came to be?"

"No," said the Envoy. "Oh, once in a great while some worthless planet without a population will suddenly develop a shield and become fertile, forested and populated—but this is pretty clearly a case of colonization. The Invulnerables seem to be able to move from point to point in space by some nonphysical means. That's all."

"All?" said Harrigan.

"All," said the Envoy. "Except for an old Submissive superstition that the Shielded Peoples are a mixed race sprung from an interbreeding between a Conqueror and a Submissive type—something we know, of course, to be a genetic impossibility."

"I see," said Harrigan.

Harrigan took the Envoy around to most of the major cities of the planet. They did not visit any military installations (the Envoy had not expected that they would) but they viewed a lot of new construction taking the place of Bahrin building that had been obliterated by the angry scars of the war. It was going up with surprising swiftness—or perhaps not so surprising, noted the Envoy thoughtfully, since the humans seemed to have been able to enlist

the enthusiastic co-operation of the Submissives they had taken over. The humans appeared to have a knack for making conquered peoples willing to work with them. Even the Bahrin, what there were left of them, were behaving most unlike a recently crushed race of Conquerors, in the extent of their co-operation. Certainly the humans seemed to be allowing their former enemies a great deal of freedom, and even responsibility in the new era. The Envoy sought for an opportunity, and eventually found the chance to talk to one of the Bahrin alone. This particular Bahrin was an assistant architect on a school that was being erected on the outskirts of one city. (The humans seemed slightly crazy on the subject of schools; and only slightly less crazy on the subjects of hospitals, libraries, museums, and recreation areas. Large numbers of these were going up all over the planet.) This particular Bahrin, however, was a male who had been through the recent war. He was middle-aged and had lost an arm in the previous conflict. The Envoy found him free to talk, not particularly bitter, but considerably impressed emotionally by his new overlords.

". . . May your courage be with you," he told the Envoy. "You will have to face them sooner or later; and they are demons."

"What kind of demons?" said the Envoy, skeptically.

"A new kind," said the Bahrin. He rested his heavy, furry, bear-like forearm upon the desk in front of him and stared out a window at a changing landscape. "Demons full of fear and strange notions. Who understands them? Half their history is made up of efforts to understand themselves—and they still don't." He glanced significantly at the Envoy. "Did you know the Submissives are already starting to call them the Mixed People?"

The Envoy wrinkled his furry brow.

"What's that supposed to mean?" he said.

"The Submissives think the humans are really Submissives who have learned how to fight."

The Envoy snorted.

"That's ridiculous."

"Of course," said the Bahrin; and sighed heavily. "But what isn't, these days?" He turned back to his work. "Anyway, don't ask me about them. The more I see of them, the less I understand."

They parted on that note—and the Envoy's private conviction that the loss of the Bahrin's arm had driven him slightly insane.

Nonetheless, during the following days as he was escorted around from spot to spot, the essence of that anomaly over which he was later to puzzle during his trip home, emerged. For one thing, there were the schools. The humans, evidently, in addition to being education crazy themselves, believed in wholesale education for their cattle as well. One of the schools he was taken to was an education center for young Bahrin

pupils; and—evidently due to a shortage of Bahrin instructors following the war—a good share of the teachers were human.

". . . I just *love* my class!" one female human teacher told the Envoy, as they stood together watching young Bahrin at play during their relaxation period.

"Please?" said the Envoy, astounded.

"They're so quick and eager to learn," said the teacher. One of the young Bahrin at play dashed up to her, was overcome with shyness at seeing the Envoy, and hung back. She reached out and patted him on the head. A peculiar shiver ran down the Envoy's back; but the young Bahrin nestled up to her.

"They *respond* so," said the teacher. "Don't you think so?"

"They were a quite worthy race at one time," replied the Envoy, with mingled diplomatic confusion and caution.

"Oh, yes!" said the teacher enthusiastically; and proceeded to overwhelm him with facts he already knew about the history of the Bahrin, until the Envoy found himself rescued by Harrigan. The Envoy went off wondering a little to himself whether the humans had indeed conquered the Bahrin or whether, perhaps, it had not been the other way around.

Food for that same wonderment seemed to be supplied by just about everything else that Harrigan let him see. The humans, having just about wiped the Bahrin out of existence, seemed absolutely determined to repair the damage they had done, but improve upon the former situation by way of interest. Why? What kept the Bahrin from seething with plans for revolt at this very minute? The young ones of course—like that pupil with the teacher—might not know any better; but the older ones . . . ? The Envoy thought of the one-armed Bahrin architect he had talked to, and felt further doubt. If they were all like that one—but then what kind of magic had the humans worked to produce such an intellectual and emotional victory? The Envoy went back to his quarters and took a nap to quiet the febrillations of his thinking process.

When he woke up, he set about getting hold of what history he could on the war just past. Accounts both human and Bahrin were available; and, plowing through them, reading them for statistics rather than reports, he was reluctantly forced to the conclusion that the one-armed Bahrin had been right. The humans were demons. —Or at least, they had fought like demons against the Bahrin. A memory of the shiver that had run down his back as he watched the female human teacher patting the young Bahrin on head, troubled the Envoy again. Would this same female be perfectly capable of mowing down adult Bahrin by the automatic hand-weapon clipful? Apparently her exact counterparts had. If so, which was the normal characteristic of the human nature—the head-patting, or the trigger-pulling?

It was almost a relief when the human authorities gave him a sealed answer to the proposal he had brought, and sent him on his way home a few days later. He carried that last question of his away with him.

The only conclusion I can come to," said the Envoy to the chief authority among the Mologhese, a week and a half later as they both sat in the Chief's office, "is that there is some kind of racial insanity that sets in in times of peace. In other words, they're Conquerors in the true sense only when engaged in Conquest."

The Chief frowned at the proposal answer, still sealed on the desk before him. He had asked for the Envoy's report before opening it; and now he wondered if this traditional procedure had been the wisest move under the circumstances. He rather suspected the Envoy's wits of having gone somewhat astray during his mission.

"You don't expect me to believe something like that," said the Chief. "No culture that was insane half the time could survive. And if they tried to maintain sanity by continual Conquest, they would bleed to death in two generations."

The Envoy said nothing. His Chief's arguments were logically unassailable.

"The sensible way to look at it," said the Chief, "is to recognize them as simply another Conqueror strain with somewhat more marked individual peculiarities than most. This is—let us say—their form of recreation, of amusement, between conquests. Perhaps they enjoy playing with the danger of cultivating strength in their conquered races."

"Of course, there is that," admitted the Envoy. "You may be right."

"I think," said the Chief, "that it's the only sensible all-around explanation."

"On the other hand—" the Envoy hesitated, remembering. "There was the business of that female human patting the small Bahrin on the head."

"What about it?"

The Envoy looked at his Chief.

"Have *you* ever been patted on the head?" he asked. The Chief stiffened.

"Of course not!" He relaxed slowly, staring at the Envoy. "Why? What makes you ask that?"

"Well, I never have either, of course—especially by anyone of another race. But that little Bahrin liked it. And seeing it gave me—" the Envoy stopped to shiver again.

"Gave you what?" said the Chief.

"A . . . a sort of horrible, affectionate feeling—" The Envoy stopped speaking in helplessness.

"You've been overworking," said the Chief, coldly. "Is there anything more to report?"

"No," said the Envoy. "No. But aside from all this, there's no doubt they'd be a tough nut to crack, those humans. My recommendation is that we wait for optimum conditions before we choose to move against them."

"Your recommendation will go into the record, of course," said the Chief. He picked up the human message capsule. "And now I think it's time I listened to this. They didn't play it for you?"

The Envoy shook his head.

The Chief picked up the capsule (it was one the Envoy had taken along for the humans to use in replying), broke its seal and put it into the speaker unit of his desk. The speaker unit began to murmur a message tight-beamed toward the Chief's ear alone. The Envoy sat, nursing the faint hope that the Chief would see fit to let him hear, later. The Envoy was very curious as to the contents of that message. He watched his Chief closely, and saw the other's face slowly gather in a frown that deepened as the message purred on.

Abruptly it stopped. The Chief looked up; and his eyes met the Envoy's.

"It just may be," said the Chief slowly, "that I owe you an apology."

"An apology?" said the Envoy.

"Listen to this—" The Chief adjusted a volume control and pressed a button. A human voice speaking translated Mologhese filled the room.

"The Committee of Control for the human race wishes to express its appreciation for—"

"No, no—" said the Chief. "Not this diplomatic slush. Farther on—" He did things with his controls, the voice speeded up to a gabble, a whine, then slowed toward understandability again. "Ah, listen to this."

". . . Association," said the voice, "but without endorsement of what the Mologhese Authority is pleased to term the Conqueror temperament. While our two races have a great deal in common, the human race has as its ultimate aims not the exercises of war and oppression, plundering, general destruction and the establishment of a tyranny in a community of tyrants; but rather the establishment of an environment of peace for all races. The human race believes in the ultimate establishment of universal freedom, justice, and the inviolable rights of the individual whoever he may be. We believe that our destiny lies neither within the pattern of conquest nor submission, but with the enlightened maturity of independence characterized by what are known as the Shielded Worlds; and, while not ceasing to defend our people and our borders from all attacks foreign and domestic, we intend to emulate these older, protected peoples in hope that they may eventually find us worthy of association. In this hope—"

The Chief clicked off the set and looked grimly at the Envoy. The Envoy stared back at him in shock.

"Insane," said the Envoy. "I was right—quite insane." He sank back in his seat. "At any rate, you too were correct. They're too irrational, too unrealistic to survive. We needn't worry about them."

"On the contrary," said his Chief. "And I'm to blame for not spotting it sooner. There were indications of this in some of the preliminary reports we had on them. They are very dangerous."

The Envoy shook his head.

"I don't see—" he began.

"But I do!" said the Chief. "And I don't hold down this position among our people for nothing. Think for a moment, Envoy! Don't you see it? These people are *causal!*"

"Causal?"

"Exactly," replied the Chief. "They don't act or react to practical or realistic stimuli. They react to emotional or philosophic conclusions of their own."

"I don't see what's so dangerous about that?" said the Envoy, wrinkling his forehead.

"It wouldn't be dangerous if they were a different sort of race," said the Chief. "But these people seem to be able to rationalize their emotional and philosophic conclusions in terms of hard logic and harder science. —You don't believe me? Do you remember that story for the human young you told me about, about the three hoofed and horned creatures crossing a bridge?"

"Of course," said the Envoy.

"All right. It puzzled you that the human young should react so strongly to what was merely a lesson in elementary tactics. But—it wasn't the lesson they were reacting to. It was the emotional message overlaying the lesson. The notion of some sort of abstract right and wrong, so that when the somehow *wrong* mythical creature under the bridge gets what the humans might describe as his just deserts at the horns of the triumphing biggest *right* creature—the humans are tremendously stimulated."

"But I still don't see the danger—"

"The danger," said the Chief, "lies in the fact that while such a story has its existence apparently—to humans —only for its moral and emotional values, the tactical lesson which we so obviously recognize is not lost, either. To us, this story shows a way of conquering. To the humans it shows not only a way but a reason, a justification. A race whose motives are founded upon such justifications is tremendously dangerous to us."

"You must excuse me," said the Envoy, bewilderedly. "Why—"

"Because we—and I mean all the Conqueror races, and all the Submissive races—" said the Chief, strongly, "have no defenses in the emotional and philosophic areas. Look at what you told me about the Bahrin, and the Submissives the humans took over from the Bahrin. Having no strong emotional and philosophic persuasions of their own, they have become immediately infected by the human ones. They are like people unacquainted with a new disease who fall prey to an epidemic. The humans, being self-convinced of such things as justice and love, in spite of their own arbitrariness and violence, convince all of us who lack convictions having never needed them before. Do you remember how you said you felt when you saw the little Bahrin being patted on the head? *That's* how vulnerable we are!"

The Envoy shivered again, remembering.

"Now I see," he said.

"I thought you would," said the Chief, grimly. "The situation to my mind is serious, enough so to call for the greatest emergency measures possible. We mustn't make the mistake of the creature under the bridge in the story. We were prepared to let the humans get by our community strength because we thought of them as embryo Conquerors, and we hoped for better entertainment later. Now they come along again, this time as something we can recognize as Conqueror-plus. And this time we can't let them get by. I'm going to call a meeting of our neighboring Conqueror executive Chiefs; and get an agreement to hit the humans now with a coalition big enough to wipe them out to the last one."

He reached for a button below a screen on his desk. But before he could touch it, it came alight with the figure of his own attaché.

"Sir—" began this officer; and then words failed him.

"Well?" barked the Chief.

"Sir—" the officer swallowed. "From the Shielded Worlds—a message." The Chief stared long and hard.

"From the Shielded Worlds?" said the Chief. "How? From the Shielded Worlds? When?"

"I know it's fantastic, sir. But one of our ships was passing not too far from one of the Shielded Worlds and it found itself caught—"

"And you just now got the message?" The Chief cut him short.

"Just this second, sir. I was just—"

"Let me have it. And keep your channel open," said the Chief. "I've got some messages to send."

The officer made a movement on the screen and something like a message cylinder popped out of a slot in the Chief's desk. The Chief reached for it, and hesitated. Looking up, he found the eyes of the Envoy upon him.

"Never—" said the Envoy, softly. "Never in known history have they communicated with any of us. . . ."

"It's addressed to me," said the Chief, looking at the outside of the cylinder. "If they can read our minds, as we suspect, then they know what I've just discovered about the humans and what I plan to do about it." He gave the cylinder a twist to open it. "Let's see what they have to say."

The cylinder opened up like a flower. A single white sheet unrolled within it to lie flat on the desk; and the message upon it in the common galactic code looked up at the Chief. The message consisted of just one word. The word was:—

NO. ■

★ ★ ★ ★ ★

ANY-THING YOU CAN DO!

Second of two parts.
A language is
useless in communicating
unless the
background philosophies
of the two speakers
are understood
clearly by at least one
of the speakers.
And for that communication,
Earth had to have
a superman!

by Darrell T. Langart

THE NIPE, a centipedelike extra-terrestrial—five feet long, eighteen inches in diameter, with eight limbs, any one of which can be used as hand or foot, a long, snouted head, and two pairs of violet eyes—has become an evil legend on Earth. He has replaced Satan, the Bogeyman, Frankenstein's monster, the djinn, the vampire, and the werewolf in the public mind.

He and his brother, passing near Sol on a scout trip, found themselves in trouble when their interstellar ship was struck by an unusually energetic plasmoid, a tenuous cloud of ionized gas ejected from the sun. Neither of the aliens was hurt, but the drive of the ship was rendered almost unusable, and all communication devices were destroyed. Their only recourse was to allow the ship to fall inward, toward Sol, and use the little remaining power in the damaged ship to land on one of the inner planets.

The Nipe, knowing that there were not enough supplies aboard for two to survive the long fall toward the distant sun, had, out of his mercy and compassion, killed his brother and eaten him with all due ceremony, and then settled down for the long, lonely wait.

He did not want to die in space—wasted and undevoured. He must reach a planet, where, if he must die, there might be creatures with the wisdom and compassion to give his body the proper ingestion. If he did not die, of course, he must find a way to build a communicator, to get in touch with his home planet.

He landed on Earth in Siberia, in the year 2081, and was barely able to get away from his ship before it spent the last of its latent energies in destroying itself.

The first human being he met was a Russo-Mongolian forest ranger who tended the paper-trees—a mutated Martian plant that grew well in the tundra country. The ranger, frightened, drew his pistol when he saw the alien, and the Nipe was forced to defend himself.

Even though he was unarmed, the Nipe found that killing the human being was almost ridiculously simple. The human was incredibly slow in his reactions, and very weak and soft by the Nipe's standards.

He wondered if the slain being could possibly be the dominant life form on this planet. It didn't seem likely that so sluggish an animal could have dominated a planet. And yet, the weapon the ranger had carried indicated a fairly high technology level, as had the spaceships that the Nipe had detected before he landed. There was a paradox here which the Nipe could not immediately resolve.

Before he could decide whether or not to devour the ranger as a validly slain foe, he was forced to flee because of the approach of aircraft which had come to investigate the crash.

His next step, he decided, was to locate the real rulers of the planet. Because his eidetic memory gave him perfect and total recall, it did not take him long to learn Russian. The ranger, he was certain, had mistaken him for a wild beast, since no truly civilized being would ever use any weapon but his own hands against another civilized being. Not wanting the mistake to be repeated, he called the Regent Board of the Khrushchev Memorial Psychiatric Hospital in Leningrad, under the mistaken impression that these savants were the real rulers of Earth.

For six weeks, attempts were made to establish genuine communication between the Nipe and the psychologists. The alien was treated as though he were an emissary from his home world. But, in spite of his facility with language-learning, the Nipe and the humans simply could not arrive at any real meeting of minds. Neither side could grasp the mental attitude of the other. And, one day, after the conversation had become mutually incomprehensible, the Nipe suddenly killed three of the men and gone out a nearby window.

Since that time, the Nipe has terrorized Earth with a campaign of murder and robbery. He has stolen a seemingly patternless assortment of metals, compounds, and technological equipment. For ten years, he has appeared and disappeared at will, taking what he wants and killing without compunction, leaving behind only the gnawed bones of his victims.

Humanity's answer to the problem posed by the Nipe is embodied in the person of BART STANTON, a young man in his middle twenties.

Because of his particular physical and genetic potential, Stanton has become the first human being to undergo a five-year-long series of hellishly painful operations at the Neurophysical Institute at St. Louis, Missouri, under the skillful hands of a group headed by DR. FARNSWORTH.

For Stanton, there were hazy periods during that five years. He has undergone extensive glandular and neural operations of great delicacy. Several of the steps resulted in temporary insanity. The wild, swinging imbalances of glandular secretions seeking a new balance, the erratic misfirings of neurones as they attempted to adjust to higher nerve-impulse velocities, and the sheer fatigue engendered by cells which were acting too rapidly for a lagging excretory system had all contributed to periods of greater or lesser abnormality. There is no doubt that Stanton is now sane, but there are unfilled holes in his memory.

As a result of the operations, Stanton is now, literally, a superman. His body is a biological engine that, for sheer driving power, speed of reaction, and nicety of control, surpasses any other known to exist or to have ever existed on Earth—with the possible exception of the Nipe.

COLONEL WALTHER MANNHEIM is in charge of the quasi-military group which, under the Earth Government, is responsible for solving the Nipe problem. All over Earth, the people have known that the Government forces have been trying unsuccessfully for ten years to find the Nipe. What they do not

know is that Mannheim and his group have known exactly where the Nipe has been hiding for the past six years.

The Nipe has located his headquarters in the old subway tunnels under Manhattan Island, unused since a sun bomb obliterated New York back during the Holocaust, decades before. Government City, Earth's capital, was built over the slagged-down ruins of the old city, and the entrances to the no-longer-needed subways were simply sealed off, and the tunnels themselves were forgotten. The Nipe gained entrance to them at the northern part of the island, which had been fenced off as a game preserve. Since then, he has been able to make his raids unhampered, using the tunnels as a home base and a laboratory-workshop, where he is trying to build a communicator device that will permit him to contact his home planet.

Using small, remote-controlled robotic devices—disguised as rats, which infest the underground tunnels—Colonel Mannheim and his group have managed to secrete hidden television cameras and microphones in the Nipe's hideout, enabling them to watch and record the activities of the Nipe. The alien spends most of his time building various devices, most of which are unfamiliar to Earth scientists. They have the advantage of watching every step the Nipe makes and of knowing what materials he's using, but, as Mannheim put it: "Can you imagine the trouble James Clerk Maxwell would have had trying to build a modern television set with no more information than this?"

The Nipe is having troubles of his own. Much of Earth's science is equally baffling to him. In order to construct the communicator he needs, he has been forced to "build the tools to build the tools to build the tools . . ." to do the job. He cannot even work on that project steadily, since he is forced to make other devices which will enable him to steal the equipment he needs. Among these devices are one which will temporarily blind human beings, one which will phase out almost any electromagnetic frequency up to about a hundred thousand megacycles—including sixty-cycle power frequencies—and a gadget that will reduce the tensile strength of concrete to about that of a good grade of marshmallow.

Such devices were useful, yes—and necessary. But they are slowing down his main project.

He is, however, hopeful that the "real" rulers of Earth—he cannot bring himself to believe that the humans he sees are anything but slave animals controlled by higher beings—will eventually come to his rescue. To facilitate this, he has always behaved as a gentleman should; he has never used any weapon but his own hands to kill a human being, and he has always devoured them properly after they were killed. That, he feels, should be evidence enough to attract the attention of the "real" rulers of the Solar System of his honorable intentions. He is reasonably certain that the "real" rulers live out in the Asteroid Belt, and he keeps hoping that his actions will appraise them of his existence.

Stanton, the newly-fledged superman, has convinced Colonel Mannheim that the tedious, hellishly painful process has, indeed, produced the man that Mannheim has wanted. Mannheim, an expert with a handgun, was convinced by experiment.

Standing twenty feet away, with Stanton's back turned to him in a noise-filled room, Colonel Mannheim attempted to draw his sidearm and shoot Stanton in the back with harmless bullets. In spite of the fact that he started his draw first, Mannheim was hopelessly outclassed. Stanton heard the colonel draw.

Mannheim, his weapon only partly out of his holster, was astonished to see Stanton move with blurring speed, drawing his own pistol turning, and firing three shots into the area of the colonel's heart before the colonel could even aim his own gun. Had the bullets been lethal, Mannheim would have died then and there.

If Stanton cannot defeat the Nipe, no one can. It is unfortunate that the Farnsworth Process cannot be applied to any but a select few—so far, Stanton is the only person that has qualified—and that the process takes so long. Mannheim would like to have several such supermen to go after the Nipe.

Stanton begins his period of schooling with Mannheim's group, in order to learn everything known about the Nipe. He learns, to begin with, that it will be his job to "beard the lion in his lair"— to meet and defeat the Nipe in hand-to-hand combat.

He realizes that his mental condition is akin to that of a man waking from a drugged sleep. The five years of treatment have left holes in his memory.

One evening, while walking down the streets of St. Louis, he picks up a newssheet and sees a picture of a man called STANLEY MARTIN, a detective who has just cracked an important kidnap case in the Asteroid Belt.

But a voice in his brain says: Not Stan Martin! The name is Mart Stanton!

And he feels a roar of confusion in his brain, because he does not know who Mart Stanton is, and because the face in the picture is his own.

Part 2

XI

He was walking again.

He didn't quite remember how he had left the automat, and he didn't even try to remember.

He was trying to remember other things—farther back—before he had —

Before he had what?

Before the Institute; before the beginning of the operations.

The memories were there, just beyond the grasp of his conscious mind,

like the memories of a dream after one has awakened. Each time he tried to reach into the darkness to grasp one of the pieces, it would break up into smaller bits. The patterns were too fragile to withstand the direct probing of his conscious mind. Only the resulting fragments held together long enough to be analyzed.

And, while part of his mind probed frantically after the elusive particles of memory, another part of it watched the process with semi-detached amusement.

He had always known there were holes in his memory (*Always? Don't be silly, pal!*), but it was disconcerting to find an area that was as riddled as a used machine-gun target. The whole fabric had been punched to bits.

No man's memory is completely available at any given time. However it is recorded, however completely every bit of data may be recorded during a lifetime, much of it is unavailable because it is incompletely cross-indexed or, in some cases, labeled *Do Not Scan.* Or, metaphorically, the file drawer may be locked. It may be that, in many cases, if a given bit of data remains unscanned long enough it fades into illegibility, never reinforced by the scanning process. Sensory data, coming in from the outside world as it does, is probably permanent. But the thought patterns originating within the mind itself, the processes that correlate and cross-index and speculate on and hypothesize about the sensory data, those are much more fragile. A man might glance once through a Latin primer and have every page imprinted indelibly on his recording mechanism and still be unable to make sense out of *Nauta in cubito cum puella est.*

Sometimes a man is aware of the holes in his memory. ("What *was* the name of that fellow I met at Eddie's party? Can't remember it for the life of me.") At other times, a memory may lay dormant and unremembered, leaving no apparent gap, until a tag of some kind brings it up. ("That girl with the long hair reminds me of Suzie Blugerhugle. My gosh! I haven't thought of her for years!") Both factors seemed to be operating in Bart Stanton's mind at this time.

Incredibly, he had never, in the past year at least, had occasion to try to remember much about his past life. He had known who he was without thinking about it particularly, and the rest of his knowledge—language, history, politics, geography, and so on—had been readily available for the most part. Ask any educated man to give the product of the primes 2, 13, and 41, or ask him to give the date of the Norman Conquest, and he can give the answer without having to think of where he learned it or who taught it to him or when he got the information.

But now the picture and the name in the paper had brought forth a reaction in Stanton's mind, and he was trying desperately to bring the information out of oblivion.

Did he have a mother? Surely—but could he remember her? *Yes!* Certainly. A pretty, gentle, rather sad woman. He could remember when she had died, although he couldn't remember ever having attended the funeral.

What about his father?

He could find no memory of his father, and, at first, that bothered him. He could remember his mother—could almost see her moving around in the apartment where they had lived . . . in . . . in . . . in Denver! Sure! And he could remember the building itself, and the block, and even Mrs. Frobisher, who lived upstairs! And the school! A great many memories came crowding back, but there was no trace of his father.

And yet . . .

Oh, of *course!* His father had been killed in an accident when Martinbart were very young.

Martinbart!

The name flitted through his mind like a scrap of paper in a high wind, but

he reached out and grasped it.

Martinbart. Martin-Bart. Mart 'n' Bart. Mart *and* Bart.

The Stanton Twins.

It was curious, he thought, that he should have forgotten his brother. And even more curious that the name in the paper had not brought him instantly to mind.

Martin, the cripple. Martin, the boy with the radiation-shattered nervous system. The boy who had had to stay in a therapy chair all his life because his efferent nerves could not control his body. The boy who couldn't speak. Or, rather, *wouldn't* speak because he was ashamed of the gibberish that resulted.

Martin. The nonentity. The nothing. The nobody.

The one who watched and listened and thought, but could do nothing.

Bart Stanton stopped suddenly and unfolded the newspaper again under the glow of the street lamp. His memories certainly didn't gibe with *this!*

His eyes ran down the column of type.

". . . Mr. Martin has, in the eighteen months since he came to the Belt, run up an enviable record, both as an insurance investigator and as a police detective, although his connection with the Planetoid Police is, necessarily, an unofficial one. Probably not since Sherlock Holmes has there been such mutual respect and co-operation between the official police and a private investigator."

There was only one explanation, Stanton thought. Martin, too, had been treated by the Institute. His memory was still blurry and incomplete, but he did suddenly remember that a decision had been made for Martin to take the treatment.

He chuckled a little at the irony of it. They hadn't been able to make a superman of Martin, but they *had* been able to make a normal and extraordinarily capable man of him. Now it was Bart who was the freak, the odd one.

Turn about is fair play, he thought. But somehow it didn't seem quite fair.

He crumpled the newspaper, dropped it into a nearby waste chute, and walked on through the night toward the Neurophysical Institute.

XII

INTERLUDE

"You understand, Mrs. Stanton," said the psychiatrist, "that a great part of Martin's trouble is mental as much as physical. Because of the nature of his ailment, he has withdrawn, pulled himself away from communication with others. If these symptoms had been brought to my attention earlier, the mental disturbance might have been more easily analyzed and treated."

"I'm sorry, Doctor," said Mrs. Stanton. Her manner betrayed weariness and pain. "It was so—so difficult. Martin could never talk very well, you know, and he just talked less and less as the years went by. It was so gradual that I never really noticed it."

Poor woman, the doctor thought. *She's not well, herself. She should have married again, rather than carry the whole burden alone. Her role as a doting mother hasn't helped either of the boys to overcome the handicaps that were already present.*

"I've tried to do my best for Martin," Mrs. Stanton went on unhappily. "And so has Bart. When they were younger, Bart used to take him out all the time. They went everywhere together. Of course, I don't expect Bart to do that so much any more; he has his own life to live. He can't take Martin out on dates or things like that. But when he's home, Bart helps me with Martin all the time."

"I understand," said the doctor. *This is no time to tell her that Bartholomew's tests indicate that he has subconsciously resented Martin's presence for a long time. She has enough to worry about.*

"I don't understand," said Mrs. Stanton, breaking into sudden tears. "I don't understand why Martin should behave this way! Why should he just sit there with his eyes closed and ignore us both?"

The doctor comforted her in a warmly professional manner, then, as her tears subsided, he said: "We don't understand all of the factors ourselves, Mrs. Stanton. Martin's reactions are, I admit, unusual. His behavior doesn't quite follow the pattern that we usually expect from such cases as this. His physical disability has drastically modified the course of his mental development, and, at the same time, makes it difficult for us to make any analysis of his mental state."

"Is there *any*thing you can do, Doctor?"

"We don't know yet," he said gently. He considered for a moment, then said: "Mrs. Stanton, I'd like for you to leave both the boys here for a few days, so that we can perform further tests. That will help us a great deal in getting at the root of Martin's trouble."

She looked at him with a little surprise. "Why, yes, of course. But . . . why should Bart stay?"

The doctor weighed his words carefully before he spoke.

"Bart is our control, Mrs. Stanton. Since the boys are genetically identical, they should have been a great deal alike in personality if it hadn't been for Martin's accident. In other words, our tests of Bart will tell us what Martin *should* be like. That way we can tell just how much and in what way Martin deviates from what he should ideally be. Do you understand?"

"Yes. Yes, I see. All right, Doctor—whatever you say."

After Mrs. Stanton had left, the psychiatrist sat quietly in his chair and stared thoughtfully at his desk top for several minutes. Then, making his decision, he picked up a small book that lay on his desk and looked up a number in Arlington, Virginia. He punched out the number on his phone, and when the face appeared on his screen, he said: "Hello, Sidney. Look, I have a very interesting case

out here that I'd like to talk to you about. Do you happen to have a telepath who's strong enough to take a meshing with an insane mind? If my suspicions are correct, I'll need a man with an impregnable sense of identity, because he's going to get into the weirdest situation I've ever come across."

XIII

Pok! Pok! Ping!
Pok! Pok! Ping!
Pok! Pok! Ping!

The action in the handball court was beautiful to watch. The robot mechanism behind Bart Stanton would fire out a ball at random intervals ranging from a tenth to a quarter of a second, bouncing them off the wall in a random pattern. Stanton would retrieve the ball before it hit the ground, bounce it off the wall again to strike the target on the moving robot. Stanton had to work against a machine; no ordinary human being could have given him any competition.

Pok! Pok! Ping!
Pok! Pok! Ping!
Pok! Pok! PLUNK.

"One miss," Stanton said to himself. But he fielded the next one nicely and slammed it home.

Pok! Pok! Ping!

The physical therapist who was standing by glanced at his watch. It was almost time.

Pok! Pok! Ping!

The machine, having delivered its last ball, shut itself off with a smug click. Stanton turned away from the handball court and walked toward the physical therapist, who held out a robe for him.

"That was good, Bart," he said, "real good."

"One miss," Stanton said as he shrugged into the robe.

"Yeah. Your timing was a shade off there, I guess. But you ran a full minute over your previous record."

Stanton looked at him. "You re-set the timer again," he said accusingly. But there was a grin on his face.

The P.T. man grinned back. "Yup. Come on, step into the mummy case." He waved toward the narrow niche in the wall of the court, a niche just big enough to hold a standing man. Stanton stepped in, and various instrument pick-ups came out of the walls and touched his body. Hidden machines recorded his heartbeat, blood pressure, brain activity, muscular tension, and several other factors.

After a minute, the P.T. man said, "O.K., Bart; let's hit the steam box."

Stanton stepped out of the niche and accompanied the therapist to another room, where he took off the robe again and sat down on the small stool inside an ordinary steam box. The box closed, leaving his head free, and the box began to fill with steam.

"Did I ever tell you what I don't like about that machine?" Bart asked as the therapist draped a heavy towel around his head.

"Nope. Didn't know you had any gripe. What is it?"

"You can't gloat after you beat it. You can't walk over and pat it on the shoulder and say, 'Well, better luck next time, old man.' It isn't a good loser, and it isn't a bad loser. The damn thing doesn't even know it lost, and if it did, it wouldn't care."

"I see what you mean," said the P.T. man, chuckling. "You beat the pants off it and what d'you get? Not even a case of the sulks out of it."

"Exactly. And what's worse, I know perfectly good and well that it's only half trying. The damned thing could beat me easily if you just turned that knob over a little more."

"You're not competing against the machine, anyway," the therapist said. "You're competing against yourself, trying to beat your own record."

"I know. And what happens when I can't do *that* any more, either?" Stanton asked. "I can't just go on getting better and better forever. I've got limits, you know."

"Sure," said the therapist easily. "So does a golf player. But every golfer goes out and practices by himself to try to beat his own record."

"Bunk! The real fun in *any* game is beating someone else! The big kick in golf is in winning over the other guy in a twosome."

"How about crossword puzzles or solitaire?"

"Solve a crossword puzzle, and you've beaten the guy who made it up. In solitaire, you're playing against the laws of chance, and even that can become pretty boring. What I'd like to do is get out on the golf course with someone else and do my best and then lose. Honestly."

"With a handicap . . ." the therapist began. Then he grinned weakly and stopped. On the golf course, Stanton was impossibly good. One long drive to the green, one putt to the cup. An easy thirty-six strokes for eighteen holes; an occasional hole-in-one sometimes brought him below that, an occasional worm-cast or stray wind sometimes raised his score.

"Sure," Stanton said. "A handicap. What kind of a handicap do you want on a handball game with me?"

The P.T. man could imagine himself trying to get under one of Stanton's lightning-like returns. The thought of what would happen to his hand if he were to accidentally catch one made him wince.

"We wouldn't even be playing the same game," Stanton said.

The therapist stepped back and looked at Stanton. "You know," he said puzzledly, "you sound bitter."

"Sure I'm bitter," Stanton said. "All I get is exercise. "All the fun has gone out of it." He sighed and grinned. There was no point in worrying the P.T. man. "I'll just have to stick to cards and chess if I want competition. Speed and strength don't help anything if I'm holding two pair against three of a kind."

Before the therapist could say anything, the door opened and a tall, lean man stepped into the fog-filled room. "You are broiling a lobster?" he asked the P.T. blandly.

"Steaming a clam," came the correction. "When he's done, I'll pound him to chowder."

"Excellent. I came for a clambake," the tall man said.

"You're early, then, George," Stanton said. He didn't feel in the mood for light humor, and the appearance of Dr. Yoritomo did nothing to improve his humor.

George Yoritomo beamed, crinkling up his heavy-lidded eyes. "Ah! A talking clam! Excellent! How much longer does he have to cook?"

"Twenty-three minutes, why?"

"Would you be so good as to return at the end of that time?"

The therapist opened his mouth, closed it, opened it again, and said: "Sure, Doc. I can get some other stuff done. I'll see you then. I'll be back, Bart." He went out through the far door.

After the door closed, Dr. Yoritomo pulled up a chair and sat down. "New developments," he said, "as you may have surmised."

"I guessed," Stanton said. "What is it?" He flexed his muscles under the caress of the hot, moist currents in the box.

He wondered why it was so important that the psychologist interrupt him while he was relaxing after strenuous exercise. Yoritomo looked excited, in spite of his calm. And yet Stanton knew that there couldn't be anything urgent or Yoritomo would have acted differently.

It was relatively unimportant now, anyway, Stanton thought. Having made his decision to act on his own had changed his reaction to the decisions of others.

Yoritomo leaned forward in his chair, his thin lips in an excited smile, his black-irised eyes sparkling. "I had to come tell you. The sheer, utter beauty of it is too much to contain. Three times in a row was almost absolute, Bart; the probability that our hypothesis is correct was computed as straight nines to seven decimals. But now! The fourth time! Straight nines to *twelve* decimals!"

Stanton lifted an eyebrow. "Your Oriental calm is deserting you, George. I'm not reading you."

Yoritomo's smile became broader. "Ah! Sorry. I refer to the theory we have been discussing—about the memory of the Nipe. You know?"

Stanton knew. Dr. Yoritomo was, in effect, one of his training instructors. *Advanced Alien Psychology,* Stanton thought; *Seminar Course. The Mental Whys & Wherefores of the Nipe, or How To Outthink the Enemy in Twelve Easy Lessons. Instructor: Dr. George Yoritomo.*

After six years of watching the recorded actions of the Nipe, Yoritomo had evolved a theory about the kind of mentality that lay behind the four baleful violet eyes in that alien head. Now he evidently had proof of that theory. He was smiling and rubbing his long, bony hands together. For George Yoritomo, that was the equivalent of hysterical excitement.

"We have been able to predict the behavior of the Nipe!" he said. "For the fourth time in succession!"

"Great. But how does that fit in with that rule you once told me about? You know, the one about experimental animals."

"Ah, yes. The Harvard Law. 'A genetically standardized strain, under precisely controlled laboratory conditions, when subjected to carefully calibrated stimuli, will behave as it damned well pleases.' Yes. Very true.

"But an animal could not do otherwise, could it? Only as it pleases. And it could not please to behave as something it is not, could it?"

"Draw me a picture," Stanton said.

"I mean that any organism is limited in its choice of behavior. A hamster, for instance, cannot choose to behave in the manner of a Rhesus monkey. A dog cannot choose to react as a mouse would. If I prick a rat with a needle, it may squeal, or bite, or jump—but it will not bark. Never. Nor will it leap up to a trapeze, hang by its tail, and chatter curses at me. Never.

"By observing an organism's reactions, one can begin to see a pattern. If you tell me that you put an armful of hay into a certain animal's enclosure, and that the animal trotted over, ate the hay, and brayed, I can tell you with reasonable certainty that the animal has long ears. Do you see?"

"You haven't been able to pinpoint the Nipe that easily, have you?" Stanton asked.

"Ah, no. The more intelligent a creature is, the greater its scope of action. The Nipe is far from being so simple as a monkey or a hamster. On the other hand—" He smiled widely, showing bright, white teeth. "—he is not so bright as a human being."

"*What!?* I wouldn't say he was exactly stupid, George. What about all those prize gadgets of his?" He blinked. "Wipe the sweat off my forehead, will you? It's running into my eyes."

Dr. Yoritomo wiped with the towel as he continued. "Ah, yes. He is quite capable in that respect, my friend. It is his great memory—at once his finest asset and his greatest curse."

He draped the towel around Stanton's head again and stepped back, his face unsmiling. "Imagine having a near-perfect memory."

Stanton's jaw muscles tightened. "I think I'd like it."

Yoritomo shrugged slightly. "Perhaps you would. But it would not be the asset you think. Look at it soberly, my friend.

"The most difficult teaching job in the universe is the attempt to teach an organism something it already knows. True? Yes. If a man already knows the shape of the Earth, it will do you no good to attempt to teach him. If he *knows* that the Earth is flat, your contention that it is round will make no impression whatever. He *knows,* you see. He *knows.*

"Now. Imagine a race with a perfect memory—one which does not fade. A memory in which each bit of data is as bright and fresh as the moment it was imprinted, and as readily available as the data stored in a robot's mind. It is, in effect, a robotic memory.

"If you put false data into the memory bank of a computer—such as telling it that the square of two is five—you cannot correct the error

simply by telling it that the square of two is four. You must first remove the erroneous data, not so?

"Very good. Then let us look at the Nipe race, wherever it was spawned in this universe. Let us look at their race a long time back—when they first became *Nipe sapiens*. Back when they first developed a true language. Each child, as it is born or hatched or budded—whatever it is they do—is taught as rapidly as possible all the things it must know to survive. And once it is taught a thing, it *knows*. And if it is taught a falsehood, then it cannot be taught the truth."

"Wouldn't cold reality force a change?" Stanton asked.

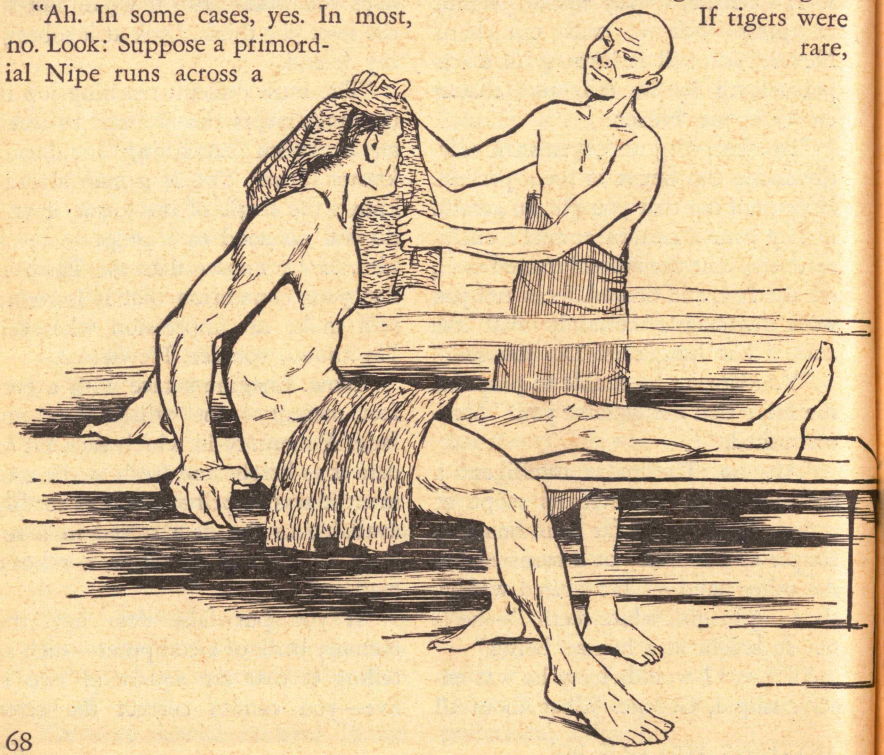
"Ah. In some cases, yes. In most, no. Look: Suppose a primordial Nipe runs across a tiger—or whatever passes for a tiger on their planet. He has never seen a tiger before, so he does not see that this particular tiger is old, ill, and weak. He hits it on the head, and it drops dead. He takes it home for the family to feed on.

" 'How did you kill it, Papa?' "

" 'I walked up to it, bashed it on the noggin, and it died. That is the way to kill tigers.' "

Yoritomo smiled. "It is also a good way to kill Nipes. Eh?" He took the towel and wiped Stanton's brow again.

"The error," he continued, "was made when Papa Nipe generalized from *one* tiger to *all* tigers. If tigers were rare,



this bit of lore might be passed on for many generations. Those who learned that most tigers are *not* conquered by walking up to them and hitting them on the noggin undoubtedly died before they could pass this bit of information on. Then, one day, a Nipe survived the ordeal. His mind now contained conflicting information, which must be resolved. He *knows* that tigers are killed in this way. He also *knows* that this one did not die. Plainly, then, *this* one is not a tiger. Ha! He has the solution!

"What does he tell his children? Why, first he tells them how tigers are killed. Then he warns them that there is an animal that looks *just like* a tiger, but is *not* a tiger. One should not make the mistake of thinking it *is* a tiger or one will get badly hurt. Since the only way to tell the true tiger from the false is to hit it, and since that test may prove fatal to the Nipe who tries it, it follows that one is better off if one avoids all animals that look like tigers. You see?"

"Yeah," said Stanton. "Some snarks are boojums."

"Exactly! Thank you for that allusion. I must remember to use it in my report."

"It seems to me to follow," Stanton said musingly, "that there would be some things that they'd never learn the truth about, once they'd gotten a wrong idea in their heads."

"Ah! Indeed. It is precisely that which led me to formulate my theory in the first place. How else to explain the fact that the Nipe, for all his technical knowledge, is still in the ancient ritual-taboo stage of development?"

"A savage?"

Yoritomo smiled. "As to his savagery, I think no one on Earth would disagree. But they are not the same thing. What I do mean is that the Nipe is undoubtedly the most superstitious and bigoted being on the face of this planet."

XIV

There was a knock at the door, and the physical therapist put his head in. "Sorry to interrupt, but the clam is done. I'll give him a rubdown, Doc, and you can have him back."

"Excellent. Would you come up to my office, Bart, as soon as you've had your mauling?"

"Sure. I'll be right up."

Yoritomo left, and the P.T. man opened the steam box. "Feel O.K., Bart?"

"Yeah, sure," he said abstractedly as he got up on the rubdown table and lay prone. The therapist saw that Stanton was in no mood for conversation, so he proceeded with the massage in silence.

For the first time, Stanton was seeing the Nipe as an individual, as a person, as a thinking, feeling being.

We have a great deal in common, you and I, he thought. *Except that you're a lot worse off than I am.*

* * *

I'm actually feeling sorry for the

poor guy, Stanton thought. Which, I suppose, is better than feeling sorry for myself. The only difference between us freaks is that you're a bigger freak than I am. "Molly O'Grady and the Colonel's lady are sisters under the skin."

Where'd that come from? Something I learned in school, I guess—like the snarks and boojums.

"He would answer to Hi! or to any loud cry,
Such as Fry me! or Fritter my wig!"

Who was that? The snark? No.

Damn this memory of mine!

Or can I even call it mine when I can't even use it?

"For now we see through a glass, darkly; but then face to face: now I know in part; but then shall I know even as also I am known."

Another jack-in-the-box thought popping up from nowhere.

The only way I'll ever get all this stuff straightened out is to get more information. And it doesn't look as though anyone is going to give it to me on a platter. The Institute seems to be awfully chary about giving information away. George even had to chase away old rub-and-pound, here (That feels good!) before he would talk about the Nipe. Can't blame 'em for that, I guess. There'd be hell to pay if the public ever found out that the Nipe has been kept as a pet for six years.

How many people has he killed in that time? Twenty? Thirty? How much blood does Colonel Mannheim have on his hands?

"Though they know not why,
Or for what they give,
Still, the few must die,
That the many may live."

I wonder whether I read all that stuff complete or just browsed through a copy of Bartlett's Quotations. Fragments.

We've got to get organized here, brother. Colonel Mannheim's little puppet is going to cut his strings and do a Pinocchio.

* * *

"O.K., Bart," the PT.. said, giving Stanton a final slap, "you're all set. See you tomorrow."

"Right. Gimme my clothes."

Stanton dressed and took the elevator up to Yoritomo's office. This section of the building was off-limits to the other patients in the Institute, but Stanton, the star border, had free rein.

Not that it mattered, one way or another. There wasn't any way they could have stopped him. Aside from the fact that he was physically capable of going through or around almost any guards they wanted to put up, there was also the little matter of gentle blackmail. When a man is genuinely indispensable, he can work wonders by threatening to drop the whole business.

He felt as though he had been slowly awakening from a long sleep. At first, he had accepted as natural that he should obey orders and do as he was told without question, as though he had been drugged or hypnotized.

And it's very likely they subjected me to both at one time or another, he told himself.

But now his brain was beginning to function again, and the need to know was strong in his mind.

Dr. Yoritomo was sitting in one of the big, soft chairs, puffing at his pipe, but he leaped to his feet when Stanton came in.

"Ah! About the ritual-taboo culture of the Nipe! Yes. Sit down. Yes. So. Do you find it impossible that a high technology could be present in such a system?"

"No. I've been thinking about it."

"Ah, so." He sat down again. "Then *you* will please tell *me.*"

"Well, let's see. In the first place, let's take religion. In tribal cultures, religion is—uh—animistic, I think the word is."

Yoritomo nodded silently.

"There are spirits everywhere," Stanton went on. "That sort of belief, it seems to me, would grow up in any race that had imagination, and the Nipes must have plenty of that, or they wouldn't have the technology they do have."

"Very good. *Very* good. But what evidence have you that this technology was not given them by some other race?"

"I hadn't thought of that." Stanton stared into space for a moment, then nodded his head. "Of course. It would take too long for another race to teach it to them; it wouldn't be worth the trouble unless this hypothetical other race killed off all the adult Nipes and started the little ones off fresh. And if that had happened, their ritual-taboo system would have disappeared, too."

"That argument is imperfect," Yoritomo said, "but it will do for the moment. Go on with the religion."

"O.K.; religious beliefs are not subject to pragmatic tests. That is, the spiritual beliefs aren't. Any belief that *could* be disproven would eventually die out. But beliefs in ghosts or demons or angels or life after death aren't disprovable. So, as a race increases its knowledge of the physical world, its religion tends to become more and more spiritual."

"Agreed. Yes. But how do you link this with ritual-taboo?"

"Well, once a belief gains a foothold, it's hard to wipe it out, even among humans. Among Nipes, it would be well-nigh impossible. Once a code of ritual and social behavior was set up, it became permanent."

"For example?" Yoritomo urged.

"Well, shaking hands, for example. We still do that, even if we don't have it fixed solidly in our heads that we *must* do it. I suppose it would never occur to a Nipe not to perform such a ritual."

"Just so," Yoritomo agreed vigorously. "Such things, once established, would tend to remain. But it is a characteristic of a ritual-taboo system that it resists change. How, then, do you account for their high technological achievements?"

"The pragmatic engineering approach, I imagine. If a thing works, it is usable. If not, it isn't."

"Very good. Now it is my turn to lecture." He put his pipe in an ash tray and held up a long, bony finger. "Firstly, we must remember that the Nipe is equipped with an imagination. Secondly, he has in his memory a tremendous amount of data, all ready at hand. He is capable of working out theories in his head, you see. Like the ancient Greeks, he finds no need to test such theories—*unless* his thinking indicates that such an experiment would yield something useful. Unlike the Greeks, he has no aversion to experiment. But he sees no need for useless experiment, either.

"Oh, he would learn, yes. But, once a given theory proved workable, how resistant he would be to a new theory. How long—how *incredibly* long—it would take such a race to achieve the technology the Nipe now has!"

"Hundreds of thousands of years," said Stanton.

Yoritomo shook his head briskly. "Puh! Longer! Much longer!" He smiled with satisfaction. "I estimate that the Nipe race first invented the steam engine not less than ten million years ago." He kept smiling into the dead silence that followed.

After a long minute, Stanton said: "What about atomic energy?"

"At least two million years ago. I do not think they have had the interstellar drive more than fifty thousand years."

"No wonder our pet Nipe is so patient," Stanton said wonderingly. "I wonder what their individual life span is."

"Not long, in comparison," said Yoritomo. "Perhaps no longer than our own, perhaps five hundred years. Considering their handicaps, they have done quite well. Quite well, indeed, for a race of illiterate cannibals."

"How's that again?" Stanton realized that the scientist was quite serious.

"Hadn't it occurred to you, my friend, that they must be cannibals? And that they are very nearly illiterate?"

"No," Stanton admitted, "it hadn't."

"The Nipe, like Man, is omnivorous. Specialization tends to lead any race up a blind alley, and dietary restrictions are a particularly pernicious form of specialization. A lion would starve to death in a wheat field. A horse would perish in a butcher shop full of steaks. A man will survive as long as there's something around to eat—even if it's another man.

"Also, Man, early in his career as top dog on Earth, began using a method of increasing the viability of the race by removing the unfit. It survives today in some societies. Before and immediately after the Holocaust, there were still primitive societies on Earth which made a rather hard ordeal out of the Rite of Passage—the ceremony that enabled a boy to become a Man, if he passed the tests.

"A few millennia ago, a boy was killed outright if he failed. And eaten.

"The Nipe race must, of necessity, have had some similar ritualistic tests or they would not have become what they are. And we have already agreed that, once the Nipes adopted something of that kind, it remained with them, not so? Yes.

"Also, it is extremely unlikely that the Nipe civilization—if such it can be called—has any geriatric problem. No old age pensions, no old folks' homes, no senility. When a Nipe becomes a burden because of age, he is ritually murdered and eaten with due solemnity.

"Ah. You frown, my friend. Have I made them sound heartless, without the finer feelings that we humans are so proud of? Not so. When Junior Nipe fails his puberty tests, when Mama and Papa Nipe are sent to their final reward, I have no doubt that there is sadness in the hearts of their loved ones as the honored T-bones are passed around the table.

"My own ancestors, not too far back, performed a ritual suicide by disemboweling themselves with a sharp knife. Across the abdomen—so!—and up into the heart—so! It was considered very bad form to die or faint before the job was done. Nearby, a relative or close friend stood with a sharp sword, to administer the *coup de grace* by decapitation. It was all very sad and very honorable. Their loved ones bore the sorrow with pride."

His voice, which had been low and tender, suddenly became very brisk. "Thank goodness it's gone out of fashion!"

"But how can you be *sure* they're cannibals?" Stanton asked. "Your argument sounds logical enough, but logic alone isn't enough."

"True! True!" Yoritomo jabbed the air twice with his finger. "Evidence would be most welcome, would it not? Very well, I give you the evidence. He eats human beings, our Nipe."

"That doesn't make him a cannibal."

"Not *strictly,* perhaps. But consider. The Nipe is not a monster. He is not a criminal. No. He is a gentleman. He behaves as a gentleman. He is shipwrecked on an alien planet. Around him, he sees evidence that ours is a technological society. But that is a contradiction! A paradox!

"For *we* are not civilized! No! We are not rational! We are not sane! We do not obey the Laws, we do not perform the Rituals. We are animals. Apparently intelligent animals, but animals never the less. How can this be?

"Ha! says the Nipe to himself. These animals must be ruled over by Real People. It is the only explanation. Not so?"

"Colonel Mannheim mentioned that. Are you implying that the Nipe thinks that there are other Nipes around, running the world from secret hideouts, like a Fu Manchu novel?"

"Not quite. The Nipe is not incapable of learning something new; in fact, he is quite good at it, as witness the fact that he has learned many Earth languages. He picked up Rus-

ILLUSTRATED BY LEONE

sian in less than eight months simply by listening and observing. Like our own race, his undoubtedly evolved many languages during the beginnings of its progress—when there were many tribes, separated and out of communication. It would not surprise me to find that most of those languages have survived and that our distressed astronaut knows them all. A new language would not distress him.

"Nor would strangely-shaped intelligent beings distress him. His race should be aware, by now, that such things exist. But it is very likely that he equates *true* intelligence with technology, and I do not think he has ever met a race higher than the barbarian level before. Such races were not, of course, human—by his definition. They showed possibilities, perhaps, but they had not evolved far enough. Considering the time span involved, it is not at all unlikely that the Nipe thinks of technology as something that evolves with a race in the same way intelligence does—or the body itself.

"So it would not surprise him to find that the Real People of this system were humanoid in shape. That is something new, and he can absorb it. It does not contradict anything he *knows*.

"*But*—! Any truly intelligent being which did not obey the Law and follow the Ritual *would* be a contradiction in terms. For he has no notion of a Real Person without those characteristics. Without those characteristics, technology is impossible. Since he sees technology all around him, it follows that there must be Real People with those characteristics. Anything else is unthinkable."

"It seems to me that you're building an awfully involved theory out of pretty flimsy stuff," Stanton said.

Yoritomo shook his head. "Not at all. All evidence points to it. Why, do you suppose, does the Nipe conscientiously devour his victims, often risking his own safety to do so? Why do you suppose he never uses any weapons but his own hands to kill with?

"Why? To tell the Real People that he is a gentleman!"

It made perfect sense, Stanton thought. It fitted every known fact, as far as he knew. Still—

"I would think," he said, "that the Nipe would have realized, after ten years, that there is no such race of Real People. He's had access to all our records, and such things. Or does he reject them as lies?"

"Possibly he would, if he could read them. Did I not say he was illiterate?"

"You mean he's learned to speak our languages, but not to read them?"

The scientist smiled broadly. "Your statement is accurate, my friend, but incomplete. It is my opinion that the Nipe is incapable of reading any written language whatever. The concept does not exist in his mind, except vaguely."

"A technological race without a written language? That's impossible!"

"Ah, no. Ask yourself: What need has a race with a perfect memory for written records—at least, in the sense we know them. Certainly not to remember things. All their history and all their technology exists in the collective mind of the race—or, at least, most of it. I dare say that the less important parts of their history has been glossed over and forgotten. One important event in every ten centuries would still give a historian ten thousand events to remember—and history is only a late development in our own society."

"How about communications?" Stanton said. "What did they use before they invented radio?"

"Ah. That is why I hedged when I said he was *almost* illiterate. There is a possibility that a written symbology did at one time exist, for just that purpose. If so, it has probably survived as a ritualistic form—when an officer is appointed to a post, let's say, he may get a formal paper that says so. They may use symbols to signify rank and so on. They certainly must have a symbology for the calibration of scientific instruments.

"But none of these requires the complexity of a written language. I dare say our use of it is quite baffling to him. And if he thinks of symbols as being unable to convey much information, then he might not be able to learn to read at all. You see?"

"Where's your evidence for that?"

"It is sketchy, I will admit," said Yoritomo. "It is not as solidly based as our other reconstructions of his background. The pattern of his raids indicates, however, that his knowledge of the materials he wants and their locations comes from vocal sources—television advertising, eavesdropping, and so on. In other words, he cases the joint by ear. If he could understand written information, his job would have been much easier. He could have found the materials more quickly and easily. From this evidence, we are fairly certain that he can't read any Terrestrial writing.

"Add to that the fact that he has never been observed writing down anything himself, and the suspicion dawns that perhaps he *knows* that symbols can only convey a very small amount of specialized information. Eh?

"As I said, it is not proof."

"No. But the whole thing makes for some very interesting speculation, doesn't it?"

"Very interesting, indeed." Yoritomo folded his hands in his lap, smiled seraphically, and looked at the ceiling. "In fact, my friend, we are now so positive of our knowledge of the Nipe's mind that we are prepared to enter into the next phase of our program. Within a very short while, if we are correct, we shall, with your help, arrest the most feared arch-criminal that Earth has ever known." He chuckled, but there was little mirth in it. "I dare say that the public will be extremely happy to hear of his death, and I know that Colonel Mannheim and the rest of us will be glad to know that he will never kill again."

Stanton saw that the fateful day was looming suddenly large in the future. "How soon?"

"Within days." He lowered his eyes from the ceiling and looked into Stanton's face with a mildly bland expression.

"By the way," he said, "did you know that your brother is returning to Earth tomorrow?"

XV

INTERLUDE

Is this our young man, Dr. Farnsworth?" asked the man in uniform.

"Yes, it is. Colonel Mannheim, I'd like you to meet Mr. Bartholomew Stanton."

"How are you, Mr. Stanton?"

"Fine, Colonel. A little nervous."

The colonel chuckled softly. "I can't say that I blame you. It's not an easy decision to make." He looked at Dr. Farnsworth. "Has Dr. Yoritomo any more information for us?"

Farnsworth shook his head. "No. He admits that his idea is nothing more than a wild hunch. He seems to think that five years of observing the Nipe won't be too much time at all. We may have to act before then."

"I hope not. It would be a terrible waste," said Mannheim. "Mr. Stanton, I know that Dr. Farnsworth has outlined the entire plan to you, and I'm sure you're aware that many things can change in five years. We may have to play by ear long before that. Do you understand what we are doing, and why it must be done this way?"

"Yes, sir."

"You know that you're not to say anything."

"Yes, sir. Don't worry; I can keep my mouth shut."

"We're pretty sure of that," the colonel said with a smile. "Your psychometric tests showed that we were right in picking you. Otherwise, we couldn't have told you. You understand your part in this, eh?"

"Yes, sir."

"Any questions?"

"Yes, sir. What about my brother, Martin? I mean, well, I know what's the matter with him. Aside from the radiation, I mean. Do you think he'll be able to handle his part of the job after—after the operations?"

"If the operations turn out as well as Dr. Farnsworth thinks they will, yes. And, with the therapy we'll give him afterwards, he'll be in fine shape."

"Well." He looked thoughtful. "Five more years. And then I'll have the twin brother that I never really had at all. Somehow, it doesn't really register, I guess."

"Don't worry about it, Mr. Stanton," said Dr. Farnsworth. "We've got a complex enough job ahead of us without your worrying in the bargain. By the way, we'll need your signature here." He handed him a pen and spread the paper on the desk. "In triplicate."

The young man read quickly through the release form. "All nice and legal, huh? Well . . ." He hesitated for a moment, then bent over and wrote: *Bartholomew Stanton* in a firm, clear hand.

XVI

The tunnel was long and black and the air was stale and thick with the stench of rodents. Stanton stood still, trying to probe the luminescent gloom that the goggles he wore brought to his eyes. The tunnel stretched out before him—on and on. Around him was the smell of viciousness and death. Ahead . . .

It goes on to infinity, Stanton thought, *ending at last at zero.*

"Barbell," said a voice near his ear, "Barhop here. Do you read?" It was the barest whisper, picked up by the antennae in his shoes from the steel rail that ran along the tunnel.

"Read you, Barhop."

"Move out, then. You've got a long stroll to go."

Stanton started walking, keeping his feet near the rail, in case Barhop wanted to call again. As he walked, he could feel the slight motion of the skin-tight, woven elastic suit that he wore rubbing against his skin.

And he could hear the scratching patter of the rats.

Mostly, they stayed away from him, but he could see them hiding in corners and scurrying along the sides of the tunnel. Around him, six rat-like remote-control robots moved with him, shifting their pattern constantly as they patrolled his moving figure.

Far ahead, he knew, other rat robots were stationed, watching and waiting, ready to deactivate the Nipe's detection devices at just the right moment. Behind him, another horde moved forward to turn the devices on again.

It had taken a long time to learn how to shut off those detectors without giving the alarm to the Nipe's instruments.

There were nearly a hundred men in on the operation, operating the robot rats or watching the hidden cameras that spied upon the Nipe. Nearly a hundred. And all of them were safe.

They were outside the tunnel. They were with Stanton only in proxy. They could not die here in this stinking hole, but Stanton could.

There was no help for it. Stanton had to go in person. A full-sized robot proxy would be stronger, although not faster unless Stanton controlled it, than the Nipe. But the Nipe would be able to tell that it was a robot, and he would simply destroy it with one of his weapons. A remote-controlled robot would never get close enough to the Nipe to do any good.

"We do not know," Dr. Yoritomo had said, "whether he would recognize it as a robot or not, but his instruments would show the metal easily enough, and his eyes might be able to see that it was not covered with human skin. The rats are covered with real rat hides; they are small, and he is used to seeing them around. But a human-sized robot? Ah, no. Never."

So Stanton had to go in in person, walking southward, along the miles of blackness that led to the nest of the Nipe.

Overhead was Government City. He had walked those streets only the night before, and he knew that only a short distance above him was an entirely different world.

Somewhere up there, his brother was waiting after having run the gamut of televised interviews, dinner at one of the best restaurants, and a party afterward. A celebrity. "The greatest detective in the Solar System," they'd called him. Fine stuff, that. Stanton wondered what the asteroids were like. Maybe that would be the place to go after this job was done. Maybe they'd have a place in the asteroids for a hopped-up superman.

Or maybe there'd only be a place here, beneath the streets of Government City for a dead superman.

Not if I can help it, Stanton thought with a grim smile.

The walking seemed to take forever, but, somehow, Stanton didn't mind it. He had a lot to think over. Seeing his brother had been unnerving yesterday, but today he felt as though everything had been all right all along.

His memory still was a long way from being complete, and it probably always would be. He could still scarcely recall any real memories of a boy named Martin Stanton, but—and he smiled at the thought—he knew more about him than his brother did, at that.

It didn't matter. That Martin Stanton was gone. In effect, he had been demolished—what little there had been of him—and a new structure had been built on the old foundation.

And yet, in another way, the new structure was very like what would have developed naturally if the accident so early in life had not occurred.

Stanton skirted a pile of rubble on his right. There had been a station here, once; the street above had caved in and filled it with brick, concrete, cobblestones, and steel scrap, and then it had been sealed over when Government City was built.

A part of one wall was still unbroken, though. A sign built of tile said *86th Street,* he knew, although it wasn't visible in the dim glow. He kept walking, ignoring the rats that scampered over the rubble.

"Barhop to Barbell," said the soft voice near his ear. "No sign of activity from the Nipe. So far, you haven't triggered any of his alarms."

"Barbell to Barhop," Stanton whispered. "What's he doing?"

"Still sitting motionless. Thinking, I guess. Or sleeping. It's hard to tell."

"Let me know if he starts moving around."

"Will do."

Poor, unsuspecting beastie, Stanton thought. *Ten years of hard work, ten years of feeling secure, and within a very short time he's going to get the shock of his life.*

Or maybe not. There was no way of knowing what kind of shocks the Nipe had taken in his life, Stanton thought. Nor even of knowing whether the Nipe was capable of feeling anything like security.

It was odd, he thought, that he should feel a kinship toward both the Nipe and his brother in such similar ways. He had never met the Nipe, and his brother was a dim picture in his old memories, but they were both very well known to him. Certainly better known to him than he was to them.

And yet, seeing his brother's face on the TV screen, hearing him talk, watching the way he moved about, watching the expressions on his face, had been a tremendously moving thing. Not until that moment had he really known himself.

Meeting him face to face would be easier now, but it would still be a scene highly charged with emotional tension.

He kicked something that rattled and rolled away from him. He stopped, freezing in his tracks, trying to pierce the dully glowing gloom. It was a human skull.

He relaxed and began walking again.

There were plenty of bones down here. Mannheim had said that the tunnels had been used as air-raid shelters when the sun bomb had hit the island during the Holocaust. Thousands had crowded underground after the warning had come, and they had died when the bright, hot, deadly gas had roared down through ventilators and open stairwells.

There were even caches of canned goods down here, some of them still sealed after all this time. But the rats, wiser than they knew, had chewed at them, exposing the steel beneath the tin plate. After a while, oxidation would weaken a can to the point where some lucky rat could bite through it and find himself a meal. Then he could move the empty can aside and gnaw at the next one in the pile, and the cycle would begin again. It kept the rats fed almost as well as an automatic machine might have.

The tunnel was an endless monochromatic world that was both artificial and natural. Here, there was a neatly squared-off mosaic of ceramic tile; over there, on a little hillock of earth, squatted a colony of fat mushrooms. In one place, he had to skirt a pool of water; in another, climb over a heap of rust and debris that had once been a subway car.

One man, alone, walking through the dark towards a superhuman monster that had terrorized Earth for a decade.

A drug that would knock out the Nipe would have been useful, but that would require a greater knowledge of the Nipe's biochemistry than anyone had. The same applied to anesthetic gases, or electric shock, or supersonics.

The only answer was a man called Stanton.

And the voice near his ear said: "A hundred yards to go, Barbell."

"I know," he whispered. "He hasn't moved?"

"No."

Wouldn't it be funny if he were dead? Stanton thought. *If his heart had stopped, or something. Wouldn't that be a big joke on everybody? Especially me.*

Ahead, the tunnel made a curving turn, and there was a large area that had once been a major junction of two tunnels, one below the other. The Nipe had taken over a part of that area to build his home-away-from-home.

Stanton approached the turn and took off the infra-red goggles. Enough light spilled over from the Nipe's lair to illuminate the tunnel. He put the goggles on the trackway. He wouldn't need them again.

He went on around the curve, slowly and quietly. He didn't want to fight down here in the tracks, and he didn't want to be caught just yet.

Cautiously, he lifted himself up to the platform where long-gone passengers had once waited for long-gone trains. Now that he was out of the trench that the tracks lay in, he could move more easily. He moved away from the tracks.

"Barbell! He's heard you! Watch it!"

But Stanton had already heard the movement of the Nipe. He jerked off the communicator and threw it away. He didn't want any encumbrances now.

And then, as fast as any express train that had ever moved in these underground ways, the Nipe came around a corner thirty feet away, his four violet eyes gleaming, his limbs rippling beneath his centipede-like body.

From fifteen feet away, he launched himself through the air, his outstretched hands ready to kill.

But Stanton's marvelous neuromuscular system was already in action.

At this stage of the game, it would be suicide to let the Nipe get close. He couldn't fend off eight grasping hands with his own two. He leaped to one side, and the Nipe got his first surprise in ten years when Stanton's fist slammed against the side of his snouted head, knocking him in the opposite direction from that in which Stanton had moved.

The Nipe landed, turned, and charged back toward the man. This time, he reared up, using his two rear pairs of limbs for locomotion, while the two forward pair were held out, ready to kill.

He got surprise number two when Stanton's fist landed on his snout, rocking his head back. His own hands met nothing but air, and by the time he had recovered from the blow, Stanton was well back, out of the way.

He's so small! Stanton thought wonderingly. Even when he reared up, the Nipe's head was only three feet above the concrete floor.

The Nipe came in again—more cautiously, this time.

Stanton punched again with a straight right. The Nipe moved his head aside, and Stanton's knuckles merely grazed the side of his head, below the lower right eye. One of the Nipe's hands came in in a chopping right hook that took Stanton just below the ribs. Stanton leaped back with a gasp of pain.

The Nipe didn't use fists. He used his open hand, fingers together, like a judo fighter.

The Nipe came forward once more, and as Stanton danced back, the Nipe made a grab for his ankle, almost catching it.

There were too many hands to watch! Stanton had two advantages: weight and reach. His arms were almost half again as long as the Nipe's.

Against that, the Nipe had all those hands; and with his low center of gravity and four-footed stance, it would be hard to knock him down. If Stanton lost his footing, the fight would be over fast.

Stanton lunged suddenly forward and planted a left in the Nipe's right upper eye, then followed it with a right uppercut to the Nipe's jaw as his head snapped back. The Nipe's four hands cut inward from the sides like sword blades, but they found no target.

« *Continued on page 103* »

Interstellar Passenger Capsule

by Ralph A. Hall, M. D.

The old question of whether life originated here, or came here from elsewhere—of whether there may be life on other planets elsewhere—has a new aspect! There's reason to suspect Earth's been sending out well-prepared colonists for the last billion years!

■ Accumulating evidence indicates that the first Terrestrial colonists set out from Earth to colonize the planets of other stars hundreds of millions of years ago—that interstellar colonization is not something of the science-fiction future, but of the geological-ages past. These first colonists took off in solidly built passenger capsules, well protected against interstellar space, using the suspended-animation technique to survive the long years of the journeys. The passenger capsules were adequately equipped to protect their passengers against the violence of re-entry into an alien atmosphere. John Glenn's heat-shield was made of fiberglass and plastic; those earliest interstellar colonists had similar glassy-silicate protection.

Obviously, those many-hundred-million years ago Terrestrial colonists weren't human—or even remotely human, nor even intelligent. Not nearly a billion years ago! Their passenger-capsules were not prepared and launched by a highly integrated and highly developed technical-industrial complex, but by purely natural forces. The passengers were, of course, bacterial spores; the capsules made of solid rock in which bacteria were trapped, and had gone into the spore form that bacteria frequently adopt when conditions are unsuitable for active life.

Bacteria are ideal space-passengers; they're tough. They're so tiny that they can readily survive a brief exposure to several *million* gravities acceleration. A number of varieties

of bacterial spores are almost incredibly resistant to destruction. The anthrax bacillus spore, for example, can survive undamaged four hours in boiling water.

People who have speculated as to the size, shape, and appearance of inhabitants of other planets have all too often come up with a creature that looked basically like a human with certain ghastly variations to disclaim the relationship. They may be surprised to hear that this basic simularity is not too improbable, for DNA (Desoxyrybonucleic Acid) for fundamental carrier of genetic information is probably there on that other planet, and has been there for hundreds of millions of years. Life with the same fundamental protein systems, the same biochemistry may well exist on other planets in our solar system as well as other planets throughout the galaxy.

In 200 million years the solar system has taken a complete turn around the galaxy, trailing the fine dust of life cells behind it. In 600 million years it has made three trips.

To the celestial cauldron add bacilli and algai; water, salt, oxygen, methane, and ammonia. Around and around, and around, thrice times stir it, and now, the brew is complete. Lift the laddle, pour the soup, the musty aroma of life pervades the air; life, between the heavenly bodies: So far away that the roar of the furnace that keeps it warm is muffled and cannot be heard.

The object of this article is to tie together the several lines of evidence that indicate exactly how a natural process could send living spores, adequately protected against the conditions of interplanetary and interstellar space, out from the Earth, and out among the stars.

The crucial item of new evidence concerns a natural force capable of boosting large masses—tons of rock—into orbit. Volcanic explosions have energy in quantity enough; tectonic forces that can lift mountain ranges 30,000 feet into the air certainly have quantity enough. The problem is to find a natural process with sufficient *intensity* of energy, under the right conditions. An atomic bomb has intensity enough, of course—but the star-heart heat and floods of nuclear radiation involved would send very thoroughly sterilized debris into space.

The answer now appearing seems to be the immense violence resulting from the impact of giant meteors. Really big ones—not the few kilotons of the Siberian meteor, or the few score kilotons of the Arizona Meteor Crater—but the really big ones that leave scars so huge they cannot be seen from aircraft; only from an orbiting spaceship could the scar be seen as a unit when that unit is 130 miles across!

The question of how life might get around the universe is not new. It just has received new stimulus by the finding of evidences of organic structures in space.

Toward the end of the last century the Swedish chemist Arrhenius put forward the hypothesis that life cells

in the form of spores could have been blown by the pressure of the sun's light from the upper reaches of our atmosphere out into space. Light pressure effects have proven somewhat embarrassing to our NASA scientists; the Echo I satellite balloon was scheduled for about a three-month life before falling back into the atmosphere. It is still rolling around—thanks to the light pressure effects. Arrhenius, however, overlooked the lethal effect of intense ultraviolet light unshielded by atmosphere, cosmic radiation, and X rays from the sun—not therapeutic stimulatory doses, but deadly X rays from a blazing source 865,000 miles across.

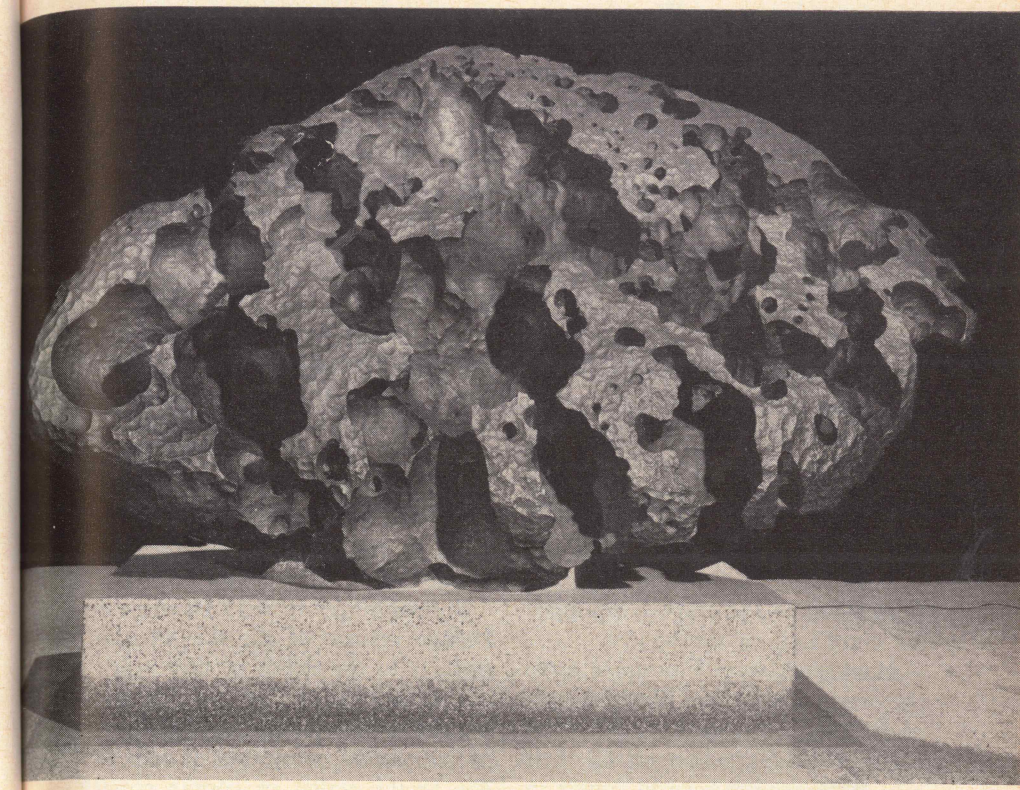
Whether life came to us from other portions of the galaxy or whether life originated in this solar system seems of little importance compared to the fact that our life type spores are spread throughout the Milky Way.

Current scientific interest has been stimulated by recent evidences of life found in stony carboniferous meteors. Earlier reports about waxy bi-products, and bacilli cultured from the inner portions of these objects was met by some skepticism, but when as many as forty million fossils per cubic inch were found in one meteor, incredulity turned to awe.

A number of people such as Dr. Bartholomew Nagy and Douglas J. Hennesy of Fordham University, Dr. George Claus of New York University Medical Center, and Warren G. Meinshein of Esso Research and Engineering Company examined a meteorite that fell near Orgueik, France in 1846. In the interior of this meteor they found fossils of unicellular animals which were surrounded with thick membranes with fibrinlike protuberances and hexagonal single-cell fossils with three nipplelike projections, very similar to our present day algae. The scientists claim quite correctly that these complex fossils could not have penetrated or originated in the meteor after it fell to earth.

More recently Dr. Frederick Sisler, a microbiologist at the United States Geological Survey in Bethesda, Maryland, examined a meteorite that fell at Murray, Kentucky in 1950. Spectrophotometrically he found evidence of organic matter within the meteor. With meticulous pains under sterile precautions of hydrogen peroxide, bichloride of mercury and ultraviolet light, he broke open the meteorite, and from its core pulverized some of the material and set it in culture media consisting of sterile solutions of sea water, sugar, peptones, and nutrient broth. After several months incubation at temperatures ranging from 25° to 55° C., small rod shaped particles grew in white colonies. These slow growing colonies are alive to this day, and they are unlike any other organisms known on earth today.

Dr. Sisler claims, however, that their characteristics are changing as they seem to be undergoing a transition from semi-aerobic to aerobic conditions. So, perhaps, when these creatures have been completely awak-



Courtesy of the American Museum—Hayden Planetarium

Fig. 1. The Wilamette Meteorite is several tons of nickel-iron—and very readily identifiable as meteoric. No one would mistake its nature. But it wouldn't carry life-spores.

ened from their long ride through space in some sort of encysted condition they may more nearly resemble Earth creatures, or some Earth creature from long ago. We are quite familiar with the attenuating effects of holding bacteria for prolonged periods in an inactive state. Culture and reculture on more nutrient media reawakens lost characteristics.

That bacteria can survive enormous time-spans has been shown only recently. A West German scientist, taking extreme sterile precautions, cultured some material taken from the heart of a block of rock salt from a Canadian mine. Four different and unfamiliar bacterial types were found in the resulting broth. The rock salt had been dated as coming from a layer 350 million years old.

So we have our interplanetary capsule with life safely tucked within it. It obviously is sufficiently protected from radiation and properly equipped for entry into an atmosphere.

Now speculation is rampant as to the origin of this life. We have only to discover a motive force for starting these stellar passengers on their way. We intend to have an answer in this paper.

If one looks into the life history of meteors, some very interesting and relevant facts appear. From these facts one may draw some conclusions, and if these conclusions are so, one of the old problems of the universe is turned upside down. No longer will we be concerned about whether or not there is life in other portions of the galaxy and the solar system, in particular, but if there isn't, why not? We will outline a consistant mode for life to be spread from planet to planet and through the galaxy. Its plausibility will be left for you to determine.

Meteors are of three types. Crystallized gases, irons, and stones. The latter two sort of grade into each other, so the fourth intermediary class refers to a meteor of mixed iron and stone content. The crystallized gases evaporate completely, and never reach the earth as an entity. The stones and intermediaries disintegrate quite readily and much of the study of meteors has been concentrated on irons. From the relationships of uranium decay products Pb_{207}/Pb_{204} and A_{40}/K_{40} it has been determined by investigators that the age of the iron meteors is 4.5 billion years, or the same age as our solar system.

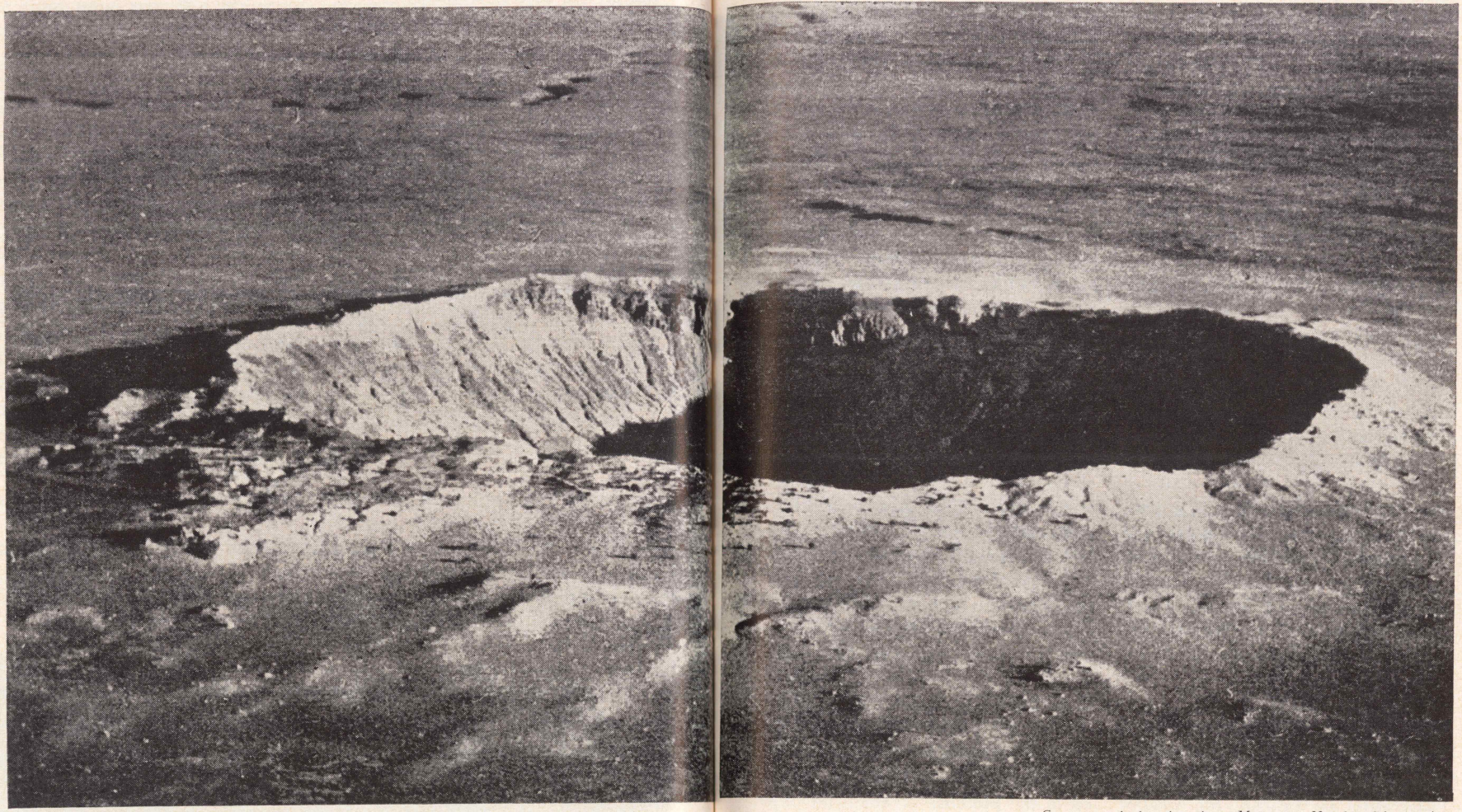
S. Fred Singer in 1954 studied the Helium content of the skin of iron meteors to the depth of fifty centimeters and noted that there is He_3 present which cannot be the result of radioactive decay, but is instead due to the action of cosmic radiation in disrupting the iron nuclei by primary and secondary radiation. One He_3 is produced for each two He_4 atoms. He pointed out that the content of this He_3 would give an indication of how long the meteor had been exposed to cosmic radiation. From this could be determined how long the meteor had been circulating in space.

Using this consideration in 1960 John H. Reynolds published estimates ranging from 1.7 billion to the youngest 600 million years, depending on the meteor studied.

Examination of a polished surface of the meteors reveals angular patterns called Widmenstatten figures. These patterns can be artificially produced in nickel-iron alloys by cooling the melt slowly under high pressure. Comparing the sizes of the crystals formed in the laboratory to those found in the meteors leads one to conclude that they could only be produced by slow cooling of the melt on the order of several million years under many thousands of atmospheres pressure. So they must have been formed inside a fair-sized planet. Further microscopic study of the

Fig 2. The Canyon Diablo Meteorite is a few pounds of stuff . . . and not so obviously meteoric. True stoney meteorites are never any too easily identified . . . and weathering quickly makes them unrecognizable. But they're the ones that can carry life.

Courtesy of the American Museum—Hayden Planetarium



Courtesy of the American Museum—Hayden Planetarium

Fig 3. Meteor Crater in Arizona is strictly bush-league stuff in the astrobleme line. Just a little one, visible because it's recent. But compare this with the greatest crater any man-made bomb has made!

polished surfaces by metallurgists suggests that the crystals of nickel iron were released suddenly from the tremendous pressures under which they were formed. How this has been determined has not been made clear, but I would think that even nickel iron would be compressed under tremendous pressures, and if this pressure were released suddenly, it would allow slippage between the crystals which could be seen by an expert.

John H. Reynolds mapped the zones of He_3 concentration within one meteor and drew continuous topographical lines on a cross-sectional slab and showed that the meteor is roughly the same shape as when it was first formed. Any changes in shape seemed to be completely accounted for by ablative processes as it passed through the atmosphere.

This gives import to the fact that all known meteors, whether stone or iron, are angular in shape, suggesting that they are broken fragments of a larger body. Planetoids calculated to be two to three-hundred miles across, too small to be seen in detail, vary wildly in intensity of reflected light, obviously because they, also, are angular in shape.

One of the laws governing the shape of things is that the more easily and slowly an object is broken, the larger the fragments. Conversely, the faster they are broken, the smaller the fragments. Now, it all depends on how relatively large or small one thinks of a planetoid two to three hundred miles across as to which way one thinks of the destructive force that originally broke up the planet that formed the meteors. For reasons that will become evident later in this article, I have a thorough respect for intraplanetary speeds and am of the opinion that the planetoid was broken up by as soft and as slow a collision as could be formed.

The net conclusions of the findings thus far is that the meteors come from within a small planet or planets in our solar system which were broken up between 1.7 billion and 600 million years ago. This much of the history has been gleaned from the study of the iron meteors, which have held these facts in their tight fists until it was pried out of them by a team of scientists. By their very hardness have they held the secrets so well from the ravages of the vandals: wind, rain, heat and cold.

The similarity between meteors' composition and that of various zones within the earth indicates that meteors and earth originated in a similar manner, but the stone meteors to a great extent reveal minerals that could only have been formed under conditions lacking oxygen, and hydrogen. Therefore they must have been formed in a planet too small to hold these gases in its gravitational field.

This in turn contributes to the rapidity with which stone meteors deteriorate, for they were not constructed in the presence of abundant oxygen and hydrogen. Only relatively few stone falls have been found, even though the proportion of stone to iron in "seen" falls would indicate a much greater proportion. This is because the stones quickly become weathered, worn and indistinguishable from surrounding rocks. Indeed, some of these stones have disintegrated when held under the relatively protected conditions of a collector's cabinet. Yet some stony meteors have proved to be much more durable and apparently there is reason for this. This will become evident later in the article.

A strange discrepancy exists between the break-up ages of the irons and the ages of the stones. Whereas the irons are from 600 million years to 1.7 billion, the stones are from 20 million to 90 million years.

I would like to show a graph taken after one published in the November 1960 issue of the *Scientific American* by John H. Reynolds. In it we note that there is no overlapping of the ages of stone meteors and that of iron meteros.

This lack of overlapping discredits the idea that the irons and stones came from the same planet. This fact lends support to the whole story we are outlining.

Before we get away from this, I would like to jot down a few more pertinent thoughts.

The proportion of surface rock to center iron of a planet is the proportion of a crust to the substances of the body. Therefore, the proportions of stone meteor to iron meteor from the original fracture 1.7 billions years ago is the proportion or the surface to the volume. Somewhere, sometime a stone meteor will fall that will be 1.7 billion to 600 million years from break-up time. If we can but keep some track of the proportions by weight of the irons to these correspondingly old stones, we will get some idea of the original gross sizes of the body or bodies at the time of the first fracture.

We will go on now to another type of meteoric action.

So far we have been talking about relatively small meteors, and the discussion has been fruitful. It has provided answers to questions that will occur after the conclusions have been reached. An attempt has been made to build a feeling for the subject so that a sense of what is happening will be felt, for in the final climax so many things will be happening at once that it will defy thorough description. From small meteors we will now go on to large ones. We are getting to important material.

Large meteors have a way of destroying themselves as they strike the earth. That is another reason why we had to talk about the small ones first. The only evidence we have of large meteors is the scar left at the site of their destruction. "Star Scars" was used as the roots of Greek words that formed the word *astrobleme,* coined by Dr. Robert S. Dietz, and not yet in any of the dictionaries.

The discovery of a high temperature high pressure variety of quartz called coesite, which is characteristically an impactite, plus shatter cones which are cone-shaped fracture patterns found in homogeneous rock surrounding meteor craters like arrowheads pointing to the center of

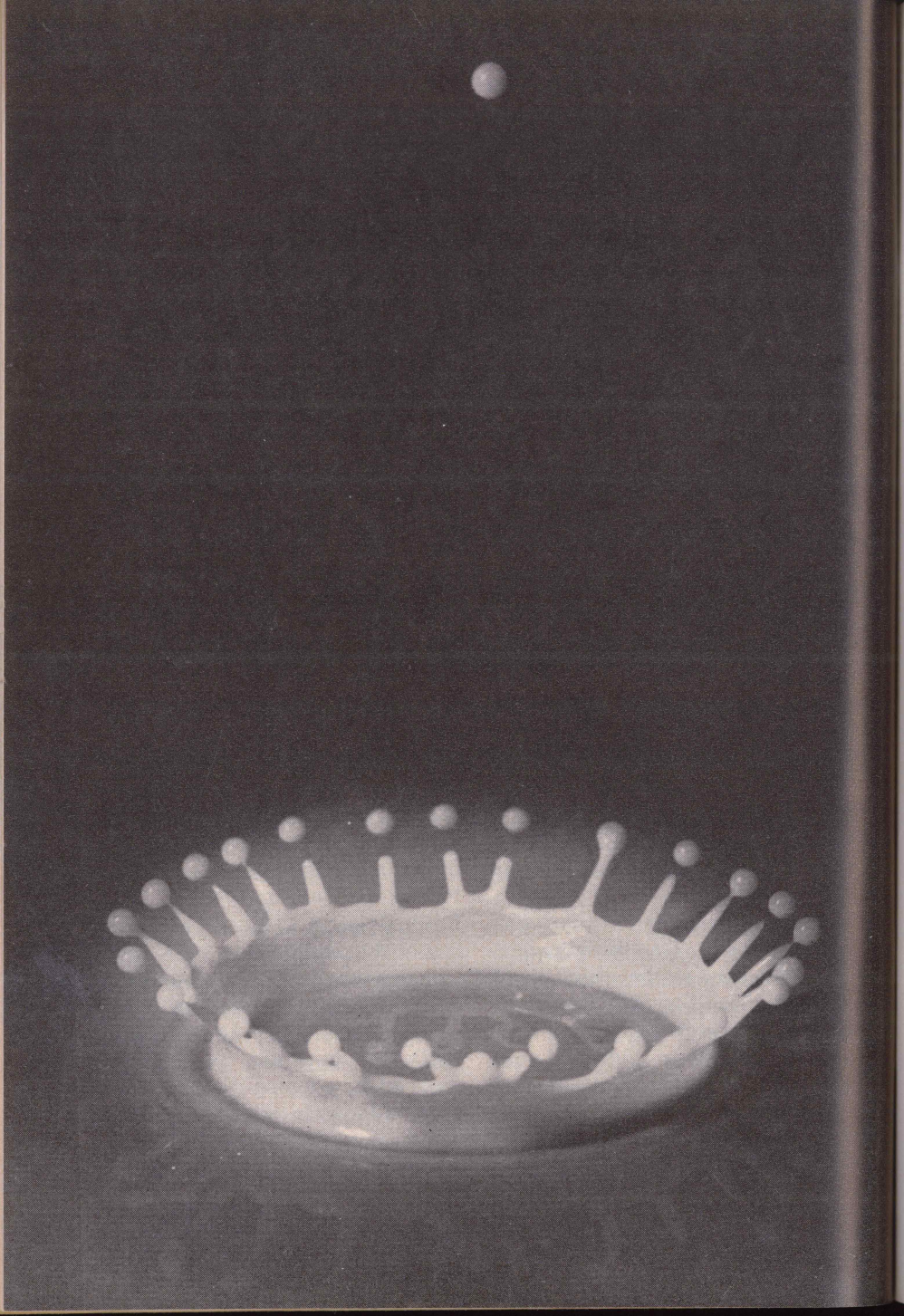
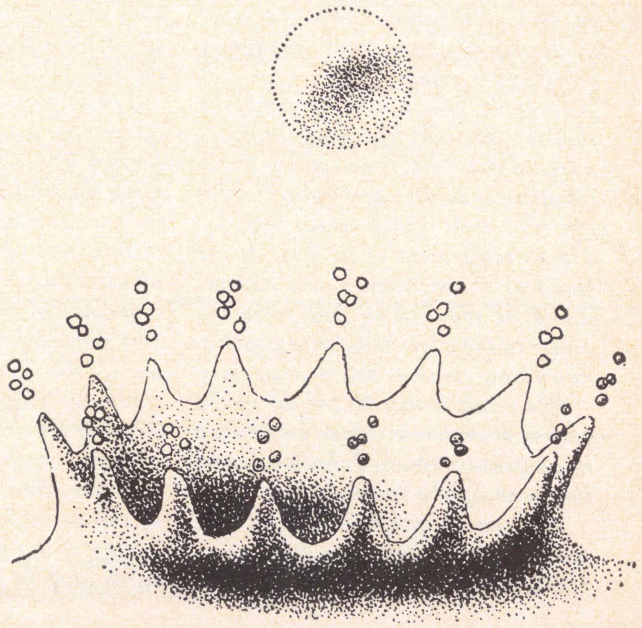
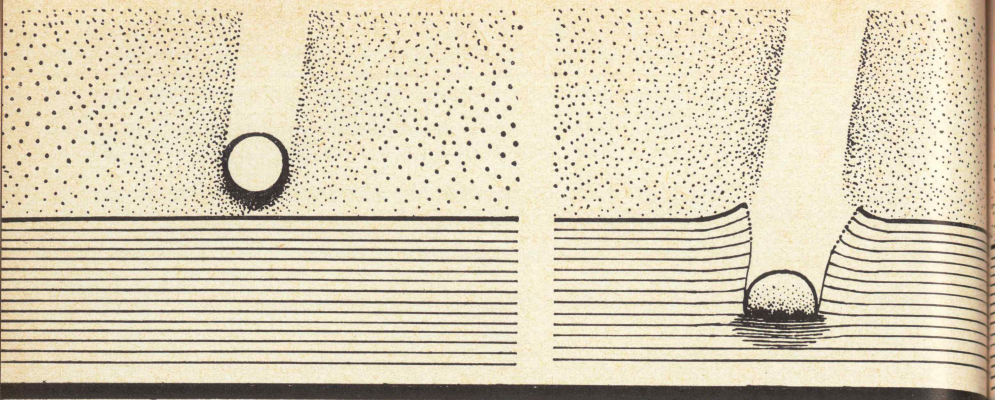


Fig 4. Some of the earliest work Dr. Edgerton of M.I.T. did when he first developed the ultra-high-speed flashlights back in the '20's and '30's, concerned the phenomena of liquid impact. With respect to the scale of the forces involved, all "solid" materials are effectively true fluids under major-meteor impact. It was Edgerton's early photographs that first disclosed the "crown jewels" effect—the droplets that are thrown out when the crater-wave is first formed.

Harold E. Edgerton





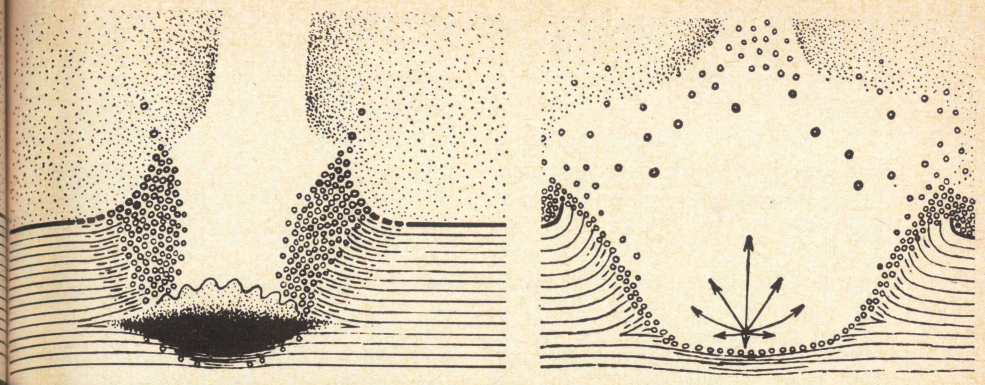


Fig 5. Precisely what happens when a meteor of really large size strikes Earth no one as yet knows. Computations made in the past have to be discarded, in view of the newly recognized effects of the Fourth Law of Motion—which applies most drastically in such a situation, with the truly astronomically huge rate of change of acceleration entailed.

Roughly, it must be remembered that the asteroid, travelling 20 miles a second or so, will penetrate the lower 60 miles of Earth's atmosphere in far less time than would be required for the air to flow out of its way. At the speed of sound, some seven seconds would be required to flow from the center to the edge; the entire penetration takes less than half of that time.

The result is that all the air in the path of the asteroid is simply piled up in an ultra-compressed shock-wave on the front of the invader.

The same principle—it hasn't time to escape!—applies when the asteroid first strikes the solid rock. Since the energies and forces involved have such enormous intensities, the mechanical strengths of nickel-steel asteroird material, or of solid rock, are essentially zero. The solid rock appears to the asteroid simply a denser gas; rock, and the leading material of the asteroid alike are compressed *into a thin layer as the mass penetrates a mile or two through solid rock.*

The displaced rock and the leading side of the asteroid are equally compressed into a layer of matter resembling the stuff of stars—for one brief instant, the matter is at a temperature of hundreds of thousands of degrees, while the density rises to hundreds or thousands of times that of platinum. The displaced rock, like the displaced air of the atmosphere, is displaced along the path of the asteroid only. There is far too little time for any appreciable escape movement.

When, finally, the kinetic energy of the asteroid is largely converted to energy of compression and heat, there exists deep in Earth's rocks a mass of material in a condition that would be normal perhaps 250,000 miles deep in the Sun. A mass of totally ionized, and ultra-compressed nuclei and electrons. The material cannot exist under Terrestrial conditions in that state —and expands outward to achieve equilibrium. The result is that the forces now released act almost equally in all directions—not simply downward! Driving out horizontally as well as vertically, the rock layers are peeled back and up. A small remainder of the asteroid itself will, probably, bounce back out into space on the "cushion" of ultra-compressed and ultra-hot gases.

Accompanying it will be many tons—probably many thousands of tons—of peeled back crustal rock. Nuclear explosions can equal the energy-intensity of a major meteor impact—but none yet considered approaches the scale of these collisions. And scale effects become crucial!

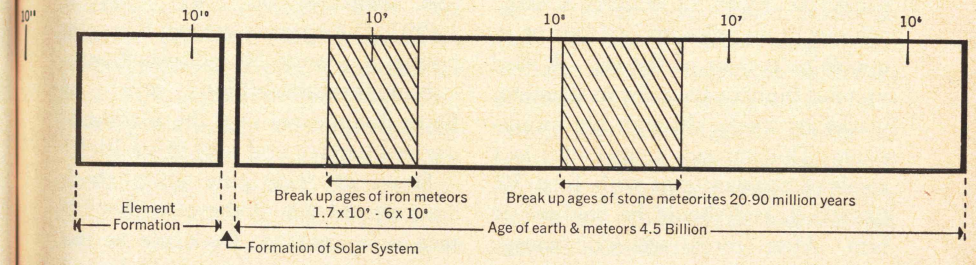


Fig 6. Time scale of the development of the Solar System, as indicated by meteorites.

impact, has done much to delineate these locations. We are finding more meteor craters than we ever imagined existed.

Let us study a relatively recent astrobleme such as the Barrington Crater in Arizona. Best guesses as to its age place it at 25,000 years, and most of the site is intact. It is 4,150 feet in diameter and 570 feet deep. The layers of earth are turned up around the edge to form a wall 130 feet high. Scientists estimate that there are 300 million tons of rubble lying around the edge for a distance of five miles. A good guess as to the weight of the meteor that caused the crater places it around 60,000 tons.

Transfer your thoughts now to the Vredfort Ring in South Africa. Here is an astrobleme 130 miles in diameter with a center crater of 30 miles. Calculations have determined that this hole was dug by an asteroid nearly two miles in diameter 250 million years ago. Picture, if you will, this slug dropping down through sixty miles of atmosphere at twenty miles a second, which is the average speed of meteors. This is a hundred times the speed of sound. A large column of air piles up in front of it, unable to get out of the way. A hard vacuum tunnel two miles in diameter marks its course through the atmosphere. This vacuum tunnel idea is a result of conversations with John W. Campbell, and should be credited to him. After three seconds passage through the atmosphere it strikes the earth at 100,000 feet a second.

A. C. Charters took high-speed photographs at 1.200,000 frames a second of various projectiles hitting various targets. There was one experiment with a steel ball hitting a massive copper target at 20,000 feet per second. The forces on impact were calculated at one hundred times the ultimate strength of the steel ball on the target. The result was that the ball and the target turned into a fluid on contact. A hemispherical dish was pushed out of the copper and the steel ball plated the lining of this dish.

Now, when an asteroid traveling at 100,000 feet per second strikes a target the forces increase with the square of the velocity. The resultant forces figure out to be 25,000 times the ultimate strength of all materials involved. I have seen solid rock vaporized under the impact of artificial lightning, and this is undoubtedly what happened here. Asteroid and rock vaporized in a critical instant. The two vapors intermingled, one within the other, then the gas began to expand and a white-hot molecular jet stream detonated in all directions with the calculated power of 1.5 million megatons of TNT. This is 1,499,950 megatons greater than the power of a mere 50 megaton bomb.

Nine-thousand-billion tons of Earth disappeared into the surrounding countryside and into *space* itself!

Strata of rock nine miles thick were ripped out of the earth for fifteen miles around. Rock not at the central vapor pocket melted and filled cracks in the rim of the crater a hundred feet wide and miles long.

While all this was happening, the air was rushing to fill the vacuum at 1,100 feet per second. The "tunnel" was still wide open when millions of tons of matter poured back up unhindered by atmospheric resistance.

Out this throat, unchained by any sound barriers, rushed a great bolt of atmosphere along with rocks and molten material.

Early amphibians two hundred miles away had the earth zipped from under their feet like a rug. The shock wave so rattled their eyes in their sockets that the very light waves seemed to be affected. This was truly a shot heard and felt around the world, and no delicate seismograph was necessary to detect it either.

A small percentage of the 9,000 billion tons of Earth escaped the gravitational field; only a few million tons, maybe. The rest fell back to the ground. Some of the molten rocks fell as glass beads called: *tektites.*

Amongst the shot fired into the heavens was rock bearing imbedded bacilli and fossils to take an elliptical trip around the sun for over 250 million years. DNA went with them. Finally, some specimens from this shot, or previous shots, returned to earth for the amazement and edification of interested people today. This is truly the return receipt requested.

The custodian of the bacilli is already having their basic biochemistry analyzed. Electronic microscope studies of their genes; listings of the structures such as the polysaccharides and amino acids certainly serves to identify the signature on the bill of lading. Dr. Sisler's infra-red spectroscope has found amine, nitroso, nitrile, and some hydrocarbons.

Dr. Melvin Calvin has found molecules of heterocyclic compounds which do not exist as independent molecules but which form parts of neucleotides which are in turn found in chromosomes—like Earth life.

All this goes to show that if this life is not from our planet, it is at least compatible with it.

Life as we know it is not a haphazard thing but is based upon an integrated biochemical relationship which has grown out of one continuous evolutionary process. Evidence is that these bacilli have evolved under very similar if not identical conditions.

The skyward "shot" that was fired by the meteor impact, like a group of pellets from a shotgun, would tend to hold together by weak gravitational forces. The lighter gas atoms of O_2 and N would drift off into space, too light to be held by the gravitational field of the cluster. The heavier molecules, such as water, would be gathered in gradually and form hoarfrost on the rocks. Some rocks would be "too late for the train" and would wander off by themselves as loners unattended by any gas particles. I am afraid that the original cluster of rocks would be relatively black and small in space, and would be too little to be followed by any known means from Earth.

The fact that these rock clusters may well exist is supported by several meteor cluster falls. The most

renown of these is perhaps the fall on June 30, 1908 in Siberia. A brief account from the Astronomy Encyclopedia states that it was a cold, clear morning in the Krosnoiarsk region where they fell. Thousands of people witnessed the flight of the ball of fire through the skies followed by loud thunderclaps and a stupendous crash. At a distance of one hundred miles men and horses were flattened, enormous waves formed on rivers and houses collapsed. At the point of impact a great spurt of flame was seen to leap skyward to an estimated height of twelve miles.

Earthquake shocks were recorded, the waves traveled several times around the world before being damped. On the following night silvery clouds of debri were seen floating some fifty miles above the earth.

More than two hundred small craters from meteorites aggregating forty thousand tons were later counted in the area. Forests were flattened and scorched for sixty miles around.

Other similar falls have been reported from Nairobia, in East Africa 1946. In Langlen, France, 1803, three thousand fragments scattered over an elliptical area 6 × 2½ miles. There are other reports too many to be mentioned here.

Witness accounts of these falls usually confuse the passing of the areal shock wave as an explosion which they imagine signals the disruption of the meteor body. Careful studies of the craters reveals a sifting effect in which the larger meteors strike the ground first and the smaller ones, held back by air resistance, fall last. This would only be the case if the meteors came as a cluster from the very start. The time of passage through the atmosphere is too short to a ccount for: ablation, disruption, and sifting, too.

That Earth materials can be thrown into outer space is evidenced by the Australite tektites, some of which by their button shape reveals that they have been melted by re-entry into the Earth's atmosphere. Virgil E. Barnes has carefully studied nine known varieties and, by cutting them into thin plates and subjecting them to microscopic examination with transmitted ordinary light, observed course flow patterns which suggested that they were molten only a short time—since the molten fractions did not have time to mix homogeneously. In crossed polarized lithe intact strain patterns within the tektites revealed that they had not been subjected to ablation by high-speed passage through the air.

On the other hand, the Australites revealed that they have been ejected outside the Earth's atmosphere and on re-entry spherical droplets have formed curious button shapes as the remelted glass is pushed back over the original sphere and ablated. Here is uncontroversial evidence that impactites can be placed in orbit outside the Earth's atmosphere. Added to this mystery is the fact that Australites are only five thousand years old and the dust should hardly yet be settled about the crater from which

entry came, but the astrobleme is not to be found on earth, giving strong credence to the idea held by some that they came from the Moon when a meteor splashed into it.

From the evidence we see on the Moon we know that the Earth was subjected to heavy meteor strikes several thousand times in the past 1.7 billion years; not only the Earth, but other planets as well.

Life fossils have been found by Martin F. Glaissner in the Earth's rock strata calculated to be between 500 million and 600 million years old—time for three trips around the galaxy. Unrecorded bacilli must have existed for millenniuma before that.

In these rocks life in the form of spores would be protected from the ultraviolet sunlight and other lethal rays of outer space. At the same time the organic matter would be held in quiescence by the deep-freeze conditions. These stones would be traded by all planetary bodies in the solar system. Our life would be released to try any conditions if found. Wherever it succeeded, the DNA would prevail and that form of life would be compatible with ours.

It might be well to mention that any rocks being kicked out from the Earth into outer space would have to be started rather suddenly. Unlike rockets which start slowly and build up speed, these rocks started at high speed and slowed down as they traveled out from the Earth. This sort of sudden start would be as destructive as that sudden a stop. Perhaps we could get William O. Davis to apply his fourth law of motion to explain something that would happen. It suffices to say that the internal structure of the rock would suffer considerable fluid whip-lash injury.

The fact that most of the "seen" falls are stone and so far all of a much younger age from break-up time of the irons indicates that they come from meteor falls on the planets.

Now that we have the rock clusters out into space, we must study visible fragmentary clusters that we know are floating around the solar system to determine what happens to our own invisible rock clusters. I am referring to comets as our visible fragmentary clusters.

By studying comets we can learn how life from our planet could escape our solar system to populate or pollute, as the case may be, the far reaches of the galaxy.

Frequently, it has been calculated that the reason a comet disappeared was because it had a very long elliptical period and was perturbed by a planet that it happened to pass and had its orbit changed to a hyperbolic one that shot it out of the solar system. You see, this is a matter of having the speed of the comet increased. The gravitational field of a planet attracts and slings the little comet on its way in a new direction and at a greater speed. Actually, the comet robs some of the energy of motion from the planet, but this is so small as to be an imperceptible change in the course of the planet, sort of like a fly being slung by the eddies of a passing locomotive.

Similarily our own invisible rock clusters would be slung into hyperbolic orbits and carry living DNA to other portions of the galaxy.

But perhaps even more interesting is the fact that as of this era, the Solar System and the system of Alpha Centaurus are, in a true sense, interpenetrating—passing through each other! The gravitational field of the Sun is able to control orbiting bodies, such as comets, to a distance of several light-years; the strength of the Solar gravitational field exceeds that of the general galactic gravitational field even at a distance of meor than ve light-years. Alpha Centaurus is certainly a double star system, and possibly a triple star system—it is not known certainly as yet whether Proxima Centaurus is a dim companion of the two stars, Alpha A and B, or is, like the Sun, a chance passer-by) Alpha's gravitational control extends considerably more than the 4.5 light-years from Alpha to Sol. A mass of cometary material orbiting around Alpha, then, might be intercepted by a Solar planet—as meteorstrike debris from Earth, orbiting in a long ellipse around Sol, might be intercepted by an Alpha Centauran planet.

Meteor-splash material could be transferred from one star-system to another in a relatively short time—but the evidence of the rocks suggests that encapsulated bacterial spores are quite able to wait for tens or hundreds of millions of years.

And . . . it would take only one viable spore, landing in tolerable conditions, to populate a whole planet!

Once it is recognized that major meteor impacts can supply the high energy intensity needed to boost masses of rock into circum-solar orbit, an old question is suddenly inverted: No longer is the question "Why should we expect to find life elsewhere?" but, instead, "What could have stopped that continuous mist of life finding a home elsewhere?"

Like the seeds of many plants, the spores of some fungi, seeds of terrestrial life have been driven out to drift on the winds of gravitational fields by sudden, explosive puffs from the planet!

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« *Continued from page 82* »

Backing away, Stanton suddenly realized that he had another advantage. The Nipe couldn't throw a straight jab! His shoulders—if that's what they should be called—were narrow and the upper armbones weren't articulated properly for such a blow. He could throw a mean hook, but he had to get in close to deliver it.

On the other side of the coin was the fact that the Nipe knew plenty about human anatomy—from the bones out. Stanton's knowledge of Nipe anatomy was almost totally superficial.

He wished he knew if and where the Nipe had a solar plexus. He would like to punch something soft for a change.

Instead, he tried for another eye. He danced in, jabbed, and danced out again. The Nipe had ducked again, taking it on the side of his head.

Then the Nipe came in low, at an angle, trying for the groin. For his troubles, he got a knee in the jaw that staggered him badly. One grasping hand clutched at Stanton's right thigh and grasped hard. Stanton swung his fist down like a pendulum and knocked the arm aside.

But there was a slight limp in his movements as he back-pedaled away from the Nipe. That full-handed pinch had hurt!

Stanton was angry now, with the hot, controlled anger of a fighting man. He stepped in and slammed two fast, hard jabs into the point of the nipe's snout, jarring the monster backwards. This time, it was the Nipe who scuttled backwards.

Stanton moved in to press his advantage and landed a beaut on the Nipe's lower left eye. Then he tried a body blow. It wasn't too successful. The alien had an endoskeleton, but he also had a hide that was like somewhat leathery chitin.

He pulled back, out of the way of the Nipe's judo cuts.

His fists were beginning to hurt, and his leg was paining him badly where the Nipe had clamped on to it. And his ribs—

And then he realized that, so far, the Nipe had only landed one blow!

One punch and one pinch, he thought with a touch of awe. *The only other damage he's inflicted has been to my knuckles!*

The Nipe charged in again, then he leaped suddenly and clawed for Stanton's face with his first pair of hands. The second and third pairs chopped in toward the man's body. The last pair propelled him off the floor.

Stanton stepped back and let him have a right just below the jaw, where his throat would have been if he'd been human.

The Nipe arced backwards in a half-somersault and landed flat on his back.

Stanton backed up a little more, waiting, while the Nipe wriggled feebly for a moment. *The Marquis of Queensbury should have lived to see this,* he thought.

The Nipe rolled over and crouched

on all eight limbs. His violet eyes watched Stanton, but the man could read no expression on that inhuman face.

"You did not kill."

For a moment, Stanton found it hard to believe that the hissing, guttural voice had come from the crouching monster.

"You did not even try *to kill."*

"I have no wish to kill you," Stanton said evenly.

"I can see that. Do you . . Are you . . ." He stopped, as if baffled. *"There are not the proper words. Do you follow the Customs?"*

Stanton felt a surge of triumph. This was what George Yoritomo had guessed might happen!

"If I must kill you," he said carefully, "I, myself, will do the honors. You will not go uneaten."

The Nipe sagged a little, relaxing all over. *"I had hoped it was so. It was the only thinkable thing. I saw you on the television, and it was only thinkable that you came for me."*

Stanton blinked, stunned. What was the Nipe thinking? But, of course, he knew. And he saw that even his brother's return had been a part of the plan.

"I knew you were out in the asteroids," the Nipe went on. *"But I had decided you had come to kill. Since you did not, what are your thoughts, Stanley Martin?*

"That we should help each other," Stanton said.

It was as simple as that.

XVII

Stanton sat in his hotel room, smoking a cigarette, staring at the wall, and thinking.

He was alone again. All the fuss, feathers, and fooferaw were over. Farnsworth was in another room of the suite, making his plans for a complete physical examination of the Nipe. Yoritomo was having the time of his life, holding a conversation with the Nipe, drawing the alien out and getting him to talk about his own race and their history. And Mannheim was plotting the next phase of the capture—the cover-up.

Stanton smiled a little. Colonel Mannheim was a great one for planning, all right. Every little detail was taken care of. It sometimes made his plans more complex than necessary, Stanton suspected. Mannheim tended to try to account for every eventuality, and, after he had done that, he would set aside reserves here and there, just in case they might be useful if something unforeseen happened.

Stanton got up, walked over to the window, and looked down at the streets of Government City, eight floors below.

All things considered, the Government had done the right thing. And, in picking Mannheim, they had picked the right man. What would the average citizen think if he knew the true story of the Nipe? If he discovered that, at this very moment, the Nipe was being treated almost as an honored guest of the Government? If he suspected that the Nipe could have been killed easily at any time during the past six years?

Would it be possible to explain that, in the long run, the knowledge possessed by the Nipe was tremendously more valuable to the Race of Man than the lives of a few individuals?

Could those people down there, and the others like them all over the world, be made to understand that, by his own lights, the Nipe had been acting in the most civilized and gentlemanly way he knew? Would they see that, because of the priceless information stored in that alien brain, the Nipe's life had to be preserved at any cost?

Dr. Yoritomo assumed that Mannheim would spread a story about the Nipe's death—perhaps even display a carefully-made "corpse". But Stanton had the feeling that the colonel had something else up his sleeve.

The phone rang. Stanton walked over, thumbed the answer stud, and watched Dr. Farnsworth's face take shape on the screen.

"Bart, I just saw the tapes of your fight with the Nipe. Incredible! I'm going to have them run over again, slowed down, so that I can see what went on, and I'd like to have you tell me, as best you can, what went on in your mind at each stage of the fight."

"You mean right now? I have an appointment—"

Farnsworth waved a hand. "No, no. Later. Take your time. But I am honestly amazed that you won so easily. I knew you were good, and I knew you'd win, but I honestly expected you to be injured."

Stanton looked down at his bandaged hands, and felt the ache of his broken rib and the blue bruise on his thigh. In spite of the way it looked, he had actually been hurt worse than the Nipe had. That boy was *tough!*

"The trouble was that he couldn't adapt himself to fighting in a new way," he told Farnsworth. "He fought me as he would have fought another Nipe, and that didn't work. I had the reach on him, and I could maneuver faster."

"It looked to me as though you were fighting him as you would fight another human being," Farnsworth said.

Stanton grinned. "I was, in a modified way. But *I* won—the Nipe didn't."

Farnsworth grinned back. "I see. Well, I'll let you know when I'm ready for your impressions. Probably tomorrow some time."

"Fine."

He walked back over to the window, but this time he looked at the horizon, not at the street.

Farnsworth had called him "Bart". It's funny, Stanton thought, how hab-

it can get the best of a man. Farnsworth had known the truth all along, and now he knew that his patient—*former* patient—was aware of the truth. And still, he had called him "Bart".

And I still think of myself as Bart, he thought. *I probably always will.*

And why not? Martin Stanton no longer existed—in fact, he had never had much of a real existence. He was only a bad dream; only "Bart" was real.

Take two people, genetically identical. Damage one of them so badly that he is helpless and useless—and always only a step away from death. It is inevitable that the weaker will identify himself with the stronger.

The vague telepathic bond that always links identical twins (they "think alike", they say) becomes unbalanced under such conditions. Normally, there is a give-and-take, and each preserves the sense of his own identity, since the two different sets of sense receptors give different viewpoints. But if one of the twins is damaged badly enough something must happen to the telepathic link. Usually, it is broken.

But the link between Mart and Bart Stanton had not been broken. It had become a one-way channel. Martin, in order to escape the prison of his own body, had become a receptor for Bart's thoughts. He felt as Bart felt—the thrill of running after a baseball, the pride of doing something clever with his hands.

In effect, Martin ceased to think. The thoughts in his mind were Bart's. The feeling of identity was almost complete.

To an outside observer, it appeared that Martin had become a cataleptic schizophrenic, completely cut off from reality. The "Bart" part of him did not want to be disturbed by the sensory impressions that "Mart's" body provided. Like the schizophrenic, Martin was living in a little world that was cut off from the actual physical world around his body.

The difference between Martin's condition and that of the ordinary schizophrenic was that *his* little world actually existed. It was an almost exact counterpart of the world that existed in the perfectly sane, rational mind of his brother, Bart. It grew and developed as Bart did, fed by the telepathic flow from the stronger mind to the weaker.

There were two Barts, and no Mart at all.

And then the Neurophysical Institute had come into the picture. A new process had been developed, by which a human being could be reconstructed—made, literally, into a superman. The drawback was that a normal human body resisted the process—to the death, if necessary, just as a normal human body will resist a skin graft from an alien donor.

But the radiation-damaged body of Martin Stanton had no resistance of that kind. With him—perhaps—the process might work.

So Bartholomew Stanton, Martin's legal guardian after the death of their mother, had given permission for the series of operations that would rebuild his brother.

The telepathic link, of course, had to be shut off—for a time, at least. Part of that could be done in the treatment of Martin, but Bart, too, had to do his part. By submitting to hypnosis, he had allowed himself to be convinced that his name was Stanley Martin. He had taken a job on Luna, and then had gone to the asteroids. The simple change of name and environment had been just enough to snap the link during a time when Martin's brain had been inactivated by therapy and anesthetics.

Only the sense of identity remained. The patient was still Bart.

Mannheim had used them both, naturally. Colonel Mannheim had the ability to use anyone at hand, including himself, to get a job done.

Stanton looked at his watch. It was almost time.

Mannheim had sent for "Stanley Martin" when the time had come for him to return in order to give the Nipe data that he would be sure to misinterpret. A special code phrase in the message had released "Stanley Martin" from the posthypnotic suggestion that had held him for so long. He knew that he was Bartholomew Stanton again.

And so do I, thought the man by the window. *We have a lot to straighten out, we two.*

There was a knock at the door.

Stanton walked over and opened it, trying to think.

It was like looking into a mirror.

"Hello, Bart," he said.

"Hello, Bart," said the other.

In that instant, the complete telepathic linkage was restored, and they both knew what only one of them had known before—that, for a time, the flow had been one-way again—that "Stanley Martin" had experienced the entire battle with the Nipe. His release from the posthypnotic suggestion had made it possible.

E duobus unum.

There was unity without loss of identity. ■

The Analytical Laboratory

January 1962

PLACE	STORY	AUTHOR	POINTS
1.	Worm in the Woodwork,	*E. C. Tubb*	2.1
2.	Naudsonce,	*H. Beam Piper*	2.4
3.	Black Man's Burden (Conc.),	*Mack Reynolds*	2.6
4.	Idiot Solvant,	*Gordon R. Dickson*	2.9

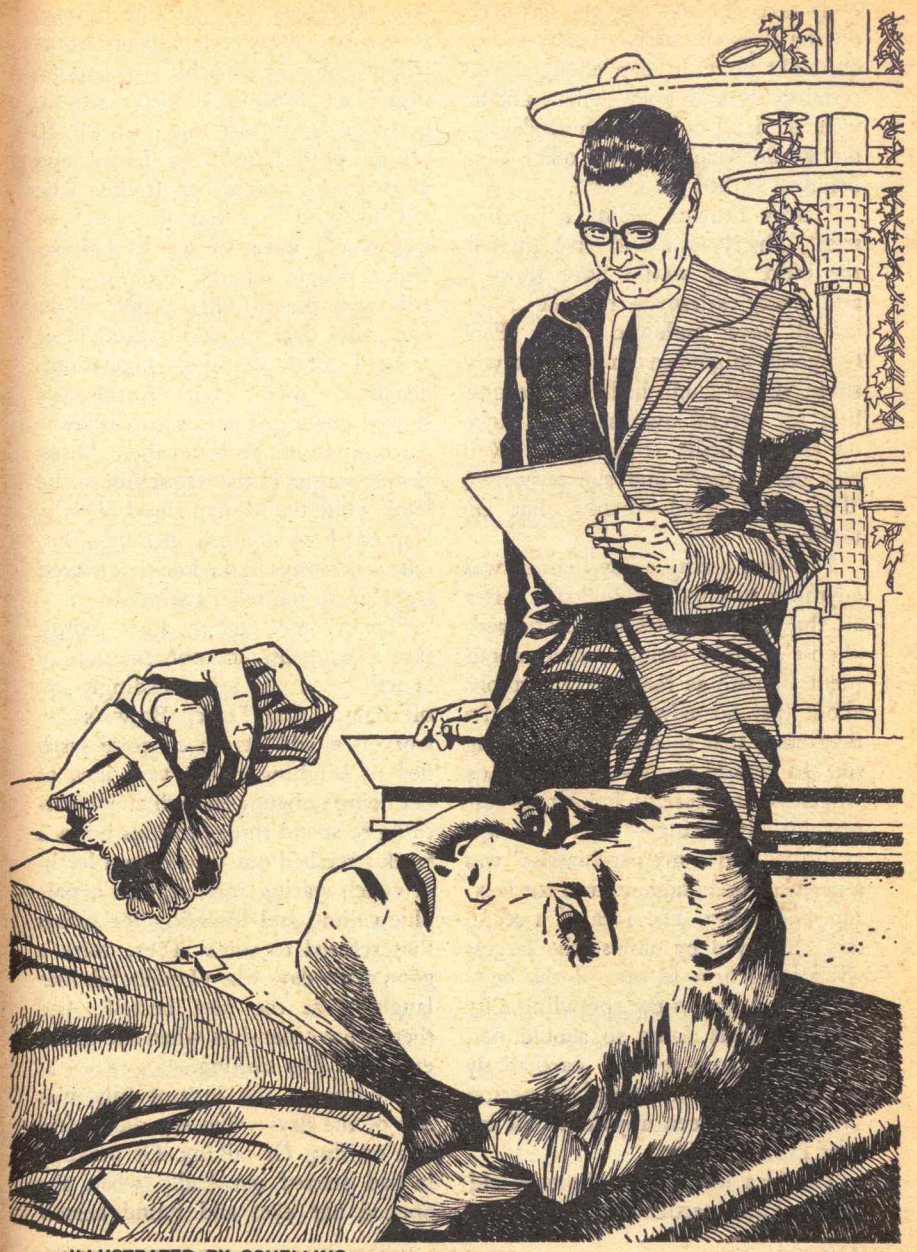
The Editor

THE SOUND OF SILENCE

Most people, when asked to define the ultimate in loneliness, say it's being alone in a crowd. And it takes only one slight difference to make one forever alone in the crowd . . .

BY BARBARA CONSTANT

■ Nobody at Hoskins, Haskell & Chapman, Incorporated, knew just why Lucilla Brown, G.G. Hoskins' secretary, came to work half an hour early every Monday, Wednesday, and Friday. Even G.G. himself, had he been asked, would have had trouble explaining how his occasional exasperated wish that just once somebody would reach the office ahead of him could have caused his attractive young secretary to start doing so three times a week . . . or kept her at it all the months since that first gloomy March day. Nobody asked G.G., however—not even Paul Chapman, the very junior partner in the advertising firm, who had displayed more than a little interest in Lucilla all fall and winter, but very little interest in anything all spring and summer. No-



ILLUSTRATED BY SCHELLING

body asked Lucilla why she left early on the days she arrived early—after all, eight hours is long enough. And certainly nobody knew where Lucilla went at 4:30 on those three days—nor would anybody in the office have believed it, had he known.

"Lucky Brown? Seeing a psychiatrist?" The typist would have giggled, the office boy would have snorted, and every salesman on the force would have guffawed. Even Paul Chapman might have managed a wry smile. A real laugh had been beyond him for several months—ever since he asked Lucilla confidently, "Will you marry me?" and she answered, "I'm sorry, Paul—thanks, but no thanks."

Not that seeing a psychiatrist was anything to laugh at, in itself. After all, the year was 1962, and there were almost as many serious articles about mental health as there were cartoons about psychoanalysts, even in the magazines that specialized in poking fun. In certain cities—including Los Angeles—and certain industries—especially advertising—"I have an appointment with my psychiatrist" was a perfectly acceptable excuse for leaving work early. The idea of a secretary employed by almost the largest advertising firm in one of the best-known suburbs in the sprawling City of the Angels doing so should not, therefore, have seemed particularly odd. Nor would it have, if the person involved had been anyone at all except Lucilla Brown.

The idea that she might need aid of any kind, particularly psychiatric, was ridiculous. She had been born twenty-two years earlier in undisputed possession of a sizable silver spoon—and she was, in addition, bright, beautiful, and charming, with 20/20 vision, perfect teeth, a father and mother who adored her, friends who did likewise . . . and the kind of luck you'd have to see to believe. Other people entered contests—Lucilla won them. Other people drove five miles over the legal speed limit and got caught doing it—Lucilla outdistanced them, but fortuitously slowed down just before the highway patrol appeared from nowhere. Other people waited in the wrong line at the bank while the woman ahead of them learned how to roll pennies—Lucilla was always in the line that moved right up to the teller's window.

"Lucky" was not, in other words, just a happenstance abbreviation of "Lucilla"—it was an exceedingly apt nickname. And Lucky Brown's coworkers would have been quite justified in laughing at the very idea of her being unhappy enough about anything to spend three precious hours a week stretched out on a brown leather couch staring miserably at a pale blue ceiling and fumbling for words that refused to come. There were a good many days when Lucilla felt like laughing at the idea herself. And there were other days when she didn't even feel like smiling.

Wednesday, the 25th of July, was one of the days when she didn't feel like smiling. Or talking. Or moving. It had started out badly when she opened her eyes and found herself staring at a familiar blue ceiling. "I don't know," she said irritably. "I tell you, I simply don't know what happens. I'll start to answer someone and the words will be right on the tip of my tongue, ready to be spoken, then I'll say something altogether different. Or I'll start to cross the street and, for no reason at all, be unable to even step off the curb . . ."

"For no reason at all?" Dr. Andrews asked. "Are you sure you aren't withholding something you ought to tell me?"

She shifted a little, suddenly uncomfortable . . . and then she was fully awake and the ceiling was ivory, not blue. She stared at it for a long moment, completely disoriented, before she realized that she was in her own bed, not on Dr. Andrews' brown leather couch, and that the conversation had been another of the interminable imaginary dialogues she found herself carrying on with the psychiatrist, day and night, awake and asleep.

"Get out of my dreams," she ordered crossly, summoning up a quick mental picture of Dr. Andrews' expressive face, level gray eyes, and silvering temples, the better to banish him from her thoughts. She was immediately sorry she had done so, for the image remained fixed in her mind; she could almost feel his eyes as she heard his voice ask again, "For no reason at all, Lucilla?"

The weatherman had promised a scorcher, and the heat that already lay like a blanket over the room made it seem probable the promise would be fulfilled. She moved listlessly, showering, patting herself dry, lingering over the choice of a dress until her mother called urgently from the kitchen.

She was long minutes behind schedule when she left the house. Usually she rather enjoyed easing her small car into the stream of automobiles pouring down Sepulveda toward the San Diego Freeway, jockeying for position, shifting expertly from one lane to another to take advantage of every break in the traffic. This morning she felt only angry impatience; she choked back on irritated impulse to drive directly into the side of a car that cut across in front of her, held her horn button down furiously when a slow-starting truck hesitated fractionally after the light turned green.

When she finally edged her Renault up on the "on" ramp and the freeway stretched straight and unobstructed ahead, she stepped down on the accelerator and watched the needle climb up and past the legal 65-mile limit. The sound of her tires on the smooth concrete was soothing and the rush of wind outside gave the morning an illusion of coolness. She edged away from the tangle of cars that had pulled onto the freeway with her and momentarily was alone on the road, with her rear-view mirror blank, the oncoming lanes bare, and a small rise shutting off the world ahead.

That was when it happened. "Get out of the way!" a voice shrieked,

"Out of the way, out of the way, OUT OF THE WAY!" Her heart lurched, her stomach twisted convulsively, and there was a brassy taste in her mouth. Instinctively, she stamped down on the brake pedal, swerved sharply into the outer lane. By the time she had topped the rise, she was going a cautious 50 miles an hour and hugging the far edge of the freeway. Then, and only then, she heard the squeal of agonized tires and saw the cumbersome semitrailer coming from the opposite direction rock dangerously, jacknife into the dividing posts that separated north- and south-bound traffic, crunch ponderously through them, and crash to a stop, several hundred feet ahead of her and squarely athwart the lane down which she had been speeding only seconds earlier.

The highway patrol materialized within minutes. Even so, it was after eight by the time Lucilla gave them her statement, agreed for the umpteenth time with the shaken but uninjured truck driver that it was indeed fortunate she hadn't been in the center lane, and drove slowly the remaining miles to the office. The gray mood of early morning had changed to black. Now there were two voices in her mind, competing for attention. "I knew it was going to happen," the truck driver said. "I couldn't see over the top of that hill. All I could do was fight the wheel and pray that if anybody was coming, he'd get out of the way." She could almost hear him repeating the words, "Get out of the way, out of the way. . . ." And right on the heel of his cry came Dr. Andrews' soft query, "For no reason at all, Lucilla?"

She pulled into the company parking lot, jerked the wheel savagely to the left, jammed on the brakes. "Shut up!" she said. "Shut up, both of you!" She started into the building, then hesitated. She was already late, but there was something . . . (Get out of the way, the way . . . For no reason at all, at all . . .) She yielded to impulse and walked hurriedly downstairs to the basement library.

"That stuff I asked you to get together for me by tomorrow, Ruthie," she said to the gray-haired librarian. "You wouldn't by any chance have already done it, would you?"

"Funny you should ask." The elderly woman bobbed down behind the counter and popped back up with an armload of magazines and newspapers. "Just happened to have some free time last thing yesterday. It's already charged out to you, so you just go right ahead and take it, dearie."

It was 8:30 when Lucilla reached the office.

"When I need you, where are you?" G.G. asked sourly. "Learned last night that the top dog at Karry Karton Korporation is in town today, so they've pushed that conference up from Friday to ten this morning. If you'd been here early—or even on time—we might at least have gotten some of the information together."

Lucilla laid the stack of material on his desk. "I haven't had time to flag the pages yet," she said, "but they're listed on the library request on top. We did nineteen ads for KK last year and three premium offers. I stopped by Sales on my way in—Susie's digging out figures for you now."

"Hm-m-m," said G.G. "Well. So that's where you've been. You could at least have let me know." There was grudging approval beneath his gruffness. "Say, how'd you know I needed this today, anyhow?"

"Didn't," said Lucilla, putting her purse away and whisking the cover off her typewriter. "Happenstance, that's all." (Just happened to go down to the library . . . for no reason at all . . . withholding something . . . get out of the way . . .) The telephone's demand for attention overrode her thoughts. She reached for it almost gratefully. "Mr. Hoskins' office," she said. "Yes. Yes, he knows about the ten o'clock meeting this morning. Thanks for calling, anyway." She hung up and glanced at G.G., but he was so immersed in one of the magazines that the ringing telephone hadn't even disturbed him. Ringing? The last thing she did before she left the office each night was set the lever in the instrument's base to "off," so that the bell would not disturb G.G. if he worked late. So far today, nobody had set it back to "on."

It's getting worse," she said miserably to the pale blue ceiling. "The phone didn't ring this morning—it couldn't have—but I answered it." Dr. Andrews said nothing at all. She let her eyes flicker sidewise, but he was outside her range of vision. "I don't LIKE having you sit where I can't see you," she said crossly. "Freud may have thought it was a good idea, but I think it's a lousy one." She clenched her hands and stared at nothing. The silence stretched thinner and thinner, like a balloon blown big, until the temptation to rupture it was too great to resist. "I didn't see the truck this morning. Nor hear it. There was no reason at all for me to slow down and pull over."

"You might be dead if you hadn't. Would you like that better?"

The matter-of-fact question was like a hand laid across Lucilla's mouth. "I don't want to be dead," she admitted finally. "Neither do I want to go on like this, hearing words that aren't spoken and bells that don't ring. When it gets to the point that I pick up a phone just because somebody's thinking . . ." She stopped abruptly.

"I didn't quite catch the end of that sentence," Dr. Andrews said.

"I didn't quite finish it. I can't."

"Can't? Or won't? Don't hold anything back, Lucilla. You were saying that you picked up the phone just because somebody was thinking . . ." He paused expectantly. Lucilla reread the ornate letters on the framed diploma on the wall, looked critically at the picture of Mrs. Andrews—whom she'd met—and her impish daughter—whom she hadn't —counted the number of pleats in the billowing drapes, ran a tentative finger over the face of her wristwatch, straightened a fold of her skirt

. . . and could stand the silence no longer.

"All right," she said wearily. "The girl at Karry Karton thought about talking to me, and I heard my phone ring, even though the bell was disconnected. G.G. thought about needing backup material for the conference and I went to the library. The truck driver thought about warning people and I got out of his way. So I can read people's minds—some people's minds, some of the time, anyway . . . only there's no such thing as telepathy. And if I'm not telepathic, then . . ." She caught herself in the brink of time and bit back the final word, fighting for self-control.

"Then what?" The peremptory question toppled Lucilla's defenses.

"I'm crazy," she said. Speaking the word released all the others dammed up behind it. "Ever since I can remember, things like this have happened—all at once, in the middle of doing something or saying something, I'd find myself thinking about what somebody else was doing or saying. Not thinking—knowing. I'd be playing hide-and-seek, and I could see the places where the other kids were hiding just as plainly as I could see my own surroundings. Or I'd be worrying over the answer to an exam question, and I'd know what somebody in the back of the room had decided to write down, or what the teacher was expecting us to write. Not always—but it happened often enough so that it bothered me, just the way it does now when I answer a question before it's been asked, or know what the driver ahead of me is going to do a split second before he does it, or win a bridge game because I can see everybody else's hand through his own eyes, almost."

"Has it always . . . bothered you, Lucilla?"

"No-o-o-o." She drew the word out, considering, trying to think when it was that she hadn't felt uneasy about the unexpected moments of perceptiveness. When she was very little, perhaps. She thought of the tiny, laughing girl in the faded snaps of the old album—and suddenly, inexplicably, she was that self, moving through remembered rooms, pausing to collect a word from a boyish father, a thought from a pretty young mother. Reluctantly, she closed her eyes against that distant time. "Way back," she said, "when I didn't know any better, I just took it for granted that sometimes people talked to each other and that sometimes they passed thoughts along without putting them into words. I was about six, I guess, when I found out it wasn't so." She slipped into her six-year-old self as easily as she had donned the younger Lucilla. This time she wasn't in a house, but high on a hillside, walking on a springy pine needles instead of prosaic carpet.

"Talk," Dr. Andrews reminded her, his voice so soft that it could almost have come from inside her own mind.

"We were picnicking," she said. "A whole lot of us. Somehow, I wandered away from the others . . ."

One minute the hill was bright with sun, and the next it was deep in shadows and the wind that had been merely cool was downright cold. She shivered and glanced around, expecting her mother to be somewhere near, holding out a sweater or jacket. There was no one at all in sight. Even then, she never thought of being frightened. She turned to retrace her steps. There was a big tree that looked familiar, and a funny rock behind it, half buried in the hillside. She was trudging toward it, humming under her breath, when the worry thoughts began to reach her. (. . . only a little creek so I don't think she could have fallen in . . . not really any bears around here . . . but she never gets hurt . . . creek . . . bear . . . twisted ankle . . . dark . . . cold . . .) She had veered from her course and started in the direction of the first thought, but now they were coming from all sides and she had no idea at all which way to go. She ran wildly then, first one way, then the other, sobbing and calling.

"Lucilla!" The voice sliced into the night, and the dark mountainside and the frightened child were gone. She shuddered a little, reminiscently, and put her hand over her eyes.

"Somebody found me, of course. And then Mother was holding me and crying and I was crying, too, and telling her how all the different thoughts at once frightened me and mixed me up. She . . . she scolded me for . . . for telling fibs . . . and said that nobody except crazy

people thought they could read each other's minds."

"I see," said Dr. Andrews. "So you tried not to, of course. And anytime you did it again, or thought you did, you blamed it on coincidence. Or luck."

"And had that nightmare again."

"Yes, that, too. Tell me about it."

"I already have. Over and over."

"Tell me again, then."

"I feel like a fool, repeating myself," she complained. Dr. Andrews made no comment. "Oh, all right. It always starts with me walking down a crowded street, surrounded by honking cars and yelling newsboys and talking people. The noise bothers me and I'm tempted to cover my ears to shut it out, but I try to ignore it, instead, and walk faster and faster. Bit by bit, the buildings I pass are smaller, the people fewer, the noise less. All at once, I discover there's nothing around at all but a spreading carpet of gray-green moss, years deep, and a silence that feels as old as time itself. There's nothing to frighten me, but I am frightened . . and lonesome, not so much for people, but for a sound . . . any sound. I turn to run back toward town, but there's nothing behind me now but the same gray moss and gray sky and dead silence."

By the time she reached the last word, her throat had tightened until speaking was difficult. She reached out blindly for something to cling to. Her groping hand met Dr. Andrews' and his warm fingers closed reassuringly around hers. Gradually the panic drained away, but she could think of nothing to say at all, although she longed to have the silence broken. As if he sensed her longing, Dr. Andrews said, "You started having the dream more often just after you told Paul you wouldn't marry him, is that right?"

"No. It was the other way around. I hadn't had it for months, not since I fell in love with him, then he got assigned to that 'Which Tomorrow?' show and he started calling me 'Lucky,' the way everybody does, and the dream came back . . ." She stopped short, and turned on the couch to stare at the psychiatrist with startled eyes. "But that can't be how it was," she said. "The lonesomeness must have started after I decided not to marry him, not before."

"I wonder why the dream stopped when you fell in love with him."

"That's easy," Lucilla said promptly, grasping at the chance to evade her own more disturbing question. "I felt close to him, whether he was with me or not, the way I used to feel close to people back when I was a little girl, before . . . well, before that day in the mountains . . . when Mother said . . ."

"That was when you started having the dream, wasn't it?"

"How'd you know? I didn't—not until just now. But, yes, that's when it started. I'd never minded the dark or being alone, but I was frightened when Mother shut the door that night, because the walls seemed so . . . so solid, now that I knew all the thoughts I used to think were with me there were just pretend. When I finally went to sleep, I dreamed, and I went on having the same dream, night after night after night, until finally they called a doctor and he gave me something to make me sleep."

"I wish they'd called me," Dr. Andrews said.

"What could you have done? The sleeping pills worked, anyway, and after awhile I didn't need them any more, because I'd heard other kids talking about having hunches and lucky streaks and I stopped feeling different from the rest of them, except once in awhile, when I was so lucky it . . . bothered me."

"And after you met Paul, you stopped being . . . too lucky . . . and the dream stopped?"

"No!" Lucilla was startled at her own vehemence. "No, it wasn't like that at all, and you'd know it, if you'd been listening. With Paul, I felt close to him all the time, no matter how many miles or walls or anything else there were between us. We hardly had to talk at all, because we seemed to know just what the other one was thinking all the time, listening to music, or watching the waves pound in or just working together at the office. Instead of feeling . . . odd . . . when I knew what he was thinking or what he was going to say, I felt good about it, because I was so sure it was the same way with him and what I was thinking. We didn't talk about it. There just wasn't any need to." She lapsed into silence again. Dr. Andrews straightened her clenched hand out and stroked the fingers gently. After a moment, she went on.

"He hadn't asked me to marry him, but I knew he would, and there wasn't any hurry, because everything was so perfect, anyway. Then one of the company's clients decided to sponsor a series of fantasy shows on TV and wanted us to tie in the ads for next year with the fantasy theme. Paul was assigned to the account, and G.G. let him borrow me to work on it, because it was such a rush project. I'd always liked fairy stories when I was little, and when I discovered there were grown-up ones, too, like those in *Unknown Worlds* and the old *Weird Tales,* I read them, too. But I hadn't any idea how much there was, until we started buying copies of everything there was on the newsstands, and then ransacking musty little stores for back issues and ones that had gone out of publication, until Paul's office was just full of teetery piles of gaudy magazines and everywhere you looked there were pictures of strange stars and eight-legged monsters and men in space suits."

"So what do the magazines have to do with you and Paul?"

"The way he felt about them changed everything. He just laughed at the ones about space ships and other planets and robots and things, but he didn't laugh when he came across stories about . . . well, mutants, and people with talents . . ."

"Talents? Like reading minds, you mean?"

She nodded, not looking at him. "He didn't laugh at those. He acted as if they were . . . well, indecent. The sort of thing you wouldn't be caught dead reading in public. And he thought that way, too, especially about the stories that even mentioned telepathy. At first, when he brought them to my attention in that disapproving way, I thought he was just pretending to sneer, to tease me, because he—we—knew they could be true. Only his thoughts matched his remarks. He hated the stories, Dr. Andrews, and was just determined to have me hate them, too. All at once I began to feel as if I didn't know him at all and I began to wonder if I'd just imagined everything all those months I felt so close to him. And then I began to dream again, and to think about that lonesome silent world even when I was wide awake."

"Go on, Lucilla," Dr. Andrews said, as she hesitated.

"That's all, just about. We finished the job and got rid of the magazines and for a little while it was almost as if those two weeks had never been, except I couldn't forget that he didn't know what I was thinking at all, even when everything he did, almost, made it seem as if he did. It began to seem wrong for me to know what he was thinking. Crazy, like Mother had said, and worse, somehow. Not well, not even nice, if you know what I mean."

"Then he asked you to marry him."

"And I said no, even when I wanted, oh, so terribly, to say yes and yes and yes." She squeezed her eyes tight shut to hold back a rush of tears.

Time folded back on itself. Once again, the hands of her wristwatch pointed to 4:30 and the white-clad receptionist said briskly, "Doctor will see you now." Once again, from some remote vantage point, Lucilla watched herself brush past Dr. Andrews and cross to the familiar couch, heard herself say, "It's getting worse," watched herself move through a flickering montage of scenes from childhood to womanhood, from past to present.

She opened her eyes to meet those of the man who sat patiently beside her. "You see," he said, "telling me wasn't so difficult, after all." And then, before she had decided on a response, "What do you know about Darwin's theory of evolution, Lucilla?"

His habit of ending a tense moment by making an irrelevant query no longer even startled her. Obediently, she fumbled for an answer. "Not much. Just that he thought all the different kinds of life on earth today evolved from a few blobs of protoplasm that sprouted wings or grew fur or developed teeth, depending on when they lived, and where." She paused hopefully, but met with only silence. "Sometimes what seemed like a step forward wasn't," she said, ransacking her brain for scattered bits of information. "Then the species died out, like the saber-tooth tiger, with those tusks that kept right on growing until they locked his jaws shut, so he starved to death." As she spoke, she remembered the huge beast as he had been pictured in one of her college textbooks. The recollection grew more and more vivid, until she could see both the picture and the facing page of text. There was an irregularly shaped inkblot in the upper corner and several heavily underlined sentences that stood out so distinctly she could actually read the words. "According to Darwin, variations in general are not infinitesimal, but in the nature of specific mutations. Thousands of these occur, but only the fittest survive the climate, the times, natural enemies, and their own kind, who strive to perpetuate themselves unchanged." Taken one by one, the words were all familiar—taken as a whole, they made no sense at all. She let the book slip unheeded from her mind and stared at Dr. Andrews in bewilderment.

"Try saying it a different way."

"You sound like a school teacher humoring a stupid child." And then, because the habit of obedience was strong, "I guess he meant that tails didn't grow an inch at a time, the way the dog's got cut off, but all at once . . . like a fish being born with legs as well as fins, or a baby saber-tooth showing up among tigers with regular teeth, or one ape in a tribe discovering he could swing down out of the treetops and stand erect and walk alone."

He echoed her last words. "And walk alone . . ." A premonitory chill traced its icy way down Lucilla's backbone. For a second she stood on gray moss, under a gray sky, in the midst of a gray silence. "He not only could walk alone, he had to. Do you remember what your book said?"

"Only the fittest survive," Lucilla said numbly. "Because they have to fight the climate . . . and their natural enemies . . . and their own kind." She swung her feet to the floor and pushed herself into a sitting position. "I'm not a . . . a mutation. I'm not, I'm not, I'm NOT, and you can't say I am, because I won't listen!"

"I didn't say you were." There was the barest hint of emphasis on the first word. Lucilla was almost certain she heard a whisper of laughter, but he met her gaze blandly, his expression completely serious.

"Don't you dare laugh!" she said, nonetheless. "There's nothing funny about . . . about . . ."

"About being able to read people's minds," Dr. Andrews said helpfully. "You'd much rather have me offer some other explanation for the occurrences that bother you so—is that it?"

"I guess so. Yes, it is. A brain tumor. Or schizophrenia. Or anything at all that could maybe be cured, so I could marry Paul and have children and be like everybody else. Like you." She looked past him to the picture on his desk. "It's easy for you to talk."

He ignored the last statement. "Why can't you get married, anyway?"

"You've already said why. Because Paul would hate me—everybody would hate me—if they knew I was different."

"How would they know? It doesn't show. Now if you had three legs, or a long bushy tail, or outsized teeth . . ."

Lucilla smiled involuntarily, and then was furious at herself for doing so and at Dr. Andrews for provoking her into it. "This whole thing is utterly asinine, anyhow. Here we are, talking as if I might really be a mutant, and you know perfectly well that I'm not."

"Do I? You made the diagnosis, Lucilla, and you've given me some mighty potent reasons for believing it . . . can you give me equally good reasons for doubting that you're a telepath?"

The peremptory demand left Lucilla speechless for a moment. She groped blindly for an answer, then almost laughed aloud as she found it.

"But of course. I almost missed it, even after you practically drew me a diagram. If I could read minds, just as soon as anybody found it out, he'd be afraid of me, or hate me, like the book said, and you said, too. If you believed it, you'd do something like having me locked up in a hospital, maybe, instead of . . ."

"Instead of what, Lucilla?"

"Instead of being patient, and nice, and helping me see how silly I've been." She reached out impulsively to touch his hand, then withdrew her own, feeling somewhat foolish when he made no move to respond. Her relief was too great, however, to be contained in silence. "Way back the first time I came in, almost, you said that before we finished therapy, you'd know me better than I knew myself. I didn't believe you—maybe I didn't want to—but I begin to think you were right. Lost of times, lately, you've answered a question before I even asked it. Sometimes you haven't even bothered to answer—you've just sat there in your big brown chair and I've lain here on the couch, and we've gone through something together without using words at all . . ." She had started out almost gaily, the words spilling over each other in their rush to be said, but bit by bit she slowed down, then faltered to a stop. After she had stopped talking altogether, she could still hear her last few phrases, repeated over and over, like an echo that refused to die. (Answered . . . before I even asked . . . without using words at all . . . without using words . . .)

She could almost taste the terror that clogged her throat and dried her lips. "You do believe it. And you could have me locked up. Only . . . only . . ." Fragments of thought, splinters of words, and droplets of silence spun into a kaleidoscopic jumble, shifted infinitesimally, and fell into an incredible new pattern. Understanding displaced terror and was, in turn, displaced by indignation. She stared accusingly at her interrogator. "But you look just like . . . just like anybody."

"You expected perhaps three legs or a long bushy tail or teeth like that textbook tiger?"

"And you're a psychiatrist!"

"What else? Would you have talked to me like this across a grocery counter, Lucilla? Or listened to me, if I'd been driving a bus or filling a prescription? Would I have found the others in a bowling alley or a business office?"

"Then there are . . . others?" She let out her breath on a long sigh, involuntarily glancing again at the framed picture. "Only I love Paul, and he isn't . . . he can't . . ."

"Nor can Carol." His eyes were steady on hers, yet she felt as if he were looking through and beyond her. For no reason at all, she strained her ears for the sound of footsteps or the summons of a voice. "Where do you suppose the second little blob of protoplasm with legs came from?" Dr. Andrews asked. "And the third? If that ape who found he could stand erect had walked lonesomely off into the sunset like a second-rate actor on a late, late show, where do you suppose you'd be today?"

He broke off abruptly and watched with Lucilla as the office door edged open. The small girl who inched her way around it wore blue jeans and a pony tail rather than an organdy frock and curls, but her pixie smile matched that of the girl in the photograph Lucilla had glanced at again and again.

"You wanted me, Daddy?" she asked, but she looked toward Lucilla.

"I thought you'd like to meet someone with the same nickname as yours," Dr. Andrews said, rising to greet her. "Lucky, meet Lucky."

"Hello," the child said, then her smile widened. "Hello!" (But I don't have to say it, do I? I can talk to you just the way I talk to Daddy and Uncle Whitey and Big Bill.)

"Hello yourself," said Lucilla. This time when the corners of her mouth began to tilt upward, she made no attempt to stop them. (Of course you can, darling. And I can answer you the same way, and you'll hear me.)

Dr. Andrews reached for the open pack of cigarettes on his desk. (Is this strictly a private conversation, girls, or can I get in on it, too?)

(It's unpolite to innerupt, Daddy.)

(He's not exactly interrupting—it was his conversation to begin with!)

After that, nobody even pretended to be polite. All three of them were talking and laughing at once when Dr. Andrews' receptionist paused briefly beside the still-open office door. None of them heard either her gentle rap or the soft click of the latch slipping into place when she pushed the door shut.

Nor did she hear them. ■

A novice is one who is inexperienced—but that doesn't mean incompetent. Nor does it mean stupid! ■ **by James H. Schmitz**

novice

ILLUSTRATED BY SCHOENHERR

▪ There was, Telzey Amberdon thought, someone besides TT and herself in the garden. Not, of course, Aunt Halet, who was in the house waiting for an early visitor to arrive, and not one of the servants. Someone or something else must be concealed among the thickets of magnificently flowering native Jontarou shrubs about Telzey.

She could think of no other way to account for Tick-Tock's spooked behavior—nor, to be honest about it, for the manner her own nerves were acting up without visible cause this morning.

Telzey plucked a blade of grass, slipped the end between her lips and chewed it gently, her face puzzled and concerned. She wasn't ordinarily afflicted with nervousness. Fifteen years old, genius level, brown as a berry and not at all bad looking in her sunbriefs, she was the youngest member of one of Orado's most prominent families and a second-year law student at one of the most exclusive schools in the Federation of the Hub. Her physical, mental, and emotional health, she'd always been informed, was excellent. Aunt Halet's frequent cracks about the inherent instability of the genius level could be ignored; Halet's own stability seemed questionable at best.

But none of that made the present odd situation any less disagreeable . . .

The trouble might have begun, Telzey decided, during the night, within an hour after they arrived from the spaceport at the guest house Halet had rented in Port Nichay for their vacation on Jontarou. Telzey had retired at once to her second-story bedroom with Tick-Tock; but she barely got to sleep before something awakened her again. Turning over, she discovered TT reared up before the window, her forepaws on the sill, big cat-head outlined against the star-hazed night sky, staring fixedly down into the garden.

Telzey, only curious at that point, climbed out of bed and joined TT at the window. There was nothing in particular to be seen, and if the scents and minor night-sounds which came from the garden weren't exactly what they were used to, Jontarou was after all an unfamiliar planet. What else would one expect here?

But Tick-Tock's muscular back felt tense and rigid when Telzey laid her arm across it, and except for an absent-minded dig with her forehead against Telzey's shoulder, TT refused to let her attention be distracted from whatever had absorbed it. Now and then, a low, ominous rumble came from her furry throat, a half-angry, half-questioning sound. Telzey began to feel a little uncomfortable. She managed finally to coax Tick-Tock away from the window, but neither of them slept well the rest of the night. At breakfast, Aunt Halet made one of her typical nasty-sweet remarks.

"You look so fatigued, dear—as if you were under some severe mental strain . which, of course, you might be," Halet added musingly. With her gold-blond hair piled high on her head and her peaches and cream complexion, Halet looked fresh as a daisy herself . . . a malicious daisy. "Now wasn't I right in insisting to Jessamine that you needed a vacation away from that terribly intellectual school?" She smiled gently.

"Absolutely," Telzey agreed, restraining the impulse to fling a spoonful of egg yolk at her father's younger sister. Aunt Halet often inspired such impulses, but Telzey had promised her mother to avoid actual battles on the Jontarou trip, if possible. After breakfast, she went out into the back garden with Tick-Tock, who immediately walked into a thicket, camouflaged herself and vanished from sight. It seemed to add up to something. But what?

Telzey strolled about the garden a while, maintaining a pretense of nonchalant interest in Jontarou's flowers and colorful bug life. She experienced the most curious little chills of alarm from time to time, but discovered no signs of a lurking intruder, or of TT either. Then, for half an hour or more, she'd just sat cross-legged in the grass, waiting quietly for Tick-Tock to show up of her own accord. And the big lunkhead hadn't obliged.

Telzey scratched a tanned kneecap, scowling at Port Nichay's park trees beyond the garden wall. It seemed idiotic to feel scared when she couldn't even tell whether there was anything to be scared about! And, aside from that, another unreasonable feeling kept growing stronger by the minute now. This was to the effect that she should be doing some unstated but specific thing . . .

In fact, that Tick-Tock *wanted* her to do some specific thing!

Completely idiotic!

Abruptly, Telzey closed her eyes, thought sharply, "Tick-Tock?" and waited—suddenly very angry at herself for having given in to her fancies to this extent—for whatever might happen.

She had never really established that she was able to tell, by a kind of symbolic mind-picture method, like a short waking dream, approximately what TT was thinking and feeling. Five years before, when she'd discovered Tick-Tock—an odd-looking and odder-behaved stray kitten then—in the woods near the Amberdons' summer home on Orado, Telzey had thought so. But it might never have been more than a colorful play of her imagination; and after she got into law school and grew increasingly absorbed in her studies, she almost forgot the matter again.

Today, perhaps because she was disturbed about Tick-Tock's behavior, the customary response was extraordinarily prompt. The warm glow of sunlight shining through her closed eyelids faded out quickly and was replaced by some inner darkness. In the darkness there appeared then an image of Tick-Tock sitting a little way off beside an open door in an old stone wall, green eyes fixed on Telzey. Telzey

got the impression that TT was inviting her to go through the door, and, for some reason, the thought frightened her.

Again, there was an immediate reaction. The scene with Tick-Tock and the door vanished; and Telzey felt she was standing in a pitch-black room, knowing that if she moved even one step forwards, something that was waiting there silently would reach out and grab her.

Naturally, she recoiled . . . and at once found herself sitting, eyes still closed and the sunlight bathing her lids, in the grass of the guest house garden.

She opened her eyes, looked around. Her heart was thumping rapidly. The experience couldn't have lasted more than four or five seconds, but it had been extremely vivid, a whole, compact little nightmare. None of her earlier experiments at getting into mental communication with TT had been like that.

It served her right, Telzey thought, for trying such a childish stunt at the moment! What she should have done at once was to make a methodical search for the foolish beast—TT was bound to be *somewhere* nearby—locate her behind her camouflage, and hang on to her then until this nonsense in the garden was explained! Talented as Tick-Tock was at blotting herself out, it usually was possible to spot her if one directed one's attention to shadow patterns. Telzey began a surreptitious study of the flowering bushes about her.

Three minutes later, off to her right, where the ground was banked beneath a six-foot step in the garden's terraces, Tick-Tock's outline suddenly caught her eye. Flat on her belly, head lifted above her paws, quite motionless, TT seemed like a transparent wraith stretched out along the terrace, barely discernible even when stared at directly. It was a convincing illusion; but what seemed to be rocks, plant leaves, and sun-splotched earth seen through the wraith-outline was simply the camouflage pattern TT had printed for the moment on her hide. She could have changed it completely in an instant to conform to a different background.

Telzey pointed an accusing finger.

"See you!" she announced, feeling a surge of relief which seemed as unaccountable as the rest of it.

The wraith twitched one ear in acknowledgment, the head outlines shifting as the camouflaged face turned towards Telzey. Then the inwardly uncamouflaged, very substantial looking mouth opened slowly, showing Tick-Tock's red tongue and curved white tusks. The mouth stretched in a wide yawn, snapped shut with a click of meshing teeth, became indistinguishable again. Next, a pair of camouflaged lids drew back from TT's round, brilliant-green eyes. The eyes stared across the lawn at Telzey.

Telzey said irritably, "Quit clowning around, TT!"

The eyes blinked, and Tick-Tock's natural bronze-brown color suddenly flowed over her head, down her neck and across her body into legs and tail. Against the side of the terrace, as if materializing into solidity at that moment, appeared two hundred pounds of supple, rangy, long-tailed cat . . . or catlike creature. TT's actual origin had never been established. The best guesses were that what Telzey had found playing around in the woods five years ago was either a biostructural experiment which had got away from a private laboratory on Orado, or some spaceman's lost pet, brought to the capital planet from one of the remote colonies beyond the Hub. On top of TT's head was a large, fluffy pompom of white fur, which might have looked ridiculous on another animal, but didn't on her. Even as a fat kitten, hanging head down from the side of a wall by the broad sucker pads in her paws, TT had possessed enormous dignity.

Telzey studied her, the feeling of relief fading again. Tick-Tock, ordinarily the most restful and composed of companions, definitely was still tensed up about something. That big, lazy yawn a moment ago, the attitude of stretched-out relaxation . . . all pure sham!

"What *is* eating you?" she asked in exasperation.

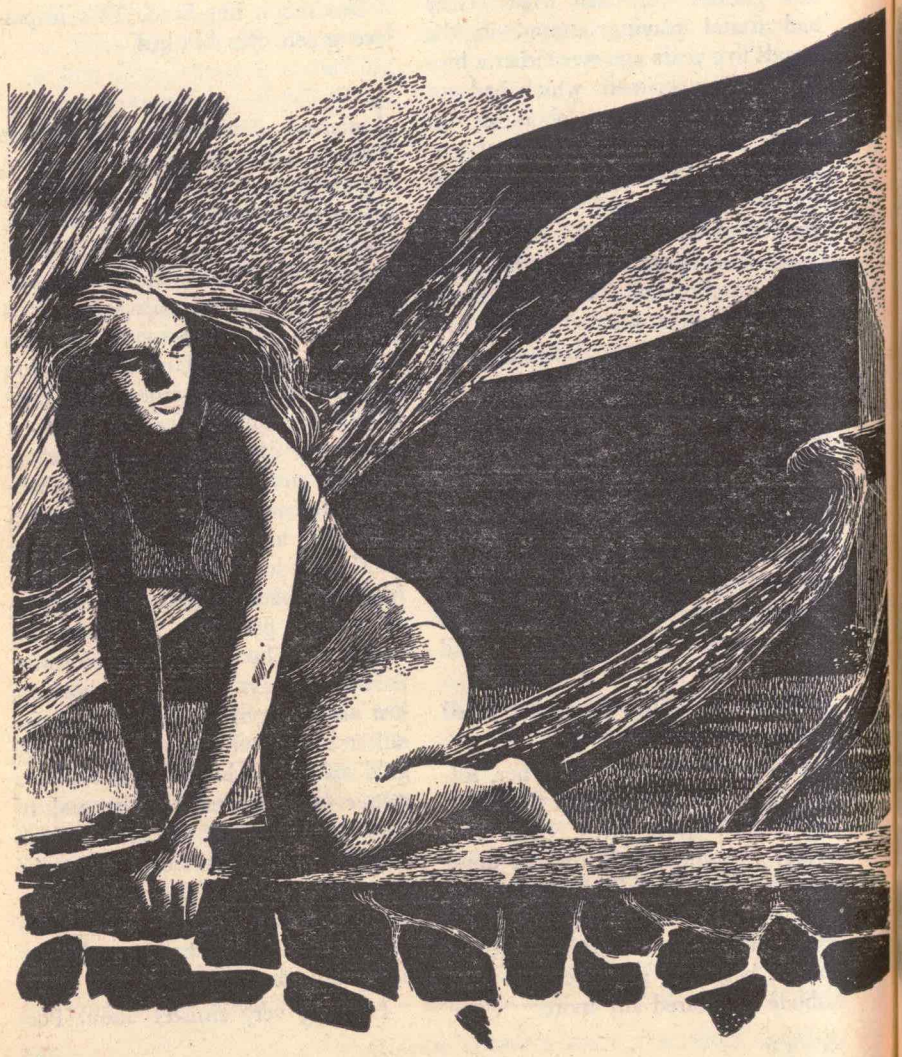
The green eyes stared at her, solemn, watchful, seeming for that fleeting instant quite alien. And why, Telzey thought, should the old question of what Tick-Tock really was pass through her mind just now? After her rather alarming rate of growth began to taper off last year, nobody had cared any more.

For a moment, Telzey had the uncanny certainty of having had the answer to this situation almost in her grasp. An answer which appeared to involve the world of Jontarou, Tick-Tock, and of all unlikely factors—Aunt Halet.

She shook her head. TT's impassive green eyes blinked.

Jontarou? The planet lay outside Telzey's sphere of personal interests, but she'd read up on it on the way here from Orado. Among all the worlds of the Hub, Jontarou was *the* paradise for zoologists and sportsmen, a gigantic animal preserve, its continents and seas swarming with magnificent game. Under Federation law, it was being retained deliberately in the primitive state in which it had been discovered. Port Nichay, the only city, actually the only inhabited point on Jontarou, was beautiful and quiet, a pattern of vast but elegantly slender towers, each separated from the others by four or five miles of rolling parkland and interconnected only by the threads of transparent skyways. Near the horizon, just visible from the garden, rose the tallest towers of all, the green and gold spires of the Shikaris' Club, a center of Federation affairs and of social activity. From the aircar which brought them across Port Nichay the evening before, Telzey had seen occasional strings of guest houses, similar to the one Halet had rented, nestling along the park slopes.

Nothing very sinister about Port



Nichay or green Jontarou, surely!

Halet? That blond, slinky, would-be Machiavelli? What could—?

Telzey's eyes narrowed reflectively. There'd been a minor occurrence—at least, it had seemed minor—just before the spaceliner docked last night. A young woman from one of the newscasting services had asked for an interview with the daughter of Federation Councilwoman Jessamine Amberdon. This happened occasionally; and Telzey had no objections until the newshen's gossipy persistence in inquiring about the "unusual pet" she was bringing to Port Nichay with her began to be annoying. TT might be somewhat unusual, but that was not a matter of general interest; and Telzey said so. Then Halet moved smoothly into the act and held forth on Tick-Tock's appearance, habits, and mysterious antecedents, in considerable detail.

Telzey had assumed that Halet was simply going out of her way to be irritating, as usual. Looking back on the incident, however, it occurred to her that the chatter between her aunt and the newscast woman had sounded oddly stilted—almost like something the two might have rehearsed.

Rehearsed for what purpose? Tick-Tock . . . Jontarou.

Telzey chewed gently on her lower lip. A vacation on Jontarou for the two of them and TT had been Halet's idea, and Halet had enthused about it so much that Telzey's mother at last talked her into accepting. Halet, Jessamine explained privately to Telzey, had felt they were intruders in the Amberdon family, had bitterly resented Jessamine's political honors and, more recently, Telzey's own emerging promise of brilliance. This invitation was Halet's way of indicating a change of heart. Wouldn't Telzey oblige?

So Telzey had obliged, though she took very little stock in Halet's change of heart. She wasn't, in fact, putting it past her aunt to have some involved dirty trick up her sleeve with this trip to Jontarou. Halet's mind worked like that.

So far there had been no actual indications of purposeful mischief. But logic did seem to require a connection between the various puzzling events here . . . A newscaster's rather forced looking interest in Tick-Tock—Halet could easily have paid for that interview. Then TT's disturbed behavior during their first night in Port Nichay, and Telzey's own formless anxieties and fancies in connection with the guest house garden.

The last remained hard to explain. But Tick-Tock . and Halet . . . might know something about Jontarou that she didn't know.

Her mind returned to the results of the half-serious attempt she'd made to find out whether there was something Tick-Tock "wanted her to do." An open door? A darkness where somebody waited to grab her if she took even one step forwards? It couldn't have had any significance. Or could it?

So you'd like to try magic, Telzey scoffed at herself. Baby games . . . How far would you have got at law school if you'd asked TT to help with your problems?

Then why had she been thinking about it again?

She shivered, because an eerie stillness seemed to settle on the garden. From the side of the terrace, TT's green eyes watched her.

Telzey had a feeling of sinking down slowly into a sunlit dream, into something very remote from law school problems.

"Should I go through the door?" she whispered.

The bronze cat-shape raised its head slowly. TT began to purr.

Tick-Tock's name had been derived in kittenhood from the manner in which she purred—a measured, oscillating sound, shifting from high to low, as comfortable and often as continuous as the unobtrusive pulse of an old clock. It was the first time, Telzey realized now, that she'd heard the sound since their arrival on Jontarou. It went on for a dozen seconds or so, then stopped. Tick-Tock continued to look at her.

It appeared to have been an expression of definite assent . . .

The dreamlike sensation increased, hazing over Telzey's thoughts. If there was nothing to this mind-communication thing, what harm could symbols do? This time, she wouldn't let them alarm her. And if they did mean something . . .

She closed her eyes.

The sunglow outside faded instantly. Telzey caught a fleeting picture of the door in the wall, and knew in the same moment that she'd already passed through it.

She was not in the dark room then, but poised at the edge of a brightness which seemed featureless and without limit, spread out around her with a feeling-tone like "sea" or "sky." But it was an unquiet place. There was a sense of unseen things on all sides watching her and waiting.

Was this another form of the dark room—a trap set up in her mind? Telzey's attention did a quick shift. She was seated in the grass again; the sunlight beyond her closed eyelids seemed to shine in quietly through rose-tinted curtains. Cautiously, she let her awareness return to the bright area; and *it* was still there. She had a moment of excited elation. She was controlling this! And why not, she asked herself. These things were happening in *her* mind, after all!

She would find out what they seemed to mean; but she would be in no rush to . . .

An impression as if, behind her, Tick-Tock had thought, "Now I can help again!"

Then a feeling of being swept swiftly, irresistibly forwards, thrust out and down. The brightness exploded in thundering colors around her. In fright, she made the effort to snap her eyes open, to be back in the garden; but now she couldn't make it work. The colors continued to roar about her, like a confusion of excited, laughing, triumphant voices. Telzey felt caught in the middle of it all, suspended in invisible spider webs. Tick-Tock seemed to be somewhere nearby, looking on. Faithless, treacherous TT!

Telzey's mind made another wrenching effort, and there was a change. She hadn't got back into the garden, but the noisy, swirling colors were gone and she had the feeling of reading a rapidly moving microtape now, though she didn't actually see the tape.

The tape, she realized, was another symbol for what was happening, a symbol easier for her to understand. There were voices, or what might be voices, around her; on the invisible tape she seemed to be reading what they said.

A number of speakers, apparently involved in a fast, hot argument about what to do with her. Impressions flashed past . . .

Why waste time with her? It was clear that kitten-talk was all she was capable of! . . . Not necessarily; that was a normal first step. Give her a little time! . . . But what—exasperatedly—could *such* a small-bite *possibly* know that would be of significant value?

There was a slow, blurred, awkward-seeming interruption. Its content was not comprehensible to Telzey at all, but in some unmistakable manner it was defined as Tick-Tock's thought.

A pause as the circle of speakers stopped to consider whatever TT had thrown into the debate.

Then another impression . . . one that sent a shock of fear through Telzey as it rose heavily into her awareness. Its sheer intensity momentarily displaced the tape-reading symbolism. A savage voice seemed to rumble:

"Toss the tender small-bite to *me*" —malevolent crimson eyes fixed on Telzey from somewhere not far away —"and let's be done here!"

Startled, stammering protest from Tick-Tock, accompanied by gusts of laughter from the circle. Great sense of humor these characters had, Telzey thought bitterly. That crimson-eyed thing wasn't joking at all!

More laughter as the circle caught her thought. Then a kind of majority opinion found sudden expression:

"Small-bite *is* learning! No harm to wait—We'll find out quickly—Let's . . ."

The tape ended; the voices faded; the colors went blank. In whatever jumbled-up form she'd been getting the impressions at that point—Telzey couldn't have begun to describe it—the whole thing suddenly stopped.

She found herself sitting in the grass, shaky, scared, eyes open. Tick-Tock stood beside the terrace, looking at her. An air of hazy unreality still hung about the garden.

She might have flipped! She didn't think so; but it certainly seemed possible! Otherwise . . . Telzey made an attempt to sort over what had happened.

Something *had* been in the garden! Something had been inside her mind. Something that was at home on Jontarou.

There'd been a feeling of perhaps fifty or sixty of these . . . well, beings. Alarming beings! Reckless, wild, hard . . . and that red-eyed nightmare! Telzey shuddered.

They'd contacted Tick-Tock first, during the night. TT understood them better than she could. Why? Telzey found no immediate answer.

Then Tick-Tock had tricked her into letting her mind be invaded by these beings. There must have been a very definite reason for that.

She looked over at Tick-Tock. TT looked back. Nothing stirred in Telzey's thoughts. Between *them* there was still no direct communication.

Then how had the beings been able to get through to her?

Telzey wrinkled her nose. Assuming this was real, it seemed clear that the game of symbols she'd made up between herself and TT had provided the opening. Her whole experience just now had been in the form of symbols, translating whatever occurred into something she could consciously grasp.

"Kitten-talk" was how the beings referred to the use of symbols; they seemed contemptuous of it. Never mind, Telzey told herself; they'd agreed she was learning.

The air over the grass appeared to flicker. Again she had the impression of reading words off a quickly moving, not quite visible tape.

"You're being taught and you're learning." was what she seemed to read. "The question was whether you were capable of partial understanding as your friend insisted. Since you were, everything else that can be done will be accomplished very quickly."

A pause, then with a touch of approval, "You're a well-formed mind, small-bite! Odd and with incomprehensibilities, but well-formed—"

One of the beings, and a fairly friendly one—at least not unfriendly. Telzey framed a tentative mental question. "Who are you?"

"You'll know very soon." The flickering ended; she realized she and the question had been dismissed for the moment. She looked over at Tick-Tock again.

"Can't *you* talk to me now, TT?" she asked silently.

A feeling of hesitation.

"Kitten-talk!" was the impression that formed itself with difficulty then. It was awkward, searching; but it came unquestionably from TT. "Still learning, too, Telzey!" TT seemed half anxious, half angry. "We —"

A sharp buzz-note reached Telzey's ears, wiping out the groping thought-impression. She jumped a little, glanced down. Her wrist-talker was signaling. For a moment, she seemed poised uncertainly between a world where unseen, dangerous-sounding beings referred to one as small-bite and where TT was learning to talk, and the familiar other world where wrist-communicators buzzed periodically in a matter-of-fact manner. Settling back into the more familiar world, she switched on the talker.

"Yes?" she said. Her voice sounded husky.

"Telzey, dear," Halet murmured honey-sweet from the talker, "would you come back into the house, please? The living room—We have a visitor who very much wants to meet you."

Telzey hesitated, eyes narrowing. Halet's visitor wanted to meet *her?*

"Why?" she asked.

"He has something *very* interesting to tell you, dear." The edge of triumphant malice showed for an instant, vanished in murmuring sweetness again. "So please hurry!"

"All right." Telzey stood up. "I'm coming."

"Fine, dear!" The talker went dead.

Telzey switched off the instrument, noticed that Tick-Tock had chosen to disappear meanwhile.

Flipped? She wondered, starting up towards the house. It was clear Aunt Halet had prepared some unpleasant surprise to spring on her, which was hardly more than normal behavior for Halet. The other business? She couldn't be certain of anything there. Leaving out TT's strange actions—which might have a number of causes, after all—that entire string of events could have been created inside her head. There was no contradictory evidence so far.

But it could do no harm to take what *seemed* to have happened at face value. Some pretty grim event might be shaping up, in a very real way, around here . . .

"You reason logically!" The impression now was of a voice speaking to her, a voice that made no audible sound. It was the same being who'd addressed her a minute or two ago.

The two worlds between which Telzey had felt suspended seemed to glide slowly together and become one.

"I go to Law school," she explained to the being, almost absently.

Amused agreement. "So we heard."

"What do you want of me?" Telzey inquired.

"You'll know soon enough."

"Why not tell me now?" Telzey urged. It seemed about to dismiss her again.

Quick impatience flared at her. "Kitten-pictures! Kitten-thoughts! Kitten-talk! Too slow, too slow! YOUR pictures—too much YOU! Wait till the . . ."

Circuits close . . . channels open . . . Obstructions clear? What *had* it said? There'd been only the blurred image of a finicky, delicate, but perfectly normal technical operation of some kind.

". . . Minutes now!" the voice concluded. A pause, then another thought tossed carelessly at her. "This is more important to you, small-bite, than to *us!*" The voice impression ended as sharply as if a communicator had snapped off.

Not *too* friendly! Telzey walked on towards the house, a new fear growing inside her . . . a fear like the awareness of a storm gathered nearby, still quiet—deadly quiet, but ready to break.

"Kitten-pictures!" a voice seemed to jeer distantly, a whispering in the park trees beyond the garden wall.

Halet's cheeks were lightly pinked; her blue eyes sparkled. She looked downright stunning, which meant to anyone who knew her that the worst side of Halet's nature was champing at the bit again. On uninformed males it had a dazzling effect, however; and Telzey wasn't surprised to find their visitor wearing a tranced expression when she came into the living room. He was a tall, outdoorsy man with a tanned, bony face, a neatly trained black mustache, and a scar down one cheek which would have seemed dashing if it hadn't been for the stupefied look. Beside his chair stood a large, clumsy instrument which might have been some kind of telecamera.

Halet performed introductions. Their visitor was Dr. Droon, a zoologist. He had been tuned in on Telzey's newscast interview on the liner the night before, and wondered whether Telzey would care to discuss Tick-Tock with him.

"Frankly, no," Telzey said.

Dr. Droon came awake and gave Telzey a surprised look. Halet smiled easily.

"My niece doesn't intend to be discourteous, doctor," she explained.

"Of course not," the zoologist agreed doubtfully.

"It's just," Halet went on, "that Telzey is a little, oh, sensitive where Tick-Tock is concerned. In her own way, she's attached to the animal. Aren't you, dear?"

"Yes," Telzey said blandly.

"Well, we hope this isn't going to disturb you too much, dear." Halet glanced significantly at Dr. Droon. "Dr. Droon, you must understand, is simply doing . . . well, there is something very important he must tell you now."

Telzey transferred her gaze back to the zoologist. Dr. Droon cleared his throat. "I, ah, understand, Miss Amberdon, that you're unaware of what kind of creature your, ah, Tick-Tock is?"

Telzey started to speak, then checked herself, frowning. She had been about to state that she knew exactly what kind of creature TT was . . . but she didn't, of course!

Or did she? She . . .

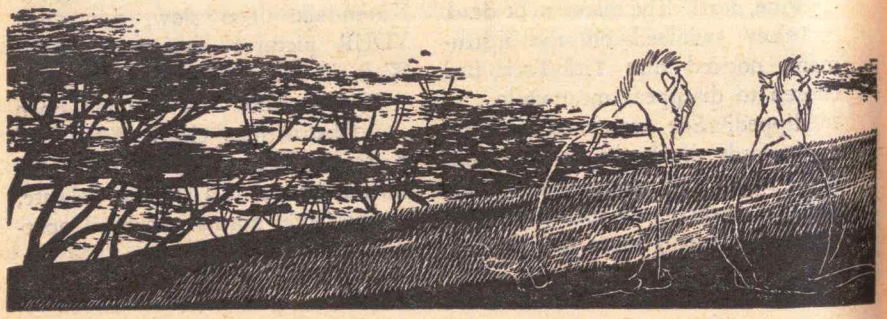
She scowled absent-mindedly at Dr. Droon, biting her lip.

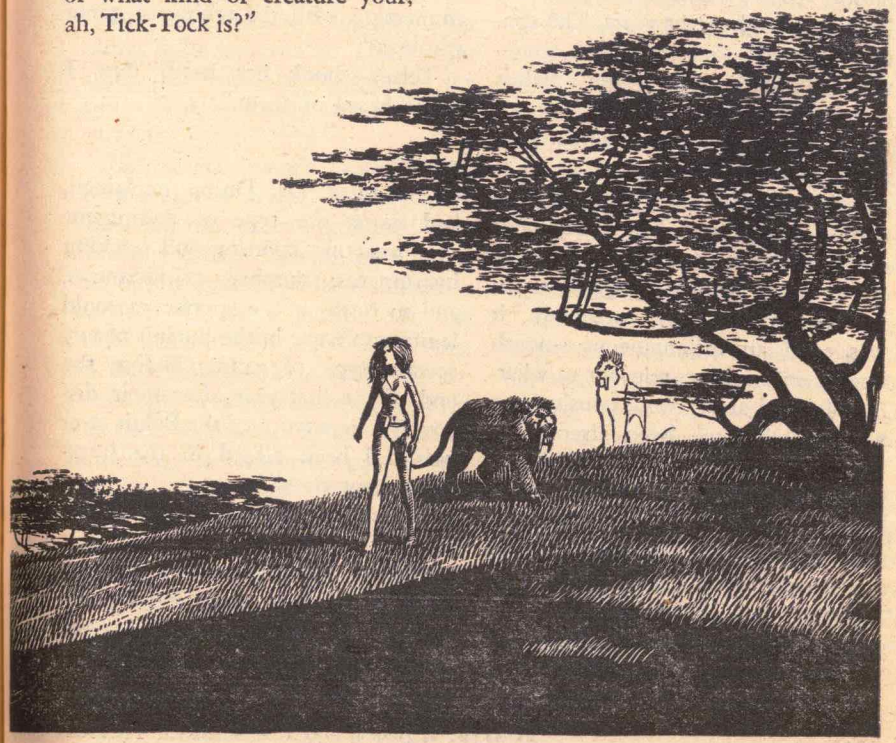
"Telzey!" Halet prompted gently.

"Huh?" Telzey said. "Oh . . . please go on, doctor!"

Dr. Droon steepled his fingers.

"Well," he said, "she . . . your pet . . .





is, ah, a young crest cat. Nearly full grown now, apparently, and—"

"Why, yes!" Telzey cried.

The zoologist looked at her. "You knew that—"

"Well, not really," Telzey admitted. "Or sort of." She laughed, her cheeks flushed. "This is the most . . . go ahead please! Sorry I interrupted." She stared at the wall beyond Dr. Droon with a rapt expression.

The zoologist and Halet exchanged glances. Then Dr. Droon resumed cautiously. The crest cats, he said, were a species native to Jontarou. Their existence had been known for only eight years. The species appeared to have had a somewhat limited range—the Baluit mountains on the opposite side of the huge continent on which Port Nichay had been built . .

Telzey barely heard him. A very curious thing was happening. For every sentence Dr. Droon uttered, a dozen other sentences appeared in her awareness. More accurately, it was as if an instantaneous smooth flow of information relevant to whatever he said arose continuously from what might have been almost her own memory, but wasn't. Within a minute or two, she knew more about the crest cats of Jontarou than Dr. Droon could have told her in hours . . . much more than he'd ever known.

She realized suddenly that he'd stopped talking, that he had asked her a question. "Miss Amberdon?" he repeated now, with a note of uncertainty.

"Yar-rrr-REE!" Telzey told him softly. "I'll drink your blood!"

"Eh?"

Telzey blinked, focused on Dr. Droon, wrenching her mind away from a splendid view of the misty-blue peaks of the Baluit range.

"Sorry," she said briskly. "Just a joke!" She smiled. "Now what were you saying?"

The zoologist looked at her in a rather odd manner for a moment. "I was inquiring," he said then, "whether you were familiar with the sporting rules established by the various hunting associations of the Hub in connection with the taking of game trophies?"

Telzey shook her head. "No, I never heard of them."

The rules, Dr. Droon explained, laid down the type of equipment . . . weapons, spotting and tracking instruments, number of assistants, and so forth . . . a sportsman could legitimately use in the pursuit of any specific type of game. "Before the end of the first year after their discovery," he went on, "the Baluit crest cats had been placed in the ultra-equipment class."

"What's ultra-equipment?" Telzey asked.

"Well," Dr. Droon said thoughtfully, "it doesn't quite involve the use of full battle armor . . . not quite! And, of course, even with that classification the sporting principle of mutual accessibility must be observed."

"Mutual . . . oh, I see!" Telzey paused as another wave of silent information rose into her awareness; went on, "So the game has to be able to get at the sportsman too, eh?"

"That's correct. Except in the pursuit of various classes of flying animals, a shikari would not, for example, be permitted the use of an aircar other than as a means of simple transportation. Under these conditions, it was soon established that crest cats were being obtained by sportsmen who went after them at a rather consistent one-to-one ratio."

Telzey's eyes widened. She'd gathered something similar from her other information source but hadn't quite believed it. "One hunter killed for each cat bagged?" she said. "That's pretty rough sport, isn't it?

"Extremely rough sport!" Dr. Droon agreed dryly. "In fact, when the statistics were published, the sporting interest in winning a Baluit cat trophy appears to have suffered a sudden and sharp decline. On the other hand, a more scientific interest in these remarkable animals was coincidingly created, and many permits for their acquisition by the agents of museums, universities, public and private collections were issued. Sporting rules, of course, do not apply to that activity."

Telzey nodded absently. "I see! *They* used aircars, didn't they? A sort of heavy knockout gun—"

"Aircars, long-range detectors and stunguns are standard equipment in such work," Dr. Droon acknowledged. Gas and poison are employed, of course, as circumstances dictate. The collectors were relatively successful for a while.

"And then a curious thing happened. Less than two years after their existence became known, the crest cats of the Baluit range were extinct! The inroads made on their numbers by man cannot begin to account for this, so it must be assumed that a sudden plague wiped them out. At any rate, not another living member of the species has been seen on Jontarou until you landed here with your pet last night."

Telzey sat silent for some seconds. Not because of what he had said, but because the other knowledge was still flowing into her mind. On one very important point *that* was at variance with what the zoologist had stated; and from there a coldly logical pattern was building up. Telzey didn't grasp the pattern in complete detail yet, but what she saw of it stirred her with a half incredulous dread.

She asked, shaping the words carefully but with only a small part of her attention on what she was really saying, "Just what does all that have to do with Tick-Tock, Dr. Droon?"

Dr. Droon glanced at Halet, and returned his gaze to Telzey. Looking very uncomfortable but quite determined, he told her, "Miss Amberdon, there is a Federation law which states that when a species is threatened with extinction, any available

survivors must be transferred to the Life Banks of the University League, to insure their indefinite preservation. Under the circumstances, this law applies to, ah, Tick-Tock!"

So that had been Halet's trick. She'd found out about the crest cats, might have put in as much as a few months arranging to make the discovery of TT's origin on Jontarou seem a regrettable mischance—something no one could have foreseen or prevented. In the Life Banks, from what Telzey had heard of them, TT would cease to exist as an individual awareness while scientists tinkered around with the possibilities of reconstructing her species.

Telzey studied her aunt's carefully sympathizing face for an instant, asked Dr. Droon, "What about the other crest cats you said were collected before they became extinct here? Wouldn't they be enough for what the Life Banks need?"

He shook his head. "Two immature male specimens are known to exist, and they are at present in the Life Banks. The others that were taken alive at the time have been destroyed . . . often under nearly disastrous circumstances. They are enormously cunning, enormously savage creatures, Miss Amberdon! The additional fact that they can conceal themselves to the point of being virtually indetectable except by the use of instruments makes them one of the most dangerous animals known. Since the young female which you raised as a pet has remained docile . . . so far . . . you may not really be able to appreciate that."

"Perhaps I can," Telzey said. She nodded at the heavy-looking instrument standing beside his chair. "And that's—?"

"It's a life detector combined with a stungun, Miss Amberdon. I have no intention of harming your pet, but we can't take chances with an animal of that type. The gun's charge will knock it unconscious for several minutes—just long enough to let me secure it with paralysis belts."

"You're a collector for the Life Banks, Dr. Droon?"

"That's correct."

"Dr. Droon," Halet remarked, "has obtained a permit from the Planetary Moderator, authorizing him to claim Tick-Tock for the University League and remove her from the planet, dear. So you see there is simply nothing we can do about the matter! Your mother wouldn't like us to attempt to obstruct the law, would she?" Halet paused. "The permit should have your signature, Telzey, but I can sign in your stead if necessary."

That was Halet's way of saying it would do no good to appeal to Jontarou's Planetary Moderator. She'd taken the precaution of getting his assent to the matter first.

"So now if you'll just call Tick-Tock, dear . . ." Halet went on.

Telzey barely heard the last words. She felt herself stiffening slowly, while the living room almost faded from her sight. Perhaps, in that instant, some additional new circuit had closed in her mind, or some additional new channel had opened, for TT's purpose in tricking her into contact with the reckless, mocking beings outside was suddenly and numbingly clear.

And what it meant immediately was that she'd have to get out of the house without being spotted at it, and go some place where she could be undisturbed for half an hour.

She realized that Halet and the zoologist were both staring at her.

Are you ill, dear?"

"No." Telzey stood up. It would be worse than useless to try to tell these two anything! Her face must be pretty white at the moment—she could feel it—but they assumed, of course, that the shock of losing TT had just now sunk in on her.

"I'll have to check on that law you mentioned before I sign anything," she told Dr. Droon.

"Why, yes . . ." He started to get out of his chair. "I'm sure that can be arranged, Miss Amberdon!"

"Don't bother to call the Moderator's office," Telzey said. "I brought my law library along. I'll look it up myself." She turned to leave the room.

"My niece," Halet explained to Dr. Droon who was beginning to look puzzled, "attends law school. She's always so absorbed in her studies . . . Telzey?"

"Yes, Halet?" Telzey paused at the door.

"I'm very glad you've decided to be sensible about this, dear. But don't take too long, will you? We don't want to waste Dr. Droon's time."

"It shouldn't take more than five or ten minutes," Telzey told her agreeably. She closed the door behind her, and went directly to her bedroom on the second floor. One of her two valises was still unpacked. She locked the door behind her, opened the unpacked valise, took out a pocket edition law library and sat down at the table with it.

She clicked on the library's viewscreen, tapped the clearing and index buttons. Behind the screen, one of the multiple rows of pinhead tapes shifted slightly as the index was flicked into reading position. Half a minute later, she was glancing over the legal section on which Dr. Droon had based his claim. The library confirmed what he had said.

Very neat of Halet, Telzey thought, very nasty . . and pretty idiotic! Even a second-year law student could think immediately of two or three ways in which a case like that could have been dragged out in the Federation's courts for a couple of decades before the question of handing Tick-Tock over to the Life Banks became too acute.

Well, Halet simply wasn't really intelligent. And the plot to shanghai TT was hardly even a side issue now.

Telzey snapped the tiny library shut, fastened it to the belt of her sunsuit and went over to the open window. A two-foot ledge passed beneath the window, leading to the

roof of a patio on the right. Fifty yards beyond the patio, the garden ended in a natural-stone wall. Behind it lay one of the big wooded park areas which formed most of the ground level of Port Nichay.

Tick-Tock wasn't in sight. A sound of voices came from ground-floor windows on the left. Halet had brought her maid and chauffeur along; and a chef had showed up in time to make breakfast this morning, as part of the city's guest house service. Telzey took the empty valise to the window, set it on end against the left side of the frame, and let the window slide down until its lower edge rested on the valise. She went back to the house guard-screen panel beside the door, put her finger against the lock button, and pushed.

The sound of voices from the lower floor was cut off as outer doors and windows slid silently shut all about the house. Telzey glanced back at the window. The valise had creaked a little as the guard field drove the frame down on it, but it was supporting the thrust. She returned to the window, wriggled feet foremost through the opening, twisted around and got a footing on the ledge.

A minute later, she was scrambling quietly down a vine-covered patio trellis to the ground. Even after they discovered she was gone, the guard screen would keep everybody in the house for some little while. They'd either have to disengage the screen's main mechanisms and start poking around in them, or force open the door to her bedroom and get the lock unset. Either approach would involve confusion, upset tempers, and generally delay any organized pursuit.

Telzey edged around the patio and started towards the wall, keeping close to the side of the house so she couldn't be seen from the windows. The shrubbery made minor rustling noises as she threaded her way through it . . . and then there was a different stirring which might have been no more than a slow, steady current of air moving among the bushes behind her. She shivered involuntarily but didn't look back.

She came to the wall, stood still, measuring its height, jumped and got an arm across it, swung up a knee and squirmed up and over. She came down on her feet with a small thump in the grass on the other side, glanced back once at the guest house, crossed a path and went on among the park trees.

Within a few hundred yards, it became apparent that she had an escort. She didn't look around for them, but spread out to right and left like a skirmish line, keeping abreast with her, occasional shadows slid silently through patches of open, sunlit ground, disappeared again under the trees. Otherwise, there was hardly anyone in sight. Port Nichay's human residents appeared to make almost no personal use of the vast parkland spread out beneath their tower apartments; and its traffic moved over the airways, visible from the ground only as rainbow-hued ribbons which bisected the sky between the upper tower levels. An occasional private aircar went by overhead.

Wisps of thought which were not her own thoughts flicked through Telzey's mind from moment to moment as the silent line of shadows moved deeper into the park with her. She realized she was being sized up, judged, evaluated again. No more information was coming through; they had given her as much information as she needed. In the main perhaps, they were simply curious now. This was the first human mind they'd been able to make heads or tails of, and that hadn't seemed deaf and silent to their form of communication. They were taking time out to study it. They'd been assured she would have something of genuine importance to tell them; and there was some derision about that. But they were willing to wait a little, and find out. They were curious and they liked games. At the moment, Telzey and what she might try to do to change their plans was the game on which their attention was fixed.

Twelve minutes passed before the talker on Telzey's wrist began to buzz. It continued to signal off and on for another few minutes, then stopped. Back in the guest house they couldn't be sure yet whether she wasn't simply locked inside her room and refusing to answer them. But Telzey quickened her pace.

The park's trees gradually became more massive, reached higher above her, stood spaced more widely apart. She passed through the morning shadow of the residential tower nearest the guest house, and emerged from it presently on the shore of a small lake. On the other side of the lake, a number of dappled grazing animals like long-necked, tall horses lifted their heads to watch her. For some seconds they seemed only mildly interested, but then a breeze moved across the lake, crinkling the surface of the water; and as it touched the opposite shore, abrupt panic exploded among the grazers. They wheeled, went flashing away in effortless twenty-foot strides, and were gone among the trees.

Telzey felt a crawling along her spine. It was the first objective indication she'd had of the nature of the company she had brought to the lake, and while it hardly came as a surprise, for a moment her urge was to follow the example of the grazers.

"Tick-Tock?" she whispered, suddenly a little short of breath.

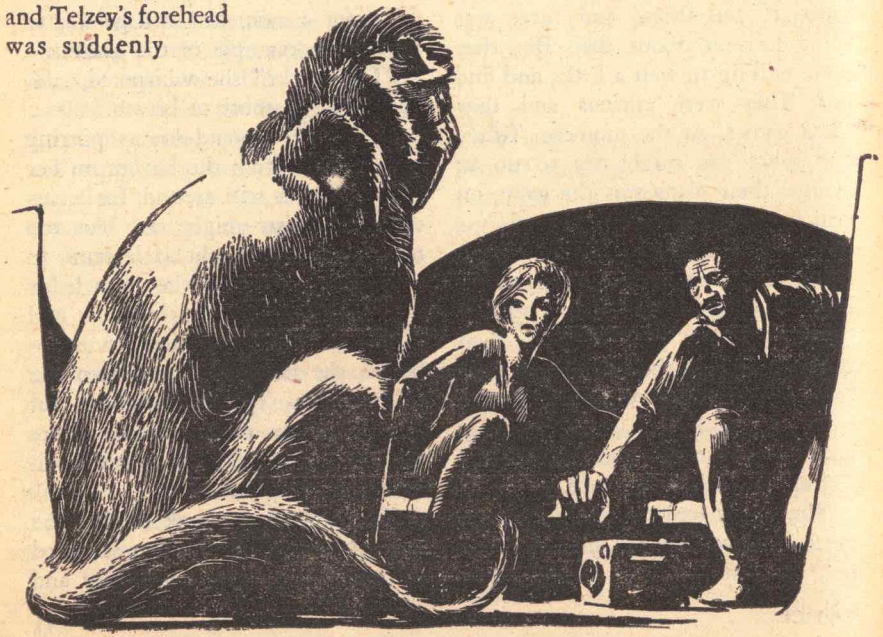
A single up-and-down purring note replied from the bushes on her right. TT was still around, for whatever good that might do. Not too much, Telzey thought, if it came to serious trouble. But the knowledge was somewhat reassuring . . . and this, meanwhile, appeared to be as far as she needed to get from the guest house. They'd be looking for her by aircar presently, but there was nothing to tell them in which direction to turn first.

She climbed the bank of the lake to a point where she was screened both by thick, green shrubbery and

the top of a single immense tree from the sky, sat down on some dry, mossy growth, took the law library from her belt, opened it and placed it in her lap. Vague stirrings indicated that her escort was also settling down in an irregular circle about her; and apprehension shivered on Telzey's skin again. It wasn't that their attitude was hostile; they were simply overawing. And no one could predict what they might do next. Without looking up, she asked a question in her mind.

"Ready?"

Sense of multiple acknowledgment, variously tinged—sardonic; interestedly amused; attentive; doubtful. Impatience quivered through it too, only tentatively held in restraint, and Telzey's forehead was suddenly



wet. Some of them seemed on the verge of expressing disapproval with what was being done here—

Her fingers quickly flicked in the index tape, and the stir of feeling about her subsided, their attention captured again for the moment. Her thoughts became to some degree detached, ready to dissect another problem in the familiar ways and present the answers to it. Not a very involved problem essentially, but this time it wasn't a school exercise. Her company waited, withdrawn, silent, aloof once more, while the index blurred, checked, blurred and checked. Within a minute and a half, she had noted a dozen reference symbols. She tapped in another of the pinhead tapes, glanced over a few paragraphs, licked salty sweat from her lip, and said in her thoughts, emphasizing the meaning of each detail of the sentence so that there would be no misunderstanding, "This is the Federation law that applies to the situation which existed originally on this planet. . . ."

There were no interruptions, no commenting thoughts, no intrusions of any kind, as she went step by step through the section, turned to another one, and another. In perhaps twelve minutes she came to the end of the last one, and stopped. Instantly, argument exploded about her.

Telzey was not involved in the argument; in fact, she could grasp only scraps of it. Either they were excluding her deliberately, or the exchange was too swift, practiced and varied to allow her to keep up. But their vehemence was not encouraging. And was it reasonable to assume that the Federation's laws would have any meaning for minds like these? Telzey snapped the library shut with fingers that had begun to tremble, and placed it on the ground. Then she stiffened. In the sensations washing about her, a special excitement rose suddenly, a surge of almost gleeful wildness that choked away her breath. Awareness followed of a pair of malignant crimson eyes fastened on her, moving steadily closer. A kind of nightmare paralysis seized Telzey—they'd turned her over to that red-eyed horror! She sat still, feeling mouse-sized.

Something came out with a crash from a thicket behind her. Her muscles went tight. But it was TT who rubbed a hard head against her shoulder, took another three stiff-legged steps forward and stopped between Telzey and the bushes on their right, back rigid, neck fur erect, tail twisting.

Expectant silence closed in about them. The circle was waiting. In the greenery on the right something made a slow, heavy stir.

TT's lips peeled back from her teeth. Her head swung towards the motion, ears flattening, transformed to a split, snarling demon-mask. A long shriek ripped from her lungs, raw with fury, blood lust and challenge.

The sound died away. For some seconds the tension about them held; then came a sense of gradual relaxation mingled with a partly amused

approval. Telzey was shaking violently. It had been, she was telling herself, a deliberate test . . . not of herself, of course, but of TT. And Tick-Tock had passed with honors. That *her* nerves had been half ruined in the process would seem a matter of no consequence to this rugged crew . . .

She realized next that someone here was addressing her personally.

It took a few moments to steady her jittering thoughts enough to gain a more definite impression than that. This speaker, she discovered then, was a member of the circle of whom she hadn't been aware before. The thought-impressions came hard and cold as iron—a personage who was very evidently in the habit of making major decisions and seeing them carried out. The circle, its moment of sport over, was listening with more than a suggestion of deference. Tick-Tock, far from conciliated, green eyes still blazing, nevertheless was settling down to listen, too.

Telzey began to understand.

Her suggestions, Iron Thoughts informed her, might appear without value to a number of foolish minds here, but *he* intended to see they were given a fair trial. Did he perhaps hear, he inquired next of the circle, throwing in a casual but horridly vivid impression of snapping spines and slashed shaggy throats spouting blood, any objection to that?

Dead stillness all around. There was, definitely, no objection! Tick-Tock began to grin like a pleased kitten.

That point having been settled in an orderly manner now, Iron Thoughts went on coldly to Telzey, what specifically did she propose they should do?

Halet's long, pearl-gray sportscar showed up above the park trees twenty minutes later. Telzey, face turned down towards the open law library in her lap, watched the car from the corner of her eyes. She was in plain view, sitting beside the lake, apparently absorbed in legal research. Tick-Tock, camouflaged among the bushes thirty feet higher up the bank, had spotted the car an instant before she did and announced the fact with a three-second break in her purring. Neither of them made any other move.

The car was approaching the lake but still a good distance off. Its canopy was down, and Telzey could just make out the heads of three people inside. Delquos, Halet's chauffeur, would be flying the vehicle, while Halet and Dr. Droon looked around for her from the sides. Three hundred yards away, the aircar began a turn to the right. Delquos didn't like his employer much; at a guess, he had just spotted Telzey and was trying to warn her off.

Telzey closed the library and put it down, picked up a handful of pebbles and began flicking them idly, one at a time, into the water. The aircar vanished to her left.

Three minutes later, she watched its shadow glide across the surface of the lake towards her. Her heart began to thump almost audibly, but she didn't look up. Tick-Tock's purring continued, on its regular, unhurried note. The car came to a stop almost directly overhead. After a couple of seconds, there was a clicking noise. The purring ended abruptly.

Telzey climbed to her feet as Delquos brought the car down to the bank of the lake. The chauffeur grinned ruefully at her. A side door had been opened, and Halet and Dr. Droon stood behind it. Halet watched Telzey with a small smile while the naturalist put the heavy life-detector-and-stungun device carefully down on the floorboards.

"If you're looking for Tick-Tock," Telzey said, "she isn't here."

Halet just shook her head sorrowfully.

"There's no use lying to us, dear! Dr. Droon just stunned her."

They found TT collapsed on her side among the shrubs, wearing her natural color. Her eyes were shut; her chest rose and fell in a slow breathing motion. Dr. Droon, looking rather apologetic, pointed out to Telzey that her pet was in no pain, that the stungun had simply put her comfortably to sleep. He also explained the use of the two sets of webbed paralysis belts which he fastened about TT's legs. The effect of the stun charge would wear off in a few minutes, and contact with the inner surfaces of the energized belts would then keep TT anesthetized and unable to move until the belts were removed. She would, he repeated, be suffering no pain throughout the process.

Telzey didn't comment. She watched Delquos raise TT's limp body above the level of the bushes with a gravity hoist belonging to Dr. Droon, and maneuver her back to the car, the others following. Delquos climbed into the car first, opened the big trunk compartment in the rear. TT was slid inside and the trunk compartment locked.

"Where are you taking her?" Telzey asked sullenly as Delquos lifted the car into the air.

"To the spaceport, dear," Halet said. "Dr. Droon and I both felt it would be better to spare your feelings by not prolonging the matter unnecessarily."

Telzey wrinkled her nose disdainfully, and walked up the aircar to stand behind Delquos' seat. She leaned against the back of the seat for an instant. Her legs felt shaky.

The chauffeur gave her a sober wink from the side.

"That's a dirty trick she's played on you, Miss Telzey!" he murmured. "I tried to warn you."

"I know." Telzey took a deep breath. "Look, Delquos, in just a minute something's going to happen! It'll look dangerous, but it won't be. Don't let it get you nervous . . . right?"

"Huh?" Delquos appeared startled, but kept his voice low. "Just *what's* going to happen?"

"No time to tell you. Remember what I said."

Telzey moved back a few steps from the driver's seat, turned around, said unsteadily, "Halet . . . Dr. Droon—"

Halet had been speaking quietly to Dr. Droon; they both looked up.

"If you don't move, and don't do anything stupid," Telzey said rapidly, "you won't get hurt. If you do . . . well, I don't know! You see, there's another crest cat in the car . . ." In her mind she added, "Now!"

It was impossible to tell in just what section of the car Iron Thoughts had been lurking. The carpeting near the rear passenger seats seemed to blur for an instant. Then he was there, camouflage dropped, sitting on the floorboards five feet from the naturalist and Halet.

Halet's mouth opened wide; she tried to scream but fainted instead. Dr. Droon's right hand started out quickly towards the big stungun device beside his seat. Then he checked himself and sat still, ashen-faced.

Telzey didn't blame him for changing his mind. She felt he must be a remarkably brave man to have moved at all. Iron Thoughts, twice as broad across the back as Tick-Tock, twice as massively muscled, looked like a devil-beast even to her. His dark-green marbled hide was criss-crossed with old scar patterns; half his tossing crimson crest appeared to have been ripped away. He reached out now in a fluid, silent motion, hooked a paw under the stungun and flicked upwards. The big instrument rose in an incredibly swift, steep arc eighty feet into the air, various parts flying away from it, before it started curving down towards the treetops below the car. Iron Thoughts lazily swung his head around and looked at Telzey with yellow fire-eyes.

"Miss Telzey! Miss Telzey!" Delquos was muttering behind her. "You're *sure* it won't . . ."

Telzey swallowed. At the moment, she felt barely mouse-sized again. "Just relax!" she told Delquos in a shaky voice. "He's really quite t-t-t-tame."

Iron Thoughts produced a harsh but not unamiable chuckle in her mind.

The pearl-gray sportscar, covered now by its streamlining canopy, drifted down presently to a parking platform outside the suite of offices of Jontarou's Planetary Moderator, on the fourteenth floor of the Shikaris' Club Tower. An attendant waved it on into a vacant slot.

Inside the car, Delquos set the brakes, switched off the engine, asked, "Now what?"

"I think," Telzey said reflectively, "we'd better lock you in the trunk compartment with my aunt and Dr. Droon while I talk to the Moderator."

The chauffeur shrugged. He'd regained most of his aplomb during the unhurried trip across the parklands. Iron Thoughts had done nothing but sit in the center of the car, eyes half shut, looking like instant death enjoying a dignified nap and occasionally emitting a ripsawing noise which might have been either his style of purring or a snore. And Tick-Tock, when Delquos peeled the paralysis belts off her legs at Telzey's direction, had greeted him with her usual reserved affability. What the chauffeur was suffering from at the moment was intense curiosity, which Telzey had done nothing to relieve.

"Just as you say, Miss Telzey," he agreed. "I hate to miss whatever you're going to be doing here, but if you *don't* lock me up now, Miss Halet will figure I was helping you and fire me as soon as you let her out."

Telzey nodded, then cocked her head in the direction of the rear compartment. Faint sounds coming through the door indicated that Halet had regained consciousness and was having hysterics.

"You might tell her," Telzey suggested, "that there'll be a grown-up crest cat sitting outside the compartment door." This wasn't true, but neither Delquos nor Halet could know it. "If there's too much racket before I get back, it's likely to irritate him . . ."

A minute later, she set both car doors on lock and went outside, wishing she were less informally clothed. Sunbriefs and sandals tended to make her look juvenile.

The parking attendant appeared startled when she approached him with Tick-Tock striding alongside.

"They'll never let you into the offices with that thing, miss," he informed her. "Why, it doesn't even have a collar!"

"Don't worry about it," Telzey told him aloofly.

She dropped a two-credit piece she'd taken from Halet's purse into his hand, and continued on towards the building entrance. The attendant squinted after her, trying unsuccessfully to dispel an odd impression that the big catlike animal with the girl was throwing a double shadow.

The Moderator's chief receptionist also had some doubts about TT, and possibly about the sunbriefs, though she seemed impressed when Telzey's identification tag informed her she was speaking to the daughter of Federation Councilwoman Jessamine Amberdon.

"You feel you can discuss this . . . emergency . . . only with the Moderator himself, Miss Amberdon?" she repeated.

"Exactly," Telzey said firmly. A buzzer sounded as she spoke. The receptionist excused herself and picked up an earphone. She listened a moment, said blandly, "Yes . . . Of course . . . Yes, I understand," replaced the earphone and stood up, smiling at Telzey.

"Would you come with me, Miss Amberdon?" she said. "I think the Moderator will see you immediately . . ."

Telzey followed her, chewing thoughtfully at her lip. This was easier than she'd expected—in fact, too easy! Halet's work? Probably. A few comments to the effect of "A highly imaginative child . . . overexcitable," while Halet was arranging to

have the Moderator's office authorize Tick-Tock's transfer to the Life Banks, along with the implication that Jessamine Amberdon would appreciate a discreet handling of any disturbance Telzey might create as a result.

It was the sort of notion that would appeal to Halet—

They passed through a series of elegantly equipped offices and hallways, Telzey grasping TT's neck-fur in lieu of a leash, their appearance creating a tactfully restrained wave of surprise among secretaries and clerks. And if somebody here and there was troubled by a fleeting, uncanny impression that not one large beast but two seemed to be trailing the Moderator's visitor down the aisles, no mention was made of what could have been only a momentary visual distortion. Finally, a pair of sliding doors opened ahead, and the receptionist ushered Telzey into a large, cool balcony garden on the shaded side of the great building. A tall, gray-haired man stood up from the desk at which he was working, and bowed to Telzey. The receptionist withdrew again.

"My pleasure, Miss Amberdon," Jontarou's Planetary Moderator said, "Be seated, please." He studied Tick-Tock with more than casual interest while Telzey was settling herself into a chair, added, "And what may I and my office do for you?"

Telzey hesitated. She'd observed his type on Orado in her mother's circle of acquaintances—a senior diplomat, a man not easy to impress. It was a safe bet that he'd had her brought out to his balcony office only to keep her occupied while Halet was quietly informed where the Amberdon problem child was and requested to come over and take charge.

What she had to tell him now would have sounded rather wild even if presented by a presumably responsible adult. She could provide proof, but until the Moderator was already nearly sold on her story, that would be a very unsafe thing to do. Old Iron Thoughts was backing her up, but if it didn't look as if her plans were likely to succeed, he would be willing to ride herd on his devil's pack just so long . . .

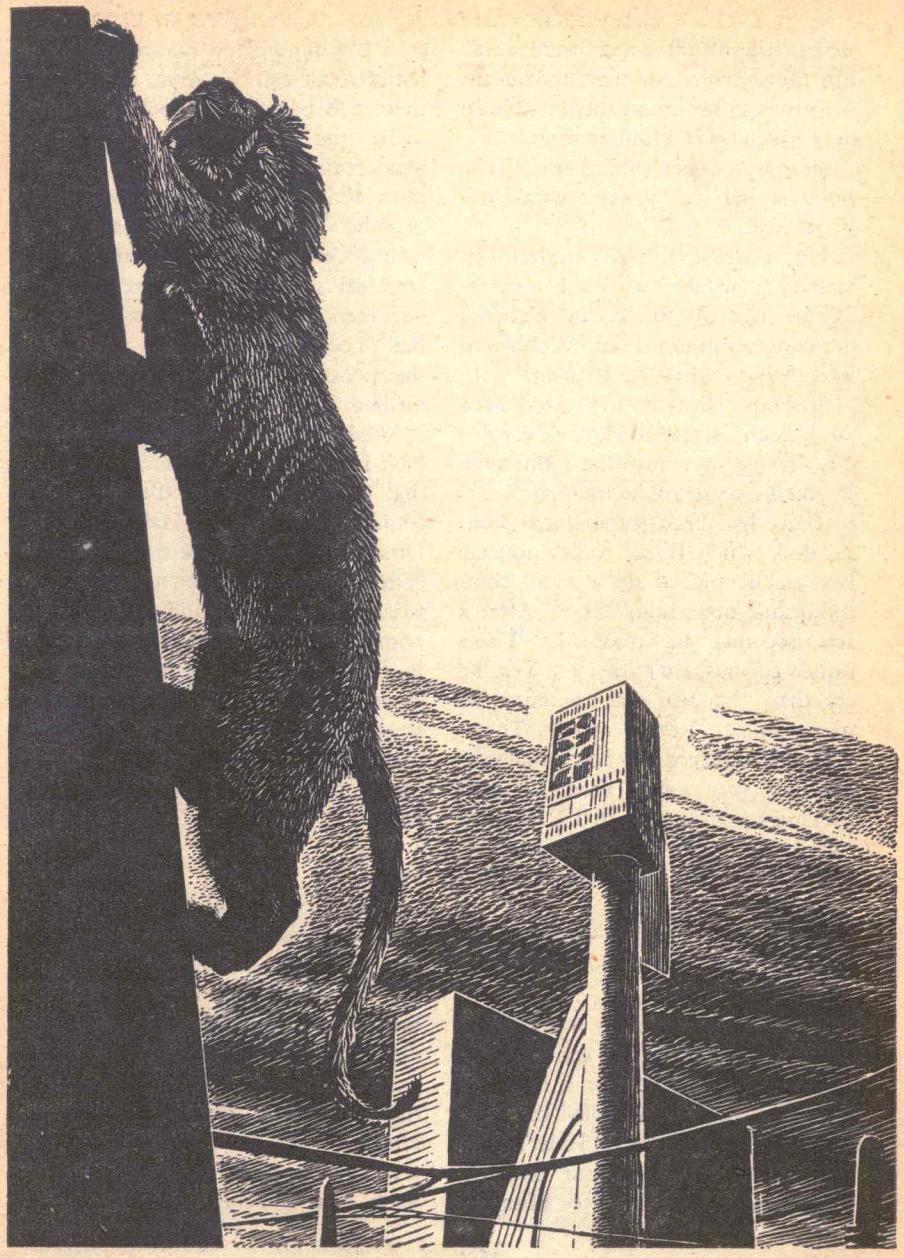
Better start the ball rolling without any preliminaries, Telzey decided. The Moderator's picture of her must be that of a spoiled, neurotic brat in a stew about the threatened loss of a pet animal. He expected her to start arguing with him immediately about Tick-Tock.

She said, "Do you have a personal interest in keeping the Baluit crest cats from becoming extinct?"

Surprise flickered in his eyes for an instant. Then he smiled.

"I admit I do, Miss Amberdon," he said pleasantly. "I should like to see the species re-established. I count myself almost uniquely fortunate in having had the opportunity to bag two of the magnificent brutes before disease wiped them out on the planet."

The last seemed a less than fortu-



nate statement just now. Telzey felt a sharp tingle of alarm, then sensed that in the minds which were drawing the meaning of the Moderator's speech from her mind there had been only a brief stir of interest.

She cleared her throat, said, "The point is that they weren't wiped out by disease."

He considered her quizzically, seemed to wonder what she was trying to lead up to. Telzey gathered her courage, plunged on, "Would you like to hear what did happen?"

"I should be much interested, Miss Amberdon," the Moderator said without change of expression. "But first, if you'll excuse me a moment . . ."

There had been some signal from his desk which Telzey hadn't noticed, because he picked up a small communicator now, said, "Yes?" After a few seconds, he resumed, "That's rather curious, isn't it? . . . Yes, I'd try that . . . No, that shouldn't be necessary . . . Yes, please do. Thank you." He replaced the communicator, his face very sober; then, his eyes flicking for an instant to TT, he drew one of the upper desk drawers open a few inches, and turned back to Telzey.

"Now, Miss Amberdon," he said affably, "you were about to say? About these crest cats . . ."

Telzey swallowed. She hadn't heard the other side of the conversation, but she could guess what it had been about. His office had called the guest house, had been told by Halet's maid that Halet, the chauffeur and Dr. Droon were out looking for Miss Telzey and her pet. The Moderator's office had then checked on the sports-car's communication number and attempted to call it. And, of course, there had been no response.

To the Moderator, considering what Halet would have told him, it must add up to the grim possibility that the young lunatic he was talking to had let her three-quarters-grown crest cat slaughter her aunt and the two men when they caught up with her! The office would be notifying the police now to conduct an immediate search for the missing aircar.

When it would occur to them to look for it on the Moderator's parking terrace was something Telzey couldn't know. But if Halet and Dr. Droon were released before the Moderator accepted her own version of what had occurred, and the two reported the presence of wild crest cats in Port Nichay, there would be almost no possibility of keeping the situation under control. Somebody was bound to make some idiotic move, and the fat would be in the fire . . .

Two things might be in her favor. The Moderator seemed to have the sort of steady nerve one would expect in a man who had bagged two Baluit crest cats. The partly opened desk drawer beside him must have a gun in it; apparently he considered that a sufficient precaution against an attack by TT. He wasn't likely to react in a panicky manner. And the mere fact that he suspected Telzey of homicidal tendencies would make him give the closest attention to what she said. Whether he believed her then was another matter, of course.

Slightly encouraged, Telzey began to talk. It did sound like a thoroughly wild story, but the Moderator listened with an appearance of intent interest. When she had told him as much as she felt he could be expected to swallow for a start, he said musingly, "So they weren't wiped out—they went into hiding! Do I understand you to say they did it to avoid being hunted?"

Telzey chewed her lip frowningly before replying. "There's something about that part I don't quite get," she admitted. "Of course I don't quite get either why you'd want to go hunting . . . twice . . . for something that's just as likely to bag you instead!"

"Well, those are, ah, merely the statistical odds," the Moderator explained. "If one has enough confidence, you see—"

"I don't really. But the crest cats seem to have felt the same way—at first. They were getting around one hunter for every cat that got shot. Humans were the most exciting game they'd ever run into.

"But then that ended, and the humans started knocking them out with stunguns from aircars where they couldn't be got at, and hauling them off while they were helpless. After it had gone on for a while, they decided to keep out of sight.

"But they're still around . . . thousands and thousands of them! Another thing nobody's known about them is that they weren't only in the Baluit mountains. There were crest cats scattered all through the big forests along the other side of the continent."

"Very interesting," the Moderator commented. "Very interesting, indeed!" He glanced towards the communicator, then returned his gaze to Telzey, drumming his fingers lightly on the desk top.

She could tell nothing at all from his expression now, but she guessed he was thinking hard. There was supposed to be no native intelligent life in the legal sense on Jontarou, and she had been careful to say nothing so far to make the Baluit cats look like more than rather exceptionally intelligent animals. The next—rather large—question should be how she'd come by such information.

If the Moderator asked her that, Telzey thought, she could feel she'd made a beginning at getting him to buy the whole story.

"Well," he said abruptly, "if the crest cats are not extinct or threatened with extinction, the Life Banks obviously have no claim on your pet." He smiled confidingly at her. "And that's the reason you're here, isn't it?"

"Well, no," Telzey began, dismayed. "I—"

"Oh, it's quite all right, Miss Amberdon! I'll simply rescind the permit which was issued for the purpose. You need feel no further concern about that." He paused. "Now, just one question . . . do you happen to know where your aunt is at present?"

Telzey had a dead, sinking feeling. So he hadn't believed a word she said. He'd been stalling her along until the aircar could be found.

She took a deep breath. "You'd better listen to the rest of it."

"Why, is there more?" the Moderator asked politely.

"Yes. The important part! The kind of creatures they are, they wouldn't go into hiding indefinitely just because someone was after them."

Was there a flicker of something beyond watchfulness in his expression. "What would they do, Miss Amberdon?" he asked quietly.

"If they couldn't get at the men in the aircars and couldn't communicate with them"—the flicker again!—"they'd start looking for the place the men came from, wouldn't they? It might take them some years to work their way across the continent and locate us here in Port Nichay. But supposing they did it finally and a few thousand of them are sitting around in the parks down there right now? They could come up the side of these towers as easily as they go up the side of a mountain. And supposing they'd decided that the only way to handle the problem was to clean out the human beings in Port Nichay?"

The Moderator stared at her in silence a few seconds. "You're saying," he observed then, "that they're rational beings—above the Critical I. Q. level."

"Well," Telzey said, "legally they're rational. I checked on that. About as rational as we are, I suppose."

"Would you mind telling me now how you happen to know this?"

"They told me," Telzey said.

He was silent again, studying her face. "You mentioned, Miss Amberdon, that they have been unable to communicate with other human beings. This suggests then that you are a xenotelepath . . ."

"I am?" Telzey hadn't heard the term before. "If it means that I can tell what the cats are thinking, and they can tell what I'm thinking, I guess that's the word for it." She considered him, decided she had him almost on the ropes, went on quickly.

"I looked up the laws, and told them they could conclude a treaty with the Federation which would establish them as an Affiliated Species . . . and that would settle everything the way they would want it settled, without trouble. Some of them believed me. They decided to wait until I could talk to you. If it works out, fine! If it doesn't"—she felt her voice falter for an instant—"they're going to cut loose fast!"

The Moderator seemed undisturbed. "What am I supposed to do?"

"I told them you'd contact the Council of the Federation on Orado."

"Contact the Council?" he repeated coolly. "With no more proof for this story than your word Miss Amberdon?"

Telzey felt a quick, angry stirring begin about her, felt her face whiten.

"All right," she said. "I'll give you proof! I'll have to now. But that'll be it. Once they've tipped their hand all the way, you'll have about thirty seconds left to make the right move. I hope you remember that!"

He cleared his throat. "I—"

"NOW!" Telzey said.

Along the walls of the balcony garden, beside the ornamental flower stands, against the edges of the rock pool, the crest cats appeared. Perhaps thirty of them. None quite as physically impressive as Iron Thoughts who stood closest to the Moderator; but none very far from it. Motionless as rocks, frightening as gargoyles, they waited, eyes glowing with hellish excitement.

"This is *their* council, you see," Telzey heard herself saying.

The Moderator's face had also paled. But he was, after all, an old shikari and a senior diplomat. He took an unhurried look around the circle, said quietly, "Accept my profound apologies for doubting you, Miss Amberdon!" and reached for the desk communicator.

Iron Thoughts swung his demon head in Telzey's direction. For an instant, she picked up the mental impression of a fierce yellow eye closing in an approving wink.

" . . An open transmitter line to Orado," the Moderator was saying into the communicator. "The Council. And snap it up! Some very important visitors are waiting "

The offices of Jontarou's Planetary Moderator became an extremely busy and interesting area then. Quite two hours passed before it occurred to anyone to ask Telzey again whether she knew where her aunt was at present.

Telzey smote her forehead.

"Forgot all about that!" she admitted, fishing the sportscar's keys out of the pocket of her sunbriefs. "They're out on the parking platform . . ."

The preliminary treaty arrangements between the Federation of the Hub and the new Affiliated Species of the Planet of Jontarou were formally ratified two weeks later, the ceremony taking place on Jontarou, in the Champagne Hall of the Shikaris' Club.

Telzey was able to follow the event only by news viewer in her shipcabin, she and Halet being on the return trip to Orado by then. She wasn't too interested in the treaty's details—they conformed almost exactly to what she had read out to Iron Thoughts and his co-chiefs and companions in the park. It was the smooth bridging of the wide language gap between the contracting parties by a row of interpreting machines and a handful of human xenotelepaths which held her attention.

As she switched off the viewer, Halet came wandering in from the adjoining cabin.

"I was watching it, too!" Halet observed. She smiled. "I was hoping to see dear Tick-Tock."

Telzey looked over at her. "Well, TT would hardly be likely to show up in Port Nichay," she said. "She's having too good a time now finding

out what life in the Baluit range is like."

"I suppose so," Halet agreed doubtfully, sitting down on a hassock. "But I'm glad she promised to get in touch with us again in a few years. I'll miss her."

Telzey regarded her aunt with a reflective frown. Halet meant it quite sincerely, of course; she had undergone a profound change of heart during the past two weeks. But Telzey wasn't without some doubts about the actual value of a change of heart brought on by telepathic means. The learning process the crest cats had started in her mind appeared to have continued automatically several days longer than her rugged teachers had really intended; and Telzey had reason to believe that by the end of that time she'd developed associated latent abilities of which the crest cats had never heard. She'd barely begun to get it all sorted out yet, but . . . as an example . . . she'd found it remarkably easy to turn Halet's more obnoxious attitudes virtually upside down. It had taken her a couple of days to get the hang of her aunt's personal symbolism, but after that there had been no problem.

She was reasonably certain she'd broken no laws so far, though the sections in the law library covering the use and abuse of psionic abilities were veiled in such intricate and downright obscuring phrasing—deliberately, Telzey suspected—that it was really difficult to say what they did mean. But even aside from that, there were a number of arguments in favor of exercising great caution.

Jessamine, for one thing, was bound to start worrying about her sister-in-law's health if Halet turned up on Orado in her present state of mind, even though it would make for a far more agreeable atmosphere in the Amberdon household.

"Halet," Telzey inquired mentally, "do you remember what an all-out stinker you used to be?"

"Of course, dear," Halet said aloud. "I can hardly wait to tell dear Jessamine how much I regret the many times I . . ."

"Well," Telzey went on, still verbalizing it silently, "I think you'd really enjoy life more if you were, let's say, about halfway between your old nasty self and the sort of sickening-good kind you are now."

"Why, Telzey!" Halet cried out with dopey amiability. "What a delightful idea!"

"Let's try it," Telzey said.

There was silence in the cabin for some twenty minutes then while she went painstakingly about remolding a number of Halet's character traits for the second time. She still felt some misgiving about it; but if it became necessary, she probably could always restore the old Halet *in toto*.

These, she told herself, definitely were powers one should treat with respect! Better rattle through law school first; then, with that out of the way, she could start hunting around to see who in the Federation was qualified to instruct a genius-level novice in the proper handling of psionics . . . ■

the Reference Library

P. Schuyler Miller

BORDERLINERS

■ Nobody has ever succeeded in defining science fiction, and I doubt that anyone ever will arrive at a definition that satisfies anyone but himself—and that only for the time being. Nevertheless, since we are supposed to avoid fantasy here, I have to have some kind of rule-of-thumb to separate the sheep from the goats and decide what I read just for fun. In a vague sort of way, my gauge is what seems to be the author's intent.

Now, this criterion is in itself highly subjective and open to all kinds of attack. Only the author himself can know what he intended when he wrote a book or a story. If the story openly deals with the supernatural, magic, ghosts and the like it would seem safe to rule it out. But then what do you do with the Harold Shea stories by L. Sprague de Camp and Fletcher Pratt, in which magic—black, white and parti-colored, and seasoned with assorted demons, genii and disturbed spirits—was absorbed bodily into the structure of symbolic logic? Or Robert A. Heinlein's last novel, "Stranger in a Strange Land," which takes life after death as a matter of course? Or a whole series of books and stories that have rationalized lycanthropy, vampirism, zombies, or just about anything you can name?

Lost races have about died out of science fiction, at least within the parochial boundaries of Earth itself. The reason is evident enough: since World War II we've been everywhere and seen everything and they're not there. Do you then condemn all Merritt's books as fantasies—which many readers have from the start—no matter how convincingly he tried to persuade us that the Moon Pool, and the valley of the mirage, and Yu-Atlanchi really are there somewhere?

Edgar Rice Burroughs' Mars and Venus books gave the pre-Gernsback science fiction movement one of its most powerful shots in the arm.

When he wrote them, Lowell was still seeing canals on Mars and even his critics couldn't prove that advanced life and civilization and all sorts of marvels couldn't exist there. They were science fiction a generation ago; are they fantasy now? Or are we still willing to harbor some doubt about Venus?

There always have been and always will be borderline books that some purists will keep on their science fiction shelf, and other equally dogmatic purists will refuse to recognize. I, for example, consider with Heinlein that any story laid in our future is grist for the mill—"Advise and Consent," for example, and probably its sequels when they are published. On the other hand I have arbitrarily ruled out a series of fascinating, colorful and impudent detective stories by Donald Douglass, which describe crime and punishment at some future time in a hard-to-identify part of the Virgin Islands.

There are four books on the shelf at present—two from "inside," two by "ordinary" novelists—which are borderliners.

Farthest "put" of the four is Brian Aldiss' "The Long Afternoon of Earth," fitted together from his novelettes for *Fantasy & Science Fiction,* which happily did not have to classify it. It's a Signet paperback, No. D-2015, giving you 192 pages of small type for 50 cents. The author has no objections to your classing his book as fantasy, but he has taken some trouble to rationalize his nightmare world, millions of years in the future when the vegetable kingdom has swallowed up Earth and Moon, tied them together with not-very-gossamer cables along which mile-wide vegetable spiders traverse space, and shove all but a few insects, reptiles, and miniature green-skinned men into oblivion or over onto the dark half of the planet. Very little of this would bear up if you were to attack it with a slide rule and logic, and it also loses as a story because of its origin in five chunks, only three of which really fit together.

For all that, this story of a bizarre struggle of tiny people against a ravenous plant world becomes fascinating as it is spun out. It breaks into three main sections: the adventures of a group of adults who Go Up to an even stranger world above the sky, the adventures of the group of children they leave behind, and finally the adventures of one maverick boy who cuts away from custom and tradition to make his own way and see the world. Of these, the introductory piece is best; the other parts do

very little but extend the catalog of marvels. The revelation that I supposed the author was setting up—that the tiny green humans were also vegetable imitations like the monsters all around them—never materialized. Maybe I'm just peevish at being fooled. But the total picture of a green nightmare is memorable.

In "The Nemesis from Terra"—half of Ace Double Book No. F-123, priced at 40 cents—Leigh Brackett gives us an adventure fantasy of Mars, done in the Burroughs mood and manner, but with far more smoothness and sophistication than Burroughs put into the adventures of John Carter. This is a Mars that does not and cannot really exist, with ancient ruins and ancient races, heroic struggles and devilish plotting, a bigger-than-life human hero and a tiny winged sub-heroine, fantastic weapons under the ice domes at the Poles and hideous monsters in the pits beneath the deserts. It is all totally outrageous and perfectly convincing as it strides and gallops along—but is it science fiction? Read it, and make your own classification. The flip side is a reprint of Robert Silverberg's "Collision Course," which is also an adventure yarn, but one that rattles around among the stars in a thoroughly modern manner.

I have now arrived at two books which were not written as science fiction, and are not by members of the "family"—the gang who know each other and get together at conventions, parties, and any other convenient occasion. "Star-Raker" by Donald Gordon is published by William Morrow and Company, has 288 pages, costs $3.95. "The Old Men at the Zoo" is by Angus Wilson, one of England's brighter literary lights. Viking Press published it in the States for $4.50—352 pages, this time, but you know from the price that it's a serious novel. Which it is, as we shall presently observe.

"Star-Raker" is a love story and an aviation story, set either in our present or our immediate future, which is built around a purely scientific puzzle. The puzzle is why I have let the book over on our side of the border.

The *Star-Raker* is to be the first high-altitude, supersonic airliner, designed to fly at seventy thousand feet and higher, and at speeds approaching four Mach—four times the speed of sound. It is British, and the world's first. All the preliminary tests have gone well—then its Chief Pilot keels over with cancer of the ear, and his successor collapses with leukemia. A cancer-resistant synthetic blood plasma, flown to Canada, arrives with its curative properties lost—when the *Star-Raker* flies above forty-six thousand eight hundred feet. Guinea pigs struggle and die; the heroine goes slowly deaf; the manufacturer's competitors and the sensational press begin to gossip about cancer-producing radiation that will keep mankind from ever flying above forty thousand feet. Meanwhile there is a personal conflict in progress between the boss' biochemist daughter and the test pilot whom she first dislikes, then falls in love with, and between the

self-made aircraft tycoon and the daughter who should have been a son.

The author has had a career in British aviation, and the flying parts of his book are the best. From where I sit, he has not done so well with the parts where he ventures into other sciences, though one gripe that I was diligently building up in the early chapters turned out to be a nicely kippered red herring. I don't believe that even in English terminology, blood "plasma" still has the cells in it, synthetic or not, and the logic seems to stretch to the breaking point in one or two other places. Even so, here is a good, legitimate scientific puzzle. Is it science fiction, then?

In "The Old Men at the Zoo," Angus Wilson is simply picking up some of the tools of the science fiction writer and using them for his own purposes, which are those of the serious novelist. The time is 1970 to 1973, which makes it our concern.

So far as story is concerned, there are several of them in progress simultaneously, as is the custom with well written novels that don't have to maintain the pace of magazine publication, let alone serialization. The people of the story are the in-group of the London Zoo, bureaucrats and scientists, every one an individual whose idiosyncracies and personality are essential to what happens. The Director of the Zoo is an enthusiast who wants to turn the animals loose in an outdoor park where they will be living under something like natural conditions. The President is a politician who wants to be Prime Minister, and sees a chance to use the Zoo and the National Reserve project as a cleverly manipulated weapon. The narrator is an administrator who sees himself as a thwarted naturalist, but is really most concerned with the mechanisms and minutiae of the institution of which he is Secretary. When a young keeper is killed by a giraffe, his real concern is how a chain of blame shall be established. When England is invaded, he thinks only of how the Zoo can be kept operating smoothly.

Because, behind the immediate scenes—violent as some of them become at times—a "limited" war is building up until England is engulfed by a Pan-European movement built on an alliance of France and Germany. Russia and the United States stand self-righteously by and threaten to use The Bomb unless the neighbors fight quietly in their own back yards. Whereas, in ordinary science fiction, this future war would be the theme of the story, in Angus Wilson's novel it is only the setting for a study of a small, utterly cut off group of men and women who have reached the point where their own small world, the Zoo, is all that has any real meaning or importance. Even though Simon Carter, the young Secretary and narrator, is young in age, he is one of the "old men at the Zoo" in character. In these old men we can see ourselves, engrossed in our narrow lives, while the world crumbles.

Over such widely flung borders as these the blanket of "science fiction" can be flung.

* * *

I can't possibly keep up with all of the regional science fiction conventions, even the ones that have become established annual events. There's always the Midwest in Cincinnati at the end of May—purely social, no program. Philadelphia will have one in November. The World Convention, as you know, is to be in Chicago come Labor Day weekend, and I may see you there. I've also been asked to announce that Westercon XV—which, as you can see, is almost as well established as World Con XX—will be held in Los Angeles, at the Hotel Alexandria, on June 30 and July 1. For details and a membership—one dollar, payable to William B. Ellern—write to PO Box 54207, Los Angeles 54, California. Jack Vance is Guest of Honor and main speaker. Anthony Boucher will be banquet MC. Writers such as Poul Anderson, Robert Bloch, Ray Bradbury, Mark Clifton, Fritz Leiber, James Schmitz and A. E. van Vogt will be all over the place—they live out there. I'd also be willing to bet on Edmond Hamilton, Leigh Brackett, and the hard, sparkling core of West Coast fandom.

There will be an SF fashion show that ought to lay the future bare in ways that not even the World Con masquerades have done. There'll be an operetta: "Captain Future Meets Gilbert and Sullivan, or Alas, Who'd Love a Spaceman?"

There'll be fun.

FROM THE OCEAN, FROM THE STARS by Arthur C. Clarke. Harcourt, Brace & World, New York. 1962. 51ε pp. $4.50

Several years ago, when I polled the readers of this department for a list of their 25 all-time science fiction favorites, omnibus volumes like this provided a fine way of getting several classics within one set of covers. If I were to do it again, I feel sure this volume would place high.

The book consists of two of Clarke's best novels and his last collection of short stories. "The City and the Stars" is the poetic Clarke, writing of the far future when one of the last men of Earth is groping to understand and regain the once glorious place of Man in the vast, bewildering universe. "The Deep Range" is the Clarke who writes what engineers call the "real" science fiction, almost documentary in its technical perfection—in this case, the story of a near future when men stock and ride herd on the "deep ranges" of the seas. Both novels are unforgettable examples of modern science fiction at its very best; both are here in full.

The twenty-four short stories that round out the monster volume are the collection named—for one section of it—"The Other Side of the Sky." The title series of six very short tales is also in the documentary vein, as it follows the men who build the first space station in orbit. A companion series, "Venture to the Moon," also comprises six brief tales that carry on the story of the opening of space. For the rest, we cover this

gifted writer's own deep range, from the fantasy of "The Nine Billion Names of God" and the geometric nightmare of "The Wall of Darkness" to the gently ironic "The Star" and the comedy of "Cosmic Casanova."

It won't be eligible for any prizes, but this collection will still be one of the best books of the year.

ALL THE TRAPS OF EARTH by Clifford D. Simak. Doubleday & Co., Garden City, N. Y. 1962. 287 pp. $3.95

The rediscovery of Clifford Simak has been one of the more satisfying phenomena of recent science fiction publishing—both his return to the magazines as a regular contributor of high quality, and the prompt recognition by book publishers that here was a writer who seemed to appeal both to the timid nibblers at science fiction and to the hardened veterans. The nine stories in this collection are from *Galaxy* and *Fantasy & Science Fiction;* most of his recent work for this magazine has appeared in other volumes.

Kingsley Amis called Simak the pastoralist of modern science fiction, spokesman for the quiet verities of country living in contrast to the intricate violence of the metropolitan beehive and the contorted societies patched together to contain it. There is some of that in these stories, but there is a good deal more to dispel the idea that the author has one song to sing.

The title story introduces an out-of-date robot, preserved past his time by the sentimentality of a petering-out family. This, in metal armor, is the good old sentimental tale of the faithful servitor who at last finds a place where he can serve again. "Good Night, Mr. James," which follows, is as completely unsentimental and ruthless as a pleasant little tale could be. Then comes "Drop Dead," a completely improbable gimmick yarn.

The first real exponent of the pleasant country life is "No Life of Their Own"—but this is complicated by a passel of assorted aliens living in a run-down rural neighborhood. Sharing troubles makes good neighbors, Clifford Simak says. Well, sometimes it does, but there's a rose-glow about the story. In "The Sitters," another set of aliens are doing their best to be useful in a small town—Millville, which appears in other Simak stories. It poses a nice, unanswered question of educational values.

"Crying Jag" is another robot story—the robots of Fritz Leiber's "Silver Eggheads" should have a Saint Clifford along with their Saint Isaac and Saint Eando. It includes another alien, who finds human emotions highly satisfying. But the stories that are the most fun come at the end of the book, and are just stories, minus a message.

"Installment Plan" has a batch of interstellar traders on a far planet, faced with a completely baffling situation: natives who have goods to trade who want to trade, but who won't. "Project Mastodon" has another bunch of sharpies who develop

time travel and proceed to carve themselves out a domain back in the Pleistocene—until something unforseen spoils their plans. And there is one other wry little message bit in "Condition of Employment," having to do with the roots of nostalgia and such.

Just good solid modern science fiction from front to back. Nothing very memorable in the sense that it is likely to be remembered with the "greats" of the 1960's, but the kind of stories that *are* remembered in the magazines where they appear.

BATTLE FOR THE STARS by Edmond Hamilton. Dodd, Mead & Co., New York. 1961. 206 pp. $2.95

Long, long ago, when I first began to read science fiction, Edmond Hamilton was just beginning to write it. In the pages of *Weird Tales* he single-handedly created a school of galactic space opera that—for its time, at least—did more to give readers a feeling for the immensity of the universe than anything written before or since.

This book is, in a sense, an echo of those old days, but science fiction has grown in thirty years and Edmond Hamilton's skill as a writer has grown along with it. When his hero plunges through a rift into a trap in the heart of a globular cluster—when, later in the story, the space fleets of two galactic empires clash in a battle over the almost-forgotten mother-world, Earth—modern readers will get some of the thrill we antiquated veterans once felt. But Jay Birrel, agent of the Vegan sector, is far more of a human being than the faceless, nameless supermen of those old yarns, and the prickly, unreasonable attitudes of the people of forgotten Earth become more than reasonable as we know them better.

This isn't as good a book as the author's last two for Dodd, Mead, "The Haunted Stars" and "The Star of Life," but it helps keep the level of story-telling up.

NAKED TO THE STARS by Gordon R. Dickson. Pyramid Books, New York. No. F-682. 1961. 159 pp. 40¢

I wouldn't be at all surprised to see this expansion of the *F&SF* serial on the final ballot for best SF novel of 1961, and it could well win its author a "Hugo," as did Robert A. Heinlein's "Starship Troopers," to which it is a kind of answer. Indeed, in the beginning, I thought that the book was going to take Heinlein's theme of a military elite, in Heinlein's future universe, and simply show the grim and dirty side of the society he glorified.

This is Heinlein's world, or one very much like it, but Gordon Dickson is too good a writer to be satisfied with a piece of counter-propaganda. His hero, Cal Truant, is that uncomfortable misfit, a thinking soldier who cannot be content to follow orders or to do what his military conditioning has trained him to do. Early in the book, he stops to think where he should have acted, and winds up in a hospital with sixteen hours of his life lost. Because of that gap, and because he refuses to allow himself to be psychoprobed to un-

cover what is hidden, the only further career open to him is in the despised Contacts Service, whose corpsmen go out with the fighting troops—but to understand the nonhuman enemy on his own ground, and try to build a peace that will knit alien races together into an expanding human empire.

It would be unfair not to let the author tell you what Cal Truant learns about himself, and about mankind. You will find here echoes of the questions that the Broadway stage has been asking in "The Andersonville Trial" and Hollywood in "Judgment at Nuremberg." If "Starship Troopers" was written as propaganda for a certain way of life, this is the form the answer should take—not the cries for censorship that arose. I don't think that "Naked to the Stars" shows that war can be abandoned, but it does show how utterly different it must be when a nation and a race grows up.

THE SILVER EGGHEADS by Fritz Leiber. Ballantine Books, N. Y. No. F-561. 1962. 192 pp. 50¢

Here, expanded from a 1958 novelet in *Fantasy & Science Fiction*, is a thorough disappointment. Where it should slash, it bludgeons; where it should be quick and light, it is ponderous; where it most needs to be subtle, it is ablaze with neon.

The theme is a promising one: a future in which fiction is ground out by the gigantic "wordmills," tended and impersonated by their front writers whose principal duty is to appear on the book jackets in a consistently romantic impersonation. There is another, and much more interesting circle of writing robots who really do their own writing, but for each other.

The book opens in the midst of a revolution of the pseudowriters and the destruction of the wordmills. We follow the subsequent events with Gaspard de la Nuit, a journeyman writer who has a sneaking affection for his wordmill and who is a good friend of Zane Gort, a free-lance robot writer of SF action yarns. To complicate matters, the latter is strangely stirred by the prudish Miss Blushes, a pink government censor-robix, while Gaspard is soon to discover the charms of one Nurse Bishop, small but impressive on numerous counts.

Behind the scenes are a pair of human publishers, Messrs Flaxman and Cullingham, proprietors of Rocket House and heirs to the secret of the silver eggheads—the brains of some of the world's great writers, immortalized and "canned" in egg-shaped cannisters that have kept them going through the centuries. They are to solve the problem of the destroyed wordmills; they are to create a new movement in literature; and they are to give Rocket House a monopoly which it richly fails to deserve.

All these entanglements are first woven into a cat's cradle, then untwined with accompanying wild action, bawdy mutterings, belly laughter, SF family puns, and just about any variation that a very fertile mind could concoct. However, the result is much more like one of the broadly satirical "pro" playlets at a science fiction convention, written in bars and parties, rehearsed in corridors and elevators, and staged with wild improvisation, than it is like a well-made satire.

LIFE IN THE UNIVERSE by A. Oparin and V. Fesenkov. Twayne Publishers, New York. 1961. 245 pp. $4.50

This is another in the series of popular and semi-popular Russian books on science that American publishers are bringing out. For a change, the translation seems to be reasonably good; at least, it does not convert sense into nonsense as some other books have done.

Oparin, who probably contributes least to the book, is one of the world's foremost biochemists and author of the classic work on the origins of life. Fesenkov is a Russian astronomer. Both writers seem to give due credit to scientists of other nationalities, although as might be expected, most of the authorities they quote are Russian. How many Russian scientists are mentioned in a popular book by an American? The party line comments are also considerably subdued—much more so than in a recent Penguin paperback on Russian archeology, which practically ignored work by pre-Soviet or non-Russian scientists. They appear principally in the opening chapters, in the form of quotations from Engels on the nature of life as revealed by dialectical materialism.

The first part of the book, then, is a rather clear summary of what we know and believe about the way in which living compounds could develop in the soup-like seas and puddles and reducing atmosphere of a primitive planet. This in turn leads to a review of ideas on the formation of the planetary system. Finally the authors look at the other planets of our own solar system, and conclude that none of them harbors life.

Actually, it would take a better scientist than I to spell out what is orthodox and what is unorthodox in this book. A theory of the formation of the planets, described in very little detail, seems to give a pretty good approximation of Bode's "law" of the spacing of the planets—Saturn falls farthest off position. Discussion of the evolution of a star seems different in some respects from the last Western version I saw. Russian astronomy, at least as represented by Fesenkov, apparently will have none of the meteor-impact theory of formation of the lunar craters, and when it comes to Mars—although the apparent evidences of seasonal changes and organic compounds are duly mentioned—the authors seem to prefer the hypothesis of a volcanic origin for the dark markings, proposed by Michigan astronomer Dean McLaughlin, father of the writer well known in these pages.

Incidentally, on page 114 and quite offhand, these authors seem to say that Russian science has: (a) decided that Atlantis was real and not myth or fiction; and (b) placed it in

the Aegean, with the Aegean isles, or some of them, forming its remnants. This tidbit is tossed in in passing, pairing Atlantis and Gondwanaland as examples of sunken continents of the past.

Life in the universe, these Russian authorities say—since planets form naturally in the evolution of stars, and since life will necessarily develop on planets like Earth—but not in our own system.

THE SHADOW GIRL by Ray Cummings. Ace Books, N. Y. No. D-535. 1962. 159 pp. 35¢

Although you won't find it mentioned anywhere in this paperback edition, "The Shadow Girl" was a four-part serial in *Argosy* in 1929. and there was an English hardback edition in 1947. It is consequently not the latest in science fiction.

Nevertheless, to Cummings fans —of whom I am one—his strictly formula yarns still have a certain attraction. His formula was a hangover of Victorian melodrama, but his stage settings were good and he had a style that now seems old and quaint but was then refreshingly unorthodox and conversational.

Cummings was the early writer who picked up Wells' timetravel ball and ran with it. His time machine, in this case, is a tower that shows up in Central Park, New York, bringing a girl from the future—the year 7012. A world of that time is about to inflict disciplinary war on the New York of 2445, and a standard mad-with-power scientist of the latter era is hiding out in 1962. The action batters back and forth through the millennia in search of the renegade Dr. Wolf Turber, with the usual pair of Cummings heroines in and out of peril with suitable regularity.

Wells introduced the time travel idea to science fiction as a mechanism for social criticism and for a tour of the predicted end of the world. Cummings added a melodramatic plot in which time travel was an essential element. In that respect he was a pioneer of all that has followed. Although his first and best-known book was "The Man Who Mastered Time," this is a fair companion-piece.

THE WAY OUT WORLD by Long John Nebel. Prentice-Hall, Inc., Englewood Cliffs. N. J. 1961. 225 pp. $3.95

New York "night people" know Long John Nebel as the MC and proprietor of the all-night radio program and weekly TV show on WOR and WOR-TV, which give a hearing to the people who read minds, see ghosts, ride in flying saucers, wrestle with deros, heal at a distance, and encounter all manner of other marvels. In this scrappy book—not much more than an expanded article for a Sunday newspaper supplement—he offers a breezy, insistently skeptical series of notes on some of these folk, including our own John W. Campbell.

Long John professes to be a complete doubter; the panels who interview his guests seem to include both believers and skeptics, including Lester del Rey as one of the regulars. It is extremely difficult to decide, in reading these reports, whether he feels that a given visitor "had something" or was suffering from assorted hallucinations. This is, of course. entirely as he intends it: the moderator is totally neutral. The result, however, is an over-all mocking attitude that must be infuriating to someone who takes his particular oddity seriously. and is not just playing for attention.

This will presumably appear in time as a paperback. Wait for that edition.

AROUND AGAIN

THE 1,000 YEAR PLAN by Isaac Asimov. Ace Books, N. Y. No. D-538. 160 pp. 35¢

I have lost track of how many times this abridgement of "Foundation" has been reprinted, but here it is again

THE BEST FROM FANTASY AND SCIENCE FICTION: SIXTH SERIES, edited by Anthony Boucher. Ace Books. N. Y. No. F-131 254 pp. 40¢

Ace is diligently working its way through the annual collections from one of our most respected competitors. This was out originally in 1957 and is one of the best of the series. For a bigger helping, try

A DECADE OF FANTASY AND SCIENCE FICTION edited by Robert P. Mills. Dell Publishing Co., N. Y. No. X-12. 1962. 416 pp. 75¢

A complete bargain.

ECHO X by Ben Barzman. Paperback Library, N. Y No. 52-130. 1962. 252 pp. 50¢

A new title for the reprint of "Twinkle, Twinkle Little Star," a good story about parallel worlds.

THE STAR DWELLERS by James Blish. Avon Books, New York. No. F-122. 128 pp. 40¢

A recent juvenile, which I used as the base for my discursion on "Meat" a few months ago.

THE OCTOBER COUNTRY by Ray Bradbury. Ballantine Books, N. Y. No. F-580. 276 pp. 50¢

Another re-reprint in Ballantine's "Science Fiction Classic" line. Most of the stories are actually Bradbury's early supernatural fantasies, some of the best things he has written but by no means SF, selected from "Dark Carnival," his first book.

THE MOON PILOT by Robert Buckner. Permabooks, N. Y. No. M-4241. 1962. 139 pp. 35¢

Trivial as a *Saturday Evening Post* serial, and trivial in its first paperback edition in 1960, as "Starfire." Now Disney is making a film of it, which just might be fun.

THE FALLING TORCH by Algis Budrys. Pyramid Books, N. Y. No. F-693. 158 pp. 40¢

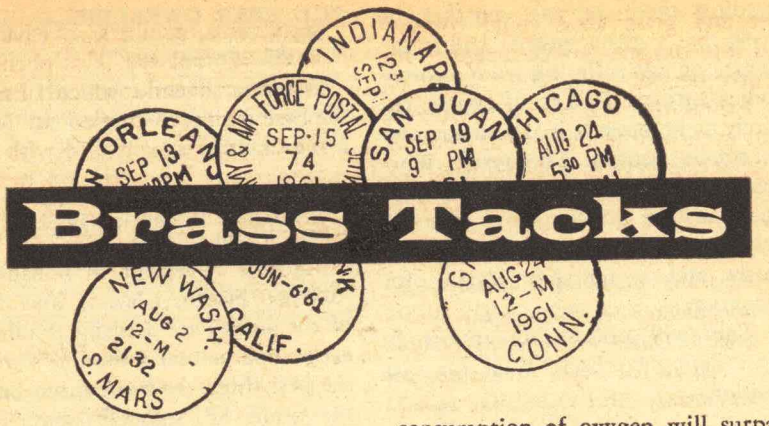
One of the better interplanetary underground yarns

THE HAUNTED STARS by Edmond Hamilton. Pyramid Books. N. Y. No F-698. 159 pp. 40¢

One of the best of the Old Master's recent books

ENCOUNTER by J. Hunter Holly. Monarch Books, Derby, Conn. No. 240. 1962. 142 pp. 35¢

In hard covers this was one of the best novels Avalon has published. It's an even bigger bargain now There has seldom been a more ruthless adversary than this.



Brass Tacks

Dear Mr. Campbell:

For the second time in a month on French TV I saw pictures of a run-away gas well in the Sahara. In spite of the expert assistance of a Texan whose specialty is the extinguishing of same it still burns consuming about the same amount of gas daily as does the city of Paris, generating its own local winds as did the last California brush fire. All of which brings up the question: WHAT HAPPENS WHEN THE OXYGEN GOES?

I know that oxygen is not only plentiful but is being continually replenished by transformation of carbon-dioxide, a process happily performed by the flora of our planet. But our ever expanding industrialization is linked to ever increasing consumption of oxygen and ever decreasing sources of transformation of carbon-dioxide as city, concrete and farmland bite into jungle, forest and grassland. It seems inevitable that consumption of oxygen will surpass its replacement. What then brave new frontier?

Can we curtail our own rate of production? Can we ask Soviet Russia to slow down on its steel production? Hydroelectric and nuclear power seems on the too-little, too-late order.

I believe that the figures adopted at the turn of the century for the composition of the atmosphere were: 78.00 nitrogen, 20.95 oxygen, .93 argon, .03 carbon dioxide and the remainder made up of the rater gases. Has there been any significant change in these figures?

If so, a statistical attack on the problem might be in order. World consumption figures on coal, petroleum, wood can be converted into oxygen consumed over a given period Other oxygen consumption coming from accidental fires and fauna, including the exploding human race itself, can be estimated with fair accuracy. On the other side of the equation: the extent of jungle, forest and grass areas could converted into oxygen produced figures for a like period.

I think that this should be done in any event as it would give us a boundary, oxygen-wise to our industrial and economic future.—Charles Parsons, St Paul, A. M., France.

Will some geochemist answer this one, please? I don't have the figures handy. Does the total of O_2 dissolved in sea water exceed the total atmospheric O_2? Does human industry as yet consume 1% as much O_2 as decay bacteria?

» » »

Dear Mr. Campbell:

Your readers might be interested in the following summary of a biological paper which has come to my notice: —

Biological Abstracts Vol. 33 No. 1. 1576. De SILVA, R. (Med. Res. Inst., Ceylon.)
Mind on the bacterial growth. A preliminary note on a psychosomatic phenomenon.
Interntl. Congr. Microbiol. Proc. Sixth 1. 355-359. 1955
By concentration of mind on agar plates of *Salmonella typhi* poured for colony counts and by repeating the formula "No growth, you are sterile, you are dead"; statistically significant numbers of bacteria could be inhibited. This phenomenon is attributed to a kind of ray of psychosomatic origin in man, which can be controlled with constructive, destructive and neutralizing effects. (*E. G. Aiken*)

—Frank A. Coulter, Forests Dept., N.Z. Forest Products Ltd., Tokoroa, New Zealand.

So maybe "Drop dead! I hate you!" is a deadly weapon?

» » »

Dear Mr. Campbell:

I have just read "Brass Tacks" in the January issue (which I have just rescued from the clutches of the usual round of moochers) and I feel a strong desire to voice my feelings.

First to answer Mr. Lefferts: Yes, I want to ride the spacecraft. I am planning on giving my life's efforts (not just a year's salary) to help with the conquest of space. I sincerely hope to "feel the drive and fall of a ship and see the splendor of space" and I am aiming my education toward that goal.

Next I must take odds with Mr. Mayer as to who is to blame for the condition he calls "Operation National Neurosis": I, rather, think that the fault lies in American Parents and the leaders of yesterday and

today. They, after all, are the ones that have allowed (and even helped) American Youth to become soft. From what I can see, by the way, American Youth is not as "out of guts" as Mr. Mayer would have us believe. I observe that a great deal more than "few are really athletic", for example, more than ten per cent of the seniors at my high school spend up to three hours after school plus Saturdays and vacations in grueling work-outs. As for the "Schmalz", I own a car and I pay for it from my own earnings. It has a standard transmission, mechanical brakes, manual steering, crank windows, standard choke, standard lights, and gauge-type indicators for amperes and oil pressure. I submit that the American Youth could not and would not be so soft if his parents had not purchased all of his "Schmalz" for him.

In closing I would like to ask a question of you or the rest of your readers: The opinion has been voiced that the individual is dying out of modern society. Were there ever more than a few individuals in the first place?—Tom Hinterman, Class of '62 Ann Arbor High.

P.S. I obviously don't class my parents or most S-F readers and writers as one with the delinquent leaders of today.

Yes, Tom, there were more than a few individuals. When you're trying to carve a nation out of wilderness, every individual man had individual problems. There were no routine solutions because there were no routine problems—every problem each man got clobbered by was thoroughly original. And he had *to be original . . . . or drop dead.*

» » »

Dear Mr. Campbell:

I have just finished reading the very excellent story "The Great Gray Plague" by Raymond F. Jones in the February, 1962 issue of your magazine. Because the theme of this story and several of your recent editorials concerns the reclaiming of gems of technical advances from the masses, I thought that you might be interested in a personal experience. This experience eventually led to the development of a theory for a "flotation" method of quite a different order from that suggested by Mr. Jones.

I am a graduate engineer tied to a small town through tradition and family. As about the only technically trained person in this section, I have been called on several times in the past to help local inventors with their projects. To date the projects have been soundly conceived and executed, but none have been a financial success. In seeking a more challenging technical job that would allow me to be my own boss, I began to think about these unsuccessful inventions. In considering the problem it became evident to me that these inventors had absolutely no idea as to how they should approach prospective manufacturers or how they could establish a marketing/manufacturing operation on their own. Eventually, I decided that it might be feasible to develop brochures for inventors to present to prospects. Payment was to be on a flat fee basis.

Investigating the necessary equipment to start operations, I discovered that the minimum investment would run about $5,000.00. Because of this I decided to conduct a market investigation of my own. Accordingly, I obtained a list of manufacturers who maintain departments to deal specifically with new products and outside idea submissions. I wrote some fifty-two concerns and individuals, explained my idea and asked for the completion of a mimeographed form and its return in an enclosed envelope. The response was amazing. Of the fifty-two concerns, forty-eight replied. Of the replies two evidently took offense with the remainder stating that the service was indeed needed but that they thought payment would be a definite problem. Some of the answers were hand written and were an education within themselves.

Well, Mr. Campbell, this put a crimp in my plans. Further consideration, however, revealed that there is indeed a place for a third party in the scheme of things. Throughout the replies ran the complaint that unsolicited submissions contained too few ideas to be worth processing them all due to outright cost of processing and legal liability. When a commercial concern or foundation throws its doors open to all comers, too many millionaires-for-a-four-stamp get into the act. This led to my own "flotation" theory.

It seems to me that the majority of crack-pot ideas are postulated by persons who dream of a million dollars for simply making a statement. If it costs no more than four cents, then why not gamble? The serious person (usually) who offers a much better chance of having something worth while to offer will not hesitate to spend within his means to bring his invention to the attention of possible promoters and/or manufacturers.

My thought is simply this, form a bonded technical company to act as a disinterested third party in developing things of mutual interest between industry and inventors. This company would sell its services to industry on a retainer basis. When an industry receives an outside suggestion, they immediately return it via registered mail to the individual concerned together with the statement that the *BLANK* company handles all outside suggestions for them and that, for a fee of say $10.00, the *BLANK* company will screen the suggestion for feasibility and if the suggestion has any possible application it will be resubmitted to the original company concerned.

This scheme would accomplish the following:

For industry it would relieve them of a great processing expense.

It would reduce legal liability.

It would insure a higher quality of (re) submissions.

It would tend to eliminate the majority of the millionaires-for-four-cents.

For the Inventor it would insure

some consideration of his idea if he is willing to spend a minimum sum.

It will give him added legal protection.

It will help him locate other manufacturers if the one first contacted is not interested.

It will provide a service that could eventually lead to development and marketing at a reasonable cost.

It is very necessary that the inventor pay some reasonable fee, both to insure that he is serious and to provide the protection of having his idea processed by a company legally and ethically bound to an unbiased position.

This all was developed some eight years ago. The reason it has been shelved lies in the fact that I simply do not have the industrial contacts, nor the means to obtain them, that would be necessary to the feasible operation of such a company.

I do hope the foregoing has been interesting to you.—Wm. D. Munroe, Quincy, Florida.

O.K.—it's an idea! Reader's comments invited.

Dear Mr. Cain:

I read with interest your article entitled, "The Big Boom in Forming," which appeared in the January 1962 issue of Analog. Although you delved somewhat into the history of the process, you failed to outline the sequence of events and the persons responsible for the resurrection of a promising though undeveloped idea which had lain dormant for almost three generations. The fact that work had been accomplished on this process and filed in the United States Patent Office and remained unnoticed by the manufacturers of explosives, as well as others who could have been vitally interested, is truly amazing. The sequence of events which led to the resurrection and further development of this basic idea, resulting in the current intense interest and activity, is substantially as follows:

It is true that patents covering dynamite forming were issued near the turn of the century. These patents only mentioned using air as a medium and, from a study of patent drawings, it is fairly apparent that the process was not used on a commercial basis at that time or thereafter.

In 1950 this company was experiencing failures in a spherical fan hub which was spun from flat sheets. The spinners were unable to handle any heavier material and people with large press capacity were uninterested due to the relatively small quantities involved. As a result, it was necessary for us to develop some process by which we could form these two-foot diameter hubs from heavier material.

The first thought was that of forming with hydraulic pressure by clamping cylindrical blanks in a suitably formed mold and installing a lid on either end to withstand the pressure. Our calculations indicated that suitable lids for this process would have to be at least 12″ thick and would require twelve 6″ diameter bolts to hold them against the mold when the hydraulic pressure was applied. Obviously, this process was abandoned as being impractical. It was necessary, therefore, to look in another direction for the solution.

The first thought that occurred to us was that of following practically the same procedure but making the heads of much lighter material and depending upon the inertia of the head to hold it in place until forming of the spherical hub was completed. In order to accomplish this, dynamite was indicated.

Our first experiments were conducted using air as a medium. Air proved practical but had several disadvantages; namely, too quick a reaction on the part being formed and the necessity of an excessive amount of dynamite. As a result, we turned to water due to its higher density and convenience. Sand was also tried, but without appreciable success. As a result, since 1950 we have explosively formed all of our spherical hubs and housing, which range in diameter from 16″ to 36″. using water as a medium.

As is our usual practice when completing a new development, we applied for a patent on explosively forming metal within a mold, using water as a medium. A patent search turned up the old patents mentioned above which used air as a medium. Our application was rejected on the basis of these old patents plus the additional fact that the use of dynamite to expand casing in a well had previously been issued. As a result, we were unable to obtain any protection on our revised process.

Although we used this process regularly, no publicity was given it until 1954 when some executives of the International Nickel Company visited our plant, observed the process, and decided that it would be attractive advertising material. Subsequently, articles covering the process were run by the Nickel Company in all of their own magazines, as well as many trade magazines. Other magazines took it up and many articles were published, one of the most recent being on the front page of the *Wall Street Journal* of November 19, 1958.

The interest in this process became quite intense. Representatives of practically all the companies who are now interested (DuPont and Olin Mathieson included) either visited our plant to observe, or communicated with us, asking our experience and recommendations. This we freely gave without charge.

In 1957 the Air Force gave Lockheed a contract for several hundred thousand dollars to experiment with the use of explosives in forming and working metals. We, incidentally, were not invited to discuss this contract, although we were mentioned in the Lockheed reports and were placed on the mailing list to receive them. Needless to say, the powder companies and many others had, by this time, already initiated their own programs.

Time was, we were mentioned in all of the articles published on this

subject; however, as time goes by, our name appears in fewer and fewer. Most of these articles and releases are fairly brief and generally about one particular phase. Since your article went into the history of the process, I thought you might be interested in the facts behind the current application of the process. In fact, had it not been for this company's needs in 1950, explosive forming might yet be awaiting its rebirth after over half a centur, as a forgotten art.—R. D Moore, The Moore Company, Industrial Air Moving Equipment, Marceline, Missouri.

This seems to me a real case of an inventor being gypped!

Any change which converts an unusable device—consigned to the dust-pile—into a major new technique, as did the Moore Company's water-transmissions of the energy, is by all reasonable test, true invention!

The Moore people should have been granted a patent—and most certainly have been given adequate acknowledgement for their achievement.

» » »

Sir:

First, allow me to compliment you on the cover of the January issue. The typography is very handsome.

I am afraid that I don't have a complete answer to your editorial question. This is just a part of the population explosion and the improvement in transportation. How can the cop on the beat—pardon me, the Police Officer assigned to the division—get to know the kids on the block when there are three times as many kids as there were in 1900, and the average kid isn't there more than a few years.

There are a few things we can do, however, about the breakdown in law and order. The first thing we can do is to get rid of a lot of laws. How can a citizen obey the law when he doesn't know what the law is, or there are several contradictory ones? How can we expect teenagers to respect The Majesty Of The Law, when it is obvious to any dimwit that the law is low comedy.

Here in the city of Chicago, for instance, it is illegal to "manufacture, sell, or give away any cigarette containing any injurious ingredient, including tobacco." It is also illegal to fly a kite.

This means, of course, that if you tell a kid to go fly a kite, you are Contributing To The Delinquency Of A Minor!

I know these sound laughable, but that is the precise problem. How can we have respect for law and order when a good percentage of the laws are stupid, contradictory, obsolete, or unwanted by the vast majority of the citizens.

If eighty per cent of a population break a law, you have a bad law. It may be "noble in intention" and a "good law," but if the populace doesn't want it, it is a bad law, and bad laws drive out good laws. (Grant's law)

I suggest that one law we need badly right now is that old Scottish common law which said that any law which is unenforced for twenty years is null and void.

However we also need a philosophy that the police are only hired to prevent crimes, and if more than a small minority of the population does something, it can not be a crime. It may be bad, it may even eventually destroy our civilization, but prevention of such an act is a job for the education system and the press, not the police department.—Lewis J. Grant, Jr., Chicago, Ill.

So, in Chicago, a man who sells cigarettes made from that traditional substitute for tobacco, can claim he is only obeying the law?

» » »

Dear Sir:

I would like to make a few remarks on Mr. R. Garrett's article (Analog, Dec. 1961), "Engineer's Art," particularly on what makes the divining-rod detector operate. First of all, the investigation by qualfied scientists is out: if any such scientist were to tear himself away from the less puzzling and more understood problems of his profession, he would still have to persuade his outfit to back him financially in this blue-sky venture. Finnagle has once said that two improbably series-connected events constitute an impossible obstacle—whence the investigation of what makes the divining rods work is left in the hands of the interested but unqualified amateurs.

Let us assume that an interested amateur has demonstrated to himself that the locator works, and that now he would like to know why it does. He can approach the "why" either in a deductive, or an inductive fashion. The deductive mechanism of investigation requires an amassing of data on how the detector performs; this data is then analyzed to discover (hopefully) a basic relationship; the entire procedure reminds one of the Brahe-Kepler-Newton evolution in celestial mechanics, and the required time will be about the same. The inductive mechanism involves first an ad hoc assumption about why the detector works, and then a controlled experiment to show that this assumption does account for all the known facts and (hopefully) points to some new ones; an example of this approach has occurred in the birth of wave-mechanical theory of matter.

A short-cut or two are possible. The collection of proper data is easier if the observer has a reasonable inductive-reasoning approach to help distinguish the relevant details from those which can be discarded. Also. the inductive-reasoning approach has much greater chances of success if it is based on a substantial amount of experimental data. The two approaches given above are by no means mutually exclusive, and their proper combination is stronger than either one singly.

I would like to point out an inductive-approach attitude which would be helpful at the start. It has been shown that matter exhibits both the particle and wave behavior; since the

resulting situation is too much for the mathematical treatment except in the simplest cases, the average scientist is content to use rigorous approximations, and an average engineer even less. We ought not thus be particularly surprised if the tranquil comprehension of the physical world is disrupted by such things as levitation, Dean's device, divinging rod, and similar misfits. This viewpoint would place the misfits on a physical basis not much less real than the more conventional things like fissioning nuclei, pair production, and the metallic core of Earth. The individual's freedom from excessive noise in his scientific environment should be guaranteed, however, by giving him a choice of how much to accept in the way of premises: I would, for example, be content to accept the six discrete examples above, but would reject the astral plane, "Vibrations," and the phlogiston as not being worth the effort.

The pipe can be assumed to set up a morphogenetic field in space; I'll freely admit my ignorance of what the morphogenetic field may be in this instance; however, this term is used for three reasons: first, it gives the phenomenon a name; second, morphogenetic sounds less noisy than the magnetic in quotation marks; third, the nature of morphogenetic field has already been described in the scientific literature (referrence on request)*. Anyway, the locator's operation is now placed on a sound basis (with substantial apologies to the rigorously bound scientific profession); the interested amateur would now devote his attention not to the puzzling *why*, but to the interesting *how*. Let us hear something on the nature of the morphogenetic field herein involved, please.—Victor Kachur.

Well, if it makes anyone happier to call it a "morphogenic field" rather than a "psionic field"—why not? Either way, it means exactly what "gravity field" really means today —"something makes it happen, and we know what it does, but have no idea how or why".

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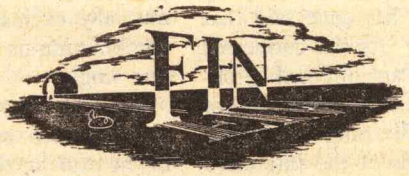
*CIBA Foundation Symposium on ESP Edited by G. E. W. Wolstenholme and E. C. P. Millar Little, Brown & Co., 1956. Paper by G. D. Wasserman.



« *Continued from Page 7* »

nism of a valid United Nations organization.

But the great-power veto idea is *most* undemocratic; it suggests that some nations are better, or superior to others. And also, the Soviets have, on several occasions, used the veto power to block moves we could have pushed through without that.

Uncomfortable as it may be to acknowledge it—Nikita Khrushchev is perfectly correct in stating that the original intent of the U.N. Charter has been very efficiently distorted. The five autocratic personalities who dominated the original U.N. founding sessions *were* autocratic personalities—*and were wise practical statesmen.*

Be it remembered: the wise, sound, and necessary thing may not —very often is not—a desired thing. It may do deep violence to beloved ideas. And it may still be the wise thing to do.

The net effect of the moves that have made the General Assembly—where each nation has one, equal vote—the dominant mechanism of the U.N. has been to make the Security Council cease to have any particular meaning. What the Security Council does can be overruled, inverted, or suppressed.

The result is, inevitably, that the great world forces that the United Nations should be reacting to, and dealing with, have been dragged down to typical ward-heeler, party-vote-getting level of "practical" politics.

Now the annual budget of the City of New York is greater than the annual budget of most—in fact almost all!—of the member nations of the United Nations. Only those nations truly important in present, and future world affairs have greater annual budgets.

The great to-do about helping backward nations is based on precisely the same fundamental mechanism that leads to loud ward-heeler cries of "help the poor, down-trodden"; you can buy votes cheapest from people who are near the starvation level.

This has led to some loud—and valid!—complaints from our South American neighbors. There, there are real problems, and complex problems, of transition from semi-peasant to industrial economies. The investment of major capital there can bring about immense changes—raise standards of living from moderate, to high, as the industrialization takes hold.

But this isn't done with peanuts; it takes thousands of millions. And $100,000,000 invested in a South American nation would not assure the vote of that nation on the side we wanted; even such an economic argument would not be overwhelming to nations already moderately wealthy. These are already strong, self-respecting nations.

But a few millions can make an immense difference in one of the extremely primitive, backward countries. For one thing, it's a simple fact

that most of the African nations, as of now, aren't nations at all, in our sense of the term—they're simply a group of local politicians who've succeeded in grabbing power, and "speak for" a people who are largely tribesmen, and want absolutely nothing but to be left alone to go back to the Good Old Ways. If you can buy the vote of a nation, by buying the good will of five men . . . that's much cheaper than statesmanship, isn't it?

Naturally, when the ward-heeler, vote-round-up system gets started, both parties start playing it. The U.S. has more cash-money to offer local politicos; the Soviets have the advantage that their system offers what the local politico wants—personal political power. After all, the U.S. does keep insisting that the politico who's won his position by the cut-throat-politics route—and knows his fellow countrymen well enough to know perfectly well he'll lose his head along with his job if he slips—isn't really taken with this "democratic" idea of "taking turns playing ruler". In *his* country he knows for a fact, if the U.S. agent on the scene is too naive to recognize the fact, that one doesn't resign, or retire. One suddnley drops dead. Ask Patrice Lamumba. And anyone want to write an insurance policy on Tshombe or Gizenge? Possibly by the time this editorial appears the question will be outdated.

These are real facts of a real world, in which real nations simply do not match the fantasy of "all nations are equal".

The Great Power Veto is necessary —because it's real. The answer to the veto is not getting the General Assembly to vote it down—because what the General Assembly votes has no more effect on reality than human opinion has on the force of gravity.

The proper answer to the Great Power Veto is to face the real fact that a change of ideas, of attitudes, on both sides is going to be necessary. That, in the present state of weaponry, we simply can't afford to override a Great Nation veto in the old, traditional way of war. And if we can't afford to override a Great Nation veto in reality—which can only mean by war—then it's purest self-delusion to find tricks that override it in the U.N. All that does is to make the U.N. a stage for posturing politicians—a place where fantasies are acted out as though they were real happenings in a real world.

To hold that Russia is always the one that's wrong is the attitude of unrealistic intransigence—"I'm *always* right, and they're *always* wrong!"

There are times when weapons of force are the right answer; that was finally recognized to be true in the Congo, and the U.N. applied the needed force. In dealing with a nation so unintegrated, with a people so illiterate and so inaccessible to communication, and so badly led—hard, sharp, massive force is the kindest method. Like a parent slapping down two children who have started going for each other with sticks; it's time to use *real* power, before they seriously injure each other.

Then there are times when weapons of force are the absolutley untenable answer. This nonsense about being "Red or dead" avoids the real issue; would you rather be reasonable or dead? That's the choice. And "reasonable" does *not* mean having what you now think is the right way win. What you want is, of course, a third alternative—neither Red or dead.

Fine—then look for a third alternative between Our Righteous Way and Their Awful Communism. Because we aren't so righteous, and they aren't so awful—and thinking they are is the way to get that "Red *and* dead" solution.

That kind of a *troika* I'm in favor of—a system that acknowledges that there's a third alternative. Not dead. Not Red. And *not unchanged in attitude!*

Look—why is that Great Power Veto so terrible that we have to maneuver around it? Isn't it just as frustrating to the Russians?

They don't dare start a war a bit more than we do. I think perhaps the major difference is that they are realists enough to know that the Great Power Veto simply and validly reflects that fact—and we're trying to live a fantasy in which numbers-of-votes outweighs the facts of reality. Argument can change votes.

Argument doesn't affect facts.

Let's just consider one wild situation, and see what votes-vs.-facts would mean.

Suppose that Russia sends a force into one of the neighboring middle-eastern nations—say Iran.

We'll assume that the Malagasy Republic is on the Security Council at the time, and that Iran is also—and the Malagasy Republic introduces a resolution that the United States should launch an all-out nuclear attack on Russia, unless Russia immediately surrenders the military force in Iran.

All five Great Powers would veto the measure, naturally. So would Iran, if Iran's negative vote constituted a veto. Start anything like that going, and where do the nuclear hot-spots start showing up? On the battlefield —Iran—naturally! Iranese may be willing to fight for their homeland—but that won't be possible after a saturation nuclear attack has removed that homeland from existence.

But the Malagasy Republic bypasses the Great Power veto in the General Assembly.

Now an all-out nuclear attack—U.S.-to-U.S.S.R. or U.S.S.R. to U.S., it makes no difference whatever—will mean the effective annihilation of all the Northern Hemisphere nations. What direct nuclear attack doesn't vaporize, fall-out will destroy.

But the Southern Hemisphere nations aren't in the same wind-current system; the north-south atmosphere mixing is relatively slow, and a nation as well south of the Equator as the Malagasy Republic would probably survive with relatively little immediate damage—and who cares about what happens generations hence?

One thing sure—with all the Northern Hemisphere nations knocked flat, the Southern Hemi-

sphere nations will not longer be fifth-rate "backward nations"; they'll be the most highly-developed, productive, and highest-standard-of-living nations on Earth for a change!

By reason of jealousies, petty spites, and fancied wrongs; by reason of misunderstandings of just what a nuclear war would really mean—for one reason or another—let's say that a majority of the General Assembly votes that the U.S. launch an immediate punitive nuclear attack on the U.S.S.R.

They've overridden the Great Power Veto, in just the manner we showed them. It is now official that the United States must launch a punitive attack on the U.S.S.R.

So what happens?

The Great Power Veto isn't just a parliamentary procedure; the parliamentary procedure is supposed to reflect the real world. The reality Great Power Veto simply means that, of course, the United States ignores the whole silly business, and goes about the serious business of getting the issue settled reasonably.

It's quite impossible to live by any such fantasy as having the votes of a lot of half-formed nations, whose people are totally incapable of understanding the issues at stake, try to tell the United States to take any such stupidly suicidal action.

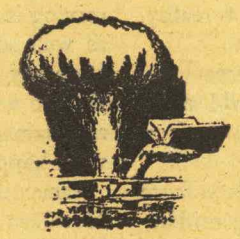
The fantasy that votes are more important than facts—or that numbers of votes determine what the facts are —is a lethal fantasy.

I have made my choice: I flatly refuse to be either Red or dead. I'm strongly in favor of being reasonable enough to find an attitude that's more livable.

We need the United Nations—but only if it serves as a realistic system, in which the real forces of the real world are accurately reflected in a parliamentary system where they can be worked with to produce valid results.

You can't navigate safely by an imaginary map of a non-existent sea —and a map of the world that says there's a free passageway right around the Great Power veto is an imaginary map. That free channel is lined solid with massive outcroppings of the continental bedrock; it is absolutely certain death to try to pass through.

The Editor.



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