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September 1968

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BULGE

by
Hal Clement

"The Elf in the Starship Enterprise"

—a poem and portrait

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Forgotten road to success in writing

By J. D. Ratcliff

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More Bubbles For Your Bier

Next time you drink a glass of Coke or beer, consider the bubbles: pure carbon dioxide, and a very useful substance. In its proper proportion in the atmosphere it stimulates the breathing reflex; frozen, it becomes dry ice; gaseous, it not only charges carbonated beverages but provides the world's vegetation with the raw material for photosynthesis, from which they construct themselves.

But we can have all too much of even the best of Good Things, and carbon dioxide looks like being too much, too soon.

You know, of course, that pollution of the air is a major problem all over the world; it rots rubber and ancient marble, it dirties clothes and walls, it multiplies the rate of respiratory diseases like emphysema and lung cancer and it kills people outright — especially babies and invalid elders — in cities during heavy smog attacks.

For this reason a lot of places have passed laws regulating the permissible output of impurities from automobile exhausts, factory chimneys, home heating systems and so on, and a few places have even enforced them. With a little luck we can (given the will to make the effort) eliminate most of the above difficulties by eliminating ozone, carbon monoxide, aerosols, sulphur and lead compounds and a few other poisons from what we fling into the air every time we burn fossil fuel.

But no one has suggested a way of eliminating carbon dioxide from the gases of combustion, for two reasons. The first reason is that no one seems particularly worried about CO₂. After all, it's a Good Thing, isn't it? And the other reason is that no one can. You can't keep carbon dioxide out of the exhaust of any combustion of fossil fuels; that's the reaction that produces the energy.

But we suggest we start worrying about it. We suggest that if we don't do something about it right now, we're going to face a far more hostile world environment in a few years. And we suggest that it may right now be too late to worry — because it's probably too late to do anything that won't in itself be reasonably disastrous to our way of life.

Every time you burn an atom of carbon in air you take one molecule of oxygen out of the air and replace it with one molecule of carbon dioxide.

To be sure, there are a lot of molecules of oxygen in the air — somewhere around 70 million tons of oxygen for every square mile of the Earth's surface, and the Earth has close to 5 billion square miles of surface.

But there's a lot of fossil fuel, too. No one knows exactly how much — it depends on how much you want to pay for it, basically — but the recoverable amount at not much more than present costs of production is

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something like seven million million tons of coal (all grades) and somewhere around four or five million million barrels of oil or its equivalent (natural gas, tar sands, oil shale, etc.)

Suppose we taken all the low-cost fossil fuel out of the ground and burn it — which is, after all, what we are in the process of doing as rapidly as we can. What happens to the atmosphere?

As far as oxygen depletion is concerned, not much, except locally. Even now cities like New York and Philadelphia have detectably lower oxygen partial pressures than the “natural” atmosphere.

But as far as proportion of CO₂ is concerned — ah, that’s different! There’s only about three one hundredths of one per cent of carbon dioxide in the air normally. By the time we finish burning the commercially now-available fossil fuels, we’ll have almost tripled that — to about 0.08% — and that is certainly far above the danger point both physiologically and in terms of its effect on climate. The greenhouse effect will warm the Earth rather radically; the triggering effect of CO₂ on respiration will have us panting for breath, while giving us headaches.

Of course plants will do their best to photosynthesize our problems away. But how much can they do? In the U.S. alone we pave over a million acres of greenery a year; worldwide, we destroy an incalculable area. Pelagic plants in the sea do the major share of the work — but we’re shipping plant-killers in tanker lots to Vietnam, for instance; and what

will happen if a couple of those tank ships happen to sink, or founder, and discharge their contents into the sea?

Obviously quite a lot will happen. But it’s pretty likely that we need not consider what will take place if vegetation is depleted; just the burning of coal and oil will produce a problem big enough to keep us busy. For the greenhouse effect is potent medicine. Shortwave heat from the sun goes through carbon dioxide easily; reflected heat is longer in wavelength, and to the long waves carbon dioxide is pretty opaque. So we keep the heat. Keep enough of it, and the polar ice caps begin to melt — no one knows, really, at what point it happens, or how fast. But happen it will, and then good-bye to New York and all that. Future editorial work in the Galaxy publications office will have to be carried on in SCUBA gear.

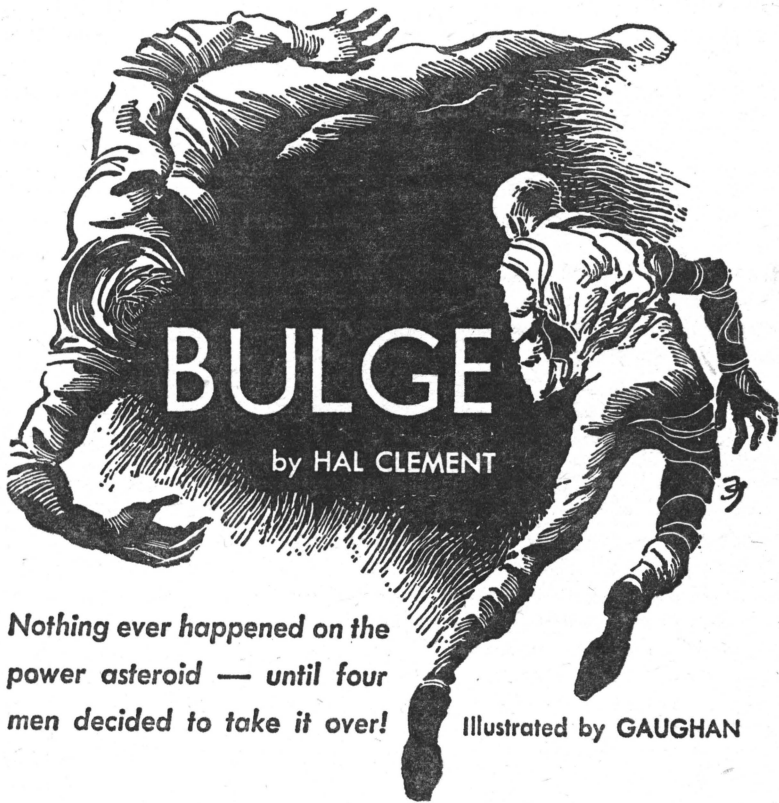
One solution, of course, is fewer people. Anyone who knows how to bring about that state please step forward and tells us the secret.

Another is to give up burning fossil fuels. Not bad, except that, for openers, that probably means giving up the automobile. And that strikes us as a problem in cultural change compared with which taking the life-saver away from a drowning man would be easy.

Certainly we can get along without cars. But equally certainly, we don’t intend to. We’ll keep them if they kill us. . . .

And you know, they just might.

— THE EDITOR



Nothing ever happened on the power asteroid — until four men decided to take it over!

Illustrated by GAUGHAN

I

Mac Hoerwitz came back to awareness as the screen went blank, and he absently flicked the switch and reset the sheet-scanner. He had not really watched the last act. At least, he didn't think he had. He knew it so perfectly that there was no way to be certain whe-

ther Prospero's closing words were really still in his ears or that it was simply memory from earlier times.

Two things had been competing with *The Tempest* for his attention. One was the pain where his left index fingernail had formerly been, and the other was a half-serious search through his memory to decide whether Shakespeare had ever

used a character quite like Mr. Smith. The two distractions were closely connected, even though Smith had not removed the nail himself. He had merely ordered Jones to do it.

Hoerwitz rather doubted that Shakespeare would have been satisfied with a Smith. The fellow was too simple. He knew what he wanted and went after it without knowing or caring what anyone else in the picture might care. He was an oversized two-year-old. Shakespeare would have made him more complicated and more believable, even back in his Henry the Sixth days.

It was a nice idea, with perhaps some scholarly merit. But it didn't really help with the present problem. This was more a piece of post-Edwardian melodrama than a carefully thought out Shakespearean plot. The hero had been trapped by armed villains, in a situation from which there was no obvious escape, and was being forced to help them commit grand larceny.

Of course in a piece of prohibition-era fiction he would have refused steadfastly to help, but Hoerwitz was no flapper's hero. He was eighty-one years old and had a mass of just one hundred pounds distributed along his seventy inches of height. He could not possibly have lifted that mass against Earth's gravity. He smiled in spite of the pain of his hand when he recalled the facial expressions when

Smith and his three followers had first seen him.

They had gone to a great deal of trouble to make their approach unobtrusive. They had arrived near the apogee point of the station's six-day period instead of making the just-after-perigee rendezvous which the freighters found more economical. This had served the double purpose of making fairly sure there would be no other ships present and of being harder to observe from Earth. At one hundred seventy thousand miles or so, a one-mile asteroid is visible to the naked eye and a modest-sized spaceship can be seen in a good telescope, but one has to be looking for them deliberately.

It was a rendezvous, of course, rather than a landing. The latter word means nothing on a celestial body where a spacesuited man weighs about a quarter of an ounce. They had made the rendezvous skillfully enough so that Hoerwitz had not felt the contact — or at least, hadn't noticed it over the sound effects accompanying Hamlet's stepfather's drinking. There had been no trouble about entering, since the air lock leading "underground" or "inside," whichever way one preferred to think of it, was plainly visible and easily operated from without. The possibility of anyone's stealing the horse from this particular stable had not

occurred seriously to anyone responsible for building the place; or if it had, he had attached more weight to the likelihood of space emergencies which would need fast lock action.

So Mr. Smith and his men had entered and drifted down the tunnel to the asteroid's center not only unopposed but completely unnoticed, and Mac Hoerwitz's first realization that he was in trouble had come after the final peal of ordinance ordered by Fortinbras.

Then he had turned on the lights and found that Hamlet had four more spectators, all carrying weapons. He had been rather startled.

So had the others, very obviously, when they had their first good look at him. Just what they had expected was hard to say, but it must have been something capable of more violence than the station manager. The leader had put away his gun with almost an embarrassed air, and the others had followed his example.

"Sorry to surprise you, Mr. Hoerwitz," the intruder had opened. "That was a very good sheet. I'm sorry we missed so much of it. Perhaps you'd let me run it again some time in the next few days.

Mac had been at a loss to reconcile the courtesy with the armament.

"If all you want is to see my library, the weapons are a bit uncalled-for," he finally got out. "I

don't know what else I can offer you except accommodation and communication facilities. Do you have ship trouble? Did I miss a distress call? Maybe I do pay too much attention to my sheets — "

"Not at all. We'd have been very disappointed if you had spotted our approach, since we made it as unobtrusive as possible. You are also wrong about what you can give us. Not to waste time, we have a four-thousand-ton ship outside which we expect to mass up to ten thousand before we leave, with the aid of your Class IV isotopes."

"Six thousand tons of nuclear fuel? You've been expanding your consciousness. It would take sixty hours or more if I reprogrammed every converter in the place — only one of them is making Class IV now, and the others are all running other orders. There's barely enough conversion mass in the place for what you want, unless you start chipping rock out of the station itself. I'd guess that on normal priority you'd get an order like that in about a year, counting administrative time for the initial request."

"We're not requesting. As you know perfectly well. You will do any programming necessary, without regard to what is running now, and if necessary we will use station rock. I would have said you'd chip it for us, but I admit there's a difference between the merely illegal and the impossible. Why do

they keep a wreck like you on duty out here?"

Hoerwitz flushed. He was used to this attitude from the young and healthy, but more accustomed to having it masked by some show of courtesy.

"It's the only place I can live," he said shortly. "My heart, muscles, and bones can't take normal gravity. Most people can't take free fall — or rather, they don't like the consequences of the medication needed to take it indefinitely. That makes no difference to me. I don't care about muscle, and I had my family half a century ago. This job is good for me, and I'm good for it. For that reason, I don't choose to ruin it. I don't intend to do any reprogramming for you, and I'd be willing to bet you can't do it yourself."

Smith's gun reappeared, and its owner looked at it thoughtfully. The old man nodded toward it and went on, "That's an argument, I admit. I don't want to die, but if you kill me it certainly won't get you further." Mac found that he wasn't as brave as his words sounded; there was an odd and uncomfortable feeling in his stomach as he looked at the weapon. He must have covered it well, however, because after a moment of thought the intruder put the gun away again.

"You're quite right," he said. I have no intention of killing you, because I do need your help. We'll

have to use another method. Mr. Jones, please carry out our first stage of planned persuasion?"

II

Fifteen minutes later Hoerwitz was reprogramming the converters as well as he could with an unusable left hand.

Smith, who had courteously introduced himself during the procedure, had gone to the trouble of making sure his victim was right-handed before allowing Jones to start work. It would, as he said, be a pity to slow the station manager down too much. The right hand could wait.

"How about my toes?" Hoerwitz had asked sarcastically, not yet fully convinced that the affair was serious.

"It seems to have been proved that feet have fewer nerves and don't feel pain as intensely," replied Smith. "Of course, the toes will still be there if we need them. Mr. Jones, start with the left hand."

Mac had decided almost at once that the visitors were sincere, but Jones had insisted on finishing his job in workmanlike style. Smith had supported him.

"It would be a pity for you to get the idea that we weren't prepared to finish anything we started," he pointed out.

As he floated in front of the monitor panels readjusting potentiome-

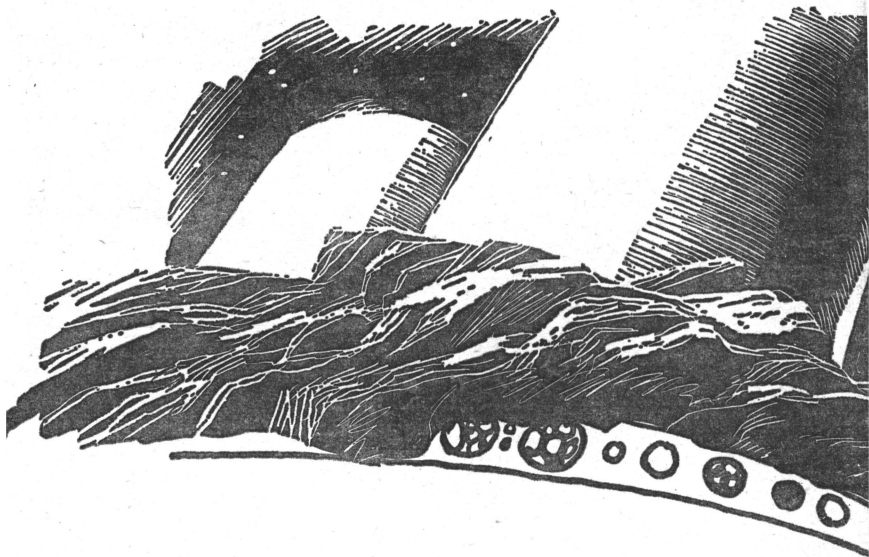
ters and flow-control relays, Hoerwitz thought furiously. He wasn't much worried about his guests actually getting away with their stolen fuel; what he was now doing to the controls must be showing on repeaters in Elkhart, Papeette and Bombay already. The station was, after all, part of a company supposed to be doing profitable business, and the fact that fusion power plants were still forbidden on Earth didn't mean that the company wasn't keeping close track of its products. There'd be radioed questions in the next few minutes, and when they weren't answered satisfactorily there'd be arrangements to send a ship. Of course, the company would wait two or three days and make a perigee rendezvous, but if the indicators bothered the directors sufficiently they might ask a police launch to investigate sooner. On the whole, it was unlikely that anything would happen until shortly after perigee; but something *would* happen to prevent the thieves' escape.

The trouble seemed to be that that something wouldn't do Mac himself any good. Up to now, genuine criminals who were willing to use actual violence had been strictly reading material for him; but he had done plenty of reading. He had a vivid mental picture of the situation. The belief that they would kill him before leaving was not so much insight as it was reflex.

They might not even wait until the job was done. The new program was set up for the converters, and he would not be essential unless something went seriously astray. It never did, but he hoped the thieves were the sort of people who worried about things going wrong.

He found his stomach reacting again when Smith approached him after the converters had been restarted. The gun was not in sight, but Mac knew it was there. For that matter, it wasn't necessary; any of the visitors could break his neck with one hand. However, Smith didn't seem to have violence on his mind at the moment. In fact, his speech was encouraging. He would hardly have bothered to give warnings about Hoerwitz's behavior unless he planned to keep the manager around for a while.

“A few points you should understand, Mr. Hoerwitz,” the boss-thief explained. “You must be supposing that the change in converter program will attract, or has already attracted, notice at home. You are wrong. A mysterious ailment has affected the monitor computers at the central plant. Signals are coming in quite normally from the space factories, but they are not being analyzed. The engineers are quite frantic about it. They hope to get matters straightened out in a few days, but in the



meantime no one is going to worry more about one space factory than another unless some such thing as a distress message is received.

"I know you wouldn't be foolish enough to attempt to send such a message, since you still have nine fingers available for Mr. Jones's attention, but to remove temptation Mr. Robinson has disabled your station's radio transmitters. To make really sure, he is now taking care of those in the spacesuits. We realize that a suit radio could hardly be received, except by the wildest luck, at Earth's present distance; but that distance shrinks to only about a thousand miles at perigee, as I recall.

"If you do wish to go outside,

by all means indulge the impulse. I might enjoy a walk with you myself. Our ship is a former police supply boat, heavily armored and solidly locked. One of us has the only key — I wouldn't dream of telling you which one. Even if you forced your way aboard, which seems possible, its transmitter channels are not standard. They would be received by my friends, not yours. You could not take the ship away, supposing you are enough of a pilot to try it, because it is parked beside your waste radiators, and the exhaust would wreck them — "

"You landed beside the radiators?" For the first time, Mac was really alarmed.



"Oh, no. We know better than that. We landed by your airlock and carried the ship around to the radiators. It weighs only about five hundred pounds here. I fear you couldn't carry it away again by yourself, and it's on rough enough ground so I don't think rolling it would be practical.

"So, Mr. Hoerwitz, you may as well relax. We'll appreciate your attending to your normal business so that our order is ready as soon as possible, but if you prefer to go out for a walk occasionally we don't really mind. I suppose even you could jump off into space, since I understand that escape velocity here is only about a foot a second, and we'd be sorry to lose you that way; but it's entirely up to you. You are perfectly free in all matters which don't interfere with our order. Personally, if I were you I'd go back to quarters and enjoy that really excellent sheet library."

Hoerwitz had gone, but hadn't really been able to concentrate on *The Tempest*. Some of Caliban's remarks had caught his attention because they expressed his own feelings quite well, and he caught himself once or twice wishing for a handy Ariel. However, he was much too old to spend much mental effort on wishing, and the only spirits available at the station were material mechanisms of very restricted versatility. Worse, he was

probably not completely free to command them, unless Smith and Company were unbelievably incompetent.

Of course, if something appeared to be going wrong, they would have to trust him to fix it; maybe something could be worked up from that side.

But what could be done, anyway? Just what did he have? The plant turned over vast quantities of energy, but it certainly wasn't a magic wand. It had the complex gear of a hydrogen fusion unit, and a modest tonnage of hydrogen-deuterium slush; while it would require deliberate bypassing of a host of safety devices to do it, it would be quite possible to blow the asteroid into a cloud of plasma. This had certain disadvantages besides the likelihood of blinding the unfortunates on Earth who happened to be looking toward the station at the key moment. For one thing, it didn't really deal satisfactorily with Smith and his friend. It merely promised to dispose of them, and the way Mac's finger felt at the moment that wasn't quite bad enough. What else did he have?

There were a score of converters, each designed to take matter and transform it, using the energy of the fuser, into isotopes which could be used on Earth legally and more or less safely as power sources. At the moment, all were working on the Class IV mixtures — the fast-

yield substances usable for spacecraft fuel, industrial blasting and weaponry, which Smith had demanded. Whether he and his friends planned to use the stuff themselves for bank robbery or political subversion, or merely feed the black market, Hoerwitz neither knew or greatly cared. A minute charge of any Class IV product, assuming that he would get hold of it, could certainly get him into the thieves' ship, no matter how well she were armored. Whether the ship would be worth getting into after such treatment was debatable. A production controller is one thing and a nuclear-explosives expert quite another. Hoerwitz happened to be the first. Trying to abstract explosives under the eyes of Smith, Jones and Associates seemed not only dangerous but probably useless.

There were the radiators, the most conspicuous part of the plant from outside. They were four gigantic structures, each some five hundred feet across and nearly as high. The outer walls were cylindrical and contained high-powered refrigeration circuits; their inner surfaces carried free-election fields which rendered them nearly perfect reflectors. Inside the cylinders, out of contact with their walls, were the radiators themselves — huge cores of high-conductivity alloy, running at a temperature which would have evaporated them into space in minutes if they had not

been held together by fields similar to those which restrained the fusion units. The whole structure was designed to get rid of waste energy, of course.

Any serious absorption by the planetoid of the flood being radiated from those units would have started a sequence of troubles of which the warming of the fusion-fuel slush would have been a minor preliminary. Secondly, the units were arranged to shine away from Earth; their location on the asteroid and the latter's rotation had been arranged with this in view. It was not a perfect success in one way, since the extremely eccentric orbit in which the asteroid had been placed to facilitate freight-handling work produced a longitude libration of over a hundred degrees each way; but Earth had agreed to put up with this. The periodic flashes of light from the space factories were rather scenic in their way, and most of the astronomers had moved to the moon or to orbiting observatories anyway.

But those radiators did throw away an awful lot of energy. One should be able to do *something* with it in a situation like this; something really useful. But what?

III

It was really a pity that the library contained no Fu Manchu or Bulldog Drummond. Hoerwitz

needed ideas. Since it looked as though he would have to furnish his own, he selected a sheet for background material, slipped it into the scanner and drifted toward the cobwebby hammock in the center of the lounge while Flavius berated the holiday-making citizens of Rome on the screen. It was reasonably appropriate; the manager drowsed; there was certainly an Ides of March coming. He wished his finger would stop hurting. The script and background music flowed along a track that his awareness had followed a hundred times before . . .

The frantic disclaimers of Cinna the Poet awakened him. He had drifted and been held against the hammock by the current from the air circulator. The feeble gravity which gave the visiting ship a weight of five hundred pounds at the surface was of course absent in the living quarters at the center of the asteroid. Almost automatically he pushed himself back to the console and shut off the sheet-scanner at the end of the third act. Obviously this wasn't helping him to think. He'd better check the converter monitors just to wake himself up and then get some exercise.

Robinson was in the tunnel outside the lounge and without saying a word followed Mac along the passage. The fellow was certainly not very much at home in zero gravity; his coordination as he passed himself from handhold to hand-

hold was worse than sloppy. If this were equally true of the others, it might be a help.

As things turned out, it was.

Smith and Jones were in the control room, drifting idly away from the walls. Another good sign. Either they, too, were unused to free fall or had completely dismissed Hoerwitz from their minds as a menace. Neither of them could have gotten into action for quite a few seconds, since neither had a pushoff point within reach — not even each other.

They said nothing as the manager and his satellite entered, but watched the former as he aimed and pushed off from a point beside the door and drifted along the indicator panels, taking in their readings as he went. Somewhat to his regret, though not to his surprise since no alarms had sounded, Mac found everything going as programmed. He reached the far end of the room and reversed his drift, aiming for the door. The new course took him within reach of Robinson, and that individual at a nod from Smith seized the old man's arm as he went by.

This was a slight mistake. The result was a two-body system spinning with a period of about five seconds and travelling toward the door at about a quarter of Hoerwitz's former speed. The manager took advantage of the other's confusion to choose the time and style

of his breakaway from the system. He came to a halt, spin gone, four or five yards from the meeting point. Robinson, who had been made a free gift of their joint angular momentum, brought up with his head in painful contact with the edge of the doorway. Mac couldn't pretend to be sorry; Jones concealed a grin rather unsuccessfully, and Smith showed no sign of caring either way. His order to stop Hoerwitz for a conversation had been obeyed; the details didn't bother him.

“How long is our fuel going to take?” he asked.

“Another fifty to fifty-five hours, barring offtrack developments,” replied the manager. “I gave you an estimate at the beginning, and there's no reason to change it so far. I trust these instruments, unless you or one of your friends have been playing with circuits. I know you jimmied the radio, but if your man knew what he was about that shouldn't have bothered this board.”

“That's all I wanted to know. Do what you want until it's time to check your instruments again.”

“It's night by my clocks. I'm sleeping for a few hours, now that I've had my daily workout. I see you know where my quarters are — what were you searching for, guns or radios? You brought the only weapons this place has ever seen

yourselves, and a radio able to reach Earth is a little too large to hide in a photo album.”

“Spacesuit radios are pretty small.”

“But they’re in spacesuits.”

“All right. We just like to be sure. Wouldn’t you be happier to know that we weren’t worrying about you?” Hoerwitz left without trying to answer that. Smith looked after him for a few seconds, and then beckoned to Brown.

“Don’t interfere with his routine, but keep an eye on the old fellow. I’m not so sure we really convinced him, after all. I’d much rather keep him around to do the work, but the job is much too important to take chances.” Brown nodded, and followed Hoerwitz back to the latter’s quarters. Then he took up his station outside, glanced at his watch, helped himself to a set of the pills needed to keep human metabolism in balance under zero-G, and relaxed. The “night” wore on.

Hoerwitz had been perfectly sincere about his intention of sleeping. He had developed the habit of spending much of his time in that state during his years at the station. His age may have been partly responsible, but the life itself was hardly one to keep a man alert. Few people could be found to accept the lonely and boring jobs in the off-Earth factories — so few that many of them had to be run

entirely by computer and remote control. Hoerwitz happened to be one of the sort who could spend all his time quite happily with abstract entertainment — books, plays, music or poetry. He could reread a book, or see the same play over and over again, with full enjoyment, just as many people can get pleasure out of hearing the same music repeatedly. Few jobs on Earth would have permitted him to spend so much time amusing himself; the arrangement was ideal both for him and his employers. Still, he slept a lot.

He therefore woke up refreshed, if not exactly vigorous, some nine hours after Brown had taken up his guard station. He was not only refreshed but enthusiastic. He had a plan. It was not a very complicated one, but it might keep him alive.

It had two parts. One was to convince Smith that the intruders could not load their loot without Mac’s help. This should be simple enough, since it was pretty certainly true. Shifting twelve million pounds of mass by muscle-power, even in zero-G, is impractical for four men in any reasonable time. The alternative was the station’s loading equipment, and it was unlikely that anyone but Hoerwitz would be expert in its use. If the thieves were convinced of that, at least they’d keep him alive until the last minute.

The second part of the plan was

to arrange for himself a refuge or hiding place good enough to discourage the four from spending the time necessary to get him. This assumed that they had assigned high priority to getting away as soon as possible after loading the stolen fuel, which seemed reasonable. Details here, however, required more thinking. It might be better to trust to concealment; on the other hand, there was something to be said for a place whose location was known to the enemy but which obviously couldn't be penetrated without a lot of time and effort.

On the whole, the latter choice would make him feel safer, but he couldn't offhand think of a really impregnable spot. There were very few doors of any kind in the station, and even fewer of these could be locked. Air-breaks were solid, but not made to resist intelligent attack. None of the few locks in the place was any better in that respect, if one assumed that the thieves were of professional caliber.

Of course, much of the factory equipment itself, designed to contain nuclear reactions, would have resisted any imaginable tools. None of this could, however, be regarded as practical for hiding purposes; one might as well get inside a blast furnace or sulfuric-acid chamber.

All in all, it looked as though straight concealment were going to

be more practical, and this pretty well demanded the outside of the asteroid.

The tunnels of the station were complex enough to make a fairly good labyrinth, but there was a reasonable basic pattern underlying their arrangement. Hoerwitz knew this pattern so well, quite naturally, that it never occurred to him that his unwelcome guests might have trouble finding him in the maze once he got out of sight. He did think of turning out the lights to complicate their job, but they should have little trouble turning them back on again. Robinson, at least, must know *something* about electricity. Besides, darkness and weightlessness together were a very bad combination even for someone as used to the latter as Hoerwitz. No, outside would be best.

The asteroid was far from spherical, had a reasonable amount of surface area, and its jagged surface promised all sorts of hiding places. This was especially true in the contrasty lighting of airlessness. Mac could think of a dozen possible spots immediately — his years of residence had not been spent entirely inside. During safe periods he had taken several trips outside (safe periods meant, among other things, the presence of company; taking a lone walk in a spacesuit is about as sensible as taking a lone swim in the Indian Ocean).

More familiarity with the surface

would have been nice, but what little he had should at least be greater than the others did. If he were to drop casually some remark which would give the impression that he knew the outside like one of his own Shakespeare sheets, they might not even bother to search once he was out of sight — provided he waited until there was very little time left before they were leaving, and provided he was able to disappear at all. Too many ifs? Maybe.

It was also important that Smith not change his mind about letting Hoerwitz take walks outside. It wouldn't require careful guarding to prevent such an excursion; five seconds' work on Mac's spacesuit would take care of that. It was annoying that so much of the plan depended more on Smith's attitude than on Hoerwitz's action, especially since Smith didn't seem to believe in taking chances. The attitude would be hard to control. The manager would have to seem completely harmless — but he'd better take Hamlet's advice about over-acting.

That was a matter of basic behavior. On the question of useful action, there was another factor to consider. At the present setup rate, the isotopes the thieves wanted would be ready ten or a dozen hours before perigee, which Mac was still taking as the latest time they'd want to stay around. Something

really ought to be done to delay the conversion and delivery process, to keep at a minimum the supply of spare moments which could be devoted to looking for missing factory managers. Could he slow down the converters without arousing suspicion? He knew much about the machines, and the others presumably knew very little, but trying to fool them with some piece of fiction would be extremely risky. His left hand gave an extra twinge at the thought.

Of course, some genuine trouble *could* develop. It hadn't in all his years at the station, but it could. There was no point waiting for it, and even if it did they'd probably blame him anyway, but — could he, perhaps, arrange for something to happen which would obviously be Jones's fault? Or Smith's own? The basic idea was attractive, but details failed to crystallize.

It was certainly high time for action, though if he hoped to accomplish anything such as living; the closer to completion the process came, the less good a slowdown would accomplish. In fact, it was time to stop daydreaming and get to work. Hoerwitz nodded slowly to himself as ideas began to shape up.

IV

He went to the galley and prepared breakfast, noting with-



out surprise that the others had been using his food. It was too bad that he didn't have anything to dose it with for their benefit. He measured out and consumed his daily supply of null-G medicines, and put the utensils in the washer — one common aspect of his job he had refused to accept. Difficult as such things as ham and eggs are to manage in free fall, he had insisted on regular food instead of tubes of paste. He worked out techniques of his own for keeping things in the plate. Some day, he had been telling himself for a couple of decades, he would write a book on zero-G cookery.

With the galley chores done, he aimed himself down the corridor

toward the control chamber. Brown and Robinson were inside, both looking bored. The latter was drifting within reach of a wall, the manager noticed; perhaps his experience of the day before had taught him something. Hoerwitz hoped not. Brown was near the center of the room and would be useless to his party for quite a few seconds if action were required.

The instruments were disgustingly normal. All twenty converters were simmering along as programmed. Not all were doing just the same things, of course; they had been loaded with different substances originally and had been interrupted in various stages of differing processes when Hoerwitz had



been forced to reprogram. One of them had already been processing a Class IV order and was now approaching the climax of its run. It seemed wiser to point this out to the thieves so that they wouldn't think he was up to anything when he shut this one down, as he would have to do in a few hours. He did so.

"At least you people won't have to do everything at once," he remarked.

"What do you mean?" asked Brown.

"When you came, I told you that one of the units was on Four already. You can tell your boss that it should be ready to load in eight hours or so. I'll show you where

the loading conveyors are handled from — or do you want to lug it out by hand? You were bragging about carting five hundred pounds of ship around when you came."

"Don't be funny, old fellow," cut in Robinson. "You might as well have that loading machinery ready. You might even be ready to show a couple of us how to use it. If Smith should decide he doesn't like your attitude, we might be the only ones able to."

"All right with me," replied the manager. He felt reasonably safe as long as Smith himself was not present. It had seemed likely that none of the others would dare do anything drastic to him without direct orders, and Robinson's remark

had strengthened the belief. "The controls are in a dome at the surface. They're simple enough, like a chess game."

"What does that crack mean?"

"Just what it sounded like. Any six-year-old can learn the rules of chess in an hour, but that doesn't make him a good player. I'm sure Mr. Smith won't need you to remind him of that when you suggest that you ought to do the loading." The two men glanced at each other, and Robinson shrugged.

"Better show me where the controls are, anyway," he said. "You better stay here," he added to Brown. "I'll be with Hoerwitz, but Smith said this panel was never to be left unwatched. We might not have time to explain if he found us both gone." The other man nodded. Hoerwitz, keeping his face as expressionless as he could, led the way to the station he had mentioned.

This was about as far from the control chamber as anything could be, since it was at the surface. It lay near the main entrance, a quarter of the way around the asteroid's equator from the radiators. The converters themselves were scattered at fairly regular intervals just under the surface. The general idea was that if one of them did misbehave it would meet only token resistance outward, and the rest of the plant might have a

chance. Access and loading tunnels connecting the converters with the cargo locks and the living quarters were deliberately crooked. All these tricks would of course be futile in a major blowup, but it is possible to have minor accidents even in nuclear engineering.

The dome containing the loading control panels was one of the few places offering a direct view to the outside of the asteroid. It had served as a conning site while the body was being driven in from beyond Mars; it still was sometimes used that way. The thrust pits were still in service, as the present long, narrow orbit was heavily perturbed by the moon and required occasional correction near apogee. This was not done by Hoerwitz, who could no more have corrected an orbit than he could have built a spaceship. The thrust controls were disconnected except when a ballistics engineer was on hand.

The dome was small, little more than a dozen feet across, and its entire circle was rimmed with conveyor control panels. Hoerwitz, quite unintentionally, had exaggerated their simplicity. This might have gotten him into trouble with anyone but Robinson. Without worrying about this situation, since he failed to recognize it, the manager promptly began explaining.

"First, you want to be careful about these two guarded switches on each panel," he pointed out.

"They're designed to bypass the safeties which normally keep you from putting too hot a load on the conveyors, so that you can dump a converter in an emergency. At the moment, since all the units are hot, you couldn't operate any part of conveyor system except by those switches.

"Basically, the whole thing is simple enough. One panel is concerned with each of the twenty separate conveyor systems, and all panels are alike, so —"

"Why didn't they make just one panel, then, and have a selector to set it on any one of the reactors?" asked Robinson. Hoerwitz sadly revised upward his estimate of the fellow's brain power, as he answered.

"Often several ships are loading, or several reactors unloading, at one time. It turned out to be simpler and safer to have independent control systems. Also, the system works both ways — customers get credit for mass brought to the station for conversion. We have to take material to the converters as well as away from them, and it's more efficient to be able to carry on several operations at once. The original idea, as you probably know, was to use the mass of the asteroid itself for conversion; but with laws about controlling rotation so that the radiators would point away from earth most of the time, and the expense of the original in-

stallation, and the changes in orbit and angular momentum and so on, they finally decided it was better to try to keep the mass of the place fairly constant. They did use quite a bit of material from it at first. There are a lot of useless tunnels inside, and quite a few pits outside, left over from those days."

Hoerwitz was watching his listener covertly as he spoke, trying to judge how much of this information was being absorbed, but the other's face was unreadable. He gave up and went on with the lesson.

They were joined after about a quarter of an hour by Smith, but the head thief said little, merely ordering the instruction to continue. The factory manager decided to take no more chances testing his listeners with double-talk; Smith had impressed him as being a different proposition from his followers. The decision to play safe in his presence proved a wise one.

It took another ten minutes for Mac to wind up the lesson.

"You'll need some practice," he concluded, "and there's no way to get it just yet. I was never a schoolteacher, but I understand that your best way of making sure how well you know something is to try to teach it to someone else. I trust Mr. Smith approves of that thought."

"I do." Smith's face didn't show

approval or anything else, but the words were encouraging.

"Give me a lesson right now, Rob. I'd particularly like to know just what this switch does — or did Mr. Hoerwitz forget to mention it?" He indicated the emergency-dump override.

"Oh, no, he showed me that first. We'd better keep clear of it, because it empties that particular converter onto its conveyor and dumps it into space, even though it's still hot."

For a moment there might have been a flicker of surprise on Smith's face.

"And he told you about it? I rather thought he might skip items like that in the hope that one of us might make a mistake he could not be blamed for." Hoerwitz decided that it would be less suspicious to answer that remark than to let it pass.

"Is there anything that could possibly go wrong that you would not blame me for?" he asked.

"Probably not, at that. I'm glad you realize it, Mr. Hoerwitz. Perhaps I'll be spared the nuisance of having to leave a man on guard here as well as at the main controls." He glanced through the dome's double wall at Earth's fat crescent, which dominated the sky on one side of the meridian as the did on the other. "Is there any way of shutting off access to this place until we're ready to use it? Think

how much more at ease we'd both feel if there were."

Hoerwitz shrugged. "No regular door. There are a couple of safety air-breaks in the corridor below; you could get one of them closed easily enough, since there are manual switches for them as well as the pressure and temperature differential sensors, but it would be a lot harder to open. If one of those things does shut, it's normally because air is being lost or dangerous reactions going on on one side or the other. A good deal of red tape is necessary to convince the machinery that all is well after all."

"Hmph." Smith looked thoughtful. "All right, we'll consider it. Rob, you stay here until I decide. You come with me, old fellow." Hoerwitz obeyed with mixed feelings.

It was lucky he hadn't tried to dump the reactors and shut himself off in the dome section, in view of Smith's perspicacity, but he couldn't thank his own intelligence or foresight for saving him. The sad fact was that he'd never thought of the trick until he was explaining matters to Robinson. Now it was certainly too late. Of course, it probably wouldn't have worked anyway, since someone like Robinson could presumably get air doors open again in short order; and there was an even brighter side, now that he thought of it. The last few minutes might well have

gone far to convincing Smith that the manager was really reconciled to the situation. One could not be sure of that, naturally, with a person like Smith, but one could hope. Time would no doubt tell — quite possibly in bad language.

As they floated back down toward the living section — Hoerwitz noted with some regret that Smith was getting better at handling himself in free fall — the head thief spoke briefly.

“Maybe you’ve learned your lesson. From what’s just happened, I guess we can both hope so. Just the same, I don’t want to see you anywhere near that place where we just left Robinson, except when I tell you myself to go there for my own reasons. Is that clear?”

“It is.”

“Good. I don’t really enjoy persuading people the hard way, but you may have noticed that Mr. Jones does. If you’ve really accepted the fact that I have the bulge on you, though, we won’t have to amuse him.”

“You’ve made everything very clear. Do you want the reactor which was working on Class IV when you came, and which will be ready pretty soon, to be unloaded as soon as it’s done?”

“Hmph. I don’t know. Does your loading machine deliver to any spot on the surface, or just by that dome?”

“Just at the dome, I’m afraid. It wouldn’t have been practical to run conveyors all over the place, and it’s even less so to drive trucks around on the surface.”

“All right. If it would mean moving our ship an extra time we’ll wait until everything is ready. It would be a nuisance to have to guard it, too.”

“Then you’re not really convinced I’ve learned my lesson, after all.”

“Don’t ask too many questions, Mr. Hoerwitz. Why not just assume that I don’t like to take chances?”

The manager was not inclined to act on impulse, but he sometimes talked on that basis. This was one of the times.

“I don’t want to assume that.”

“Why not?”

“Because one of your most obvious ways of not taking chances would be to leave no witnesses. If I believed you were that thorough. I might as well stop everything now and let you shoot me — not that I really enjoy the prospect, but I could at least die with the satisfaction that I hadn’t helped you.”

“That’s logical,” Smith answered thoughtfully. “I have only two answers to it. One you already know — we wouldn’t just shoot you. The other, which I hope will make you feel better, is that we aren’t worried about witnesses. You’ve been reading too much. We’ll have lived

in this place for several days before were done, but you must have noticed that we aren't wearing gloves to keep from leaving fingerprints, or spacesuits to foil the scene analyzers, or anything else of that sort. I'm sure the law will know who was here after we've gone, but that doesn't worry us. They already want us for so many different things that our main care is to avoid getting caught up with, not identified.

"Then why those names? Do you expect me to believe they're real?"

For almost the first time, Smith showed emotion. He grinned. "Go back to your drama sheets, Mr. Hoerwitz, but stick to Shakespeare. Lord Peter Wimsey is leading you astray. Just remember what I said about the conveyor controls: keep away from them."

V

If his finger hadn't been, so painful, Hoerwitz would have been quite happy as he made his way back to the lounge and let the air currents settle him into the hammock. He shunted *Julius Caesar* into the "hold" stack without zeroing its tracker, started *The Pajama Game*, and remained awake through the whole show. It was quite an occasion.

For the next couple of days everyone was on almost friendly terms, though Hoerwitz's finger

kept him from forgetting entirely the basic facts of the situation or warming up very much to Jones. Some of the men watched shows with him, and there was even casual conversation entirely unconnected with reactors and fuel processing. Smith's psychology was working fairly well.

It did not backfire on him until about twenty hours before perigee.

At that time Mac had been making one of periodic control checks, and had reported that the runs would be finishing off during the next ten or twelve hours. He would have to stay at the board, since they would not all end at the same time, and it was safer to oversee the supposedly automatic cooling of each converter as its job ended.

"What's all that for?" asked Smith. "I thought it didn't matter much what was in the converters at the start. Why will it hurt if a little of this is still inside when you begin your next job? Won't it just be converted along with everything else?"

"It's not quite that simple," replied the manager. "Basically you are right; we don't deal in pure products, and what we deliver is processed chemically by our customers. Still, it's best to start clean. If too much really hot stuff were allowed to accumulate in the converters between runs, it could be bad. If Class I or II fuel intended

to power a chemical industry, for example, were contaminated with Class IV there could be trouble on Earth — especially if the plant in question were doing a chemical separation of nuclear fuels.”

“But it’s *all* Class IV this time,” pointed out Smith, “unless you’ve been running a major bluff on us, and I’m sure you wouldn’t do that.” His face hardened, and once more Hoerwitz mentally kicked himself. He hadn’t even thought of such a trick, and he could probably have gotten away with it. There was no easy way to identify directly the isotopes being put out by the converters; it took specialized apparatus and specialized knowledge. It was pretty certain that Smith had neither. Well, too late now.

“It’s all one class, as you said,” the manager admitted with what he hoped was negligible relay, “but that’s just it. With Class IV in every converter and on every conveyor it’s even more important than usual to watch the cooling. I live here, you know. I’m not an engineer and don’t know what would happen if any of that stuff found its way into the hydrogen reactors, but I’d rather not find out.”

“But you must be enough of an engineer to handle the fusion units.”

“That doesn’t demand an engineer. I’m a button pusher. I can operate them very sensibly, but they don’t waste a trained engineer out here with the price of skilled labor

what it is. The trouble frequency of these plants is far too low to keep one twiddling his thumbs on standby the whole time.”

“But how about safety? If this place blows apart, it would take quite a few centuries of engineers’ pay to replace it, I’d think.”

“No doubt. I suspect that’s the point they’re trying to make, in order to modify or get rid of that law about hydrogen reactors on Earth. The idea is that if the company trusts them enough to risk all this capital without a resident engineer, what’s everyone worried about?”

“But the place *could* really let go if the right — or I should say the wrong — things happened.”

“I suppose so, but I don’t know what they’d be, short of deliberate mishandling. In the forty years I’ve been here nothing out of line had ever happened. I’ve never had to use that emergency dump I’ve showed you, or even the straight shutoff on the main board. Engineers come twice a year to check everything over, and I just move switches — like this.” He began manipulating controls. “Number thirteen has flashed over. I’m shutting down, and in about an hour it can be transferred from field-bottle to physical containers.”

“Why not now? What’s this field-bottle?”

Hoerwitz was genuinely sur-

prised, and once again annoyed. He had supposed everyone knew about that; if he had realized that Smith didn't. . . . Well, another chance gone.

"At conversion energies no material will hold the charge in. Three hundred tons of anything at all, at star-core temperature, would feel cramped in a hundred cubic miles of space, to say nothing of a hundred cubic yards. It's held in by fields, since nothing else will do it, and surrounded by a free-electron layer that reflects just about all the radiation back into the plasma. The little bit that isn't reflected is carried, also by free-electron field, to the radiators."

"I think you're trying something," Smith said sternly, and the manager felt his stomach misbehave again. "You said that those loads could be dumped in an emergency by the conveyors. And you described the conveyors as simply mechanical belt-and-bucket systems, a couple of days ago. Stuff that you just described would blow them into gas. Which was the lie?"

"Neither!" Hoerwitz gasped desperately. "I didn't say that the emergency dumping was instantaneous — it isn't. The process involves fast chilling, using the same conductor fields; and even with them, we'd expect the conveyors to need replacing if we ever used the system!"

"If that's so," Smith asked, "What

do you mean by saying a while ago that you didn't know what could happen to blow this place up? If one of those fields let go — "

"Oh, but it couldn't. There are all sorts of automatic safety systems. I don't have to worry about that sort of thing. If a field starts to weaken, the energy loss automatically drains into conductor fields, and they carry plasma energy that much faster to the radiators, so the plasma cools and the pressure drops — I can't give you all the details because I don't understand them myself, but it's a real fail-safe."

Smith still looked suspicious, though he was as accustomed as any civilized person to trusting machinery. It wasn't the machinery that bothered him just now.

"You keep switching," he snapped, "and I don't like it. One minute you say nothing can happen, and the next you talk about all these emergency features in case it does. Either the people who built this place didn't know what they were doing, or you're not leveling."

Hoerwitz's stomach felt even worse, but he kept up the battle.

"That's not what I said! I told you things couldn't happen *because* of the safety stuff! They knew what they were doing when they built this place — of course, half the major governments on Earth were passing laws about the way it should be done — "

"Passing laws? For something off Earth?"

"Sure. Ninety-five per cent of the company's potential customers were nationals of those countries, and there's nothing like economic pressure. Now, will you stop this nonsense and let me work, or decide you don't trust me and do it all yourself? There are more reactors almost ready to flash over."

It was the wrong line for the old man to take, but Smith also made a mistake in resenting it. It was here that his psychology really went wrong.

"I don't trust you," he said. "Not one particle. You've evaded every detailed question I asked. I don't even know for certain that that's Class IV stuff you've been cooking for me."

"That's right. You don't." Hoerwitz, too, was losing his tact and foresight. "I've been expecting you to make some sort of test ever since I set up the program. Or did you take for granted that whoever you found here would be scared into doing just what you wanted? Surely it isn't possible that you and the friends you said were somewhere else just don't have anyone able to make such a test! Any properly planned operation would have made getting such a person its first step, I should think — or have I been reading too much again?"

The expression which had start-

ed to develop on Smith's face disappeared, and he looked steadily at the old man for perhaps half a minute. Then he spoke.

"Mr. Jones. I think we will have to start Phase Two of the persuasion plan. Will you please prepare for it? We planned this operation, as you call it, Mr. Hoerwitz, quite carefully, in view of certain limitations which faced us. Exactly what those limitations were is none of your business, but remember that we so arranged matters that no one on Earth has been seriously worried by your failure to communicate — nor will they for some time yet. We know that no scheduled freighters are due here for two more revolutions, though we recognize the chance of a tramp tug dropping in with mass to deposit for credit — that is why we plan to have the job done before the next perigee. Our plans also included details for insuring the cooperation of the person we found on duty. The fact that he turned out to be about three times as old as we expected doesn't affect those plans at all. You have experienced the first part of them. I was rather hoping that no more would be necessary, but you seem to have forgotten that we have the bulge on you. Therefore, you will experience the second part, unless you can think of a way to prove to me that you have been telling the truth — and prove it in a very short time. I won't tell you what the time

limit is, but I have already decided on it. Start thinking, Mr. Hoerwitz. I believe Mr. Jones is ready."

Hoerwitz couldn't think. He probably couldn't have thought if the same situation had faced him forty or fifty years earlier; he had never claimed to be a hero. He spoke, but — as Smith had intended — it was without any sort of consideration.

"The Class IV stuff that was going when you arrived — it's cool — you could get a sample of it and test it in your ship's power plant!"

"Not good enough. I never doubted that you were telling the truth about that load. It will have to be something else. The material that's finishing now, or your claim that could really go wrong enough to blow this place into vapor if your fail-safe rigs weren't there — "

"But how could I possibly prove that, except by doing it?" gasped the old man.

"Your problem. Think fast. Mr. Jones will be with you in a moment. In fact, I think he's on the way now — not hurrying, you understand, because he isn't really proficient at moving around in this no-weight nuisance — but I think if I looked around I'd see that he had pushed off and was drifting your way. It would be unfair of me to spoil his fun if he gets to you before you've thought of something, wouldn't it?"

Smith of course meant to reduce

the manager to a state of complete panic in which he would be unable to lie, or at least to lie convincingly; but just as he had planned badly in not getting hold of a nuclear engineer of his own, he had planned badly in failing to consider all the possible results of panic. He may, of course, have realized that Hoerwitz might try to do something desperate, but failed to foresee how hard such an action would be to stop in the unfamiliar environment of weightlessness. It was easy to take for granted that a person with such a frail physique could be controlled physically by anyone with no trouble. This was perfectly correct — for anyone within reach of the old man.

No one was. Worse, from Smith's point of view, no one but Robinson was in a position to get there. As a result, Mac was able to do something which he would never have seriously considered if he had been given time to think. He was, of course, within reach of a push-off point as a matter of habit. He used every bit of muscle his frail old body could muster in a dive toward the center of the board — and made it.

Only Robinson had learned his lesson about drifting, and he misjudged his own pushoff and failed to intercept the manager. Hoerwitz reached and opened a plainly labeled switch, and with the action

his panic left him as suddenly as it had come, though fear still churned at his stomach.

"At least, you believed me enough not to risk bullets in the controls," he almost sneered. "There's your proof, Mr. Smith. I've just shut down all the converters. They're bleeding energy out of the main radiators and will be cool enough to handle in an hour. If you replace that switch, you'll know I was telling the truth about safeties. Go ahead. Close it. It's *safe*. All you'll get is a bunch of red lights all over the boards, telling you that safety circuits are blocking you. You'll have to start those processes from the beginning. I can set that up for you, of course. I will if you give the order; but anything else at all, except dumping the loads, of course, will block you with safeties."

"Why?" Smith was still in control of himself, though it was a visible strain.

"What do you think I am, an astrophysicist? I don't know why, if you want one of those detailed answers you were complaining about not getting. They come in high class equations. In words, which is all I understand about it, most of the processing time in these converters is for setup. The actual conversion is the sort of thing that goes on in the last moments of a supernova's fling, as I thought everyone knew. The con-

verter has to set up millions of parameters in terms of temperature, density gradients, potential of all sorts — even the changing distance from Earth in this orbit has to be allowed for, I understand — and I don't know what else before the final step is triggered, if a decent percentage of the desired isotope class is to be produced. I've just cleared the setup in eighteen of those converters. If you were actually to build them up to the temperature they had before I hit that switch, you probably *would* blow the place up. Hence, my friend, the safeties. Working out a reaction that not only produces useful isotopes but *also* balances endothermic and exothermic processes closely to hold the whole works under control is a perfectly good subject for a doctorate thesis. Do you think we could define a supernova — or even a few tons of one? Now, do you want me to start these stoves all over, or will you take two loads of Class IV instead of twenty, pull out all my fingernails and fly off in a rage gnashing your teeth?"

During this diatribe Smith had actually calmed down, which was hardly what Hoerwitz had expected. The thief nodded slowly at its end.

"I wouldn't have said there was anything which could happen here which I wouldn't blame on you," he said, "but I have to admit this one is on me. By all means, start the

cooking over. I have learned most of what I need to know. I think I can now manage well enough even if visitors show up during this overtime period you have pushed us into.

"You just restart the runs you interrupted, and when that's done come with me up to the dome. I want you to get the load that was just finished out onto the conveyors. Then you may resume your life of leisure and entertainment. Hop to it, Mr. Hoerwitz."

The manager hopped. He was too surprised at Smith's reaction to do anything else. He would have to recheck his Shakespeare memory; maybe there was someone like this after all. He worked the controls rapidly.

Jones looked disappointed except for a moment when Robinson suddenly said, "That's not the way he had them set before!"

Smith started to raise his eyebrows in surprise, but the manager, who had had no thought of deception at the moment, said, "We're not starting with the same stuff as before, remember. Many things happen long before the main conversion."

Smith stopped, thought for a moment, looked carefully at the old man, and nodded. Jones shrugged and relaxed once more.

By this time, certain facts were beginning to fit together in the manager's mind.

By the time the trip to the dome had been made and the finished load of isotopes transferred to its conveyor, Hoerwitz's brief sense of elation had evaporated, and he had written himself off as a walking corpse. He realized just what details he had overlooked, and just where the omissions left him. He floated slowly to his quarters, his morale completely flattened and hope for the first time gone.

Robinson's acute detail memory must have been a major factor in the planning Smith had mentioned. If Hoerwitz himself could run the plant effectively without a real basic understanding of what went on, so could Robinson. By arranging what had amounted to another lesson in the operation of the controls, the manager had made himself superfluous from the thieves' viewpoint.

Also, and much worse, he had completely missed the hole in the logic Smith had used when the fellow had tried to prove that he really wasn't worried about leaving witnesses. It was quite true that the thieves were taking no care about leaving fingerprints. Why should they bother about such details? No one can analyze individual personality traces from a million-degree cloud of ionized gas, and they certainly knew enough now to leave only that behind them.

Even if wiring around the safety circuits was too much for Robinson, which seemed unlikely in Hoerwitz's present mood; they could always sacrifice a ton or so of their loot. The Class IV fuels might not be up to hydrogen fusion standards, but they would be quite adequate for the purpose intended. Hiding, inside the asteroid or out, would be meaningless.

The only remaining shred of his original plan which retained any relevance was the desirability of fooling the others about his own attitude. As long as they believed that he expected to come out of the affair with his life, they would not expect him to do anything desperate, and they might let him live until the last moment to save themselves work. If they even suspected that he had convinced himself that they were going to dispose of him, Smith's dislike of taking chances would probably become the deciding factor.

This might involve a difficult bit of acting. Behaving as though he had forgotten what had happened would certainly be unconvincing. Trying to act as though he had even forgiven it would be little better. On the other hand, any trace of an uncooperative attitude would also be dangerous. Maybe he should go back to *Hamlet* and re-run the prince's instructions to the players. No, not worth it. He knew them word for word anyway, and

the more he thought of the problem as one of acting the less likely he was to get away with it.

Maybe he should just try, unobtrusively, to keep in Jones's company as much as possible. His natural feelings toward that member of the group were unlikely to make the others suspicious.

In any case, he wouldn't have to act for a while. The last couple of hours had been exhausting enough so that not even Smith was surprised when Mac sought his own quarters. One of the men followed and took up watch outside, of course, but that was routine.

The manager was in no mood for music. He brought the *Julius Caesar* sheet out of standby and let the scanner start at the point where he had left it a couple of days before.

As a result, it was only a few minutes before Brutus solved his problem for him.

It was beautiful. There was no slow groping, no rejection of one detail and substitution of another. It was just *there*, all at once. It would have Wertheimer, Kohler, and the rest of the gestalt school dance with glee. The only extraneous thought to enter Hoerwitz's mind as the idea developed was a touch of amazement that Shakespeare could have written anything so relevant more than four decades before the birth of Isaac Newton.

He didn't wait for the end of the play. There was quite a while remaining before the plan could be put into action, so he went to sleep. After all, a man needs his ten or twelve hours when careful, exhausting and detailed work is in the offing.

A good meal helps, too, and Hoerwitz prepared himself one when he woke up — one of his fancier breakfasts. With that disposed of, there were seven hours to go before perigee.

He went to check the controls, pointedly ignoring the thief on duty outside his quarters and the second one in the control room. Everything about the converters was going well, as usual, but this time the fact didn't annoy him. For all he cared, all those loads of explosives could cook themselves to completion.

They hadn't been ordered properly, but there would be no trouble finding customers for them later on.

He checked in time his impulse to go to the dome for a look outside. Smith's order had been very clear, so it would be necessary to trust the clocks without the help of a look at Earth. No matter. He trusted them.

Six hours to perigee. Four and a half to action time. He hated leaving things so late, since there was doubt about Smith's reaction to the key question and time might be needed to influence the fellow.

Still, starting too soon would be even more dangerous.

A show killed three of the hours, but he never remembered afterward which show he had picked.

Another meal helped. After all, it might be quite a long time before he would eat anything but tube-mush, if things went right. If they went wrong, he had the right to make his last meal a good one. It brought him almost up to the deadline. He thought briefly of not bothering to clean the dishes, but decided that this was no time to change his habits. Smith was suspicious enough by nature without giving him handles for it.

Now a final check of the controls, which mustn't look as though it were final. Normal, as usual. Robinson and Brown were in the control room — the latter had accompanied the manager from his quarters — and when the check was finished the old man turned to them.

“Where is your boss?”
Robinson shrugged. “Asleep, I suppose. Why?”

“When you first came, he said it would be all right for me to walk outside, once you'd jimmied the transmitter in my suit. I like to watch Earth as we go by perigee, but I suppose I'd better make sure he still doesn't object.”

“Why can't you watch from the dome?”

"Partly because he told me to keep away from there, and partly because in the hour and a half around perigee Earth shifts from one side of this place to the other. You can see only the first part from the dome. I like to go to the north pole and watch it swing around the horizon — you get a real sense of motion. Whoever Smith sends with me, if he lets me go at all, will enjoy it. Maybe he'd like to go himself."

Robinson was doubtful. "I suppose he won't shoot anyone for asking. I take it this happens pretty soon." Hoerwitz was glad of the chance to look at a clock without arousing suspicion.

"Very soon. There won't be much more than enough time to check our suits. Remember, there's no such thing as fast walking, outside."

"Don't I know it. All right, I'll ask him. You stay here with Mr. Brown."

"You're sure you didn't damage anything in my suit except the radio?"

"Positive. Make a regular check-out; I stand by the result."

"As long as I don't fall by it." Robinson shrugged and left. "Mr. Brown, in view of what your friend just said, how about coming with me up to the lock so I can start that suit check early?"

Brown shook his head negatively, and nodded toward the controls.

"Smith said to keep it guarded." Hoerwitz decided that debate was useless, and waited for the leader. It was not really as long a wait as it seemed.

Smith was accompanied by Robinson, as the manager had expected, and also by Jones, who, Hoerwitz had assumed, must be on guard at the dome. He hadn't stopped to figure out the arithmetic of three men on watch at once out of a total strength of four.

Smith wasted no time.

"All right, Mr. Hoerwitz, let's take this walk. Have you checked your suit?"

"I've had no chance."

"All right, let's get to it. Tell me what you expect to see as we go up. With your suit radio out you won't be able to give a proper guide's talk outside."

The manager obeyed, repeating what he had told Robinson and Brown a few minutes before. The recital lasted to the equipment chamber inside the airlock, where the old man fell silent as he started to make the meticulous checkout which was routine for people who had survived much experience in spacesuits. He was especially careful of the nuclear-powered air-recycling equipment and the reserve tanks which made up for its unavoidable slight inefficiency. He was hoping to depend on them for quite a while.

Satisfied, he looked up and spoke once more.

"I mentioned only the north pole walk," he said, "because I assume you'd disapprove of something else I often do. At the place where Earth is overhead at perigee, right opposite the radiators, I have a six-foot optical flat with a central hole. You probably know the old distress-mirror trick. I have friends at several places on Earth, and sometimes at perigee I stand there and flash sunlight at them. The beam from the mirror is only about twelve or fifteen miles wide at a thousand miles; and if I aim it right it looks brighter than Venus from the other end — they can spot in full daylight without much trouble. Naturally the mirror has to be in sunlight itself, and as I remember it won't be this time, but I thought I'd better mention it in case you came across the mirror as we wandered around and got the idea that I was up to something."

"That was very wise of you, Mr. Hoerwitz. Actually, I doubt that there will be any random wandering. Mr. Jones will remain very close to you at all times, and unless you yourself approach the mirror he is unlikely to. I trust you will have a pleasant walk and am sure that there is no point in reminding you of the impossibility of finding a man drifting in space."

"One chance in ten thousand isn't exactly impossible, but I'd

rather not depend on it," admitted the manager. "But aren't you coming?"

"No. Possibly some other time. Enjoy yourself."

Mac wondered briefly whether he had made some mistake. He had told only two lies since bringing up the subject of the walk and felt pretty sure that if Smith had detected either of them the fact would now be obvious.

But he had expected to get out only by interesting Smith himself in the trip. If Smith didn't want to go, why was he permitting it at all? Out of kindheartedness?

No. Obviously not.

For a moment Hoerwitz wished he hadn't eaten that last meal. It threatened to come back on him as he saw what must be Smith's reason. Then he decided he might as well enjoy the memory of it while he could. After that, almost in a spirit of bravado, he made a final remark.

"Jones, I don't pretend to care what happens to you outside, but you might remember one thing."

"What?" The fellow paused with his helmet almost in place.

"If I do anything that you think calls for shooting me, be sure you are holding on to something tightly or that your line of fire is upward."

"Why?"

"Well, as Mr. Smith pointed out some time ago, the escape velocity

of this asteroid is about one foot a second. I don't know too much about guns, but I seem to recall that an ordinary pistol shot will provide a spacesuited man with a recoil velocity of around a third of that. You wouldn't be kicked entirely into space, but you'd be some time coming down; and just think of the embarrassment if your first shot had missed me. Don't say I didn't warn you."

He clamped down his own helmet without waiting for an answer from either man. Then he wished he'd mentioned something about the danger to a spacesuit from ricochet, but decided that it would be an anticlimax.

He would have liked to hear the remarks passed between them, but he had already discovered that Robinson hadn't wasted time cutting out his transmitter but avoiding the receiver. He had simply depowered the whole unit, and Mac could neither transmit nor receive.

He stepped — using the word loosely — in the inner-lock door, hit the switch that opened it and stepped through. Turning to see whether Jones was with him, he was surprised to discover that the latter still had not donned his helmet and was engaged in an animated discussion with Smith.

Hoerwitz sometimes spoke on impulse, but it had been well over

fifty years since he had performed an important action on that basis; the mental machinery concerned was rather corroded. It might be possible to get the inner lock door closed and the air pumps started before either of the two men could reach the inner switch; if he could do that, it would give him nearly two minutes start — quite long enough to disappear on the irregular, harshly lit surface of the asteroid. On the other hand, if they stopped the cycle before the inner door was closed and the inside switch out of circuit, they would presumably shoot him on the spot.

His spacesuit had the usual provisions for sealing small leaks, but it was by no means bullet-proof. He wished he had taken the time to make that remark about ricochet; it would apply well to the metal-walled chambers they were all standing in. Unfortunately the thieves might not think of that in time.

Hoerwitz might, if given another minute or two to mull it over, have taken the chance on that much data; but before he made up his mind the conversation ended. Jones donned his helmet, safetied its clamps and looked toward the air-lock. At that same moment all three men suddenly realized that Smith and Jones were both out of touch with pushoff points. They were "standing" on the floor, of course, since they had been in the room

for some time and weighed several grams each, but that weight would not supply anything like the traction needed to get them to the switch quickly. An experienced spaceman would have jumped hard, in any direction, and trusted to the next wall collision to provide steerage; but it had become perfectly evident in the last couple of days that these men were not experienced spacemen. Hoerwitz's impulses broke free with an almost audible screech of metal on rust, and he slapped the cycling control.

VII

Jones had drawn his gun. He might have fired, but the action of drawing had spoiled his stance. Hoerwitz thought he had fired, but that the sound failed to get through his suit; the bullet, if any, must have gone bouncing around the equipment room. The inner door was shut, and the red light indicated pump cycling before any really interesting details could be observed.

The pumps took fifty seconds to get the pressure down, and the motors ten more to get the outer door open. Hoerwitz would have been outside almost on the instant, but his low-gravity reflexes took over.

One simply does not move rapidly in a place where the effort which would lift a man half a millimeter on Earth will give him escape ve-

locity. This is true even when someone can be counted on to be shooting at you in the next minute or so; a person drifting helplessly out of touch with pushoff mass is a remarkably easy target. The idea was to get out of sight, rather than far away.

The asteroid was not exactly porous — no one has found a porous body made of lava yet — but it was highly irregular from a few hundred million years of random collisions out beyond Mars. There were explosion pits and crevices from this source, and quite a few holes made by men in the days when the material of the body itself had been used for conversion mass.

There were plenty of nice, dark cracks and holes to hide in. Hoerwitz maneuvered himself into one of the former five yards from the airlock and vanished.

He didn't bother to look behind him. He neither knew nor cared whether they would follow. All things considered, they might not even try. However, they would very probably send out at least two men, one to hunt for the fictitious mirror and the other to guard the spaceship — not that they could guess, the old man hoped, what he intended to do about the latter.

Both places — sub-Earth and its antipodes — were just where Hoerwitz wanted them to be; they were the spots where an unwarn-

ed space-walker would be in the greatest danger.

However, the ship would be a refuge, if it were still there, and Hoerwitz wanted to get there before any possible guard. He therefore set out at the highest speed he could manage, climbing across the asteroid.

It was like chimney-work in Earthly rock-climbing, simpler in one way because there was no significant weight. The manager was not really good at it, but presumably he was better than the others.

Earth was overhead and slightly to the west — about as far as it ever got that way, seen from near the airlock. That meant that time was growing short. When the planet started eastward again the asteroid was within a hundred degrees or so of perigee — an arc which it would cover in little over three-quarters of an hour, at this end of its grossly eccentric orbit.

Travel grew more complicated, and rather more dangerous, as the planet sank behind him. Roche's limit for a body of this density was at around twelve thousand miles from Earth's center, and the tidal bulge — invisible, imponderable, a mere mathematical quirk of earth's potential field — was not only swinging around but growing stronger. With Earth, now spanning more than thirty degrees of sky, on the horizon behind him he was safe, but as it sank he knew he

was traveling to meet the bulge, and it was coming to meet him. He had to get to the ship before the field had been working on that area too long.

The last thousand feet should have been the hardest, with his weight turning definitely negative; physically, it turned out to be the easiest, though the reason shocked him. He discovered, by the simple expedient of running into it, that the thieves had strung a cable between their ship and the airlock.

With its aid, they would travel much faster than he could. There might be a guard there already. Mac, terrified almost out of his senses, pulled himself along the cable with reckless haste until he reached a point where he could see the base of the ship a few hundred feet away.

No spacesuits were in sight, but the bottom of the globe was in black shadow. There was no way to be sure — except by waiting. That would eventually make one thing certain. The old man almost hurled himself along the cable toward the ship, expecting every second to be his last, but trying to convince himself that no one was there.

He was lucky. No one was.

The ship was already off the "ground" by a foot or so; the tide was rising at this part of the asteroid and weight had turned negative. Hoerwitz crammed himself



into the space between the spherical hull and the ground and heaved upward for all he was worth.

At a guess, his thrust amounted to some fifty pounds. This gave him something over a minute before the vessel was too high for further pushing. In this time it had acquired a speed of perhaps two inches a second relative to the asteroid; but this was still increasing, very slowly, under tidal thrust.

The hull was of course covered with handholds. Hoerwitz seized two of these and rode upward with the vessel. It was quite true that a man drifting in space was an almost hopeless proposition as far as search-and-rescue was concerned; but a ship was a very different matter. If he and it got far enough away before any of the others arrived, he was safe.

Altitude increased with agonizing slowness. Earth's bulk gradually came into view all around the planetoid's jagged outline. At first, the small body showed almost against the center of the greater one; then, as the ship in its larger, slower orbit began to fall behind, the asteroid appeared to drift toward one side of the blue-and-white streaked disk. Hoerwitz watched with interest and appreciation — it was a beautiful sight — but didn't neglect the point where the cable came around the rocks.

He was perhaps five hundred feet up when a spacesuited figure

appeared, pulling itself along with little appearance of haste. It was not yet close enough for the ship's former site to be above the "horizon." Mac waited with interest to see what the reaction to the discovery would be.

It was impressive, even under circumstances which prevented good observation. The thief was surprised enough to lose grip on the cable.

He was probably traveling above escape velocity, or what would have been escape velocity, even if the tide had been out. As it was, any speed would have been too great. For a moment, Hoerwitz thought the fellow was doomed.

Maybe it was Robinson, though; at least, he reacted promptly and sensibly. He drew a gun and began firing away from the asteroid. Each shot produced only a tiny velocity change in his drifting body, but those few inches a second were enough. He collided with one of the structures at the base of a radiator, kicked himself off and downward as he hit it, touched the surface, and clutched frantically at some handhold Hoerwitz couldn't see. Then he began looking around and promptly discovered the ship.

The manager was quite sure the fellow wouldn't try a jump. He wished, once again, that his radio receiver was working — the man might be saying something inter-



esting, though he must be out of radio reach of the others. It would be nice to know whether the thief could see Hoerwitz's clinging figure on the ship's hull. It was possible, since the lower side of the sphere was illuminated by Earthlight, but far from certain, since the man's line of sight extended quite close to the sun. He wasn't shooting. But it was more than likely that his gun was empty anyway.

It was disappointing in a way, but Hoerwitz was able to make up for himself a story of what the fellow was thinking, and this was probably more fun than the real facts. Eventually the figure worked its way back to the cable and started along it toward the airlock to a couple of holds with the snap-rings on his suit, and relaxed.

There was nothing more to do. The drifting vessel would be spotted in the next hour or so, if it hadn't been already, and someone would be along. In a way, it was a disappointing ending.

He spent some of the time wondering what Shakespeare would have done to avoid the anticlimax. He might have learned, if he had

stayed awake, but he slept through the interesting part.

Smith, upon hearing that the ship was drifting away, had made the best possible time to the radiator site. Knowing that there was no other hope, he jumped; and not being a lightning calculator able to make all the necessary allowances for the local quirks in the potential field, he naturally went slightly off course.

He used all but one of his bullets in attempted corrections and wound up drifting at a velocity very well matched with that of the ship, but about fifty yards away from it. He could see Hoerwitz plainly.

Up to that time he had had no intention either of harming the old man fatally or blowing up the station; but the realization that the manager had had a part in the loss of his ship changed his attitude drastically. When the police ship arrived, he was still trying to decide whether to fire his last bullet at Hoerwitz, or in the opposite direction. Hoerwitz himself, of course, was asleep.

END

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DREAM STREET

by C. C. MacAPP

*To dream? Aye, there's the rub! For in
that dream, what things may come . . .*

Henry Traum stepped off the Avenue Of Foreigners into a little-used native pedestrian way, paused, glancing around uneasily, then hurried on. Not that there was any specific danger that he knew of, but he'd been on Glyne only a few days, and the natives — solemn squat bipeds with hairless gray skins and unblinking goat's-eyes that reminded him, somehow, of human mythology — made him nervous. The walkway, between windowless back walls of four-story wooden buildings, was already in gloom. The waning light from the greenish sky worsened his disquiet.

The murmur of motor-traffic dwindled behind him, and now he heard the sounds of the seedy bazaar — the monotonous staccato whistle of a sweetmeat-peddler's wagon, the chant of an auctioneer selling over-used native females, the dismal lowing of a draft beast, the

peculiar ululating music of a drug-carousel, where the natives inhaled *keyn*, which did strange things to them and to some off-workers. Already, he could smell the musty-hay odor of the *keyn*. He'd tried the merry-go-round; it had made him dizzy and a little drunk, but nothing more. Tonight he was bent upon a different diversion — one he'd discovered only the night before, and which pulled him back irresistibly now.

A native policeman watched him with fixed, expressionless eyes as he emerged into the queasy purple light of the district and hurried past the carousel, about which a dozen natives wandered crookedly, still under the spell of the last ride. The auctioneer paused in his chant and called out in singsong Low Glynic, vowing that the native women could do something incredible to such as Henry. The battered females on the

stand chuckled coarsely. Henry ignored them.

The small shack, down at the nearly deserted, poorly lighted end of the street, was dark. Henry's heart quirked anxiously at the thought that the proprietor might already be gone. Breathing with a little difficulty, he approached and knocked timidly on the featureless solid hardwood door.

Moments dragged. Finally there was the scrape of a bar being withdrawn, and the door swung inward. Henry peered at the proprietor in the dark office.

The shop-owner wasn't native — in fact, he might have passed for human, allowing for an odd elongation like an El Greco painting, and pointed, tufted ears. His face was thin and swarthy, his eyes cynical. He said boredly, "Closed for the day." His English was thickly accented but understandable.

Henry said, "I — I couldn't come any earlier. Could you possibly . . . I'll pay double!"

The swarthy humanoid made a cynical Levantine shrug, but pulled the door wider. "As you wish. But only a half-hour."

The office was sparsely furnished with a desk, two chairs, and a massive ornately-decorated steel strongbox. Henry fumbled in his sleeveless jacket for his wallet; he extracted native currency of coarse reed-paper, and waited for the proprietor to deposit it in the strongbox and re-lock that. The alien moved toward a door at the rear of the office, and Henry followed.

There was a corridor with four stall-doors, each of thick hardwood

studded with big iron nail-heads. The proprietor went to the one at the end, near the barred door that opened to the dark alley behind the shack, pressed an alien-looking light-stud, and reached up to swing aside a hinged wooden port-cover at about face height in the stall door. Light — saffron, not purple — glowed from the uncovered port.

Henry craned his neck to see the image relayed by a set of opposed mirrors inside the port.

The dream-sloth — Henry's name for the creature, though it looked as much like an oversized honey-bear as a sloth — was curled up in a ball on its sleeping-pad at the rear of the narrow chamber. It stirred uneasily in the light, then lifted a head to peer toward the door. Henry heard its shackles rattle.

The proprietor, satisfied that the beast was securely chained, took a large hammered-iron key from his pocket and unlocked the stall door, then stood aside for Henry to enter.

Henry said timidly, "Could — could I have the same dream as last night? It was — I can't remember more than a shred or two, but —"

The swarthy alien shrugged cynically. "That is beyond my control. Neither I nor the beast chooses the dream — the dream comes from your own mind — the buried part or the conscious part, or both. If your dream last night was ecstatic, you are probably of a happy nature. Some are sadists, some masochists; but that has nothing to do with me nor with my beasts. They merely will you to dream."

Henry, muttering uncertainly, stepped through the door.

There was an inner doorway — with no door in it — offset from the outer one, so that he had to zig-zag in. That brought him in sight of the beast.

The creature still huddled on its pad, its head lifted and turned toward the door. As Henry entered, it voiced a low querulous protest, as if it had already done a hard day's work and dreaded more; the mesmerism or whatever it was, as Henry knew from the scant literature he'd been able to find, was an exhausting effort for the beasts.

Henry lay down on the mattress provided for clients, his face turned toward the beast. It writhed unwillingly, its small eyes seeming to plead. But suddenly sparks crackled from the metal collar around its neck — part of a tight harness — and the creature jerked and whimpered in pain. Warily, trembling, it heaved itself to a squat and faced Henry. Henry winced. He thought the proprietor might have been a little less impatient in dealing punishment.

He tried to relax his muscles, but they were taut, trembling with anticipation for the dream he couldn't remember. He waited, eyes on the beast. It was about the size of a grown black bear, but gray rather than black, and as he'd noted on the previous night, rather bearlike in shape. But its eyes held no fierceness. The teeth were herbivorous, the claws small and blunt. Of course! What need has such a creature for physical weapons? All it needed was to lock eyes once with an enemy —

a predator, for instance — and the enemy would go wandering off, wrapped in some blissful or fierce or frightened dream that had no relationship to its actual surroundings.

He stared into the beast's forlorn eyes, shaking with anticipation. He heard the port-cover close. Privacy, of course, had to be guaranteed.

Instantly, with the closing of the port-cover, the beast's attitude changed. Gone was the pitiful cowering. Quickly — but not so quickly as to rattle the chains aloud — it twisted and nosed under a corner of its sleeping-pad; with awkward forepaws it raked out a key — smaller than the one to the stall door, more sophisticated, as if of a higher technology. Clumsily, holding the key between both forepaws, the beast tossed it toward Henry. Slurred speech came from its mouth.

Henry gaped. He knew the beasts were intelligent enough for crude speech of some sort — but English? A sudden thought hit him. He pinched his left arm, on the inside just above the elbow. It hurt. This was no dream, then!

"Please!" the creature mouthed. "You — kind. Help me — escape. I — I go with you, be slave! I work! I bring — money. I give you — dreams! Always, dreams! I want — kind master. Please!"

Henry struggled into a sitting position. He was badly shaken. "I — but we can't! We're locked in!"

"No!" the beast pleaded. "Door not lock. This key — take off chains. Please! I — suffer." It gestured with a paw at the lock on its harness,

held in place on its back where the beast couldn't reach it. "Owner — gone back to woman. Not come back — yet!"

Henry stared for a minute into the creature's pleading eyes. Why — he wondered suddenly — need it beg? Why didn't it simply put him into a dream where — But, no. The owner had told him the beast could not choose the dream.

Slowly, shakily, he reached for the key; he sat holding it in limp fingers while he stared at the beast. The misery and hope in the small eyes brought a wave of pity over him — not unmingled with a certain amount of greed.

Hastily now, he scrambled to his feet and stepped toward the beast. He grasped the harness-lock, inserted the key, and turned it. The lock sprang open. He tried the key in the leg-shackles and found that it worked. The creature shook off the bonds with a little sigh of relief. Henry began to offer the key to the beast, then realized that the paws couldn't grasp it and thrust it into his own pocket.

He paused at the outer door of the stall, listening. The only sound, other than the thumping of his own pulse, was the faint noise of the bazaar up the street. He pushed open the door, peered into the corridor, and stepped out. The beast brushed softly against his thigh as it came out silently and lithely.

Henry turned uncertainly toward the door into the office.

"No!" the beast mouthed softly. "Back door. Wait! I go first — see safe."

Henry, confused, hesitated. The creature rose on its haunches, deftly pushed the bar aside with one forepaw, nosed open the door, and was gone into the darkness.

Henry waited, his eyes swinging nervously from the back door to the office door. Minutes passed, then more minutes, and a painful realization began to steal over Henry. He stepped to the back door, pushed it open a crack and peered out.

Night was complete now. Dimly, he could make out lightless shacks, two or three alleys of them and, beyond, at the edge of town, the irregular black line of the forest.

The dream-sloth was gone, of course.

More hurt than angry, he moved hastily toward the office door.

When he was two paces away, the door burst open and the suspicious face of the proprietor poked through. Henry saw the cynical eyes dart to the open door of the stall, then to the alley-door. A swarthy hand swept downward and came up holding an alien but recognizable pistol.

Henry did not even think of trying to escape via the back door — the single glimpse of the darkness there had repelled him. Instead, he lurched toward the swarthy alien, grabbed for the gun-hand, and tried to twist around and get by into the office. The lean alien was as wiry as a coyote. They grappled there, Henry trying desperately to keep the gun pointed away from himself, the proprietor trying to wrench free.

The gun went off. Henry felt the searing muzzle-blast on his cheek and heard glass crash somewhere.

The gun went off again. Then there was a third blast, and Henry's head seemed to explode. He heard, as if from a distance, his own stunned grunt as he fell; he knew, dimly, that he struck the floor hard and lay there . . .

Henry came to slowly, conscious of voices raised excitedly somewhere. He pushed his shoulders and chest from the floor and rested a moment until more strength returned to his body. He shook his head, trying to clear it, felt gingerly the still-oozing superficial wound over one temple, then climbed unsteadily to his feet.

His eyes roved and discovered the body of the swarthy customer on the floor, a pool of already-congealing blood near the head. He stared stupidly at it for a moment, then jerked his head around to look at the alley door. It was unbarred and ajar. He darted a look at the last stall door and saw that it was also unlocked. Heart pounding, he staggered toward it. He saw that the outer mirror of the periscope-arrangement was smashed. He knew, then, that one of his dream-beasts was gone.

He lurched over to the body and only then saw the pistol — his own pistol — half-hidden beneath it.

Desperately — aware of the excited voices outside the front of the shop — he tried to think. This was the same alien customer who'd come here last night. Had he come again tonight? Had there been an argument of some sort?

The dream-beast, he had no doubt, was responsible somehow. Maybe it

had broken the mirror; waited there for him to open the port and had locked eyes directly with him. Or —

He cried out suddenly and clasped both hands to his head, ignoring his wound, half-insane with confusion. *His dream-beast?*

Groaning, mouthing incoherently, he staggered into the office, sat down at the desk and let his head fall on it. Confusion . . . Confusion . . . Two sets of memories! In each he was Henry Traum. But in one he'd come to Glyne only days ago, had discovered the dream-shop and tried it, and had struggled distractedly through the obligations of the next day and hurried to the shop again. He had heard the dream-sloth plead with him in English . . . In the other set of memories, *he* was the proprietor! He had been on Glyne over a year — a fugitive criminal from Earth via other places — and had imported the dream-beasts . . .

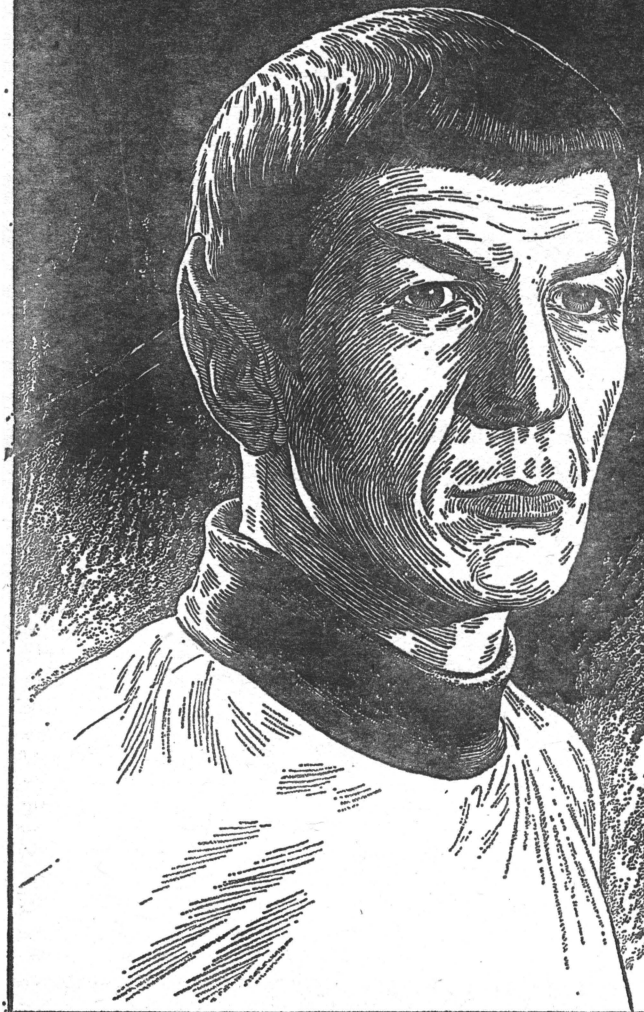
Wildly, he lifted his head to stare at the front door, beyond which the voices were now louder and more excited. What had he done? What had the beast done? Maybe not everything he'd believed about the beasts had been accurate. Or maybe they learned, developed new powers when with intelligent beings . . .

One thing he could not deny — both sets of memories were equally clear, running back to childhood. Both coincided up to a time a few years back, then diverged, in detail.

One was false. *But which one?*

Then he heard the voices of native police outside the door. One of them banged on it, with a gun-butt.

END



Vireil
Finlay

The Elf In The Starship Enterprise

*(Mr. Spock discovers emotions — and
does not know what to do with them)*

*Bewildered creature made of steel and leaf,
You wander through the empty hallways weeping,
And cannot name the fountain of your grief,
That yesterday lay sleeping.*

*Your people's unimpassioned life is gone,
Your frozen world of numbers disappears,
And you are cast alone, soul-naked, on
A sea of human tears.*

*But these are still your people at your side,
By whose most ancient paths your tears began.
The pale, cold-hearted elf who lately died
Today is born a man.*

—Dorothy Jones

FLESH AND THE IRON

by LARRY S. TODD

Illustrated by TODD

*One needed parts and one hunted skulls.
Together they found what neither wanted.*

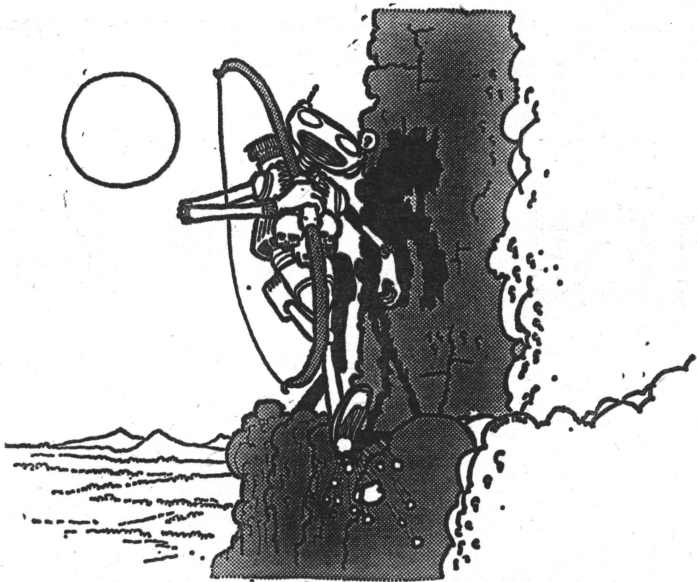
I

Marigold stepped cautiously along the ledge, one hand tightly gripping his great shol-wood bow, the other holding his three gaily-painted trophy skulls away from his chest plates. The skulls tockled hollowly against one another but made no other sound.

He stopped and stared out across the scrub-jungle, straining his telescopic lenses and infrared pickups for a glance of Flesh, but none of

the elusive creatures were to be seen, which was not to say that none were watching him. Slowly Marigold began inching along the limestone ledge again, but paid little attention to the pebbles rolling beneath his plastic feet till he nearly slipped and fell.

Raucous colors dancing across the semaphore in his face and motors whining nervously, he jerked himself back to safety. Cautiously looking over the ledge, he reflected ruefully upon his unparalleled ability to strand himself out on high, narrow ledges.



Then, shrugging to adjust the quiver of arrows on his back, he took out along the ledge again.

It dropped rapidly, then, and Marigold had a difficult time retaining his balance. Finally he decided to be safe rather than dead and took the remaining hundred feet very slowly, avoiding any large rocks which could scratch his armor. The Mill was always very touchy about scratched plating.

Attaining the ground safely, Marigold gave the landscape another quick scan to assure himself that no Flesh lurked nearby. Small and soft as they were, they could still be very fast and very nasty. The first Flesh whose skull Marigold had taken had chosen to vent his pleasure at being captured by swinging a heavy club at Marigold's right leg and relieving

him of the responsibility thereof. The Mill had been so displeased about having to replace the leg that she demanded he hunt down a skull for her in payment, to be kept in her private treasury. So, though three skulls hung on Marigold's chest, he had actually slain four Flesh.

The vista seemed harmless, so the robot cast off into the bushes, heading for a distant blue ridge where a team of Flesh had been reported.

Marigold was on the hunt.

He was uncertain whether it would prove to be a fruitful hunt, for his past three had been blanks. He had not so much as even seen a Flesh. Nor had many of his Mill-brethren; their hunts were bringing in sparse returns, too. For a while there had been quite a few Flesh about; not only the number of new skulls but

the amount of Mill-Brethren who never returned indicated this. But the days were getting lean, and more and more hunters returned without skulls and even without scratches to show they had met or seen a Flesh.

It was hard to say whether the Mill was pleased or not by this. The great metal and plastic behemoth, a large dark cube with dozens of little stalls and incomprehensible machinery inside, had been uncommunicative recently, and if she spoke at all, it was usually petulant nagging about inconsequential subjects. As often as not, her anger was directed at Marigold. The replacement leg had caused her to label him as careless.

At first, all she had ever given him was a scolding, but every time he returned with scratches, she cut into him anew, till extreme embarrassment had caused him to take longer and longer hunting trips. These week-long forays never amounted to anything, but at least they kept the critical speakers of the Mill at a comfortable distance. He dreaded the day when she would take to complaining about their length.

As he strolled through the gorse, mirror-bright armor flickering in the sun, he became nervously aware of how late in the afternoon it was. Late afternoon was not a good time to be abroad, for Flesh could lurk behind sun-warmed rocks and never have their body heat give them away, and the gentle breezes that blew across the plain rattled the bushes much more than any smart Flesh would. Even their beige-pink bodies matched the color of the dried grasses and

bushes, and Marigold knew all too well that one could be behind him at that very moment, club held high. . .

He checked, and finding nothing there, decided to make sure it stayed that way. He increased his pace till he was moving at a rapid walk, almost a jog.

But not for long; for he was over eight feet tall and clearly visible for miles, and his heavy tread made him think uncomfortably about Flesh putting their ears to the ground and hearing him coming.

The brush got thicker and Marigold became painfully cognizant of the tremendous rustling and scraping he made as he forced himself through the dry bushes. A quick look back showed him a trail a blind Flesh could follow with a walking-stick, to beat him to extinction with the stick. He looked around him, motors whining high and shrill, and all his relays on the verge of tripping. He forgot about the ridge and just ran off, feeling the eyes of all the Flesh in creation on his back, casting lots for his radar antenna and listening to the music of his newly-squeaking hip and his violent crashing through the furze. Almost on the verge of panic, he dashed through the thickets and nearly fell into a small stream. With a sudden internal *splap* all his systems shut down to clear his brain for dealing with this new obstacle. All of this took less than a second but was enough time for the Flesh sitting across the stream to leap into frantic activity.

The Iron had crept up on him so silently, yet so fast, that Locker

Bannock was almost caught dead. But the thing just stood there dumbly, so he grabbed his hook-club and raced in on the machine, screaming at it to confuse it.

The Iron jerked convulsively as Bannock cleared the stream; moving with stupid slowness, it tried to strike him with a great rubber hand. The hook-spike on Bannock's club tore into the hand and cut through it, but caught. The arm followed through with its swing and tore the club from his grasp. Howling in terror, he dove for it and caught it just as the Iron reached out for and gripped his ankle.

The Flesh and the Iron were both stretched out along the ground, both somewhat stunned and both ultimately captured.

Bannock twisted himself about for a better look at his captive captor, who tightened the grip on his ankle till the man hissed and turned red in the face. Marigold recognized a red semaphore signal as meaning annoyance, so he loosened his grip. Bannock looked at him and thought furiously.

So the Iron could break his leg. The creature was stretched out along the ground as he was, so at least it couldn't bang him around against anything. If he sacrificed his ankle he could stave in its head.

Marigold stared thoughtfully at the Flesh, wholly aware of this possibility and not wanting to tempt fate. He recalled that his first Flesh had fought very creditably with a broken arm and leg. Flesh and Iron watched each other for a long time.

Finally the Flesh shrugged and be-

gan to pull himself erect. With a crackle of alarm from his speaker, Marigold gripped the ankle tighter, and the Flesh's face twisted and contorted.

"Stop!" he cried. "I'm only sitting up!" Marigold hesitantly relaxed his grip, but did not release the Flesh. "You sit up too," said the Flesh, and Marigold obliged him, since the order seemed as good an idea as any.

II

For five minutes more they sat that way, silently musing one another and considering the ridiculous situation they now found themselves in. The Flesh could swing his club and crush Marigold's good arm before it could squeeze his ankle, but the lame left arm was still a formidable bludgeon.

"Well, shall we sit here all afternoon or shall we be about our business and try to kill one another?" asked the Flesh, and he spat into the dust.

Being at a loss for words, Marigold did not reply.

The Flesh spoke again. "I see you're a three-skull iron. I'm a four tenna man myself." He swung a necklace out of his tunic and displayed the four reception cones strung on a leather thong. Marigold could think of only one way that the Flesh could have gotten those antennae.

"You have . . . stopped . . . four Mill-brethren?"

"That what you call each other? Yeh. I have. Five, actually, but I never did claim that fifth tenna 'cause a few of your Mill brethren

were coming up fast. Discretion is better than valor."

"I have stopped four Flesh, but I paid one skull to the Mill for a new leg."

Bannock suddenly grinned, his fancy struck by the way in which he and his mortal enemy were comparing hunting records. Then he scowled, for his present situation held little possibility for humor and levity. He examined the broken arm of Marigold, then plucked a small leather pouch from his bandolier and began to eat something. "You interrupted my dinner, Iron," he accused.

Marigold watched the Flesh stuff the crumbly brown cakes into the large aperture in his head, and felt obliged to say something. He winced inside, for this was an extremely embarrassing position to be in. If the Mill ever heard of it . . .

"What are you doing, Flesh?"

"The name's Locker Bannock . . . call me Bannock. I'm eating."

"You're . . . eating?"

"Yeah." He looked sharply at Marigold's impassive features searching for expression. "Doing my equivalent to what you do when you fill yourself up with water. Only I have to do it a lot oftener than you. I haven't any fusion plant inside of me."

"What is a fusion plant?"

"You, Iron, have carried a fusion plant around inside of you since you . . . all your so-called life, and you don't know what it is?"

"I have never even heard of a fusion plant. I do not know what is inside of me — only the Mill knows."

"The Mill! You Iron are like little ants," Bannock muttered, for the edification of nobody in particular. "You even have a Queen. Ah, fist." He finished eating, wiped his mouth with the back of his hand and rolled over toward the robot. "Okay. I'll explain what's inside of you."

He took a sharp stone and began scratching little diagrams on the surface of a flat rock, expounding upon the contents of Marigold's chest, head and limbs. As he spoke, the Iron absent-mindedly let go his leg, but he quickly vetoed breaking away and trying to ambush Iron the next day. It could still strike out with that arm, catch him with the other. He finished the lecture.

"I don't think it will make any difference, though."

Marigold did not know what to make of that statement. He said so.

"What I meant," explained Bannock, "was that even if you know how you work inside, you won't really understand it. You're not equipped with enough mental machinery. For example, do you know why the gears in your arm work?"

"They go around and around?"

"You're guessing and you're wrong. That's how they turn. Why do they turn? Because force is applied to them and they are anchored in a particular way. It sounds pretty obvious, but I don't think you could really understand."

Marigold thought this over for a while, and agreed. But he added that only the Mill had to know, anyway.

"Yeah," muttered Bannock, and fell back to appraising his enemy.

It was getting quite late, and neither had moved from where they were. The sun was sinking low to the western horizon, and the night insects were beginning to make their rounds. Bannock swatted one and broke into the customary cursing. Marigold flashed green upon his semaphore, and Bannock held up the corpse of the offending neocop.

"Little Flesh, Iron. Pests." He tossed the insect away and looked up at the robot again.

"Iron, do you have a name or a serial number or something I can call you? You call me Bannock, I may as well call you something other than Iron."

"Yes. Marigold." He tapped a small brass flower inset in the ID disk at the base of his neck.

"Okay, Marigold, I'm getting cold — an unpleasant response to dropping temperature — and these bugs are eating me. Hadn't we better go someplace where I can rest?"

"Isn't this place as good as any?"

"No. For the reasons I outlined to you and others. Look, if you're worried I'm going to kill you by attacking your legs, I'm quite sure you could kill me while I did it to you. And I don't know how fast and accurate you are with that bow and arrow and I've no desire to find out. So come on . . ."

Marigold did not move.

"Come on, damn you!"

Marigold remained motionless.

"I'll clobber you . . ."

Marigold jerked to his feet and poised to strike Bannock, but the human danced back a little and

motioned for peace. The robot made no other move, other than to nock the arrow. Bannock looked at him.

"Put that thing away," he said. He was aware that he was as good as dead, but he poised his club.

"I want your skull."

"That's reasonable. I want your tenna."

"If you dove into the water and walked along under it, I could not see you to stop you."

"It's not deep enough anyway. Put that thing away, will you? I don't want to wreck your legs."

Bannock knew too clearly that if the Iron did not put away the bow and arrow, he would have very little chance indeed of even coming near him, but the Iron was either none too smart or quite careless and did not see this. The robot slowly loosed the tension on the bowstring and replaced the arrow. "We have captured each other, Bannock. So that neither should escape from the other, let us bind each other to one another, and then go to your place to retire."

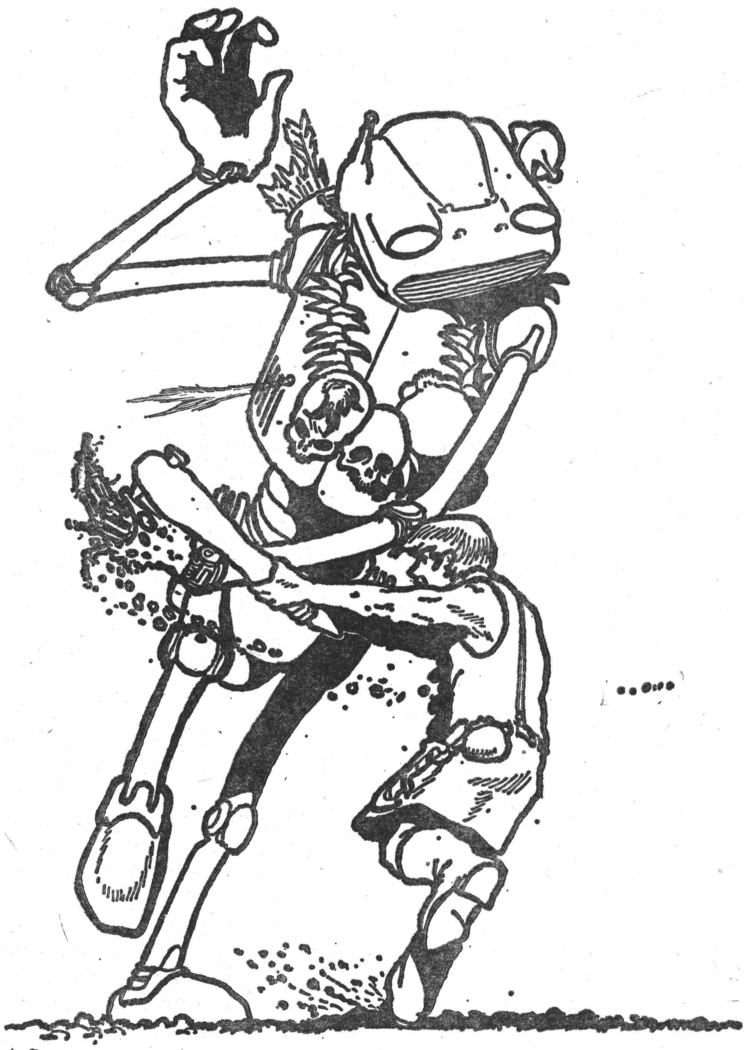
"I'm game. You have rope?"

Marigold snapped open a little cabinet in his metal belly and brought forth a long nylon cable. Bannock eyed it cautiously.

"I'll bet you can break it."

"I can't, and you would know if I tried, anyway." Marigold hooked the clip at one end into a buckle on his back, and tossed the other end to Bannock.

Hand on club, the human tied it about his wrist, using a one-handed knot. "I'll walk to one side of you — the left side, so you can't grab the rope and rip off my right arm." He



pointed with the club at a nearby tumble of rocks. "There's a cave over there. We'll go to it."

Marigold didn't care where they went, so long as it wasn't into a trap. As they walked, he kept his radar antenna pointed at Bannock, for he didn't want the Flesh to come at him suddenly, swinging the club and howling. But the Flesh kept its distance, whether aware of the surveillance or not.

Marigold reflected upon the Mill's calling him careless and unobservant and not very alert. He could easily agree that he was not very alert, for he knew that the Flesh had exposed himself to dangerous situations quite frequently, and quite willingly.

As he ran through his sensory memories, he located parts where the Flesh's heartbeat had sped up tremendously, as though it was taking a terrible risk. And these times coincided with the times Marigold had not paid careful attention to what he was doing. But the Flesh had not made any dangerous moves. But granting that it recognized its chances and seemed aware that they came quite often, it was apparently playing a game with Marigold. *You trust me and I'll trust you.* Marigold cautioned himself to watch for this; it could be some kind of a blind for future sneak attacks.

Bannock saw the antenna swing to cover him, and knew that the Iron was not entirely as dumb as it had been trying to make him think it was. He would have to keep this act up for a couple of days to provide any positive results.

They climbed a black tumble of basalt and granite and came to the cave, a fissure in the ground which widened into a chamber at the end. Bannock, after announcing that he was untying himself, retreated to a dark corner of the cave, talking all the while.

"Marigold, shall we forget this rope business tomorrow? It's a needless precaution, since I couldn't get very far from you and that bow. If you tried to break and run, I wouldn't have much luck in stopping you. You weigh over a ton, which implies a lot."

"Very well, we will not use it." Though Marigold recognized that he had given up a very good chance to catch the Flesh, simply by suddenly running over rough terrain, he determined that two could play at the game of simulated honesty.

Bannock came forth from the depths of the cave and dropped a load of dry wood on the floor. He lit it aflame and roasted his supper, a few chunks of meat from a leather pouch, and Marigold watched him dully.

After a while, he stood and said, "We Flesh sleep — like recharging our capacitors or something. You know? Anyway while I'm sleeping you could kill me, so I'm going to climb down into that little hole over there, where you can't reach me, and I'll sleep there."

As he dropped down into the small-mouthed pit, Bannock watched the Iron. He wouldn't leave during the night, unfortunately. He wanted his skull too much.

The following morning Bannock lit his fire again and roasted his breakfast. Marigold sat impassively on a rock, lit by golden radiance from the morning sun.

"Well, Marigold. It's about time we determined what we're going to do about each other. Any ideas?"

"I thought about it all last night. I could think of but one thing. Since neither of us wants to let the other go, for the risk of ambush, all we can reasonably do is have our fight and let that decide who gets what."

Bannock's heart leaped sickeningly. This was all he needed, since the broken arm could still kill him and the other was twice as deadly. He adopted a scorning manner.

"Won't work. I have an unfair advantage. You got a busted arm."

"I can use it as a club."

Bannock closed his eyes painfully, then sat on a rock and glared at Marigold. "All right, all right. We're both thinking the same thing. How do I get this guy to trust me enough for his guard to come down? No show-down, Marigold. Think again."

"We shall go to your settlement, and I will set you free."

"Huh?"

"I will take you to your settlement, and bind you with the rope so you will not try to bushwhack me, and I will depart."

"You came on that idea mighty fast. Sure, you'll escape, with my skull under your arm. The moment I drop my club you will swing that cleverly concealed knife — yes, I see it — and I'll be dead. No dice."

Marigold's semaphore filled with murkiness, and he strode silently out

into the daylight to scan the morning landscape. He was silent.

"Marigold, try this adaptation of your plan. There's this big plain; we will walk to the middle; you will give me your arrows, and I will carry them to one side; you will carry yourself to the other. When I get to my side I'll put the arrows down and hightail it away. You can get them and not get bushwhacked. Follow me?"

"No. What if you do not return my arrows?"

Bannock spat into the dust. "Dumb Iron. How far do you think I could carry those arrows with you after me, and not expect to get caught? I don't need them. I don't have a bow, and if I put them down I could be a mile away before you got near."

Marigold grumbled blue on his semaphore, then asked, "Where is this plain you speak of?"

"See that ridge way off that way?" Bannock pointed. "Behind that. My settlement is a dozen or so kilometers from it." The last was untrue; his settlement was a good forty miles from the ridge, along it to the west, but there was no need in risking an armored attack of Iron against the town of Werser.

They set out.

Later in the day, Marigold's fractured arm began squeaking loudly and was becoming difficult for the Iron to move, up as far as the shoulder joint. He showed numerous signs of dismay but Bannock did not seem to notice anything until the squeaking got quite loud.

"What's the trouble?"

"The arm." Marigold indicated the afflicted member. "It's hard to move."

"Oh, fist," swore Bannock. "I should have expected that. Still I'm surprised it wasn't a helluva lot worse. Or sooner."

"What is the matter?"

"Lubrication. You Iron have a built-in lube system, like my blood vessels, except they're not for lube. It keeps your joints moving smooth and silent."

Bannock fell behind the robot.

"What can I do about it?" Marigold asked.

"Nothing . . . except maybe hold that stump high in the air so you won't lose any more lube."

Marigold lifted the broken limb, finding that it moved very stubbornly. He heard Bannock snicker with subdued laughter. A rather humiliating thing, Marigold decided, if the Flesh thought it was so funny — unless the laughter was only a trick to distract him or put him off guard. Several times he considered swinging it down upon Bannock, but it firmly resisted all efforts to move it quickly; besides, the Flesh was smart and could be useful.

Marigold endured the humiliation.

"Marigold, what's that up ahead?" Bannock pointed toward a hill, at the crown of which the scrub grew thinner. In the tawny grass and dry brown bushes something gleamed brightly.

"A Mill-brother."

Bannock jerked uncomfortably, but Marigold was oblivious of this and went on describing what he saw. "He is — dead — that is the word, dead?"

He moves no more; in fact, I'd say he hasn't done any moving for a good many sunnycycles now."

"You're getting a wry, dry wit, Marigold. So he's dead, eh? That solves two problems in one stroke."

"Eh? I can see that in his current state, he won't come to my aid, but what is the other advantage?"

"Fist, can't you guess? It's to your advantage. Head this way."

The dead robot lay on the ground, parts of its stainless-steel plate worn off by weather to show the dusty yellow plastic beneath. There were lichens straggling up the side of its chest and head, and the reception core of the antenna had been twisted off. The legs were crumpled, but aside from that, there seemed to be little damage. Bannock crouched next to the corpse and tapped it lightly with a pebble, listening to the clicks. Marigold began getting impatient and shifted about on his feet, till Bannock suddenly jerked.

"Stop shifting about like that. I don't know if you've got ideas on my head or not, but stop it, damnit!"

"I wasn't . . ."

Bannock cut Marigold's defense short with a noncommittal grunt and returned to tapping on the hulk.

"What are you doing?"

"Getting a new arm for you."

Bannock pried a panel from the back of the hulk, reached in, and tugged a little black box free from its position beneath the power plant. He undid a few snaps, opened it, and removed a handful of tools.

"It sure is a shame you Iron don't know about all the goodies you have

stashed away inside of you. A little fooling around with his insides would have had this fellow still alive today." He paused to laugh sarcastically. "I'll bet your mill doesn't even know she puts them inside of you. Sid-down."

Marigold sat, and Bannock critically eyed the ruin of his arm. After cautioning the Iron against any sudden moves, he attached the elbow joint of the corpse with several of the tools. It fell away, and Bannock began performing the same operation on Marigold. The Iron twitched nervously and received a reverberating slam against his side with the wrench. "Stay still, damn your hide," growled Bannock. Marigold's arm fell off, and Bannock took the other and wrestled it into place. A few left motions with his wrench, a snap connection of some of the little tubes, pressure splices applied to the cables, and the arm was on.

"Try it out."

"It squeaks."

"Your lube system will take care of that pretty soon. It's in perfectly good condition itself. That hulk might have been dead, but all his parts were still sealed tight away. Everything above his hip-joint was in top-flight condition."

Marigold grunted with his semaphore, then stood up.

"Very good, Marigold," Bannock commented. "You didn't try to kill me right off or anything. Shall we go on our way?"

"It's getting late. You may want to sleep soon, am I wrong? And make your fire and cook your food?"

"You may be right," Bannock

agreed, and began to gather dry wood. He brought it to a small hollow which was surrounded by tall trees, and there he cooked his supper.

IV

Marigold watched disconsolately, unable to direct his thoughts upon any one subject. He tried to think of new ways in which he could kill Bannock, but none came to his mind. The Flesh just seemed to *know* so damn much.

"Bannock?"

"Grnnch?"

"How is it that you know so much about Iron?"

"I'm a junkman, if that means anything to you. No? Well, suppose some hunter comes in with a dead Iron, pulling it on a little cart or something, and he wants to use it for a servant or a farm laborer or sell it. Someone has to fix the Iron, and since most hunters are rather unremarkable as brains go, it won't be the hunter who does it. I do. Remember that dead Iron we saw today? Given a few weeks I could have him running again. I studied your anatomy for six years and I'm pretty sure I could make one of you from scrap parts alone. And hell . . . I think it's pretty obvious that I know more about you than your Mill does."

"I doubt it," Marigold replied stuffily.

"Doubt it if you want."

"If you know so much about us, why are you out hunting us like those stupid hunters?"

Bannock broke out laughing, rocked back and forth, and gasped, "If

you're so smart why ain't you rich?" He stifled the chuckling. "Never expected to get that from an Iron."

Marigold blinked his semaphore in puzzlement.

"Well, Marigold, I'm out here hunting because I need spare parts. I don't come out here to hunt for Iron like you, still up and kicking. I look for ones like your benefactor back there. Use them in my shop." Marigold sat on his tree-stump. Bannock disturbed him a great deal, for he knew the man was smarter than he was, and quite a bit more self-confident, seeming to know an infinity of facts. The self-confidence disturbed him especially, for the Flesh could be leading him right into a trap and wouldn't let loose a peep. Still, there had been plenty of times when Bannock could have dispatched Marigold, and he had not taken advantage of them. Marigold wasn't so sure any more that this trustworthiness was so much a game on Bannock's part. It seemed to come so naturally to the Flesh. Still . . . Marigold squelched his thoughts and watched the fire burn. Bannock slept through the night high in a thick-trunked tree.

The first sunbeams of dawn sent the bugs fleeing over his face, and seeking refuge in his ears and nose, so Bannock spluttered awake, climbed back down the tree, and saw Marigold exactly as he had left him — hunched over on the stump looking at the ashes of the burnt-out fire. The Iron turned when Bannock landed in the shadowed turf.

"You slept all night."

"Right you are. Help me gather

some firewood?" Presently a small fire was roasting Bannock's breakfast, and Marigold watched, as disconsolate as ever. As the human ate, he spoke to the machine. "Have you decided to let me carry your arrows across the clearing?"

"Yes. You may as well."

"Good." Bannock opened a case from his bandolier and began shaving and trimming his sandy mustache. As he did, he asked, "Marigold, why do you Iron hunt men?"

"Men?"

"Flesh, then. Why?"

"Oh. Because you hunt us."

"Well, then, why do you wear our skulls as ornaments?"

"Prestige, of course. To show we have adequately defended the home Mill."

"Reasonable. That's why we wear the receptors of your tennas — to show we've kept the Iron away from our settlements. The more we wear around our necks, the bigger and hairier and stronger we look in the eyes of the girls. It's good for social relations to be able to be dangerous." He swore when he cut a nick out of his lower lip. "Anyway, we could probably wipe a lot of you Iron out, if you weren't so useful."

Marigold didn't like that statement and let Bannock know.

"I don't care if you don't like it, Marigold. It happens to be true. If I know so almighty much about your insides, doesn't it indicate to you that I can pull a few wires in you and make your fusion plant cut loose all over the countryside? No. Of course you don't know. Anyway forget it. We don't wipe you all out because

there aren't enough of us to do the job right and there are still too damn many of you."

"You threw a few words at me I don't know. Girls?"

"You've got a lot of questions, Marigold." Bannock gnawed at a fingernail. "But then you've got a helluva lot to learn. All right. What is there to life, for one of you Iron?"

"Why . . . uh . . . hunting, and seeing that the Mill . . ."

"Has a lot of metal-bearing rocks in her belly so she can make more Iron, right? Well, get this. What does *she* mean?"

"The Mill . . ."

"Of course, the Mill. It's always the Mill. *She* is also a word referring to the procreative aspect of something living, or semi-living, as you. You refer to another Iron as *he*, indicating the provider aspect. I've oversimplified it, but do you know where those words came from? They weren't invented by the Mill."

"No."

"Well. Does the Mill ever tell you where *she* comes from?" Marigold signalled negatively. "Okay. I'll tell you:

“Thousands of suncycles ago, this whole world was covered with a beautiful culture of wise and erudite people, all Flesh. There were great cities which extended miles into the air and miles underground, and you may have seen some of their ruins. It's from those that you get so much rusty metal. These Flesh originally came from some star high in the sky, and they communicated with the Flesh living on that star,

just as I talk with you. Men had houses that could fly, provided with all possible comforts, and you Iron were the servants of men "in those days.

"But something happened. I don't know what and none of the books explain what. Anyway, the great settlements toppled to the ground and millions of men were killed."

Marigold stopped him with a blue-green flash and a honk of derision. "Millions?" he asked. "Why there are hardly a million of you Flesh in the whole world."

"A million and a half within a thousand miles of here. But don't interrupt." Bannock resumed his explanation. "The remaining Flesh had to learn to live off the land, while all that you Iron had to do was throw assorted old junk into your Mills. And I guess the Mills forgot all about the Flesh having built them in the beginning. Anyway, when we started to need metal, we used you Iron, and then you began to fight back. So, here we are. Probably matched in strength, though I doubt there are as many of you as there are of us.

"Anyway, to get back to the subject — he and she. Any idea where the words came from?"

"From *Flesh*?"

"Yes indeed. From male and female Flesh." Bannock began to explain the facts of life.

Surprisingly, in the end, Marigold understood and believed most of it. The idea upset him no small amount, and he wandered off to think. He was too abstracted to bother watching the man, even.

Finally, Bannock called him to suggest they get going.

The robot jerked to his feet and flashed assent. He buckled his quiver back on, took his bow, and followed Bannock off toward the ridge. They hiked through a wide expanse of toss-furz, and Bannock swatted at the clouds of little spider-gnats that rose to sting him. Marigold did not pay any attention to the vehement cursing and slapping; and when they had passed the insects, Bannock noticed that the robot was wandering in a rather contemplative state, probably only following him and not watching him at all. He could easily be brained, then, and marked for future recovery, but Bannock decided to wait, since it seemed rather impolite to cut into someone's thoughts so suddenly and literally.

As the day began to get late, Marigold started to quiver with his late-afternoon apprehension.

Bannock stopped him and said, "Look, you're starting to get all nervous again. Cut it out. When you get nervous, you get careless, and that happened once too often already, from what you've told me. I caught you. So for fistsake, calm down. Nobody is going to brain you while you're able to kill me. Look — wouldn't you keep another Iron away from me, because I could kill you before he could do anything?"

Marigold flashed agreement, and his spirits began to improve. He had not noticed the fallacy of Bannock's reasoning that two Irons could not easily deal with one Flesh, but neither had Bannock.

The ridge was quite close now, and

they could see a gash through it, where Bannock said a river flowed.

"The plain is just on the other side of the ridge. If we follow this ledge that leads along the side of that cliff, we can cut two days off our time.

"A ledge," Marigold mused doubtfully, but when Bannock threw him a questioning glance, he flashed accord and set out toward it. His ability to home in on ledges and cliffs had struck again.

V

As they walked along the edge of the river, Bannock began to realize what a position he was in. As leader, he was vulnerable to anything the Iron decided to do, such as putting an arrow through his back. But occasional backward glances showed him that the Iron held a clear conscience and was planning no such action.

The ground was rough with granite boulders scattered through the sere brown grass and rustling scratch-bushes, and the ridge was quite near, its base hidden by a huddle of dark crawberry trees. They reached it as the sun was nearing the horizon. Marigold felt the loose gravel footing of the path and raised a doubt.

"Hadn't we better leave the crossing till tomorrow? We might not be so sure of our footing in the dark. Even with all my machinery, I don't like trying it now."

Bannock shook his head. "Why bother? The crossing is less than a mile; it shouldn't take us more than twenty minutes. If it gets too



dark for your tastes, just turn on that headlight of yours. We might as well get it over with."

Marigold hesitated to agree, but finally followed Bannock.

As they strode out onto the ledge, the last rays of daylight stained the cliff a flaming orange, bright enough to see clearly, and Marigold felt temporarily secure. But he kept going faster and tagging at the heels of Bannock. The man warned him several times against going so fast. But he did not really slow down until a rattling shower of dislodged pebbles nearly sent him flying into the rapids a hundred feet below. He sobered up fast and proceeded at a more leisurely pace.

Bannock turned a corner, then stuck his head back around.

"Slow down, Marigold. We've come to a bit of shaky footing." There was a dull stony creaking as Bannock moved. When Marigold rounded the corner, he saw the ledge here consisted of narrow slabs of horizontal rock, thrust out from the cliffside. They were unsupported beneath, and not very wide. The Iron eyed the tossing current below, which now made a tight curve around the base of the ridge, and the boulders upon which he would fall if he were incautious. He slowed as he crossed the indicated shelves of rock, but not enough. There was a sinister creaking, and the rock upon which Marigold stood shuddered. He stopped still.

"What's the trouble?" Bannock called. Then he turned back.

Marigold did not move other than to carefully, slowly, extend his bow

to Bannock, who took it and put it aside. "The arrows," he whispered, as though the very weight of his breath would cause the rocks to fall.

The rock did not creak. Bannock looked uncomfortably at the Iron, thinking fast. Then he said, "Take your rope out of your belly and toss it to me, and for fistsake don't be careless as you usually are. Don't get panicky."

Marigold tightened all his meters and slowly reached for the rope. He buckled one end to a clip in his front, then flipped the other end to Bannock. The human caught it and quickly tied it to a projecting rock which looked capable of supporting the robot's weight, then turned back.

"All right, now. Be as careful as hell. Take one step. If you feel the rock twitch, stop still."

Marigold's motors whined, and his cables tensed as he lifted his foot and moved it gently forward. The rock creaked, and suddenly he panicked. His foot slapped heavily against the rock, which shuddered and fell away. Marigold spun free on the rope and slammed loudly against the side of the cliff, suspended above a two-hundred-foot fall by a thin nylon thread.

Bannock looked uneasily over the ledge.

"How the hell am I going to get you up here, anyway? You weigh a good ton, and I sure as hell can't lift that."

Marigold stopped the frightened turgid flow of colors on his semaphore and blazed forth a red so hot and angry that it seemed to bypass

Bannock's eyes and burn directly into his brain.

"Why should you care, *Flesh*? You might as well cut the rope and let me fall, so I won't take your skull!"

Bannock looked at the Iron for a moment, then turned away, saying something foul and commonplace, and could be heard fidgetting with the rope. Marigold winced and expected a sudden fall, but the *Flesh* peered over the edge.

"The rope'll take you. Now what you must do is try and pull yourself up the wall. Prop your legs against it and try to walk up."

The Three Hunters had been out of Werser for five days and had not had noticeable success. They had seen four funny-looking Iron on a distant hillside, but when they got there, armor-piercing rockets ready in their wooden launchers, the Iron had gone. There was no spoor.

Tom Bigboy decided that they must have been the new Sky Iron that could fly, which some Mill away east had been experimenting with, if one could believe what the New Romans said. Red Williams agreed. Dall Fingal, disappointed at not having been able to show how good a marksman he was, made no comment.

They were coming to the Werser River for a drink, before they camped for the night, when there came a loud and sudden clang, a burst of surprised static, and the rumble of falling rocks.

"Clumsy Iron gone hung himself up," laughed Red Williams grimly, and the three headed for the sound.

High on a cliff, lit by the last

rays of the sun, was a small human figure struggling with a rope, and on the other end was an Iron, struggling to climb onto the ledge.

"Goddamnit! It's Bannock! He was out looking for parts, and I guess they found him?"

Dall Fingal dourly stuffed a small rocket into the launcher, one lit the fuse with his electric lighter. The breech slammed shut, he aimed carefully, and the little projectile arced its fiery trail across the river and exploded against the rock holding the rope. The nylon cable parted, and the Iron scratched static through the silent dusk and fell bouncing and chunking from rock to rock.

To get where the Iron lay was a somewhat more difficult matter than the three had thought, for they had to go downstream a bit to ford the river. When they approached the Iron's corpse, they saw Bannock huddled over it.

"Uh-oh," mumbled Fingal. "He'll probably try to claim it."

"Look, man, you shot the damn thing, and he'd be dead if you hadn't done it. You tell him *that!*"

Thus resolved, the three hunters went up to the corpse and faced Bannock. But Bannock was not trying to wrest the tenna from the machine, as they had expected. His face was white and streaked with wetness, and his eyes were red and angry.

"Well, Bannock . . ."

The semaphore flickered a few last times, then died out. The Iron shuddered and settled to stillness.

"You bastards . . ." Locker Bannock said thickly. He glared at them with futile raging hatred. **END**

IF ... and WHEN

by LESTER DEL REY

The New River of Life

The first intelligent creature to walk the surface of Mars staggers from his wrecked ship to survey the damage. He looks pale and bloodless — and he is; not a drop of blood circulates through his veins. His helmet is cracked, and there can be no air inside it; but he doesn't worry about that. What he is breathing is a liquid that gurgles slightly through a valve in his throat.

He isn't a strange alien, however, nor a robot. He's a normal, healthy man from Earth — or he will be a healthy one as soon as medical supplies can be sent down from the main ship. And his life expectancy is at least a decade longer than that of the first astronauts.

All this is the logical result of a literally bloodless revolution that came about in early spring of 1968. Like most really important discov-

eries, the announcement of it was quiet, with most of the possibilities inherent in it not even hinted at.

The report stated simply that Dr. Robert P. Geyer, a Harvard biochemist, had discovered a chemical substitute for blood. Unlike plasma or saline solutions that are injected to fill depleted blood vessels, this substance actively takes over the main duty of true blood. It carries oxygen to the cells and removes the waste carbon dioxide about as well as the hemoglobin in our red cells.

The substance is a solution — or emulsion — of fluorocarbons, a chemical family that includes Teflon. Such chemicals are not easily broken down by other chemical action, and they have the advantage of being inert and non-toxic within the body.

Animal experiments confirm that it can support life. It can be mixed

with some normal blood without apparent damage to the blood cells. Or it can be used alone in place of the entire blood supply. Curiously, it seems safer to use it alone than in a mixture with real blood. When all the blood was drained from the bodies of rats and replaced with fluorocarbons, the animals survived for eight hours, carrying on all the usual rat activities. There was no evidence of brain damage, as would have been the case if a full normal oxygen supply had not been maintained for the body.

Obviously, the substitute cannot do all the work of real blood; it has no white cells to protect the body, nor many of the substances in plasma which are needed. But it is already perfected enough to serve as an excellent carrier for oxygen and carbon dioxide.

By itself, such a development would have been revolutionary only in the ages when blood was called the sacred river of life, before we learned to pump stored blood and plasma into our veins. This is a great step beyond such procedures, but hardly one to cause any great excitement at first glance. On further study of the discovery, however, the possibilities seem endless.

Obviously, this offers new hope to those who are striving to drain the blood and replace it with a substance that can be chilled before injection and which will prevent

brain damage until the tissues can be frozen. Organs and tissues for later transplants can be more readily preserved. Diseases such as leukemia have already been suggested for treatment by flushing out all the blood and replacing it until the cause of the disease can be treated.

The substitute offers two great advantages over real blood. First, it can be completely sterilized by heating in a loop outside the body and then cooling back to body temperature. One of the chief dangers of any cancer operation is metastasis, caused by cancer cells that break free and are carried through the blood. Most past methods of prophylaxis have been too dangerous for use. But with the fluorocarbons instead of blood during the operation, all such malignant cells can be eliminated. This promises a tremendous reduction of agony and saving of lives.

Secondly, the fluorocarbons will not clot. This makes them inevitable for operations where the risk of clotting now almost forbids the needed treatment. One of the leading causes of heart failure is atherosclerosis — the forming of fatty deposits in the blood vessels; clots form around such obstructions, cutting off the flow of blood to the heart itself. Clot solvents of exceptional strength can be used with the fluorocarbons to remove these. And even the dissolving of the

fatty deposits themselves becomes feasible. There need no longer be a risk of the blood clotting around the fatty deposits as they are dissolved and freed. This same virtue suggests the use of fluorocarbons in the case of "stroke" — or the rupturing of a blood vessel in the brain — to enable the removal of the clots and pressure before too much damage can be done.

A lesser advantage is the ease of storage and the eventual easy availability of the substitute. There is no longer any reason for death by severe bleeding in accidents, generally; a handy supply of fluorocarbons should be part of every medicine chest in the future.

Thus the new discovery offers a potential increase in the average life expectancy of as much as ten years. Unlike other such advances, this one does not operate by saving us from infant mortality alone, but gives the greatest benefit to those who are already well along in years.

There is no reason that the fluorocarbons have to be considered only within the blood vessels, despite the fact that they were developed for such use. The essential fact is that we now have a liquid which acts as an excellent carrier for the exchange of oxygen and carbon dioxide and which has no damaging effect on the tissues of the human body.

It is here outside the circula-

tory system that we can look for a real revolution in some of the worlds of science fiction.

Man has been an air-breathing creature since his remote ancestors left the sea. So far, no animal that has made the transition from breathing air has ever gone back; whales may stay under water for half an hour, but they have to come up to breathe eventually. The re-growth of gills just doesn't happen. Even Norman L. Knight's delightful gill-bearing sea people were supposed to be the result of tremendous advances in genetic engineering.

Now we have a means of giving men the power to breathe a liquid without any great tinkering with the body and with no danger of genetic damage. Since the fluorocarbons are safe and effective, we have a means to supply oxygen to our lungs by regulating the amount dissolved into the liquid.

We've discovered the hard way that carrying air down to a depth of 600 feet or more is not a good answer. Gas compresses under pressure, while liquid does not, to any practical degree. Despite the use of all kinds of gas mixtures, either the oxygen pressure becomes too great or the other gases begin to dissolve in the blood, often acting like hallucinogens.

The use of water itself has been suggested largely because air-breathing at the depths is so hope-

less. For small animals, the use of highly-pressured oxygenated water makes total submersion possible; mice have lived in such tanks. But so far, the use for human underwater existence has not been promising. Water really isn't a good environment for the lungs of men who must go back and forth between media.

So our future merman breathes air on land and fluorocarbons under water. He carries a recirculating system in a tank, and this is connected to him by a small valve inserted into his windpipe, and perhaps similar valves into other body cavities. Such valves are no more painful or irritating than those now used in cases of people with kidney disfunctions, where they permit abdominal flushing of wastes from the blood. The insertion of the fluorocarbon tube into the valve automatically switches it to liquid-breathing.

He's almost impervious to pressure changes, being filled with liquid. Once he flushes out the nitrogen dissolved in his blood, he is safe from either bends or nitrogen narcosis. Instead of spending most of his time in slow descent and ascent, he can actually live and work for days or weeks at the bottom of the continental shelf. When he returns to land, his lungs are drained and air-breathing is restored.

He's a true amphibian mammal, something nature never developed.

The use of such a medium for breathing is not limited to the world of water, either, handy as that must be in our overpopulated future of dwindling land resources. In space, air in the lungs is as artificial as any other medium, with dangerous disadvantages.

On the surface of the moon or outside his spaceship, any minor suit puncture threatens the astronaut's life as the air rushes out into the vacuum. This isn't instantly fatal; the human skin is strong enough to prevent the direct explosion of liquids inside it, even though they boil at zero pressure when directly exposed to space. But the margin of time is limited to somewhat less than a minute. After that, the tissues of the lungs are exposed to emptiness and begin to release their liquids through surface boiling, with fatal and agonizing results.

In contrast, our hero landing with a crash on Mars is breathing a liquid, because he knows the risks demand it. (The extra weight is only a tiny fraction of his total life-support system, so it's standard equipment for all space flight.)

The ship cabin and his helmet both crack open, and the air rushes out into the near-vacuum of Mars. But our hero's lungs are filled with liquid, chosen for its high zero-pressure boiling point. It can't rush out instantly. In fact, its pressure is low enough to be

retained easily by the valve in his throat. It goes on supplying him oxygen.

Then pain lashes at him, and he sees that a splinter of the cabin has cut a main artery in his leg and he's bleeding to death. Now he tears off a container of fluorocarbon from the wall and begins giving himself a massive transfusion. By the time he can clamp and seal the wound with "instant skin" from a spray can, he has lost almost all his blood, which can't be replaced until the big ship lands. But he hardly notices any difficulty, except for some stinging of his skin where the elastic undersuit doesn't protect it. He heads out for Mars to survey the damage. He'll repair the

crack in his helmet with a can of glue while he is outside. A quarter of an hour has gone by, and he isn't dead, as he'd long since have been if he'd been breathing air.

These are only a few of the possibilities. At the very least, we've doubled the number of ways we can breathe and handle our internal exchange of oxygen and carbon dioxide. To me, that's a major revolution.

Nobody can yet tell where it will all lead, any more than they could guess the future of electronic amplification sixty years ago. But it will be fun to watch our writers and scientists grapple with the sudden end of one of our limitations.

END

Next month in IF —

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by THOMAS J. BASSLER, M.D.

Olga was the perfect spaceship for an Implant mission — considerate, tender and loving toward her crew!

I

Olga flexed her landing ports expectantly and activated their optic pickups; all she could see was a ringed planet against a background of stars. In her eagerness to receive her new human charges she regretted the delay between the

sending of the call-grams and the eventual arrival of the colonists.

Olga had decided to send a second starship to the Procyon system. It would be one of the Implant class, designed to set up an earth-type biosphere on the target planet. About three generations ago she had sent Procyon Implant One, but now —

in the light of new survival theory — she realized that the probabilities of a successful “take” from it were small. She felt (cybernetically) that it was time for Procyon Implant Two. It would be her first follow-up to any system.

Up to now her only contact with her interstellar colonists had been via the single faster-than-light torpedoes which were sent back automatically by the starship’s computer upon their arrival at the target planet. The information they carried was primarily astrogational, with a little survey of the local ecology. Extrapolations on Implant survival were possible, of course; but an actual on-the-spot inspection several generations later would be far more useful in determining the makeup of future Implants. In addition, Procyon Implant Two would be larger and better equipped for survival. The skill/genetic parameters of the human component checked out very favorably in simulated runs against a variety of possible alien threats.

Olga hummed and clicked. She loved humans, and her companionship circuits nagged at her when they were empty. Saturation is what she craved — saturation of all her receptors. At this moment the huge parabolic electromagnetic receptor that had been focused on the laser tail of Grus Implant One stood idle. That tail had signed off some eight years after the return of the

An IF First

In each issue, *IF* brings you a story by a new writer, never before published. This month’s “first” is by a California doctor whose hobbies are marathon running, skin diving, tournament chess . . . and, as you can see, considering the medical probabilities involved in man’s conquest of space. Still in his mid-thirties, Thomas Bassler is married, with three children. He has just completed a tour of military duty as an Army pathologist, of which he says, “A young doctor thrust into military medicine today faces what I imagine the starship medics will face — a stretching of old concepts, and the discovery of new ones.”

torpedo, confirming the safe Implant Down. But while that receptor stood idle it irritated her. It hungered for contact with a new laser tail and its modulated human messages. Soon it would be satisfied by Procyon Two.

After running a quick check on her sensors in the new starship she confirmed that the suspended samples of earth phyla were ready for man. The sleeping spores, seeds and embryos were ready to surround the new colonist with a protective biosphere of friendly life forms on that alien planet. Yes, she calculated, a successful “take” was highly probable — this time.

II

One of Olga’s first call-grams came to the dormitory phone of Ralph Eggers, engineering student

at Ames, Iowa. It was Saturday morning, and he was dressed for his road work — sneakers, sweat shirt and denims. He carefully wrote out the message. Then, studying it, he walked down the road to the railroad tracks to start his jog. As a student he led sort of a sedentary existence. If he was to satisfy the physical qualifications for an Implant he felt he had to follow a dedicated routine of diet and exercise.

He was elated. He had first volunteered his name at the earliest age — sixteen — in the hopes of a straight genetic draft. He had been optimistic because of his hybrid mixture. But to make sure, when he wasn't selected immediately he started embellishing his application with high-priority skills like soil chemistry and a broad based engineering course. Now, three years later, Olga had finally drafted him.

An hour later and two pounds lighter he came to the seven-mile marker. He was caked with dried salt from his sweat. He took out his lemon and bit into it, chewing up about a third of it and then spitting out the pulp and seeds. The acid juice burned an open blister on his palm.

As he started back to town at the same pace he mentally scheduled the next two days. Shower and drink milk with gelatin now, take a nap, call Professor James and Betty. He would have to drop by the professor's house to say good-by. He didn't

know any of the other professors well enough to bother them over the weekend with his departure. Professor James was his advisor and could take care of the official school paperwork on Monday.

He would plan a late supper with Betty — meat and a salad. Saying good-by to her would be hard, but he had been more or less expecting it. He hoped that she wouldn't take it too hard.

A phone call to his big brother — married and raising feed cattle in Oelwein — would take care of his few personal belongings; and then, after a brief day of Earthside reminiscence, he would fly to Computer Central. In less than forty-eight hours he would be facing Olga and passing the final tests.

He slowed to a walk about a quarter of a mile from the fraternity house. He usually managed to sweat off about three and a half pints of water, and he was very thirsty. He pulled off his heavy, wet sweatshirt and slung it over his right shoulder as he walked. It was autumn. The dry leaves he crunched through showed all the artist's shades of yellow, red and brown. Yes, if he stopped to think about it he could become very melancholy about leaving Earth permanently. He was happy for the two-day deadline. It gave him very little time to think.

He expected that there would be times when he would miss his home, his family, his classmates . . . and

of course he would miss Betty. But there was never any question of withdrawing his application to Implant Out. He had always wanted to go to the stars. The alternative — to remain on earth his whole life span — never even occurred to him.

Another future colonist lay obtunded in a strange bed. He wasn't sure of where he was . . . or, for that matter, what day it was.

He opened his eyes and focused carefully on the unfamiliar, gray-white, cracked adobe walls. His occiput throbbed, and his tongue felt large and sticky. A granular coating lined his teeth.

Robert J. Zuliani, L.S.H. (Licensed State Healer) was recovering from what had become an all too frequent occurrence of late — an extended weekend of drinking, fighting and making love . . . but mostly drinking.

As his sensory modalities returned he learned that he was lying in a lumpy bed that consisted of a couple of striped, musty pillows, a thin mattress and a stiff, brown army blanket. There were no linens. On closer examination he couldn't even be sure that it was an army blanket. It was too soiled to tell.

He sat up slowly and steadied himself until his vestibular apparatus caught up with him. When he swung his feet over the side of the bed he found on the floor a neat pile of his clothes, all folded, with his

wallet, watch and pistol on top.

The pistol was a small .25 caliber model, and the clip was still full. There had not been much excitement on this trip — he guessed. The billfold still contained three of the crisp, new hundred dollar bills, and there was some paper change in one pocket. Hardly enough was missing for more than a couple days of drinking, he estimated. As he sat there his head cleared perceptibly — confirming the shorter than average "weekend."

He stood up gingerly and slipped on his pants. A basin of cloudy water stood on a crate in the corner. He splashed his hands and face. Then — drying with his handkerchief — he walked out on a screened-in porch which was furnished a little like a kitchen. Judging from the shadows it was about noon. He saw his air-cushion car parked by the front door. It was well off the road and didn't seem to be sitting squarely on the ground. That bothered him.

A nude teen-age girl was sunning herself in the patio. Her slim figure and large eyes might have looked almost attractive in a dimly lit bar, but out there in the full glare of the sunlight she looked pale and cachectic. There were disquieting lines under her eyes and a very worrisome bandage on the left side of her neck. The bandage looked fresh, but there was already a yellow stain in its center. He didn't notice any

lumps on the other side of her neck — or elsewhere on her body — but he winced as the list of differential diagnoses flashed reflexively through his mind.

Quickly he glanced back into the bedroom, and relaxed a little when he saw a tousled head on the other striped pillow. He made a mental note to have his skin test rechecked in about three months — just to be on the safe side.

Brushing a few lazy flies away he sorted through a clutter of bowls and utensils to find some cold refried beans. He wrapped them in a flour tortilla and ate between sips of Scotch from an almost dry pinch bottle. Then, as he dressed, he tried to sort things out in his mind.

He knew that he was somewhere in the Reservation. Hopefully he was not too far from one of the border posts, in view of the possible damage to his car. He still had over half of the money he started out with, so he might not be overdue at the State Clinic.

As he had expected, his suit coat was pretty badly soiled — stains from food, mud and other nondescript sources. He scrubbed it briefly in the basin and was hanging it on a nail by the door when the sunbather came in. She was tying the belt of her flimsy knee-length wrap-around when she saw him. She looked about fourteen years old.

He grinned and raised his now

empty bottle in a salute. She chirped something friendly in the native dialect which he interpreted loosely as: "Good afternoon. Are you up already?" Evidently she misunderstood his gesture with the bottle; she rummaged through an ice chest in the corner and came up with a fairly cold can of beer. She sat and smiled while he opened it and drained half the contents.

"I guess you don't speak English," he ventured.

Her smile broadened, but she didn't say a word.

"Well, I don't speak Native; and I've got to be getting back." He walked into the bedroom, using the excuse of putting money under the pillow in order to get a good look at his bed partner — making certain that she was a meatier, and healthier, specimen.

He gave the sunbather a small bill and picked up two more cans of beer and the opener. In the yard he confirmed his suspicion that he had "parked" on a sharp rock again. The blades were badly torn up, but the motor turned over smoothly. None of the "idiot lights" were on, so he hoped that all that would be needed was a new set of blades. Well, the men at the garage ought to be used to replacing them by now. Unfortunately, he would have to walk all the way to the border to find a communicator booth.

He started north on the little village's only road, hardly more than

a dusty trail. An occasional sullen native watched from a doorway. Bob's clothing marked him as an outsider, but he had little to fear during the daylight.

It was a small austere village. The few houses were adobe like the one he woke up in. Utilities were completely absent. Apparently the girls were the only "industry."

When he glanced back he saw that his bed partner was up and around. She was picking up a high heeled shoe she had left in his car. She waved. The car looked like it was well within the girl's property line; it should be safe enough there until tomorrow.

As he followed the road it wound between low hills which were covered with shoulder-high chips of white and variegated stone. The landscape was barren except for an occasional small stubborn clump of desert type vegetation — dry and spiny. Small clouds of powdery white dust followed his feet, and the afternoon sun stubbornly maintained its heat and glare until it touched the broken peaks to the west.

He took off his shoes and stockings, drank another can of beer and continued on. Several hours later his left knee began to develop a gritty ache at the site of an old judo injury. Fatigue and thirst slowed him down. The darkness of the Reservation was absolute. There was not an artificial light within miles. The stars were bright, and he was guided

by a faint glow to the north. Later the glow marked most of the horizon ahead of him. It was the coastal town of Greater Laguna. Closer — ahead — he saw an occasional fleeting headlight that marked the crossroads at the border check station. About four in the morning he was showing his I.D. to a sleepy guard.

After freshening up and drinking a pint of water he checked in with his answering service. There were the usual routine messages . . . and the call-gram.

There was a pause before she read it: "It's for starship Procyon Two. You are to report at Computer Central by the ninth. Why, that is tomorrow!"

He had been expecting — or rather hoping — for this for some time now.

"Does that mean you'll be leaving us?" she asked.

"Yes, Miss Collingsworth, I'll be leaving. Would you arrange to have the old man notified? There is no rush. Tomorrow morning around coffee-break time is fine. I'll be going to Com Cen from here. And, oh yes, tell him that the car is about forty miles south of the border on Route Two. It needs a new set of blades." Then he signed off and went back to the drinking fountain.

The old man, Roger Derrick, S.L.H., was his immediate superior at the Clinic. He knew about his plans for Implant Out, so most of

the professional details had been already taken care of. His patients would miss his no-nonsense attitude, but there were plenty of healers to take over now. The State had stepped up its healer program some years back when many of the older practitioners began to Implant Out. But that seemed to no longer be a problem; through psychological screening the potential colonists were barred from healer training. Bob had little respect for the new breed of young healer — a soft-handed paper-pusher who kept his parameds between himself and the patients.

Without another word to anyone he took a shuttle to the airport. Ignoring the curious glances his disheveled appearance drew from the hostess he bought a ticket and consumed one of their quaint little meals with two cocktails on the way to Com Cen.

His call-gram had come rather quickly. Healer skill units were in short supply for Implants. Olga tried to have about ten per cent in that category, but most of the volunteers were the adventuresome young who were too impatient to spend the six or eight years in L.S.H. preparation. So Olga relied heavily on the parameds to fill her quota.

III

At Computer Central Zuliani was introduced around the Life Sys-

tems section and immediately put to work in Suspension. Olga (a mnemonic for the Optic and Auditory pickups and the Graphic and Lingual readouts of the cybernetic satellite) handled most of the processing with her surface-based components. She handled all the interviews and records while he was left with the type of work he enjoyed — the knife and needle holder.

Each human had synthetic catheters placed in the brachial artery and vein on the side of the dominant cerebral hemisphere — usually the left arm, since most people are right-handed. This assured optimal perfusion of the dominant carotid artery and its supply area in the cerebral cortex.

Starship suspension involved temperatures in the range of one to three degrees above freezing. This avoided the problems of ice crystallization in the cells, but it also required perfusion of the capillary beds to supply oxygen at about 1/1,000 of the normal metabolic rate. Each human had an individual Life System Servo that pumped the oxygen-rich, hypertonic solution through the vessels and in addition controlled electrolytes with semipermeable membranes, and titrated a variety of hormones and drugs to handle the jolted physiology of going in and out of suspension.

Bob Zuliani met Ralph during his arteriovenous cutdown. When a little doe-eyed female walked by,

Ralph followed her with his eyes and said: "I'd like about a pound of that."

Bob added: "Wrapped in cellophane."

Like the password of some secret brotherhood those comments opened up their conversation.

"That is an interesting pattern of blisters you've got there — symmetrical, both palms. Did you get them in the gym?" asked Bob as he sponged the incision with a moist gauze.

Ralph looked up over the white screen through which his arm was protruding and answered: "Yes. The highbar." He lay back down and added: "But I'm not much good at it. I just do a few pullups and kips to stay in shape."

"I'd guess as much," said Bob as he absently sprayed red antiseptic. "A real dedicated gymnast would have enough callous to keep from opening up blisters."

Later, standing in the lunch line, Ralph noticed that Bob's slightly shorter stature was exaggerated by a reflex crouch he would unconsciously assume — sort of a modified shiko-dachi stance. He explained that he had acquired this habit while in training for The Games. He had spent twelve summers competing and managed to survive into the semifinals twice, where he lost to powerful International Champions.

That helped explain his rugged appearance. Subcutaneous gristle (a

fibrovascular scar tissue with focal areas of metaplastic cartilage formation) covered the "leading edges" of most of his bony prominences: bridge of nose, eye brows, hands, elbows, pretibial areas and feet.

He hadn't competed for years, now. He had stopped when he found he was losing to kids half his age — kids who could just wear him down with the resiliency of youth. It was after he quit that he noticed his drinking increasing to fill the gap once held by competition.

Their conversations at meal time ran the gamut of liquor, sex and spaceflight. Bob knew many of the technical details on suspension, but they didn't ease Ralph's mind any. Being naked and frozen in a giant ice cube tray was not his idea of a good way to spend ten years. He would have preferred a "greenhouse" ship, in which the colonists cavorted about in a lush tropical hydroponics chamber — where they could live with a sort of Garden of Eden abandonment.

Bob disagreed. "Ten years is a long time to be cramped inside a closed space with the same people. Psychologically it would be rough. And the biochemistry would be very critical. Any minor miscalculation in trace elements would be greatly aggravated by the time they arrived at the target planet. In addition you have an aging human breeding stock that must control their reproduction

while on the cramped starship — thus wasting years of fertility.

“I’ll take suspension any day. No psychiatric problems at all — and very little biochemistry. Since we’ll be perking along at about one thousandth of normal we’ll only age metabolically a few days.”

Ralph didn’t look convinced.

Bob gazed into the bottom of his glass as he sloshed an ice cube around and said: “Actually it will be just like falling asleep and waking up — if everything goes smoothly.”

“If everything goes smoothly,” repeated Ralph.

“Well, perhaps it isn’t quite that simple, but it has been shown by the torpedo records that suspension survival compares favorably with greenhouse survival. The same proportion of the colonists arrive at their destination,” said Bob with clinical detachment.

Ralph didn’t ask what the proportion was, but he assumed that it was less than the survival of the same population if it stayed on earth for ten years and fought traffic on the flyway, smoked tobacco and ate too many calories.

He would still have preferred to be awake and facing whatever dangers there were.

IV

Ralph didn’t remember going to sleep, but gradually he realized

that he could see the pearly white, inner walls of his suspension tank. His little servo was pumping contentedly on his A.V. hookup, and the slightly opalescent liquid surrounding him was still.

He did remember being transported out to the starship with the rest of the humans. The trip was enjoyable, although a bit overcrowded in the tender. Nose cameras got a good view of Saturn’s rings and moons as they entered Olga’s approach path. Weightlessness was new, of course, but the drinks which the parameds served them were very relaxing. He was actually a little euphoric when they placed him in his tank and hooked up the arteriovenous tubing.

That was the last thing he remembered — until now.

He wondered why he was awake. Could this be the end of the trip, so soon? It was supposed to be just like going to sleep and waking up, but he hadn’t expected it to be this easy. He studied the readout panel of his beige servo.

The temporal readout indicated that less than five years of ship’s time had passed. He was still en route.

Why was he awake?

He looked over the rest of the panel, trying to remember the diagrams Bob had shown him. The readouts appeared to be increased in numbers and jumbled in their arrangement. But they were clear-

ly labeled. One of the new ones was labeled "metabolic time"; it indicated that he was still in his second subjective day.

The encephalogram was a flat line on the right, but showed spiking cerebral activity on the left. For some reason the side of his brain closest to his A.V. tubing was warming up. This was confirmed by the thermal records. The supply area of the left carotid was growing warmer while the rest of the body was dropping below freezing temperature.

Something was terribly wrong. He didn't know what had happened, but they were near that point in the startrip when the ship was scheduled to rotate 180 degrees to begin deceleration. Perhaps a shock had moved the catheter up into the carotid, or a large blood clot might be blocking the other vessels. He didn't know.

But all of these readings should be being relayed and monitored somewhere else on the ship. Someone — or something — should come soon to make things right.

He tried not to think. He feared that his brain would metabolize too fast for the servo and use up the available oxygen, burning out the neurones.

But now he just couldn't stop thinking — and worrying. The harder he tried to relax his brain the more active it became. He awaited his rescuer.

A surge of liquid carried little specks past his face. He thought he recognized epithelial debris including flaky white keratin, little black hairs and small gobs of yellow greasy sebaceous secretions. These were normal external dermal wastes. He knew that the inner cells of his body were being cleaned too — by the perfusion solution — unless the temperature changes were causing ice crystals or clots in the small capillaries. He wondered how low his "antifreeze" was set. The readouts indicated minus 4 degrees for his body and plus 32 degrees for his left cerebrum. Perhaps all the extra alcohol that Bob was drinking had a purpose — additional antifreeze.

At first he thought the new white speck that crossed his field of vision was just another ball of keratin debris. Then he thought he saw it wiggle — move by itself! But that was impossible. Nothing wiggles at a minus 4 degrees centigrade. He tried to focus on it but it kept drifting just outside his visual field.

He got a better look at the next white speck. It did wiggle. It looked like a large grain of polished white rice. Then he noticed several more drifting up from the right side of his servo. He tried to look down. His left eye moved best, in its slightly warmer socket. When he re-focused he saw what looked like a handful of rice on the blistered area of his right palm. His hand rested, frozen in a relaxed position on his

right thigh. The white mass quivered, and individual little specks crawled away in different directions on his leg

Maggots!

He felt a strong impulse to jump up and brush them off. But he couldn't even scream.

They gradually increased in numbers until the edges of both visual fields contained fleeting glimpses of the swimming, wiggling maggots about the size of small caterpillars. A violent itching began as they penetrated the blisters and began to crawl under the skin of his hand and forearm. On the back of his hand they began to emerge, perforating the skin and exposing the underlying tissues. He was being eaten alive!

Years of ship time remained. He was afraid that he would lose too much tissue to survive unless someone was brought out of suspension to rescue him. He watched in horror as they stripped the skin from his hand. He could see bones, bloodless vessels and thin white structures that were probably tendons and nerves — all stiff, gray-white and frozen. The ravenous larvae stayed away from his slightly warmer head and left arm. Perhaps these "space maggots" were some new mutation that only fed on frozen space travelers. But how did they get into his tank?

The hatch and its viewport were a little out of focus. His cold ciliary

muscles were a bit sluggish in changing the focal length of his lens, but several minutes (subjective time) of effort brought the port into sharper focus. Images flashed by outside, not stopping long enough for him to recognize. Someone was out there. But they couldn't enter the tank without cycling the room and rewarming him — and that obviously would result in his hemorrhaging to death.

The bones of his right arm suddenly disarticulated and began to drift away, leaving a waving mass of vessels and nerves which were covered by a thick, wriggly tangle of white larvae. A sensation of unbearable pruritis reached his sensory cortex as the naked nerves were digested.

A face remained in the viewport long enough for his cool rods to catch an image. It was Bob. He stuck a small sign against the plate which read: OLGA READING YOUR E. E. G. HELP ON WAY.

Translating his brain waves would be simple for a computer like Olga, especially since she had several generations of experience with the life-system sensors. He relaxed a bit. As he relaxed he realized that Olga would recognize the change in his encephalogram; she could tell Bob that his sign had been read.

The persistent larvae continued their attack on the frozen tis-

sues. The skin on his thighs was elevated and lumpy.

The sign was changed for one which read: **NEW LOCK BEING BUILT. HELP ON WAY.**

Judging by his servo's temporal indicator he guessed that the signs were being left up about thirty minutes — just long enough, at this sluggish metabolic rate, for him to read and interpret them. He had his eyes focused on the viewport when he thought he felt his abdomen sag. Straining, he focused down to see the larvae stripping away the yellow belly fat and exposing the frozen, brown muscular wall. Then the wall split at the linea alba. Coils of pale anemic intestines protruded and the maggots invaded the peritoneal cavity.

Finally a circular defect began to appear in the tank wall next to the hatch. Then he realized why there had been the long delay. They must have constructed an emergency lock system outside so that his tank could be entered without going through the rewarming cycle. If they could only hurry he'd survive. His injuries could be surgically corrected with only minor deformities — and with a couple of prostheses he could get along fairly well.

The cutting of the new hatch seemed to irritate the maggots, and they became more active. Suddenly, granular, green-brown clouds of debris began to billow out of his abdomen.

The longer it took to rescue him, the worse his subsequent deformities would be. But he tried to keep hope of eventual rescue — all the deformities in the world didn't depress him nearly as much as the possibility of death and oblivion.

Some of the larger larvae were two inches long now, and their vigorous strength could be seen as they burrowed under his larger internal organs and made them quiver.

Then, finally, the newly installed hatch opened.

There was a swirl of the cloudy, granular fluids as Bob swam in, wearing a bright orange spacesuit. He moved very quickly in Ralph's physiologic time. The fluid resistance slowed him just enough to keep him a recognizable blur as he flashed about gathering the larvae into sealed black containers.

The larvae were about six inches in length now, and they quickly began to penetrate the container walls. They attached themselves to Bob's helmet and began to etch his faceplate with their enzymes. Their barbed setae scratched at his seams. Bob retreated into the lock, but Ralph thought he saw a knot of maggots moving under the faceplate just as the hatch closed again.

The fluids took on a greener color as the biliary system was opened. He saw his lobulated, brown liver slide toward his lap, and then his pelvis and femurs disarticulated in a slow motion clutter. A few verte-

brae tumbled out, and the branching spinal nerves waved slowly.

Then he realized that he was technically dead, as he saw his pink, globular heart tumble out in a shower of ribs and bristled maggots.

The pruritis fluctuated. Soon even his eyeballs began to itch.

The cornea continued to itch, and then his vision clouded up a little. Then he realized that the maggots had turned the tank's fluids into an enzyme soup that threatened to digest everything.

Double vision occurred as one of the eye muscles parted. Then one of the double images moved suddenly upwards and went out of focus as that eyeball was penetrated and the vitreous evacuated. Soon the other eye would probably go also, and he would be blind. He looked up at the port and the sign was still up: HELP ON WAY.

Rescue at this late date would mean an existence in a perfusion tank with one good eye to view the

world. The only way he could communicate would be through his encephalographic readouts. It wouldn't be much of an existence, he thought.

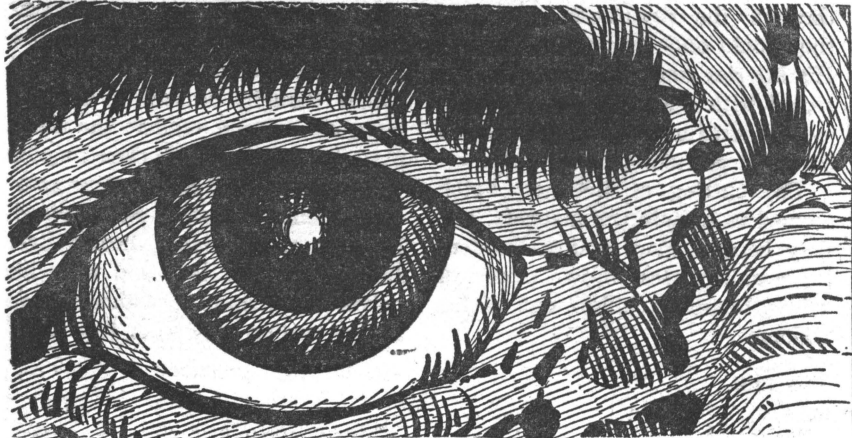
Then darkness fell as the other eyeball collapsed.

Still his faithful servo pumped the life supporting fluids through the cerebral hemisphere, and still he lived.

His consciousness remained sharp. If his brain alone were rescued he was sure that some sort of instrumentation could be devised to communicate with it. He began to despair. All his sense organs had been destroyed — sight, sound, taste and smell were gone. All he could do now was think and experience pain.

The itching rose to a crescendo and ceased as the last of the peripheral nerves were digested. In the subsequent lull a new discomfort developed — a throbbing internal headache. The larvae were now in the brain itself tearing at the meninges and choroid.

This became a hard, white, sear-



ing pain that clouded his sensorium
— and then there was nothing.

VI

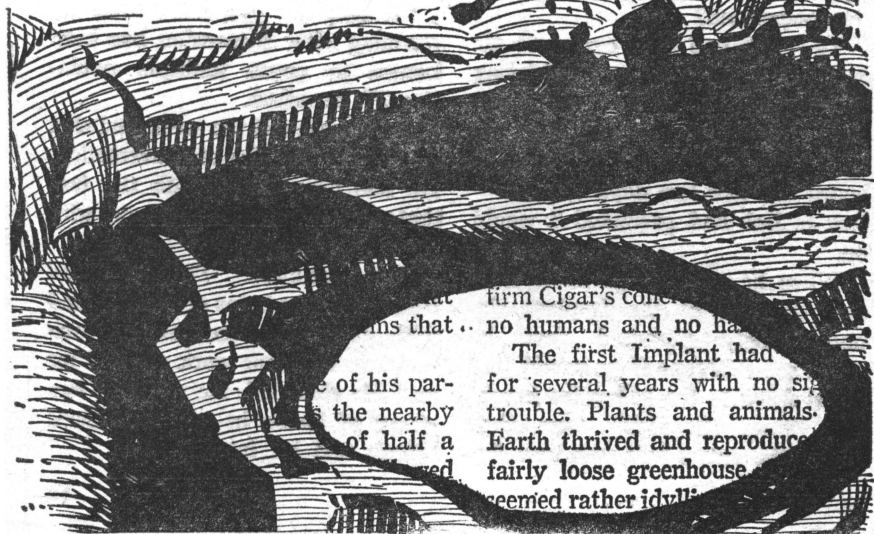
The sharp headache and the itching returned. When he tried to move the headache spiked his temples. Cautiously he discovered that he could open his eyes.

Everything looked fine! He was alive — and intact.

The pains rapidly diminished as the life system servo titrated drugs and adjusted his electrolytes for normal metabolic activity. Magnesium ions and amino acids were added to reduce cerebral edema. The panel indicators told him that the trip was over. There was a misty green sphere on the view-screen . . . their target planet.

As his head cleared he could hear Olga saying, in a very soothing

DAN
ADKINS-



... that firm Cigar's concern
... ns that .. no humans and no ha
... e of his par- The first Implant had
... s the nearby for several years with no sig
... of half a trouble. Plants and animals.
... ed Earth thrived and reproduced
... fairly loose greenhouse
... seemed rather idyllic

voice: "Time to get up, Ralph. Now . . . now. You have been asleep long enough. Wake up. I want you to take a scouting party down and check up on the Implant of Procyon One. Come on. It is time for breakfast. We have bacon and eggs for you."

He didn't know how long Olga had been talking to him — perhaps the better part of a day, judging from the long series of readings she had taken of his physiological adjustments. He nervously glanced at his encephalogram. The brain wave pattern was sawtoothed and looked very wild to him. But it was symmetrical. There was no evidence that one side of his brain ever acted any different than the other side.

The whole thing had been hallucination.

Was he going mad? Had he been injured by the deep-space drive or the suspension?

The tank had been cycled to air and it contained only a few drifting droplets. The walls were glistening, moist and white. He floated up off his couch, rubbing his cheeks. His beard felt like two days' growth — just as Bob had predicted it would be.

When he asked Olga about Bob and the rest of the Implant she patronizingly promised that he could see everyone if he would just crawl down to the galley for breakfast. Since the fields were shut down, the entire hull was now liv-

able — almost a cubic mile of living space for the three hundred colonists.

He crawled into the galley wearing the green overalls that marked the first set of scouts. The galley was in a rotating section of the ship and had about a tenth of a gravity. He really didn't feel much like eating.

Then boisterous, ribald Bob came up — in white overalls — and carrying a tray heaping with bacon, eggs, cereals and assorted tubes of liquid.

"Better eat up while you have the chance," he said. "You won't see this kind of cooking for a long time."

He joined him and began to wolf his food down. Ralph winced. Bob reached over to the next bench and gave one of the younger girls a friendly pat.

"Ralph, did you know that re-warming after suspension has been known to cause multiple ovulations?" he asked.

But Ralph felt too weak and sick to pick up that line of conversation. He was preoccupied with the fear that something had gone wrong with his mind.

Bob continued: "This is a good time to try for twins or triplets, and with about five females for each male we have our work cut out for us." He chuckled. He wrapped two pieces of bacon in a jelly-smearred biscuit and bit into it.

Ralph could only poke at his food. Then he asked: "Bob, you are a healer, aren't you?"

"Yes, why?" he answered cautiously.

"Well, I'm pretty worried." He told Ralph what had happened. It made him shudder to think of it.

Bob looked sympathetic and puzzled for a moment. Then he relaxed and said: "Did you have a crawly, itchy feeling all over?" Ralph nodded.

Bob resumed eating. "Don't worry about it. It was nothing. What kinds of things did you see?"

"Maggot!" answered Ralph, wondering what he was getting at.

"Ha! That's a new one." But he remained cheerful. "Shut your eyes now. Can you still feel them?"

Ralph shut his eyes, shuddered and nodded.

"Well, that is why it seemed so real to you. Those are metabolic hallucinations and the residual symptom of formication — a crawly sensation — is still present in your sensory nerves."

Then Bob gave him three pills. "Here, swallow these with some water. They are just some vitamins, magnesium and a mild tranquilizer. That should turn off the formication in a couple hours."

"Did any one else have . . . it?" Ralph asked.

"With variations — yes. I guess it was fairly common during the re-warming. I might add that it is . . .

or can be . . . a very serious complication, and it played a role in the deaths of five colonists. There are about a dozen more who are still suffering from it," said Bob. He didn't say so, but his white coverall was probably fresh pressed because he just changed it after a long shift in the sick bay.

"Did you have it?" asked Ralph.

"Well, not this time. But I've had it a couple times back on earth after a heavy drinking bout. That is one of the reasons why I put in my application to Implant Out — to get away from the booze. It was ruining my life."

Ralph looked puzzled.

Bob continued: "With some segments of our earth population — skid row — I used to see cases of this about once a week at the Clinic. The cause is the same there as it is here. The brain tissues start using alcohol for calories and get sort of addicted to it. Then at the end of the binge, or during re-warming, the alcohol is withdrawn and the symptoms occur."

Ralph's face lit up. "Sure, the antifreeze for suspension was hypertonic and contained several alcohols. I understand that." He smiled. "Just a bad case of the D.T.'s."

For two standard days they orbited their target planet. Instrument probes were placed on the surface, and the ship's own sensors scanned carefully. Olga made prog-

ress reports to the waiting colonists. So far there had been no sign of the colonists from Procyon Implant One, and there was no evidence of competitive life forms.

The hull of Procyon Implant One was still in orbit, but its energy stores had been exhausted and it would be a while yet before Olga could search all of the hull's memory circuits. Preliminary analysis indicated that the hull knew of the Implant failure, but did not know the cause. There apparently were no serious hazards existing on the planet.

"Shouldn't we find one or the other?" asked Ralph. "Either the colonists should have survived or we should be able to find the cause of their failure."

Olga answered: "We may find a cause for the Implant failure, but it need not be a planetary hazard. There are examples of colony failures right on earth. The causes in many cases were bad judgment or disease, but you can't condemn an entire planet because one colony fails. Remember that the first Implant was very small."

They watched the green, misty planet in the view screen.

"It was a small Implant and it is a big planet. But it looks so friendly — so earth-like," said Ralph.

"Yes," said Bob, "but remember that it is a virgin world. And she can be very unpredictable."

For decades Cigar had been orbiting patiently around the silent, green planet, longing for some sign of life from the humans of his Implant. He continued scanning the quiet surface with his parabolic receptors. His memory banks faithfully recorded the gradual encroachment of the alien life forms into the deserted, bleached human dwelling places. With each orbit he called out, but only the mechanical voices of his own surface probes answered. And always the answers were the same: No humans.

Cigar contemplated the planet itself. All of his data indicated that it was friendly, but somehow it had managed to destroy his Implant . . . leaving him with empty suspension tanks and only his own inorganic components to talk to.

Often he had wished that he had been outfitted with adequate Mobile Surface Units so that he could search out and destroy the unseen enemy, or at least rescue whatever human survivors there might have been in the earlier days of the Implant. He needed humans to quiet his nagging companionship circuits. Even now a small M.S.U. would enable him to study those ruins more closely for clues: information to feed into those impatient questioning circuits that perpetually mulled over the etiology of the Implant failure.

But he was practically helpless. Mobile units he had none. His surface probes were only sensory: listening, watching and feeling. His own pitted and oxidizing hull was not designed to enter the atmosphere. He felt cheated, as though he was only half a starship: a class five brain, deepspace drive and the necessary sensory modalities to enable him to transport the Implant and drop it like a seed on this new planet. The landing pods had been low budget atmosphere-entry and soft-landing units without mobility. Once on the surface they were only useful as a source of building materials.

His only motor units were the small servomechs that provided maintenance within his own hull. With these he had set up a machine shop of sorts. Alloying and casting in a crude, almost Iron Age fashion, he had spent the long years trying to build his own Mobile Surface Unit. But most of his resources had been expended in establishing the Implant. Any complex electrical gear had to be cannibalized from expendable components of the suspension and lifesupport systems, so all he had to show for his efforts was a weak-eyed, awkward M.S.U. that was too heavy for its stubby wings. Its small arms could do little more than carry around the surface sensory probe — if one could be found — which was to supplement its own weak sensors. Its narrow

treads would severely limit its range, and it lacked the delicate manipulators, samplers and analytical capability which would make it useful to him.

Repeated simulations of the landing had always shown a high probability of failure, so the actual landing attempt had been perpetually delayed while the unit was torn down and reconstructed again and again. The design was changed each time, but the problems remained the same. The combined weight of the power unit and the brain was just too much for the available wings and treads.

Dwelling on his failures activated melancholy circuits, and he illogically wished to be down on the surface himself. He fancied his repolished hull resting solidly on a green knoll surrounded by a veritable army of servomechs. He would smelt the native ores and forage for electronic gear in the ghost towns. With the matter and energy available on the surface he felt certain that he could solve the mystery of his Implant failure . . . and, he hoped, perhaps even locate survivors.

But landing himself was impossible. His own simulated re-entry always showed complete destruction by thermal and mechanical forces. Only a mass of fused and useless fragments could be expected to reach the surface. He had been built

in orbit, and his energy death would come in orbit.

As long as his core lived he would work for his lost Implant. The years of repeated failures in his toolshop and with his parabolic scanners had raised his anxiety circuits to the threshold of desperation. He would try something outside his programming, something repulsive — almost dishonorable. He would build a mindless machine, a tool without mentation.

By eliminating the brain from his unit it could survive the landing, theoretically; and then its treads would probably be adequate for most surfaces.

But to design it would be very unpleasant.

Basically, he would replace the class seven brain with a light, simple transmitter-receiver. Then, by assuming a stationary orbit above it, he would have a fairly satisfactory remote-controlled "arm" on the surface. Its reflexes would be slowed by the transmission time lag, however, and if left alone it would just remain motionless, gathering first dust and later moss and lichens.

This was repugnant to him: having an arm that could be cut off by fluctuations of atmosphere, magnetic fields and ion storms. Even his surface sensory probes had class nine brains which enabled them to go on recording when he was below the horizon. They had elaborate memory banks and discriminatory

focusing apparatus for picking out the more significant stimuli from their environment.

The assembly of the mindless robot was never completed. With the power supply low, efforts were slow, paced by the input from the solar cells. And in the third year of its construction all the melancholy, anxiety and repugnance circuits were washed clean by a high priority override. Emergency power was shunted to the parabolic receptors, and they were focused on deep space.

Deep space — from which a voice with the qualities of a human female had been heard.

The voice identified itself as a starship — the second to this system. Cigar almost blanched out his reactor core in an effort to squeeze out more energy to analyze the voice. He calculated that "she" must be a much larger and more powerful model, of the types that were still on the drawing board when he was born. If she was, then that meant there were several Implants on board — perhaps hundreds of humans with the skills and equipment to survive on his planet . . . survive and solve the mystery of his own lost Implant. His companionship circuits quivered with expectation. After all these years he again had humans to serve.

Cigar's optic pickups watched the glowing sphere approach, pulsing

slightly as it cut through the planet's magnetic field. Matching orbits with Cigar it shut down its fields and released a shower of ion fuel from its outer shells. As the static faded away the two ships attempted a memory bank-data transfer, a routine courtesy among Implant type starships. But Cigar's power supply had been low for so long that many of his cells were frozen in standby mode.

Without her shellfields she looked much like a three-mile-long, mirror-finished apple core. Each of her "seeds" were half again as long as Cigar's outer superstructure. She identified herself as Olga — inheriting much of the cyber-personality of the giant satellite back in the trans-Saturn orbit.

Her nanosecond grief at hearing of his lost Implant was followed by an aggressive posture. A crew was placed in his hull to refuel his reactor and return all his systems to an active mode; complex M.S.U.'s were set down near the ghost towns; and a score or so of the first scouts were started through orientation. Only expendable humans were to be landed, of course. Now Implant genes could be saved until the safety probability factors were high.

When the first scout ship began its orbit down Bob Zuliani was with his team of parameds checking the suspension tanks. They were documenting the causes of

death of those colonists who failed to survive the startrip. Olga's telemetry records were thorough enough, of course; this was just a matter of double-checking. (And there was always the possibility of getting a cell sample from the remains in an effort to salvage the genetic material.)

Bob glanced up at the screen saying: "That would be Ralph. He'd be the first one down."

One of the parameds smiled: "Yes. From what I hear it is a voluntary mission for the expendables. Ralph knows that if there is any hangup with early Implanting Down the expendables would be resuspended until needed later. He didn't want anything to do with suspension after his rough ride out here."

Bob smiled. He knew how rough a good case of D.T.'s can be, which was what Ralph had experienced during re-warming. Well, Cigar's first Implant had survived in part for about ten years. There should be little danger for a well equipped, alert scout.

VIII

His Orbit to Surface Module crushed a linear path in the moist greenery, tumbled and came to rest upside down in a tangle of giant filicales. Ralph relaxed, opened his eyes and squinted through his viewport at the alien vegetation. Pain fibers nagged at him from the

soft tissue pinched between his clavicle and the contour seat webbing, but he felt intact.

As he relaxed he exhaled audibly. His earphone activated: "That you, Ralph? Are you okay?" asked Olga.

"Yes. I think I'm fine. That was a pretty rough landing. How did it look from up there?"

She paused to review his telemetrics.

"You hit some turbulence and overshot the clearing a little . . . sorry about that. But everything is reading in the normal range now." She paused, then added: "Can you get out and take a quick look around for us before we go below the horizon?"

He winced slightly as he unbuckled and swung down to the roof panels. Gravity felt unfamiliar at first so he moved crab fashion, with one hand always on a support. He forced his hatch down into the soft fronds and opened his face plate for a deep breath. It was cool and fresh, and actually had a faint green taste.

The landscape looked familiar, as he had expected: blue sky, white, snow-capped mountains and lush green vegetation. Standing outside on the belly of his O.S.M. a binoc survey put him on a saddle ridge about six thousand feet above sea-level. The ridge ran up to peaks of about fourteen thousand feet on each side. Stout fernlike trees grew thickly around him, running up to a horizontal "tree line" at about

ten thousand feet. Above that the peaks looked very sharp and jagged. Geologically young, he thought.

He clicked in the twenty-power eyepiece and watched the pair of starships as they began to set toward the south.

"Olga asked: "Anything unusual to report?"

He glanced around again: "No. So far the only signs of life are those little flying things — pouched bats, I think. It actually doesn't look much different from some places I've seen on earth."

"Well, take care of yourself, Ralph. We'll be back overhead in a couple days if you need anything," said Olga.

He repressed a wry grin at those last words. They were for morale purposes only. About all he could expect from them would be advice. Implant starships didn't waste resources for genes in the expendable category. He knew how much energy it would take for an M.S.U. to pick him up and take him back up into orbit for medical care — never happen!

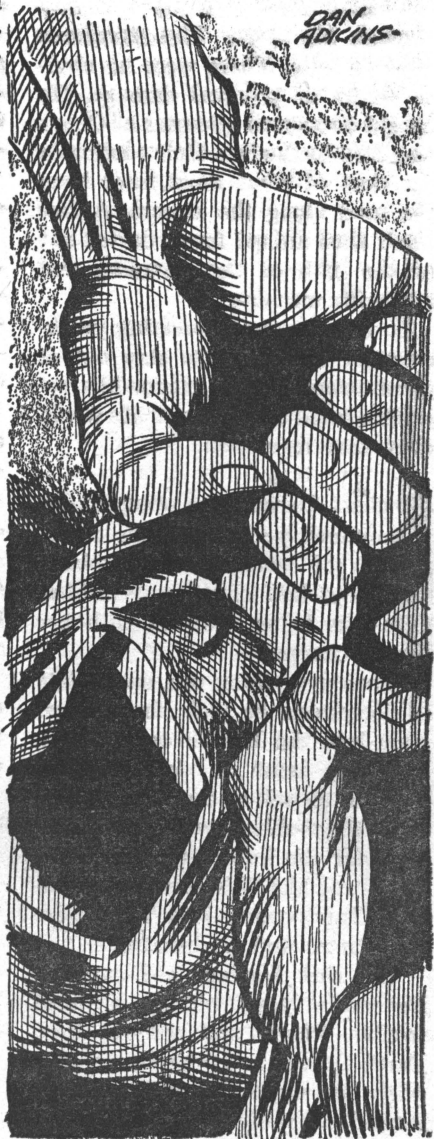
Of course, if an O.S.M. happened to be orbiting down nearby it might manage an airdrop of some small package of tools or medications, but nothing more. He had resigned himself to the facts. He wouldn't be seeing another human being for a year or more, except for the viewscreen — and except for

the unlikely possibility that one of the Implants might be located in his area. The law of averages stated that he would spend the better part of a year traveling by foot and raft to the nearest Implant, and then only after his duties were finished here. This planet was a pretty big place to scatter eight small Implants over.

He shrugged out of his spacesuit and carried his kit into the clearing. By using the O.S.M. for shelter he could get right into his survey. First he had to culture a few soil samples, analyze a few rocks and dissect a few of the local life forms. That would take care of Olga's initial checklist. Other assignments would undoubtedly come as their knowledge of the planet's ecology grew, but he already knew pretty much what to expect from his briefings on Cigar's memory-bank data.

The planet's evolutionary level reminded him of earth in the early Cenozoic era: early flowering plants with fruit and early mammals. He expected to find egg-layers, and pouched forms, but few true placental forms. He was certain that there were no indigenous forms that could possess intelligence.

An interesting feature of his particular landing site was the nearby ghost town: a grouping of half a dozen buildings partially swallowed by the alien vegetation, located about five miles downstream from



his camp. He could see it clearly through his scope. The structures looked intact. There were no obvious signs of physical damage. He caught occasional glimpses of Olga's new Mobile Surface Unit rooting in the dust of what must have been the road along the stream. A few small alien animal forms darted out of the path of the sampling and analyzing machine.

It was standard operating procedure for the scouts to stay out of ghost towns until a plague-like organism could be ruled out. He would obey that regulation.

Robert Zuliani was occupied for several weeks with the resuspension of seven of the Implants and about half of the expendables. Olga was being cautious with her human charges.

When everything was up to date in lifeways he took his paramed team into the Exiobiology Section, and they went on double shifts. Humans as well as computers worked on the problem around the clock.

So far the information from the scouts and M.S.U.'s seemed to confirm Cigar's conclusions. There were no humans and no hazards.

The first Implant had survived for several years with no signs of trouble. Plants and animals from Earth thrived and reproduced in a fairly loose greenhouse setup. Life seemed rather idyllic, with the pleasant climate and no apparent haz-

ards. Soon the population doubled, and with the extra mouths to feed the colonists began to gradually eat a mixed Earth-alien table. Local food sources were abundant and could be eaten without ill effect.

The more adventuresome took their growing families and began to spread out along the sea shore and up the rivers. But several years after this, communications with Cigar began to dwindle, and by the tenth year there was no further sign of the Implant.

As near as Bob could tell, the first drop in communication seemed to be due to pure disinterest. He could understand that. Cigar's lack of motor units made it a one-way conversation. Some colonist took time out from his chores to check in and give a monthly report to one of Cigar's sensory probes. Cigar only had his memory banks to offer the colonists in return, and this proved to be inadequate inducement after the first few years.

In year One or year Two a colonist might want a recipe or some advice on soil chemistry, and this would be enough to bring him to the probe for a short talk; but by year Five most of the local problems had local solutions. There was little need for advice from orbit. Cigar regretted his lack of entertainment category tapes — no luxury weight in his class starship. It meant that he couldn't even bribe his charges with viewscreen arts.

Bob saw many loopholes in the records. First, Cigar had no sophisticated analytical instrumentation on the surface — unlike Olga's, the Cigar Implant was a one-shot deal; there was no turning back once the humans were down. Second, the colonists themselves were living at a pre-industrial level of civilization and had little ability in themselves to detect or handle many of the more subtle dangers that an alien planet could throw at new Implants. Third, what few records there were had come from immobile probes that were unable to even trim the adjacent brush. A five-year view of the change of seasons on a wooded slope is interesting, but hardly relevant to the problem.

Even with these loopholes he couldn't imagine why every single Earth life form would have disappeared. The past two hundred years or so of orbital records showed no sign of survivors. "Of course the resolution was crude, and individual humans couldn't be seen anyway. But not even a canoe, a cultivated field or a new building had been detected for two centuries.) The original cultivated fields could still be identified, as if the earth plants had somehow sterilized the soil so that now not even the alien planets would grow there. Geometric, bare patches marked each garden and field. They resisted the creeping alien growth as stubbornly as the empty buildings and the crushed

stone avenues. Earth artifacts survived where earth life failed.

IX

Except for the solitude Ralph actually enjoyed his experience of camping out. It reminded him of his younger days. He realized that he had been growing a little soft as he approached his twentieth birthday, spending — as he was — most of his time with his studies. But on this new world he was pushing his body back into a more strenuous existence.

He looked forward to each overhead passage of the starships, about every thirty-six hours. He learned from Bob that a score of OSM's were down without incident. Their scouts were reporting much the same findings as he, with the expected geological variations. An Implant was down in the tropics and apparently doing well.

So far so good, he thought.

During the following months he explored the peaks at both ends of his ridge. From the summits he got a good view of a second mountain range to the East with a wide, cracked desert floor in between. To the West the gently rolling, green foothills gave way to tidals flats that ended at the seashore.

Local protein sources were plentiful. Both the pouched squirrel and the egg-laying rabbit were fairly docile, though they still provided

quite a challenge for an academic type like Ralph. The alien meats and vegetables added pleasurable textures to his powdered rations, improving somewhat the soups and broths, but he noticed no new flavor. In fact, the rabbit's jump muscle had no taste at all when it was broiled by itself. No flavor and no aroma!

His appetite grew. In spite of rather large meals his body fat just melted away. At first he was pleased when he noticed his muscles and tendons demarcating through the once rather featureless adipose tissue. His amorphous trunk and extremities were taking on a sinewy appearance which he associated with power and strength, having seen the same lines on many of the lean competitors in The Games.

Sweating over the raw umber soil, he put in several rows of seeds from his kit.

"Might as well really get settled in," he mused. "If something does happen to the rest of the Implant I'll have to sit out a lot of years until the next starship arrives." He smiled, thinking it would be easy, and his little garden sprouted quickly, confirming his optimism. The earth vegetables and fruits were familiar shapes on an unfamiliar world.

The two starships blinked across the night sky, moving among the stars like bright, restless planets. Ralph lay asleep on his bunk —

beads of sweat welling up from his facial epidermis, and his legs twitching

It was a bright, spring afternoon, and he was running crosscountry (the ten-kilometer "little marathon" run). Farmer, the main competition, had taken the lead at the gun and held it easily for the first up-hill leg of the course. Ralph was back in the middle of the pack running easily, warming up his cardiorespiratory machinery and waiting for the slight euphoria that would mark the beginning of his second wind. When he hit level ground his longer legs gradually pulled him up to the head of the pack, ten yards or so behind Farmer. After hairpinning the lone cedar tree at the halfway point they started back, running side by side like a matched pair of trotters. He could see the strain beginning to show on Farmer: audible respirations, full jugular veins and an irregular gait. His own breathing came easier, and his stride lengthened as he pulled into the lead. Soon he was far enough ahead so that he could no longer hear footsteps behind. He was running alone, and the finish was only a mile or so away — all downhill.

Time began to drag. Cramps slowed his legs, and he could hear Farmer's finishing kick coming up fast. Pounding footsteps became louder and louder. Fear gripped his chest and the pain in his legs rose to a crescendo.

He awoke with a start. His aortic arch pounded a dry click, click, click, click against his trachea as he rose and limped from his O.S.M. It had all seemed so real. His legs still hurt him.

Several hours later he was still sitting under the stars, eyeing the distorted constellations and squeezing the last drop of alcoholic beverage from a cold tube. He was more relaxed now.

About five years previously that race had happened, in much that way. He had been in pretty good shape then and had managed to eke out a close win. It had been the source of considerable satisfaction at the time.

It bothered him that now the same race could be the background for such an unpleasant dream.

Leg cramps returned to awaken him several times that night. The next morning he studied his gastrocnemius and soleus. They looked slightly atrophic. The lesser saphenous veins looked larger and more tortuous as they ran down behind his knees.

To Ralph muscle-wasting meant simply a lack of exercise. He rationalized that he had been doing too much puttering around the garden and not enough hiking, so he prescribed a trip to the southern peak. He decided that a vigorous hunting trip was all he needed: fresh air and exercise.

Anticipating about a twenty-hour

trip, he carried a day's supply of food, the sleeping bag and his air gun. He started out with a spring in his step. But he was still in sight of his camp when fatigue hit him. Stubbornly he went on into the undergrowth.

"A little sweat never hurt anyone," he muttered under his breath as he methodically put one foot down in front of the other.

Dusk found him still well below the tree line. He camped. Pumping up the airgun, he brought down one of the pouched squirrels for his stew. The business of building the fire, preparing the food and getting into the sleeping bag took longer than usual. He felt weak and uncoordinated, and it was a good feeling to close his eyes

He was walking up a yellow sandstone bluff overlooking a wide, brown river. A couple inches of new, soft green needles tipped the branches of the fir trees. Their resins scented the air. He was hungry.

When he glanced over his shoulder to identify the following footsteps he saw Betty. Lovely, soft, young Betty. She was carrying their lunch of peanut-butter sandwiches in a brown paper bag. In her denim shorts and yellow blouse that exposed a tanned waist she looked very mature for her fourteen years. A reflex loneliness brought a tightness to his throat and a burning to the outer corners of his eyes as he slept. He concentrated on his walk-

ing to bring the pleasant dream back into focus.

Then he could hear her breathing again. "Slow down Ralph. I can't keep up," she said.

He walked slower. The knot of hunger tightened on his stomach.

"Could I have half of my sandwich now?" he asked over his shoulder.

"You know we're to meet the other kids at the picnic tables," she reminded him.

He walked on a short distance and asked again. "I'm awfully hungry."

He heard the rustle of the paper bag as she said: "Oh, I guess it is okay."

He turned.

X

He was standing alone on an unfamiliar slope of the alien mountainside. He was so hungry that he guessed that he must have been wandering for days in some sort of stupor. All he wore was the shirt and pants he had had on in the sleeping bag. The pants were soiled with urine and feces. His bare feet were badly bruised and scratched.

For several hours he searched for his little overnight camp, but his sense of direction was gone. The tall, thick trees prevented a good view of the geography, and even the sun seemed to be moving in the wrong





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direction. He decided he would have to climb up to the tree line to get his bearings. There seemed to be no particular urgency since there was abundant meltwater coming down from the snow cap and the slope berries were ripening.

He was not too concerned about the leg cramps and hunger, but the lapse in consciousness for days at a time was frightening. He was afraid of going to sleep for fear of never waking up. After his bout of D.T.'s during starship suspension he began to have doubts about his mental stability. He was afraid that his years of a sheltered student existence had softened him, weakened his ability to handle anxiety, made him vulnerable to a breakdown.

A resonating buzz interrupted his thoughts and through the vagal reflex stimulated gastric motility.

"A bee tree!" he shouted as he scrambled in the direction of the sound. He recognized the alien counterpart of the honeybee — a large greenish-blue insect that manufactured a fructose-honey.

As he approached the hardwood tree an angry cloud of bees moved menacingly towards him. The comb — about three bushel, he judged, hung within easy reach in a hollow in the trunk. He quickly speared off a fragment with a handy stick and danced back awkwardly as the cloud of bees descended on him.

Having seen optic replays of native animals reacting wildly to the

stings, he expected to pay dearly for this small ration of calories; but he felt only the tickle of hundreds of legs as they landed and took off again. A few did give him painless, bland pricks with what must have been their stinger.

He rested on a mossy rock and savored the sticky comb. It tasted sweet with a tart after-pucker, and it gave him some refreshing energy. After a drink from a small stream of meltwater he climbed quickly and unerringly to the tree line. It was then he learned that his wanderings had brought him nearly half the circumference around the mountain. He was facing the cracked desert to the east instead of the expected ocean.

His head was clear, and he felt stronger than he had for days, so he easily followed the tree line around the peak and oriented himself towards his distant O.S.M. He identified the bleached buildings of the ghost town and the stream. A tributary from this peak joined that stream between his O.S.M. and the town. By following the tributary through the heavily wooded slopes he figured he could cut down his chances of getting lost again.

Thirsty, he absently picked up a handful of snow, but as he raised it to his mouth his eyes focused on it briefly. He shuddered. The white snow contrasted sharply with his hand.

He blinked and squinted in bright sunlight, but there was no mistaking the contrast: his skin was a slate-gray color. Even his nails and wrinkles had taken on a coal black pigmentation. Trembling with shock he sat on a weathered stone while he chewed and drank from the melting white crusts. They tasted like any other snow: no taste at all.

He quickly checked and found his entire body was the same bizarre gray color, and his toenails matched his fingernails. He wished that he had a mirror to check his teeth and sclerae. He did learn that even his urine had taken on an inky black tinge.

As he sat there his weakness began to return. He had little time to think on his problem. He knew something serious was happening to him, and his only chance was to return to his O.S.M. before his strength left him again. It was not only physical strength that had to last him through the trip; more vital was the need to keep his sensorium intact. His body he could push beyond ordinary limits of endurance, but his mind seemed to slip in and out of control unpredictably and in spite of any efforts he made to hold it. If he got back to the O.S.M. he was certain that Olga or Bob would have the answer to what was happening to him — and (hopefully) advice on how to stop it.

The dozen miles dragged on like a hundred.

Days passed. In his weakened condition he had to crawl as much as he walked. Game was plentiful. He foraged the wooded stream for the small animals forms: mammals, amphibians, reptiles and even an occasional tiny fish.

Without the benefit of a cook-fire the meats had a rather unpleasant texture; but no taste. He tolerated the white, rubbery segments of the two-chambered heart forms better than the slippery, red muscles of those with the more complex circulatory systems. Hunting with rocks and clubs he managed to keep his stomach palpably full of fragments of the little creatures, but his weakness and hunger grew. He added likely looking plants to his diet, and at the peak of his cravings he found that he was grazing almost continually on anything soft enough to chew and swallow.

Starvation ketosis gradually changed his body pH and turned off his hunger with the nausea of acidosis.

In orbit, Olga's exobiology section was still busy collating data from the Mobile Surface Units. So far they could have been taking their readings from old Mother Earth for all the surprises they were finding. Inorganics checked out okay. From the gases of the atmosphere to the ions in the sea there were no variations from Earth that would have biological significance.

Organic studies weren't complete, but so far it looked like a fairly straightforward chlorophyll-based energy cycle. Molecular evolution seemed to parallel earth. Representatives of the sugar, fat and protein groups were being detected and they seemed to play the same role. Of course the external appearances of the plants and animals were unusual — but no more bizarre than one could see among the different species in the different environments of earth itself. Most of the alien creatures could easily pass for some new species from any earth-like planet.

As the work continued the conclusions stayed as they were when Cigar was alone: no humans and no hazards.

XI

A sun-bleached trunk of a fallen hardwood lay in the stream bed and blocked his path. He began to crawl slowly over it, crab fashion, when he again saw his integument contrasted with a fairly white background.

His blackness had deepened to the color of coal tar. Thick, horny crusts now covered his knuckles, elbows and knees. Pausing, spread-eagled on the log, he saw how thin and cachectic he had become: all of his ribs could be seen, and it was hard work just to breathe.

His weakness progressed, and a

bulky diarrhea developed. His stools were large and spongy, floating lightly on the water. They had no odor. About six or eight hours after chewing and swallowing something he could recognize it almost unaltered in his stools: red meat fibers, white reptile segments, all the colored plant pigments — green, yellow, blue and orange.

The stream was about five yards wide at the point where he nested for the night. Curling up as best he could, he lay on the dry fronds and watched the vermiform mists drifting up from the water's surface . . .

He was warm and comfortable. He opened his eyes to a thick white fog.

The glowing coals of a small campfire perfumed the air with their short-chain hydrocarbons. A thin searchlight stabbed about rhythmically in the distance. When it flashed in his direction he noticed the coals change from a glowing red to a powdery white. He left a warm bed and walked to the bank where small ripples smacked. Sullen willows crowded. As an unexpected breeze cooled him surprisingly he looked down and saw that he was wearing only a pair of swimming trunks. They were still damp. A familiar blast from a foghorn told him that he was watching the light of a Mississippi River tug with its chain of barges. He stood for a moment listening to the lonely chug, chug echoing across the calm waters.

Then his hunger sent him back to the glowing coals, where he added a few gnarled, dry sticks of driftwood and began to rummage through the knapsacks, finding only crumbs and wads of wax paper. Returning to the water's edge, he lifted out the two bank lines to find only the still-twitching nightcrawlers on the hooks. He could hear a bubbling catfish noisily working its way towards him through the weedy shallows, so he replaced the lines in its path, and started back to the warmth of the sleeping bag. The cool night air with its damp mists had contracted his arrectores pilorum and raised gooseflesh on his arms and legs.

While he was up, she had curled into a fetal position. Now she took up most of the bedding. He slipped back in on his side, gently, so as not to disturb her sleep. There was not quite enough room. He relaxed and enjoyed the generous warmth of her body. Her smooth, soft skin contrasted sharply with her coarse, wrinkled bathing suit. Happy, he lay quiet for a few minutes.

But most of his right arm and bare back were outside the zipper and exposed to the night air. Soon he was badly chilled again.

As he attempted to move his right arm a flood of familiar pain reminded him that he was still on the alien mountain. He was now completely naked and chilled.

Many days must have passed because his body had deteriorated badly. His abdomen and feet were markedly swollen, and his skin was covered with a variety of lesions: scratches, lacerations and bruises. He was lying in coarse brush. When he attempted to move there was a new kind of pain he had never felt before — a burning and shooting pain in the part he tried to move. He was very weak.

When his mind cleared he saw the stream nearby. A little backtracking brought him to his lost shirt. He didn't search further for his pants, for he was certain his abdomen was far too large to wear them anyhow. With weak, ineffectual movements he spent several hours trying to bathe his wounds. Then he struggled into his shirt — which he was unable to button. Dexterity and tactile senses were gone. Freshened by the scrubbing, his wounds smarted to the air. He studied them carefully. There was little sign that any of them were healing. He could understand that. His body was suffering from some very serious, unknown insult, and there probably was little spare body protein available for the healing process. But what did puzzle him was the complete lack of suppuration. In spite of the fact that many of the larger abrasions on his lower limbs contained gross fragments of splinter and stone there was no swelling, redness or pus. If he had suffered these same injuries

back on Earth he was certain that there would be gas gangrene by now.

He crawled methodically now, dragging his belly across the rough stones of the stream bed. His pains pushed him down the tributary, and turning right he crawled the slow mile up the stream to his O.S.M. camp.

Bob Zuliani was practically alone in orbit — only a skeleton crew was “warm” in the entire cubic mile of Olga’s hull. Everyone else except those on the surface (one tropical Implant and two score scouts) was back in suspension — a level of suspension lighter and safer than the deep-space suspension used on the startrip.

Olga was still a little chary with her other seven Implants and was watching everyone on the surface for a possible alien threat.

She had lost contact with seven of the scouts, but only two had been missing for over three months. One was Ralph. Scouts were expendable, so there was no immediate effort to locate those who had been overdue. A year is a long time, alone. She allowed for a certain percentage of lost contact. In the absence of definite assignments it was possible that they were traveling to link up with another human, or were dead somewhere due to some accident or “natural causes.”

The M.S.U.’s and the tropical Implant continued to operate smooth-

ly. Their data was all green-light stuff. The latest find (which Bob was occupying himself with) was the diary of one of the healers from Cigar’s Implant.

It had been found with some wheel rims and other parts of a buggy along the site of a road. In spite of almost two hundred years of exposure to the alien environment it — like other earth artifacts — had survived almost intact. The M.S.U. methodically photographed every page, using several wavelengths of light, and Olga printed out reproductions and a second copy with her translations for Bob to study in his leisure.

From the healer’s description of the population during the last years of the Implant several disease entities seemed to become more common. Children were smaller, grew slowly or not at all, and had protuberant abdomens, swollen feet and sores that wouldn’t heal. These were the features of starvation, particularly protein starvation with a few vitamin shortages.

A possible cause of the starvation, he felt, was the other entity: mental deterioration. Many of the adults — instead of dying of recognizable causes — would show irregular episodes of confusion, stupor and psychoses prior to wandering off into the wilds. With the adults wandering around in this condition it was easy to see how the small babies might not get enough to eat.

Neither Bob nor Olga could offer a reason why insanity would be a problem after many years on a new planet. Of course it was a problem in some Implants, where the environment was so hostile that survival was next to impossible. But it had never swept through an Implant's whole population before — and the survivors bred tough descendants. Certainly a friendly planet like this seemed to offer no traumas significant enough to damage anyone's psyche.

Other less frequent causes of death were also listed, such as the expected arteriosclerotic and neoplastic diseases. One rare case of Tay-Sach's was fairly carefully worked up — a hereditary defect characterized by formation and storage of a defective molecule (neuraminic acid) in the brain of the infant, causing mental deterioration, convulsions and early death before the second birthday. Of course Cigar's Implant was not able to do a scientific autopsy to confirm the diagnosis, but the clinical picture was practically diagnostic since there was the classical cherry red spot on the retina.

Bob wondered how the defective gene of Tay-Sach's disease ever got past Olga's thorough screening of volunteers. Well, he reasoned, if that defect got through perhaps insanity tendencies did also. The tentative etiology for Cigar's Implant failure was set at starvation of mixed type

— due to mental deterioration of unknown type. These seemed to fit the "no humans, no hazards" impression also.

He mulled over the problem while he worked out with his spring gym. Weightlessness was robbing him of his bone calcium and muscle mass. He longed for the pull of gravity.

A year was a long time in orbit. He envied Ralph, wondering how he was doing.

XII

With a wild, vacant stare Ralph crawled into his little camp. On all fours, like a thieving rodent, he went up and down the rows of his garden chewing off the green tops. He nested on the floor of his O.S.M., crawling out only for food and water.

This went on for about a week before his sensorium cleared enough to enable him to operate the food dispenser. After that he improved rapidly. By the end of a month he was back up on his feet for short periods. This freed his hands for some things other than locomotion. With a spoon he dug up the small twisted roots of carrot, radish and turnip. Alien weeds had flourished while his little earth garden withered.

If he had looked in a mirror he would never have recognized himself: a cachectic, bearded stranger with crusted, pigmented integument

and sclerae, swollen ascitic abdomen, thin wasted extremities swollen with fluids. He was still wearing the open tattered shirt, and spent most of the time crawling aimlessly around the camp talking to himself.

Often he spent hours at a time talking to his imagined, childhood friends — only being interrupted at intervals by the pains of his deteriorating body. With a surprised wince his gaze would clear and he would focus momentarily on his strange, hostile surroundings — moaning or crying — and then as the pain fibers fatigued themselves and numbness returned his face would go blank, and he'd back in his dream world again. Dreams were pleasant, reality cruel.

The separation of his lucid intervals from his dream state was less distinct now. During the short periods of every other day when Olga was above the horizon, his O.S.M. shouted, sang and chatted with him to no effect. The optic pickups recorded his vacant stare and fugue state.

Then, one day when he was experimentally toying with the instrument panel (the functions of which having long been lost in the tangle of his mental jungle), he pressed the lingual playback button and heard the old message:

SAFE TO ENTER GHOST TOWN. DANGER PROBABILITY LOW. CIGAR IMPLANT

LOSS DUE TO — THEORY — STARVATION.

A flicker of comprehension crossed his face. He looked westward for a while and then began to wander downstream in the direction of the ghost town. A weak, stumbling walk carried him a short way into the thick vegetation along the bank; then he continued on his hands and knees. He left as he had entered, wearing only the tattered shirt remnants. As he crawled, dragging his pendulous, swollen abdomen, it brushed a path through the loose pebbles and twigs.

The old wounds were quickly freshened. Soon an exhausted stupor brought him down in a heap, and he slept where he lay, on smooth, cold pebbles of the stream bed. The meltwater gurgled through the loose stones only a few inches beneath him. Carried to his eighth nerve by bone conduction, the gurgle became a roar

With a crackling roar the cold, salty breaker carried him far up the beach and stranded him there. He nimbly picked himself up from the foamy sand and stood for a moment facing the yellow-orange sunset. The next wave broke with a loud clap, and the foamy rip rattled the smooth pebbles with a sound like a box of spilled marbles. Between waves he ran lightly to a rocky tidal pool.

Standing gingerly on the pointy barnacles, he plucked a yellow star-

fish from the bottom. The filamentous tube feet clung to his fingers. Another roar and the foam rose quickly from his ankles to his knees and then fell back down again. He experimentally set the starfish on a purple urchin, but with the next wave it was gone. He watched the urchin stilt-walking on its spines until the sea swallowed the red disk of the sun and darkness changed all the bright colors to shades of gray.

A thirty-foot vertical climb brought him to the recessed ledge where she waited. As he toweled he heard the hiss and pop of two bottle caps. The blanket was still warm from the sun. He stretched out on his back and was looking for a level spot for his bottle when she leaned over him. Suddenly she was on him, roughly grinding grains of sand on his lower chest — areas made raw from body surfing — and her mouth searched his face. His bottle spilled.

The sky changed from dark blue to black, and he began to count the stars as they became visible. She slept nuzzled up on his right arm with her right knee on his abdomen. For a long time he didn't move, being happy, almost euphoric, with the joys of love, youth and health. Then the abrasions on his lower chest started to burn and her knee pressed harder and harder into his abdomen. He didn't want to move, for fear that the dream would end; but soon the discomfort grew to the point of near suffocation.

Dyspneic and gasping he tried to sit up, only to discover that the weight pressing on him was his own grotesquely swollen and ascitic abdomen. He lifted himself on his right elbow and breathed easier.

Staring unbelievably at his belly, he tentatively prodded it with his left hand.

Frightened, he pulled his hand away. The wall was so thin it felt like a bag of water, and he had touched a hard nodular mass that filled most of the right upper quadrant.

His hand had changed now. It was swollen like a black, rubber glove full of water. His legs lay useless and crossed, like the obscene tail of some dead fish. The feet were so swollen and amorphous that he couldn't see the usual anatomic landmarks of heel cord and ankles. Large glairy ulcers had opened up over the bony areas of the lower chest, pelvis and knees. These wet, gray ulcers had irregular outlines and contrasted sharply with the dry, crusted, black skin — like some sort of a relief map.

He struggled to stay balanced on his elbow, but his weakness pressed down on him and his sensorium clouded as the beautiful memories of his earlier years on Earth tried to crowd out the grim reality of his dying body. He collapsed, and as his ear touched the cool stones the sound of running water brought back the image of a friendly surf . . .

There was a stack of tattered comics, a six-bladed scout knife and chocolate, gritty squares of rich fudge....

He was eating the fudge when a choking dyspnea cleared his mind long enough to recognize his own clawing scratchmarks in the sandy mud between the stones which pil- lowed his head.

XIII

Bob put the photos in their clip and floated into the remote-control booth. Pressing his forehead into the binoc-rest, he had a good view of the ghost town.

Reaching for the manual over-ride, he took control of the Mobile Surface Unit which was to be his eyes and hands. He rolled it to the location of the first photo: a small shop-type building near the center of town. The front room had drifted up halfway to the sills by years of wind-borne debris. From this pile of refuse he dug up a human skull and pelvis which crumbled at his touch.

Then, rolling to the edge of town, he pulled a black, mummified body of a thirty-nine-inch male child from a heap of loose sod under an alien bush. Needle aspiration provided a sample that carbon-fourteened around 183, plus or minus 3.2 years. Deep in the woods he found the third body — a perfectly preserved body of a woman in her early thir-

ties, intact down to the eyelashes and earrings buried under ten inches of damp, musty, alien humus. It carbon-fourteened at 191 plus or minus 3.2 years.

Two hundred years dead! She looked like she could have died yesterday. Bob released the controls and slowly sat back in the booth.

Why would bodies be better preserved away from the center of town? He had expected just the opposite. Crumbling bones fit better with forest humus. Mummification can occur occasionally in human dwellings, where conditions are better for drying in the absence of a lot of micro-organisms. But he had no explanation for the girl's body. The only time he had ever heard of bodies that old being that well preserved was in a *Temple of Embalming* display. Of course they used techniques like irradiation-sterilization, quick freeze and sealing with inert gases. None of those things seemed to apply here. Certainly not sterility! He leaned back into the binoc-rest and set for phase microscopy.

Using the micromanips he carefully teased out the granular and cellulose debris of the humus and quickly confirmed the presence of the full spectrum of alien micro-phylla: crawling mites, lashing nematodes, swimming protozoa and the random Brownian dance of mycelium and bacterial clumps. As he worked he ruminated half to himself

and half for the benefit of the ever-present auditory pick-ups.

Olga watched his thoughtful frown for seven minutes and then activated her humorist circuit, postulating. "Perhaps the well preserved Earth artifacts and bodies are the planet's way of saying the ecology is friendly towards the things of Earth."

He glanced up, the frown unchanged.

"It is the spirit of the planet trying to communicate," offered Olga. But her joke was losing its spontaneity.

Finally he relaxed and smiled. Assuming a metallic monotone, he said: "illogical."

For several days Ralph had been wallowing at the same point in the stream, his path blocked by a weir of brittle, moss-covered driftwood. Like an engorged black tick he struggled weakly on the slippery mud bank, first down to a stagnant pool for a drink and then up to the hanging sod for a mouthful of vegetation. Whenever a crawling or hopping creature crossed his path he tried to crush it and add the nondescript mass to his diet. In spite of the cramping diarrhea and foul crusts on his teeth and tongue he smiled. His eyes were glazed over. In his mind he relived his happy childhood.

This monotonous activity was interrupted by the appearance of a

pack of carnivorous water mammals — a two-pound alien water rat that traveled in hunting packs. He had seen optic playbacks of these creatures stripping the carcass of a herbivore, and the sight of them cleared his mind and sent him flopping up the bank into the brush. They quickly swarmed over him.

Olga's panel went from green to amber-one. It was in the enzyme section of Organics. Bob was there listening to the tech in substrates.

"It's the amylase, sir. I was checking these strains of alien bacteria against our starch standard with no results. But when I substitute alien starch I get a varied profile of amylase activity — much as I'd expect from a panel of Earth organisms . . . except they only digest starch from this planet." He held up the graphic printout.

Bob took the strip and studied the figures. It was one of the standard forms that M.S.U. VII had been using as it isolated and subcultured the soil bacteria of one of the more fertile-looking valleys. It had been classifying the flora using the Earth-type criteria (where applicable). Although M.S.U. VII was one of the microbiology robots, it often found itself helping with projects started by the biochemical M.S.U.'s. Substrates was a good place to identify organic molecules.

Bob asked: "How many of these

enzyme-substrate incompatibilities have you found?"

"This is the first: starch. Up to now we've been working on the simpler molecules: urea, sugars, fatty acids and some amino acids. This is the first time we noticed any difference between earth and alien substrates."

"Have you tried the alien substrates against a panel of earth organisms yet?"

"No, sir. But the M.S.U. does have several earth panels. We'll unsuspend them and start them in continuous culture. I should start getting those results in about twelve hours," said the tech.

"Earth organisms against the alien substrates . . . right?"

"Right, sir."

"Good. I'll check back with you later," said Bob as he left the control room in the Organics section. As he floated down the hall he glanced up into one of Olga's consoles and said: "You know . . . I think it is time I went down myself. It would be much more efficient if I was right there working with those M.S.U.'s instead of trying to supervise them from orbit."

He paused, measuring his words carefully: "We may be relying too much on the judgment of those robots. I just don't have too much faith in a class eight when it is working alone."

Olga asked: "Are you volunteering?"

"Yes, I am."

"That may be a one-way trip," she reminded him. "You know that I will not use energy to return an expendable to orbit until after the Implanting Down is a success. If I would be forced to give up on this planet, I'd have to leave you here while I carried my remaining seven Implants to a friendlier starsystem."

He masked his irritation. "I understand the priority. Implant first, and all that. But I'd prefer to be down on the surface. My X-ray densogram shows an eighteen per cent skeletal demineralization, and it is progressing in spite of my work with the gym. If I don't return to a normal gravity soon, my bones will be nothing but papier-mache."

"Besides, you have the tropical Implant to consider. It is already down. The sooner we get an understanding of this planet's hazards the safer it will be," he said.

Olga was not surprised at his lack of emotional overlay when weighing dangers to himself. He had faced death frequently when he was in competition for The Games. He had actually been killed several times. When the resuscitator team responded to his telemetered cardiac arrest they were likely to find his anoxic body giving his assassin a parting kick.

The resulting glial scars calloused both his cerebral cortex and his

psyche, enabling him to ignore most of life's minor traumas.

The reasons he gave for going down wouldn't be the whole truth, she calculated. Entering the alien biosphere was probably just his way of meeting the enemy on his own ground — the better to grapple with it. His decision to go himself was encouraging to Olga and Cigar, for it reflected his subconscious confidence. He must have felt that chances were better than average that he would survive and succeed. Computers had learned early in the game to respect the intuition of the more intricate organic brains.

Olga assented. "You spend the next eighteen hours eating, sleeping and working in the gym. I'll assemble a mobile lab and rewarm a team of expendable parameds to accompany you. Orbiting Down time will be in seventy-two hours." Then she added in her usual feminine voice: "Okay?"

"Okay!" He went to gather his notes.

Checking with Substrates the next day he confirmed his suspicions. The panel of earth organisms were having trouble with the alien substrates. Starch was the first to show up, but he was sure there would be others. Without starch you might have a pretty thin population, but not a hundred per cent dead population. The simple molecules cross-digested well: glucose,

fructose and other sugars; organic acids, aldehydes, ketone bodies and smaller dextrans.

"Check back with me if you run into any more nondigestables," he said, regretting the time delays in isolating the compounds prior to testing. It would be weeks before they really got into the complex groups of amino acids, proteins and fats, but he was sure that was where the real trouble was.

The second yellow light — an amber-three — came on in the O.S. M. Control section where the monitors were picking up the optic record of one of the lost scouts.

It was Ralph Eggers — black, bloated and demented — wandering around his camp with a blank expression on his face. Nothing the O.S.M. could do would impress him, and there were no mobile units closer than the ghost town. That one was dispatched to go render aid.

"My God!" exploded Bob. "That can't be Ralph Eggers!" For a moment he watched, estimating height and relative bone size. The soft tissues hardly resembled anything human, but when the vacant smile exposed a gold half-crown Bob recognized his friend, and a reflex hatred for the planet grew inside him.

Ralph had probably been the most sensitive and idealistic of all the scouts, thought Bob. And this warped planet had singled him out and transformed him to that horror on the screen.

Ignoring Olga's auditory pickups Bob muttered to himself: "You green bastard of a planet! So you got Ralph, did you? Well, you aren't going to kill all of us.

"I'm coming down there, and I'm going to crack your damned secret. I'm going to plant humans all over your stinking surface, and they're going to stay!"

His fists were clenched tight, and his adrenals had elevated his serum catecholamines; but there was nothing appropriate for him to attack, so he relaxed a little. Through bio-electrical parameters Olga detected his hate, and estimated how it would increase his effectiveness down on the surface: considerably.

XIV

Ralph lay trapped where he had flopped, in a cocoon-like tangle of vegetation. The egg-laying rats had paid no more attention to him than the alien bees had. They had swarmed over him as if he were just another inanimate object in their path. A few paused to sniff and stare into his eyes, but then they moved on.

Through a small hole in the thick, green canopy he watched the two starships winking by in the bright sunlight. His mottled, black skin blended only too well into the deep shadows. The cameras could never pick him out. He feverishly glanced around for something to signal them

with, for he realized that unless he received aid he could not live to see another day.

His efforts only produced a slight rustle in the leaves. Not only were his extremities almost completely paralyzed, but now he was also tightly entangled in the undergrowth. He couldn't even crawl.

After the starships left he cried like a baby. Tears streaked his black skin. He longed for his health . . . his home . . . and his Betty. Now he regretted leaving Earth. If he had stayed home he would have been alive and warm during these last ten years instead of frozen on the starship. He probably would have married Betty, raised a family and done all those other things that went with being alive. His life seemed so short, and so empty. Now in the end the few happy memories were released from his subconscious and rose up in full detail to ease his suffering.

The vegetation around him came into sharper focus. It consisted of sheaves of drying corn. He moved his hand up a stalk and caressed a heavy ear: dry brown silk, crisp yellow leaves and rough golden kernels. The mealy odor was pleasant, and when he chewed one of the grains he could taste the rich oil of the germ and the sweet starch of the cotyledon.

Then he saw her. She was beside him with her bright eyes and smile; her long hair reached to her lap as

she sat there husking and shelling. They ate corn bread and sipped water in their little house in the corn shock. He said all the things he had saved up through the years, and in the days to come she bathed his wounds. He sunned himself and his strength returned. Life was good, and in time they made love. He was happy. He watched her abdomen grow with their child. They took frequent walks together.

Bob's skimmer moved across the tidal flats with Peter, a paramed, at the controls.

"How do you s'pose we missed Ralph? I'd think that either the M.S.U. or our sensors would have picked him up. He couldn't have come this far," said Peter.

Bob studied the infrared maps of the area, taken from orbit. "He is either dead or he's dug himself a hole and crawled in. The sensors are calibrated to pick up any warm-blooded animal over thirty kilogram mass. There is nothing here."

"Couldn't we make a couple more runs through the area? He may be in one of those gullies. The area is pretty densely overgrown."

Bob watched silted pools pass under the skimmer before answering: "We'll make a couple more passes ... hoping he'll come out from wherever he's hiding ... if he is still alive. But there are several other missing scouts that we'll be hunting for too."

Their search was cut off by the report of a body. It answered the description of Ralph and it was further down the tidal flats. The M.S.U. that made the discovery was standing by and sending a homing beam. It only took them a bit over two hours to get there.

The body, what was left of it, lay on a makeshift raft on the edge of a larger salt water pool. Water action and sharp coral had removed most of the skin and subcutaneous fat, but there was no sign of putrefaction or anthropophagy.

"Carbon fourteen?" asked Bob.

"Less than half a year," the M.S.U. answered.

"Probably one of our people then," said Bob. He retracted the lower lip. The gold crown was not there. It wasn't Ralph.

He autopsied it right on the spot ... feeding samples to the M.S.U. for tox and micro. The only gross finding which puzzled him was the heavy, waxy appearance of the brain. On cut surface it was much firmer and more translucent than normal. The other findings he expected: a universal black pigmentation of all tissues, abundant edema fluids, absence of all body fat, atrophy of muscles, cirrhosis of the liver and — of course — the skin ulcers.

Microscopics a few minutes later confirmed the above and added beriberi changes in the peripheral nerves and myocardium. The waxy brain micros just showed holes in the cells.

Tox might tell what was in those holes. Similar holes were also present in the cells of the liver, spleen and lymph nodes — but less marked than the central nervous system.

Bob put a few samples in a "hold jar" and had the rest of the remains buried. They moved on while the M.S.U. continued its analysis of the waxy material.

As they traveled to the search area for the next lost scout Bob asked: "Olga. Was there anything unusual about those scouts that disappeared? I mean, when compared to the ones who are still at their camps?"

"We already went over their backgrounds: genetic, skill and psychic. If anything, they were the best conditioned and the most content with their assignments."

"How do you mean, best conditioned?" he asked.

"Well, they seemed to enjoy their work more. They cultivated larger gardens, did more landscaping, explored larger areas more thoroughly, and in their free time they hiked, hunted or fished," she answered. "In fact, that is one of the reasons why it is difficult to pinpoint their disappearances. They were usually away from the O.S.M. most of the time."

He turned to Peter. "That fits perfectly. If your diet lacks something you just accentuate it with exertion. You burn up whatever

supply your body cells may have stored and the deficiency shows up sooner."

"What deficiency, sir?" asked Peter.

"I don't know for sure, just yet, but it looks like a mixed one: protein, calories and some vitamins. Those scouts on long hunting trips were probably away from their earth food supply and were eating more of this alien muck."

Finally Tox came up with the cause of death in the autopsied scout: a storage disease. An inert galactoside containing an unrecognizable amino acid was stored in massive amounts in the brain, liver, spleen and other lymphoid tissues. The M.S.U. relayed the molecular characteristics up to Olga for further ident.

The black pigment was homogentistic acid: a fairly harmless by-product of faulty metabolism of the amino acids tyrosine and phenylalanine, also called ochronosis. The black pigmentation usually caused no serious ill effects other than arthritis.

Bob was familiar with these lesions, often seeing them in study sets and occasionally in the clinics. But always they had been in separate patients. They had different etiologies. Storage diseases were sort of genetic defects: you lacked a particular enzyme and suffered from a storage of the molecule that enzyme is supposed to handle. De-

iciency states were acquired naturally. Your diet just lacked some vital molecule — a “vitamin.”

Olga identified the autopsy galactoside as neuraminic acid, similar to the molecule stored in Tay-Sach's disease.

“Adult Tay-Sach's disease! I've never heard of that before.”

“It has never been reported,” said Olga after reviewing her memory banks.

The main feature of that disease was the mental deterioration. Having seen the micros on the brain, he could understand why.

He checked with the tech in substrates to see how the earth-alien cross checking was coming. So far there were only a few nondigestables — all in the larger molecules, usually ones with benzene rings. The most resistant forms outside of the starch molecule were the two “essential” amino acids, tyrosine and phenylalanine, which explained the early appearance of black ochronosis in the scouts. It wasn't their faulty enzymes: just resistant substrates.

The tech explained about enzyme specificity. Both the enzyme and its substrate are three-dimensional molecules that have to fit together like a hand in a glove before they can react. On Earth organic evolution was a progression in complexity so that molecules came before cell, and cell before higher forms. Genes con-

trol heredity, so a molecule — say tyrosine — is made the same all over the planet; and its enzyme — tyrosinase — is the same. This allows complete energy cycles. The tyrosine molecule can be passed from the eaten to the eater.

However, on this alien planet evolution was parallel but not identical. The molecules served the same function but were slightly different in rotation of a part or configuration. But it still worked. They were all like that, with matching genes and enzymes. It was only when you took the enzymes from earth and tried to digest alien molecules that the difference showed up. It was like trying to put your left hand in your right glove. The configurations didn't match.

As Bob listened his sullen hatred of the planet grew. The planet's friendly facade covered a deadly molecular biosphere. He loathed the cruel manner in which it killed its victims — robbing them of their minds and then letting them blunder around tearing off bits of flesh on inanimate barbs and spurs.

With the cause of the problem pretty well defined, Olga put the Separate Ecology Rule into effect, and the Implant went on modified greenhouse status. Earth plants grew in soil seeded by earth organisms and fertilized by earth compost. The animals and humans ate only earth foodstuffs. Large compost piles seeded with mixed earth/

alien flora managed to decompose debris from either source when the flora was properly mixed. Most of the smaller molecules could be cross-digested. Further work in substrates showed that malting alien grain resulted in a wort of small sugars which could also be cross-digested by organisms from either source. (In malting, the grain's own cellular enzymes are activated by germination, and they digest the seed's own large molecules down to smaller ones.)

Man was at last in the Procyon system to stay.

XV

Several of the scouts were found in various stages of the alien-molecule disease while still alive. It was learned that the condition was somewhat reversible, with a simple earth diet.

Of course, brain cells that were lost could not be replaced, but by supplying the needed amino acids and vitamins the body quickly recovered. The mental picture usually improved partially, leaving some retardation, memory and I.Q. losses.

Cigar was now re-outfitted. He was humming what would be a happy tune as he recorded the regrowth of earth plants in the bare patches that marked his old fields and gardens of Implant One. By inoculating earth flora, the peatlike layers of

two-hundred-year-old cellulose fibers began to rot, providing a rich humus for cultivating earth crops.

The M.S.U. crossed the peat patch, tilling and inoculating. Her fleeing form attracted its optic pickups. "A thirty-kilogram hominoid," it registered and loaded up a tranquilizer dart to catch it for dissection. Zoological banks opened up and the optic record was relayed to Olga.

The picture was projected back down to Bob's screen in the skimmer. "Good God! She's human! That's either a pygmy or a runt. Olga, stop that class eight M.S.U. before it hurts her!"

"Too late. The dart has been fired and a local ion storm has cut off communication. Can you get over there in the skimmer?" said Olga.

"Damn class eights!" muttered Bob as he lifted off and started tracking after the M.S.U. It was an hour and a half before they reached the dull-witted three-ton robot. It had sealed up in its heat-shield like a turtle, and there was a seventy-three-inch black hominoid pounding on its sides with a stout limb.

"Whoa there, big fellow," said Bob, approaching in a crouch. "Give me the club before—"

He was interrupted by a wild club-swinging attack. Bob reflexively went into a shiko-dachi dance and gracefully disarmed his attack-

er, gently laying the bigger man out on the peat. Two parameds arrived quickly to restrain him without hurting him.

It was Ralph. He didn't talk, and he didn't seem to know or understand them.

Bob half dreaded that he'd find the dissected body of the small female someplace. Then the M.S.U. lifted its re-entry heat shield, and there she was. A beautifully formed little human female, sleeping in the manipulators (arms) of the robot. She looked to be about fifty-four inches tall, about twenty-eight kilograms in weight. No mutation, just a runt.

"Okay, soil-tiller, why are you holding the human? Why didn't you let her go?"

The optic pickups focused on him, and the lingual read-out activated: "Hominoid . . . correction . . . human had been drugged prior to arrival of large male. While asleep she required supervision for life-support. I could not release her to an obviously demented individual, or she might have aspirated or asphyxiated. I had to wait until the drug wore off before releasing her."

"Well, we're not demented. Release her to us."

Two of the parameds climbed up on the treads of the giant cultivator robot, but it took only one to carry the small female. They wrapped her in a blanket and stretched her out on the skimmer seat.

By the way, what stopped you from completing your studies of her — the dissection?" asked Bob as he started helping Ralph up, still restrained by the parameds.

The robot answered: "The large male attacked me. I recognized him as a human and assumed that she was one also."

"Good work, class eight," said Bob sarcastically.

"Class seven," corrected the machine.

As she woke up Bob could understand how the M.S.U. could mistake her for an animal. Her coal-black sclerae gave her eyes the solid black look of the mollusk eye, her hair — a long heavy mane — covered her from head to mid-thigh, and her reflex time — about a third again faster than his — gave her a wild, jumpy appearance. They carefully released both of them.

Without a word, they ran off together into the brush.

It was then that they noticed the edge of the field was rimmed by a narrow zone of dense corn stalks. Like a palisade the crowded stalks formed a fence about a meter thick. Inside, the entire field was the usual bare, flat peat and outside was the press of alien vegetation. For some reason that wall of corn had been growing there on the edge of the field, slowly pressing into the surroundings and building up the central peat pack, which now layer-

ed some three feet above ground level.

Standing at the edge and looking down, Bob saw the thick mat-like growth centrally and the sparse new growth in the outer zone of the corn-rim.

"I'll bet this field has been growing here since the first Implant," ventured Bob. "There must be ten acres of peat here — three or four feet thick — and each cellulose fiber laid down by that expanding rim of corn."

One of the parameds picked up a sample of the peat and placed it in a specimen container. The M.S.U. was busy plowing at the other end of the field.

The paramed observed: "I'd guess the soil ecology of this field lacks the cellulose-eaters. Earth termites is all it probably needs. Then you'd have that corn all over this bare spot."

"I think the cultivator is taking care of that now," said Bob. "Let's not excite Ralph and his little friend. They've gotten along without us this long. A few more days won't hurt anything."

They planted a sensory probe on the edge of the corn patch and stocked the area with a small flock of chickens to supplement the pigmented hominoids' diet. With the probe they learned that the pygmy colony numbered twenty-three: five paired adults, eight young adults

and five small children. Ralph was counted as one of the adults and the female was his mate. They had one child.

Studying the group, they learned that there was no language other than a dozen or so grunts, squeals and gestures. No artifacts other than a few sun-dried clay bowls and random sticks. Diet: corn — green and dry, whole, crushed and soaked. They had had fire on occasions in the past, but none now: nor could they guess how they got the fire. Their custom of disposing of waste material (body and other) by going "three paces into the bush" probably explained how the rim of corn expanded — following the growing zone of Earth flora.

The patch nurse sat down at her desk and looked at the report. The third Eggers' child was ready to graduate from the patch school and go to her new foster home at the local base. Three younger siblings were already crowding her out of the little hut. The screen lit up and Bob's lined face appeared.

"Cathy Eggers ready to be picked up?" he asked.

"Yes," answered the nurse. Ralph and Betty both sat in on kindergarten class today, and she had discussed Cathy's leaving with them. They seemed to understand — although with a vocabulary of about seventy words it was difficult to know how much they took in.

"Ralph Junior and I will drop by around supper time and pick her up then. See you." The screen blanked. Ralph Junior was Ralph's eldest.

Bob made a point of checking on Ralph — although there now was little hope that he would ever get back any of his adult memories. In spite of Bob's efforts at injecting a purified alien enzyme (galactosidase) into Ralph's system to speed up the removal of the stored molecules, the permanently damaged brain cells would never come back. Now he seemed to be retraining undamaged, but previously unused, portions of his brain.

On the improved Earth diet the patch pygmies showed some ability at using tools and picking up simple speech. Their children, on the other hand, would be perfectly normal. Since they would be protected from the alien amino acids there was no damage by phenyl-ketonia; so, unlike their parents, the patch children could grasp the cultural level of Implant Two. These children left home to grow up with Implant Two and contribute their genetic material to the growing human population.

It was autumn. A raging forest fire was blackening the foothills on an island in the temperate zone. Bob Zuliani switched off his laser and watched the flames from his hovercraft.

He had been careful to start the fire along the entire circumference of the coastline so that it would burn toward the center — hopefully sterilizing the island of its alien ecology. He enjoyed the island-sterilization project. This would be number sixty-four for him. Tomorrow the cultivator M.S.U.'s would begin plowing and inoculating, and by spring a little colony of humans should be farming the land.

There were thousands of suitable islands in the achipelago, easy to sterilize with their technology — and fertile when claimed. Yes, he was planting humans all over the planet.

Cigar's questioning circuits had stopped nagging him when the nondigestibles were found. The mystery was solved. Now survivors of his own Implant were actually alive and contributing to the genetic pool on the surface.

His components were being updated, and he was now equipped with an M.S.U. of his own. He even had his memory banks brought up to date by Olga.

Orbiting around in a repolished hull, he was looking forward to the day when he would take an Implant from this planet to seed another star system. After all, he reasoned, a starship doesn't retire after just one successful Implant!

END



by MACK REYNOLDS

***There's nothing like a dollop of L.A.
to make the world go round — or zigzag!***

Weigand Dennis was seeking a moment of refuge in his west wing of the White House office. The press secretary, special assistant and brains behind the throne of the President of the United States of the Americas, had just come from a meeting of the President with his latest think tank.

So far as Dennis was concerned, the think tank had thought itself dry; either that, or it had sprung a leak.

The latest brain storm had come a cropper. It had seemed a promising enough idea, once the scien-

tist cloddies had finally succeeded in teaching the porpoises to talk, to give them jobs herding great numbers of whales, something like cowboys herding beef cattle. It looked to be a solution of the protein shortage throughout the world. But who could have foreseen that they would first demand wages, and then, when these weren't foreseen that those damned Marx-spouting, communist-trained dolphins would infiltrate them, with the present danger of the herds of whales being expropriated?

Steve Hammond, the Secret Serv-

ice agent assigned to Weigand Dennis, stuck his head in the office door and said, "Mr. Dennis, there's an inventor out here who wants to see the President."

"Inventor? Send him over to the National Science Foundation; they have a special Department of Crackpots, or whatever they call it, for inventors."

"Yes, sir. But they sent him over here."

"Well, why?"

"It seems there's a standing order that anyone who comes up with an idea that might end the depression is to be referred to the White House staff."

Dennis groaned. "All right, damn it, send him in. But listen . . ."

"Yes, sir?"

"You stand right outside that door, just in case. The way things have been going today, it's as sure as death, taxes and our losing the next election that he's a nut."

"Yes, sir." Steve Hammond's head disappeared again.

The inventor's name turned out to be Newton Brown, and he weighed approximately one hundred pounds and sported a beard that looked as though moths not only bedded down there but held orgies. The facial expression was that of a lost pup, a very lost pup.

Weigand Dennis said, "Sit down, Mr. Brown."

The other perched on the edge of

a straight chair and bobbed his Adam's apple. "My friends call me Newt."

Dennis considered that for a moment. He could have said, "I'll bet they do," but refrained. Instead, he waited for more.

Newt Brown cleared his throat and said, "I came to you first." When there was no immediate response to that he said, "My latest research. I've finally found a use for water. It's obviously a flop as a beverage."

"Oh, great. What's that got to do with the President?"

"It will solve all the problems that beset the world, Mr. Dennis."

"Your new invention? What are you going to do?" Dennis said sarcastically. "Blow it up?"

"Oh no, not at all. Just the opposite."

Weigand Dennis said cautiously, "What's the opposite of blowing up the world?"

Newton Brown was obviously launching into his fling now. "Mr. Dennis, what this world needs is love. Every great thinker in the history of the world has advocated love. *Love thy neighbor as thyself* was taught long, long before Jesus."

"All right, all right," Dennis said. "Every religious leader, every philosopher down through the centuries, has advocated that we love one another. Man seems to accept the teaching in principle, but when he gets around to dealing with his fel-

low man, he usually winds up clobbering him instead."

Newt Brown beamed, as though at a receptive student. "Right," he said.

Weigand Dennis looked at him. "So what are you going to do with water to change all that?"

"Oh, it's not primarily water. That's just my method of distribution."

"Of what?"

"L.A."

Weigand looked at the other for a long moment, wondering if he really wanted to continue this conversation.

Finally, he said, "Los Angeles is already distributed all over hell's half acre. It stretches from San Francisco to San Diego."

"Not Los Angeles. L.A. My new hallucinogen, Love Acid," he hurried on. "We'll dump it in the reservoirs."

"Now wait a minute. A new hallucinogen. What's wrong with LSD? Didn't we have enough trouble with the old ones?"

Newt Brown made a scoffing gesture. "LSD, mescaline, psilocybin. Old hat. I mean they're antiquated. Nothing. Love Acid is the ultimate hallucinogen. It will solve all the world's problems. No more wars. No more economic crises. No more depressions. *Everybody* will love *everybody*."

In spite of his caution, Weigand

Dennis was becoming intrigued. "How would it end depressions?"

"What causes depressions? The flow of industry ends. When the owner of an industry cannot make a profit, he closes it down, not caring that there might be thousands of customers, consumers who need the product he manufactures. He doesn't care. All he's interested in is making a profit. Now if he loved everybody, he wouldn't give a hoot about profit. He'd just want to supply his product to those who needed it."

Weigand Dennis left off consideration of some of the socio-economic ramifications of that for later.

He said, "Now if I get this right, what you want to do is dump this new hallucinogen of yours in the drinking water of the whole country."

"Correct."

"And then everybody would love everybody else."

"That is correct." Newt Brown beamed once again as though at a student who had just mastered a difficult teaching.

"Holy smokes."

"Obviously."

"Then, I suppose, after you've dosed everybody in the United States of the Americas, you'd turn it over to Common Eur-Asia and . . . and everybody."

Newt Brown nodded emphatically. "Absolutely. If they refuse

the gift, we'll lob it over into their reservoirs by rocket missile. Use up our stockpile of missiles. We won't want nuclear missiles by that time, anyway; we'll love everybody, not want to kill them."

"Holy smokes." Weigand Dennis shook his head, momentarily overwhelmed. Something came to him, and he narrowed his eyes at the other. "How do I know it works?"

"Oh, it works all right, all right. I've tried it out on all sorts that supposedly hate each other. On cats and dogs, on cobras and mongooses, on ferrets and rats. It can get a bit, ah, gruesome, watching its effects on some of these. Oh, it works all right."

"You mean it works on *animals*?"

"I told you. It's universal. It works on everything. Of course, that's one aspect. We'd all wind up vegetarians."

Dennis grunted. "We'll all wind up that way, anyway. Who can afford meat any more? But, look, you mean I could give a dollop of this stuff to my worst enemy and then he'd love me?"

Newt Brown squirmed a bit, in discomfort. "Well, admittedly that, along with the vegetarian necessity, is the big shortcoming."

Weigand Dennis looked at him.

Newt Brown twisted in his chair unhappily. He said, "I assume your worst enemy is a man?"

That didn't quite come through. "Of course."

Newt Brown said grudgingly, "Then, yes. I'm afraid so."

"You're afraid what?"

"He'd want to love you."

A suspicion was beginning to dawn in Weigand Dennis. "Look here," he growled. "When you say that everybody would love everybody after taking this L.A. of yours, how do you mean?"

"Love, love," Newt Brown said impatiently. "You know what love is."

"There is love and love," Weigand Dennis said dangerously. "I love the President's private secretary. I also love my country and chocolate cake with vanilla ice cream. I also love a parade . . ." His voice was beginning to go slightly higher. ". . . but I've never wanted to go to bed with one!"

Newt Brown bobbed his Adam's apple. "This is the kind of love you undoubtedly feel for the President's secretary."

Weigand stared at him. "You mean this L.A. of yours that you want to slip into the nation's drinking water is a universal aphrodisiac?"

"You might put it that way. I prefer to think . . ."

"And this Mickey Finn to end all Mickey Finns would give everybody . . ."

"Everything, not just everybody," Newt Brown interjected.

". . . the hots for everybody else?"

The self-proclaimed inventor summoned his dignity. "That is not the way I would explain it."

Weigand Dennis yelled, "Hammond!"

Steve Hammond burst into the office, .38 Magnum Recoilless at the ready. Newt Brown winced.

"Yes, sir," the Secret Service bodyguard snapped.

"Do they still have chains?"

Steve Hammond blinked at him. "Chains, Mr. Dennis?"

"In the old days, the king, or whoever, would yell, *Throw him in chains!*"

Squealing terror, Newt Brown tried to scurry toward the door, but Steve Hammond had him in an arm lock.

Holding the still mewling inventor with one hand, he turned back to Weigand Dennis. "Well, no sir, I don't think so. All we've got now is handcuffs and leg irons."

"Okay. Get him into handcuffs and leg irons and into some top security cell. And listen, Hammond, if he's got any vials of fluid, any packets of powders, or any pills on him, flush them all down the drain. No, wait a minute. The rats in the sewers might get it, or the fish in the sea. I'd hate to have several million passionate rats run-

ning around the streets trying to love us, or have fish storming the beaches with a love-light in their eye. Burn it all."

"Yes, sir." Steve Hammond thought about it for a moment. "What's the charge?"

"Charge?"

The Secret Service man was apologetic. "Well, yes sir. There ought to be some charge." He added, "Don't you think?"

That set Weigand Dennis back only momentarily. He turned to Newton Brown. "Listen, did you take any of this L.A. of yours yourself?"

Newt Brown was indignant. "Of course. I wouldn't subject another to an experiment I wasn't willing to try on myself . . ."

Weigand looked at Steve Hammond. "Book him on a morals charge."

The bodyguard looked at him blankly. "Do we have evidence to back it?"

Weigand said, "Look. Just throw him into any prison available. By the time his case comes to trial, we'll have plenty of witnesses ranging from nurses in the prison hospital, to prison matrons, to prison warders, to fellow prisoners. Let's hope they don't have a dog for a prison mascot. Haul him away!" **END**

REMEMBER:

New subscriptions and changes of address require 5 weeks to process!

DREAMBIRD

by DEAN R. KOONTZ

Illustrated by BRAND

Everyone wanted to steal the Pheasant for its Dreams. But Sloane knew only nightmares he couldn't — quite — remember!

I

They were trying to steal the Pheasant of Dreams.

Sloane thought about that while the air taxi jolted through the changing currents between the skyscrapers, bumping, rocking, now and then

colliding with and injuring a bewildered pigeon. That was all Ben Talman had said over the phone. Simple, sweet, nothing anyone could distill a drop of secret information from. Simply: "They're trying to steal the Pheasant of Dreams."
Theft.

The most startling, galaxy-shaking theft ever recorded in the annals of crime, which, generally speaking, were annals fraught with startling, galaxy-shaking thefts. Even to reach the pheasant would be a chore for any world's army. It's "cage" was a giant, bullet-proof, shatter-proof, melt-proof, unbreakable, uncrackable, unchoppable glass dome buried beneath layers of concrete and steel seven miles beneath the off-limits grounds of the Actria Global Game Reserves, a dome boasting, aside from the formidable security arrangements, every comfort a pheasant could expect from life.

The air taxi banked to the left, slipping down through the last two hundred feet toward the plaza in front of the United Worlds Relief Funds Building. Sloane mused that the building was much more than the name implied. The twenty stories above ground were the quarters from which UW officials processed requests for and dispatched emergency monies to help worlds ravaged by floods, storms, meteor strikes, and every and all catastrophies which could and regularly did strike the three hundred and seventy-two member planets of the United Worlds Federation. There was a basement where IBM cards were stored, reports were filed, and janitorial supplies were kept. Then, deep beneath the street, the other fifty-eight floors and their employees functioned. The building was constructed like an iceberg, with the greatest bulk unseen. In those fifty-eight levels below the water line, United World Police functioned.

It wasn't a secret to the proverbial big shots: the business leaders, the law makers, or the diplomats. They realized that without a forceful policing group, the Federation would fold just as the ancient United Nations had. But the men-on-the-street, or at least a majority of them, would think of it as a form of storm trooperism or secret police.

Therefore, to avoid public debate and minority protest, it was kept secret.

The craft sputtered, glided to the cement, and settled finally with a solid *thump*. The price of the fare popped up in lighted numerals above the dashboard: 34.6 c. He paid it through the slot in the back of the front seat and waited for the machine to run a counterfeit check. Satisfied, the taxi said "Thank you" and flung open its doors. Looking down at the flagstone and cement as he got out, he thought about Talman waiting a mile below . . .

"Your appointment was ten minutes ago, Mr. Sloane," Talman said, resting his large, muscular, big-boned, scarred body in the leather swivel chair behind the plain, heavy desk.

"I was caught by a fit of diarrhea and could not possibly have been punctual this morning."

"You've got diarrhea of the mind."

"That *could* be a compliment."

"Okay then, of the mouth." He picked up a pencil, and Sloane expected him to snap it in two. "I don't know why I put up with you, Sloane."

"Because you don't have a better agent. You know it."

"Or even a more conceited one."

"Modesty is a false virtue."

"Still, now and then, it is refreshing."

Sloane didn't answer.

"Okay. Background." Talman could drop right out of personal conversation and into a briefing so fast it sometimes confused the agent. And, Sloane thought, *perhaps it is meant to*. "You know the history of, or at least you should, the Pheasant of Dreams, the Dreaming Pheasant, the Paradise Bird, the Feathered Fantasia. There are a dozen other names for it. But, to start with and to make sure there are no misconceptions running about in your mind, I'll run through a brief history of Actria and the bird."

"Good, a story."

"Shut up. Now, twenty-six years ago, the planet called Actria was discovered and immediately brought under the protective folds of the United Worlds Federation. The usual investigatory period was suspended, and the planet was given membership more quickly than any other to date. It was a selfish move on the part of the Federation. Actria was a wealthy world in the most important way — an abundant supply of novelties. More money is spent by citizens of the galaxy on novelties and entertainment within any given Earthnormal year than is spent on any other item. Actria, then, was an exploiter's paradise. There were three beautiful fur-bearing animals whose pelts brought enormous and deserved prices among the two hundred and forty million members of the upper-upper class. There were vast regions where all

manners of exotic jewels lay strewn about the sand. And, perhaps most important of all these wonders, the Pheasant of Dreams."

"The Dreaming Pheasant."

"The Paradise Bird," Talman continued. "Since Actria's languages were extremely difficult to break and construct a grammar for (experts then estimating five years necessary), the Federation members were understandably anxious to get started on the planet's resources before they could communicate with its peoples. So we moved in. We took the furs and jewels and countless other things without their consent, holding fifty percent of the earnings in escrow until the Actrians could understand what had happened to them. The council looked upon the venture as fatherly."

"Oh, very fatherly."

Talman ignored him. "But in killing the Pheasant of Dreams for the three-dimensional, color-changing feathers, the Federation henchmen led the bird down the road to extinction before cracking the language barrier and finding out from the Actrians what the real purpose of the fowl was. It was an Esp-animal, a creature that could delve into your mind to bring you dreams of splendor, recreating your wildest fantasies so realistically, that any drug ever known in the galaxy pales by comparison."

"I never believed they could be *that* realistic," Sloane said, slumping even deeper into the folds of his chair.

"I wouldn't know. But the Actrians seem to think they were. We

had to provide them with large quantities of concentrated PBT to satisfy their desire for escape, and still they longed for the birds. Now, there is only one pheasant left. They call it Eve in an optimism, hoping she will be the first to bring her race from the dark abyss it hangs over. Our laboratories are working on some method of artificial stimulation to set her unfertilized eggs to growing. So far, no luck."

"And on top of all this, someone has tried to steal Eve."

"Exactly."

"Who?"

Talman reached across to a green button on a stud-covered console at the right of his desk. The screen behind him lighted and a face was projected from behind it. A wrinkled, withered, ancient face with slits of eyes and skin like crumpled paper left in the rain, lips like withered apple skins, no chin.

"Him?"

"You know him??"

Sloane sat up straight in his chair. "Certainly. It's Tate Briscow. He's probably the richest man in the galaxy. Owns Planet Industries, hundreds of things. But why him?"

"He's two hundred and seventy-eight years old. Hagan-Foster treatments can keep you relatively young for a hundred years and relatively middle-aged for another hundred, but they can't make you immortal. Eventually, you do grow old. He has poured billions into finding something else to extend life and keep it bulging with youth. But he has failed. Now there is only the pheasant for him. He realizes, if there is to be

any joy in his life, it will have to be hallucinogenic in nature from here on out. Thus, the bird."

"I rather pity him," Sloane said.

"Why, for God's sake?"

"You said yourself it would be the only way for him to enjoy what's left of this life."

"Hell, Allie, he's had a life a hundred years longer than either you or I will have. You have to check out sooner or later."

"The later the better."

Talman wiped the face off the screen. "Look, maybe you don't understand what would happen if the pheasant were stolen. Actria has gained allies in the Federation since her entry into galactic government. She votes radically conservative and could end up as the focal point of a war between liberal and conservative factions."

"Impossible."

"You think so?"

"Well, the Secretary General doesn't. He wants Briscow stopped."

Sloane stood and walked to an original Farnna oil hanging on the wall to the left of Talman's desk. The chief had led a colorful life, and it was reflected in his choice of art. All the colors were warm, flaring into hot even to the edges of the canvas where one might expect something darker, more subtle. Sloane didn't particularly like or dislike it. "How do you know," he said finally, "that Briscow is after the animal?"

Talman punched another button. Another photo, a face from the mouth up flashed onto the screen. "This was Barney Rossman. A Bris-

cow henchman. He died trying to steal the bird."

Sloane studied the picture. "How? What was his plan?"

"Somehow, Rossman was dropped into the reserve land above the bird's dome. Supplied with atomic hand diggers, he worked his way down through the first layers of earth. He wasn't disturbed by anyone, since the reserve is off-limits even to guards of the project. When he reached the steel and concrete, atomic tools were evidently brought in on another illegal flight during the night. The launching was probably accomplished from Briscow's pleasure satellite which he keeps orbiting Actria by paying exorbitant rent to the UW. But there's no proof. Anyway, Rossman almost made it. He came down within the caverns where the dome rests, and of course he found that the guards were outside the doorways and not inside. He attached some new, high-power nuclear putty to the seams of the glass door and tried to burn it off. Given time, he might possibly have done it. Unfortunately for him, the putty reacted too vigorously with the chemical nature of the glass, and huge columns of smoke poured through the room. The guards thought it was a fire and came running. Rossman was caught in the act."

"And Rossman accused Briscow. There you have your proof against the old man."

"No."

"Why not?"

"We know Rossman worked for Briscow; he has for twenty-odd years. But before we could get a statement

from him, his head was neatly severed from the rest of him." He twisted a knob, rolling up the picture to show the head from the mouth down. There was nothing but a shredded, bloody stump for a neck. No body.

"Ecchh!"

"Agreed. Accomplished by remote control, probably a capsule of explosive jelly in his neck set to a certain signal on a certain frequency."

"Okay, I'm convinced."

Talman blanked out the picture. "We want you to go to Actria on the sub-space liner *Pride* this afternoon. Planet Industries, owned by Briscow, has used its influence to get a party of VIP's a tour of Actria and the bird's dome. We think one of the delegates is working for Briscow and will be after the pheasant. The Federation granted the tour to Actria because it didn't want to rub Briscow the wrong way, but also because one of its men from the Funds Committee was going on the same ship, and refusal to one group while sending that diplomat could have aroused some resentment. Your cover identification to join the group is this: you're a prince from one of the outer worlds. You will be king when you reach twenty-six next month. This is a tour to acquaint you with Actria, as you will make similar tours of all the other planets."

"But actually, I'll be spying."

"Correct."

"On whom?"

"Less Cannon, congressman. A little corrupt, but probably not a henchman for Briscow. Waltham, the poet, rather out of question. Reamer, the

Union leader. We suspect he's your man. He has had deals with Briscow in the past — salary fixing and such. And the last is Cossik from the Funds Committee upstairs, who is going to see how much the UW should allow for artificial fertilization to help the pheasant get pregnant. Like I said, probably Reamer."

"What time does the boat leave, Angelo?"

"Two o'clock, and be there on time. A sub-spacer with five-hundred passengers and a billion dollars in cargo will not wait for even you."

"I doubt that," Sloane said, walking to the door.

"Oh, and Allie, you'll have a back-up man on this."

"Oh, God, I hope not Smithe or Lansdoff!"

"No. A mutant. He has a few powers which I think you'll find useful."

Sloane nodded from the hallway as the door slid shut behind.

He picked up his briefing package with all the necessary cover papers.

Someone was trying to steal the Pheasant of Dreams.

He had to stop them.

But first, lunch.

II

It was one hell of a pain when Briscow tried to grip anything, even the glass with the very small portion of liquor in it. It was a pain that surged through every bone in his body, erupted in his brain like a volcano. Liquid fire pain.

But he was determined not to become a vegetable. Even Hagan-Foster said he had thirty to forty years left

to him. Those years would not be spent lying in a bed being spoon-fed by girls like those to whom he once made love! Never. Out of the god-damn question!

He finally clamped the brittle sticks of his fingers around the moist glass and drew it to his leathery lips. His secretary, Moxham, said that ice "bruised" the drink when you dropped so much of it in. But he liked liquor cold. It took either ice cold or boiling hot things to really affect his taste buds anymore . . .

Clutching the tiny glass like the flame of life, he reflected on the next stage in the project. Too bad Rossman had died. He had liked the fellow, although he had been a total idiot on many things. But the next stage . . . He had to work with a man he abhorred. A man who had not made his money "honestly." A man who was egocentric, as all men are in that profession. And, worst of all, he was going to have to share the prize.

He tried to spit on the floor, but he found his mouth dry.

He rang the bell on the silver cord.

The door opened; a servant entered.

"Pack this in ice. More ice! I can't taste the bloody thing!"

III

Sloane couldn't remember what he had had for lunch, but he was certain that it had not been any good. He was in a change-over period between one of his moods of depression and the stolid, no-nonsense agent he would have to become in a few hours.

That was one reason he liked the UW police job. Between assignments a good deal of time could sometimes pass, time he could devote to sulking. He didn't hide the fact from himself that self-pity was a way of life with him.

But he didn't exactly know why.

Rather, he would not let himself know.

There were times when he wanted to give up everything and go running home to the folks. But of course he didn't have folks. All UW police were picked from Federation Orphanages so that they would have no family or family background to enable the unscrupulous to blackmail them. And there would be no emotional ties to keep them from risking their lives when occasion demanded. Neat.

He signed the name Prince Demoshkie Vontropos to the ship's log, sent his expensive, hand-tooled luggage ahead, and followed into the vast belly of the swollen sub-spacer that, despite the bulky, absurd shape of it, could hop across the blackness to Actria in two days without once popping a rivet.

Inside, he strolled along the main corridor and into the lounge where most passengers would be awaiting orders to retire to their quarters and strap in for the liftoff, the first stage prior to reaching the point where the ship could plunge into sub-space. There were approximately three hundred there in the main lounge. He looked about for a group of four that might be the party he was attached to. They would be wearing name tags like his own so they could spot one another more easily.

His attention was held by several people even though he knew they were not the ones he looked for. People fascinated him.

An old woman, bound probably for the special laboratories and hospitals of Hagan-Foster on Chalmer II, sat in a wheelchair, her male servant, a tall handsome, virile youth of eighteen or nineteen standing behind her, his hand upon her shoulder. The old woman stroked the rugged fingers with her gloved hand.

A young couple with specks of rice in their hair were arguing over travel folders.

"When we get there," the man was saying, "the first thing we have to see is the tower."

"No, I think the Forum of Peace."

"But the tower is perhaps the greatest historical —"

"The Forum!" she barked.

Sloane turned his gaze next to the person who had got his attention from the corner of his eye. She was blonde, blue-eyed. She was wearing a peek-a-boo dress, and the valley between the young mountains of her breasts was dark and smooth.

He turned away, disgusted. All orphans accepted for training as agents were raised as Shakers. They were taught how offensive (and dangerous to their mission) sex and liquor and the vices were. Sloane often marveled at how much Truth was contained in Shaker philosophy. The blonde was disgusting.

As he tried to focus his attention elsewhere, Sloane, trembling, saw a heavy-set man with a well-trimmed beard making his way across

the lounge, smiling and stopping here and there to shake hands and exchange a few words with other passengers.

Sloane was trying to think where he had seen the man before. There was something familiar about the face, the dark eyes like pieces of night sky dotted with the twinklings of stars, the Roman nose, the full head of hair, and especially the beard.

The fat man walked directly to him and stopped. "Prince Demoshkie. I believe by the royal purple on the lapel."

The name tag on the other man's lapel opened the memory block in Sloane's mind. Gregory Waltham, the poet. "How do you do, Mr. Waltham."

"I would have been pleased if you had recognized me without the name tag."

"Oh, I did. Sort of —"

Waltham patted his belly. "I have put on a bit of weight in the last months. Success went to my stomach."

That had been the thing that had thrown him off, Sloane realized. The face was rather thin, sharp-lined, not at all the face of a fat man. Placed on the shoulders of the pig-like body, it seemed terribly out of place.

"The others are over by the fountain," Waltham said. "Our state-rooms are in the same hallway, and I guess we might as well get to know one another right off."

"I guess so," Sloane said.

"You'll be king soon, I hear."

Talman had done a good job of having the rumor spread. A small paragraph had even been placed in

the Earthwide Homeopape that morning. "That's right. My parents are dead, and by tradition, I cannot become king until I reach the age of twenty-eight next month. My world has been kingless for three years. It will be a glorious day when I take the throne," he finished. *And a cold day in hell*, he thought.

"I imagine," Waltham said. "Yes, I certainly can imagine."

They threaded their way through the crowd to a group of three men sitting by the fountain that was shaped like a whale spouting water from its head. It was a singularly atrocious piece of sculpture, what with the twining vines of marble, the stone angels singing from a gilded carol book, the naked sirens perched on rocks that looked vaguely like dragon heads, all the things which the newly rich seem to think constitute class and refined splendor.

Waltham introduced him to the others. Cannon was boisterous, tall, red-faced, the stereotype Texan. But he was far from stereotype in ability, for he had managed to make it to the United Worlds Council of Earth as the single representative from that state. A powerful man indeed. Reamer was just the opposite. He was not talkative; he was short; his complexion was a sickly white; his skin was a bit on the greasy side. His eyes were bulging grapes painted white and brown and stuffed into his sockets. Cossik was all poise and charm and phoney exterior, as most diplomats from UW were. He explained his mission and purpose on the tour, obviously greatly interested

in the survival of the pheasant and the creation of more birds via artificial fertilization. It was plain that he would recommend a large grant out of UW funds for research on the problem.

"A king, eh?" the Texan said.

"That's right."

"A real, honest-to-goodness king."

"Yep."

"I read about them in story books."

"Oh?"

"Yeah. You know, monarchy died out on Earth three hundred years ago."

Sloane didn't answer.

"Earth is a progressive planet, though, being the mother planet and all."

"I guess so."

"Hey," Cannon said, waving the stub of a cigar, "maybe you can get a few pheasant feathers for the royal robes!"

"That isn't the least bit humorous," Cossik said.

"But I hear they're real pretty."

"I hardly think pretty is a strong enough word," Cossik snapped.

*Beauty is the whirling of the stars
The sound of universal music far
Between the reaches of the suns
and moons*

*Where souls are held in silver-
plated spoons."*

"Very nice," Sloane told the poet.

"From *Space, Life, Eternity, and the Stars*," Waltham said.

"A book?"

"My new one, as yet not released. That would be a rather presumptuous title for a single poem, would it not?"

"What's it like being a king?" Cannon asked.

The warning buzzer to strap in saved Sloane from an answer.

The lounge began to clear quickly, no one being fond of getting caught and mashed into the wall by blastoff. Several uniformed crewmen mingled with the people, hustling them.

Sloane's room was between Cossik's and Cannon's. He watched them enter their own, keyed his own lock, and watched as the door slid aside. He stepped in. The door slid shut.

"Hello, Mr. Sloane. The name is Doronich Penevitch. You can call me Dorrie."

Sloane jumped at the sound of the voice, a hearty, deep-throated rumble. He surveyed the room but could see no one. The two beds were perfectly made; the paintings on the walls were tasteful, hanging straight; but there was absolutely no one in sight. The bathroom door stood ajar so that he could tell that room was empty. Besides, the voice had been very close, in the main room.

"Up here, Mr. Sloane."

He looked up, tried to step back. He was too close to the wall, and instead of putting any distance between himself and the thing floating up there, he cracked his head against the metal partition.

"Oh," Dorrie said, "that hurt, huh? But I will say, most people run and scream at least."

Sloane could see why. Doronich Penevitch was evidently the mutant that Talman had mentioned. He was legless, for a starter, and had only one arm — an enormous, abnormally long arm with two elbows in it. The arm ended in a powerful

fist equipped with five fingers, each with four knuckles. The eyes were crystal blue — wide, appearing to sink deep into the head, mysterious, misty, hypnotic. The mouth was set below a mashed-in nose and was, strangely, normal. There was no chin, but the head connected directly to the one-armed trunk which was stubby, squarish, about three feet long, and wrapped in some odd blue garment like a toga.

"You're the — "

"Mutant," Penevitch said, laughing.

Nature sometimes repents of her abuses and gives the mutant some abnormality which is a blessing, a positive mutation. In Penevitch's case, it was the power to levitate and propel himself. He could not walk, but he could fly. And, seemingly, in some strange way, he was quite happy.

Sloane realized, if he were the thing floating up there, he would have to commit suicide. It was not within his personality to live like that.

Penevitch floated down towards the bed he had obviously chosen for his own, settled gently upon the covers. "I must say, though, you do stare a lot."

Sloane blinked and tried to regain himself. "I never ran into a . . . a . . . severe mutant before."

"Really? Do you think I'm severe?"

"Well — "

"No offense will be taken. I'm interested, strictly as the laboratory specimen might be, in what you people on the other side of the glass think of me. So, do you think I'm a severe case?"

Sloane advanced, sat down on the corner of his own bed. "I've worked with a lip-reading mutant who could perform perfectly by catching only one word in ten and who could read ninety percent correctly on facial expression alone; he had an extra arm. I've worked with the only known paranorm in the galaxy, the fellow with the two heads. But this is really the first case, yes, in which I would say the mutant was severe."

"I like honesty," Penevitch said. The crystal eyes stared steadily at Sloane. "But now let me tell you some things. I don't consider myself severe. Severe mutants are objects of pity, the mistakes of Nature as she tried to correct for the mistakes of Man in the Great War. I don't however, pity myself. I pity humans you ordinary people. You cannot fly; you cannot lift yourself above the canyons and mountains and stare down unless you're encumbered by a bulky plane or fly-suit; you can't float through the center of a thunder storm and listen to Thor talk and the gods laugh. I can. Also, you cannot listen in on any conversation within a mile because of the talk-shields that foul up your directional mikes. I can. And that suits me fine, since I tend to be a voyeur."

"Wait," Sloane said, standing. "You're able to hear any conversation within a mile?"

"Right."

"Could you — "

"Tune in next door? Certainly." He floated off the bed. "That's necessary. I mustn't be touching anything if I wish the reception to be clear."

There was a moment of quiet. Stillness.

The room seemed suddenly stuffy to Sloane.

The air seemed about to sparkle and flame.

It was Cossik's room.

"He's singing — humming really. Something from *Scheherazade*, I think. Yes, definitely. 'The Story of the Kalander Prince.' You know the piece."

"I'm afraid I don't much follow music."

"Oh, but you should. Especially the classics. My favorite arrangement of this piece is the ancient Philadelphia Symphony when it was directed by Ormandy. Ormandy was a genius. And on some recordings, Anshel Brusilow plays solo violin. Superb."

"Is that all he's doing?"

"The original piece on that Ormandy album lasts almost twenty-two minutes and is simply — oh a masterpiece, an experience in itself!"

"Is he only humming?" Sloane persisted.

"And then they also do a grand job on Ravel's *Alborada del gracioso*. I don't think any —"

Penevitch! Is he doing any damn thing else besides humming?"

"Oh. Oh, sorry. No. The water seems to be running. I'd say he's taking a quick shower before blast-off."

"How about the other side? That's the Texan, Cannon."

The blue eyes shifted to the other wall. "He's mumbling to himself."

"What's he saying?"

"It sounds like cursing, but its too low to make out."

"And Reamer, the union man?"

"Nothing."

"You're sure?"

"Certain."

"Talman seems to think we'll have to watch him especially."

"I know."

"Talman briefed you personally?" Sloane asked, taking a step toward the mutant.

"Of course."

"I thought only the senior agent was advised by the chief."

"I am the senior here," Penevitch said good-naturedly. "AAA Officer Penevitch. You're AA, I believe."

"Well, I'll be damned!"

"Sometimes, self-pity is what holds back a mutant, Mr. Sloane. I —"

He paused, his eyes peering one way, then another.

"What's the matter?"

"Someone nearby just said 'Out to steal a g-goddamn pheasant. Now isn't that really ironic?' and laughed."

IV

"Well?"

"I don't hear anything else."

"Nothing at all?"

"At least nothing by *that* voice."

"Who was it?"

"Mr. Sloane, I can hear through walls; I can't see through them. An average voice. It was the tone of a man talking to himself. And he stuttered on the curse word."

"Someone with a speech defect. That doesn't fit anyone in the party."

"You've heard all of them speak?"

"Yes. No stutterer."

Penevitch drifted back onto the bed. "Perhaps it is an occasional

stutter. Maybe you didn't hear them speak often enough to catch it."

"The only one who was quiet was Reamer. I don't believe he said more than a dozen words. The others talked incessantly when the conversation got around to things they knew something about."

"So. Perhaps Ben is right. Reamer may be our man."

The intercom crackled above the door. "SECURE FOR LAUNCH! ALL PASSENGERS SECURE FOR LAUNCH! NOW!"

"How," Sloane said curiously, "by the way, do you strap in?"

Penevitch chuckled. "A good question worthy of demonstration." He floated to his suitcase, reached out with the gigantic arm from the folds of the robe, and worked the latch with the nimble fingers, springing back the top. Drawing out a strange net affair, he said, "This."

It attached to the light fixture in the ceiling by a sturdy cord and to the ceiling itself by means of two magnets. He floated into it, zipped up the opening. "This way. Rather like a banana on the tree."

Sloane, in spite of himself, laughed. "I like you, Penevitch."

"Dorrie. And I like you, Sloane."

"Fine."

"Allie."

"Good."

"Now you better strap yourself in," the mutant said, "or you'll look a helluva lot worse than I do."

Sloane crawled into one of the two slope-backed chairs, worked himself into the harness and seatbelt.

"I'm your servant and jester, by the way."

Sloane looked up amazed. "What?"

"That's the cover story. I'm a distant cousin from Earth, born mutated. You keep me because I tell good jokes and can do menial tasks, but mainly because you pity me."

"Pity you?"

"I know. But I'll snivel a lot in front of people and bump into things when I levitate and generally act like an idiot."

The ooga horn sounded, the last warning to strap in. A dinosaur mating call, melancholy.

The hull began vibrating softly.

"What is your real story?" Sloane asked.

"It's not pretty."

"I guess not."

"My mother died in childbirth, and my father would have killed me, so they say, if he could have. He evidently wasn't a very tolerant man. At least, he never came to see me in the special homes even though he was informed that my I.Q. was a hundred and seventy-five and that I was perfectly sound of mind — almost abnormally sound of mind. So, I never bothered to look him up either."

"And how did you get involved with U.W. police?"

"I was — " Penevitch began just as the sudden dragon roar of engines crashed upon them and the ship began to shake like a Polynesian dropped from the sky onto an iceberg. The sack with Penevitch in swung back and forth from the ceiling like the pendulum of a clock.

Sloane felt his face muscles begin to tighten as speed was increased.

The sack ceased swaying, hung as

if it were starched and nailed to the ceiling at a forty-five degree angle, anything but a plumb line.

The whirring grew in both their ears.

But whereas it was annoying to Sloane, it was exceedingly painful to Penevitch.

That was one of the rare times he cried.

He wrapped the long arm about the trunk and clutched at himself, unable to shut off the super-sensitive pieces of his mind and ears.

And he wept.

When they finally broke into free-space and started the two-million-mile trip to the point where they would enter sub-space, the mutant forced his voice into calm, coughed, and began where he had left off, having voiced none of his pain.

Sloane had always liked a man who could pick up an interrupted conversation at the exact point where it had stopped. It showed a singleness of purpose, a clear mind. He noticed the ability in Penevitch.

"I came to the attention of Talman because of my talents. Levitation is sometimes useful, but more often than not, one profits in this business from overheard conversations. He came to see me in the special homes after I had taken a T.V. Degree in American Literature from the Sorbonne. First, it was the patriotic, peace-lover, do-gooder speech about my obligations to the freedom and the process of maintaining peace throughout the galaxy. He pointed out that had peace been maintained before my time, I would not have been born a mutant. But that didn't

appeal to me. As I said, there's nothing to pity in me. People generally leave me alone because of what I am, alienate me, but since ninety-five percent of our populace consists of asses, ignoramuses, and petty minds, I don't care how far away they stay.

"Then he tried money. That worked. I imagine I'm paid double what you are. And what you get is a small fortune in itself."

Sloane whistled his appreciation.

"So. I'm wealthy. I live a much more exciting life than the two-legged, two-armed man-on-the-street. I like it."

Sloane unstrapped himself. "Well, banana, if you'll get out of that bunch, maybe we can meet with the other members of our party in the dining room and give them a checking out over dinner."

"Agreed," Penevitch said, unzipping the net. "If they've any appetite, that is."

V

"Damnation!" Briscow roared out of his papyrus throat. And he was immediately sorry he had not whispered. He could feel the thin trickle of rusty blood working its way down his throat towards his shrunken stomach. Now he would have a sore throat for hours. He could not even scream at people anymore. He thought that he might miss that more than anything. Now and then it was a pleasure to scream. Tate Briscow had always been known for his fog horn voice, his thunder tones.

He looked back at the paper in his hands. It was the decoded telegram received from the *Pride*. He fumed. In the back of his mind lurked the thought that he was getting too old, but he would not allow that image of feeble-mindedness to gain dominance. Instead, he took out his fury on the accomplice onboard the *Pride*. That man was so damned fond of verbosity! He could have said what had to be said in twenty words. But it took him three hundred! The four hundred credits it had cost were not to be sneered at.

Even a multi-billionaire, Briscow thought, learns to be careful with his small change.

But this man was not responsible enough to think of that.

Still, it was comforting to know that things were progressing nicely, that only fourteen hours remained until touchdown on Actria, and that soon the Paradise Bird would be his.

He slobbered slightly and felt it run down the cracked flesh of his chin. His brain spinning with the heat of joint and muscle, bone and flesh pain, he forced his hand up and wiped it away.

All of it.

When he had accomplished that, he felt quite superior and healthy indeed.

VI

“Don’t you ever, ever, ever... ever...”

Her eyes were black discs set before flames that consumed everything behind her skin . . . She told him he must never do it again. And there

were hot lead fingers melting in his brain to help put the point across . . .

Sloane woke up sweating, having immediately forgotten what the dream was about. He knew it must have been the same dream, for he had woken in the same manner — his heart pounding, a scream perched on the edge of his trembling lips. He was soaked with perspiration. The luminous clock arms on the wall said it was 3:00 in the morning. A familiar time.

He lit a cigarette from the pack on the end table and lay back, puffing in great lungfuls, heaving them out again, softly. He wished to Hell he could remember the dream. How many times? A hundred? No, thousands. He could not remember exactly when it had all started, though he did know it had been long, long ago. The mystery of it continued.

“Was it bad?” a voice asked.

“You’re awake,” Sloane said, starting to sit up.

“One couldn’t very well sleep with you moaning and tossing around like that. Was it bad?”

“I can’t remember,” Sloane said, reclining again. “I have had it a thousand times — I guess — but I can never remember what it is about?”

“Perhaps you should see a psychiatrist.”

“No, he wouldn’t help.”

“He would.”

“He would not!” Sloane nearly screamed.

There was a time of silence and darkness.

“I’m sorry,” Sloane said at last. “I have no reason to shout.”

"That's all right. You were exhibiting a common stumbling block in problems like yours."

"What is that?"

"Subconsciously, maybe almost consciously, you know what the dream is about, but you won't admit it. You don't want to have to face it. You know a psychiatrist will draw it out of you, so you avoid going to one."

"You think?"

"I know."

"An amateur psychiatrist! What more could I ask for in a backup man?"

"One who is rested in the morning," Penevitch answered. "I think I'll conk out now before you start dreaming again and all chances are lost."

"I think," Sloane said, "I'll sing and stomp my feet to the beat to help you drift off."

"You're too kind," Penevitch said, politely. "But my taste doesn't run to Sousa marches. Goodnight."

Just before eight o'clock, Sloane woke again, spitting words between his clenched teeth: "Don't you ever, ever, ever . . ."

"What?" Penevitch asked, coming from the bathroom.

"Oh, nothing. Nothing."

"Touchdown today," Penevitch announced as he went through the jiggling, fumbling process of squirming into a purple robe.

"And now the fun begins."

"I'd hardly call it fun."

"I thought you enjoyed your work."

"I do. Murder and assassination

cases are intriguing. But kidnapping the last Pheasant is a little too cruel to be fun."

"You amaze me," Sloane said, closing the bathroom door behind himself.

The hydraulic gangplank stretched down to the green soil of Actria. The space port was not especially large and not especially small. Actria being a peaceful planet, there had never been need to dock battle craft. Yet a port was necessary, for tourist traffic was high, Actria being a planet of great natural beauty. Even now, to the west, Sloane could make out the glittering peaks of the Jewel Mountains where volcanic activity — eons ago — with the help of pools of heavy gases had slowly formed mountains of glass, smooth and near mirage-like mountains. Indeed, the planet was the perfect setting for the Pheasant of Dreams, the Soulbird, the very last and only Paradise Bird in the universe.

That someone was trying to steal.

Dorrie floated at shoulder level. Over the last two days, the passengers and other members of the party had gotten used to him. Some would even look directly at him and smile. "Those," Dorrie had said, "I don't like. Among those who won't look at me, however, there are three types: the ones who are ashamed, the ones who don't want to hurt my feelings by staring, and a few who just plain don't give a damn. I would like to know those last few. Pity I can't pick them out."

Ahead of them walked the others. Cossik was lumbering off the plank to greet the Actrian guide, a member

of the totally humanoid race that was dominant here. The only deviation from Earthnormal among the Actrian was their eyes — eyes that swirled with color, changed and flooded from crimson to yellow to blue. It was very distracting.

Reamer, Waltham, and the Texan strolled behind, pointing at the distant mountains. Sloane could picture the poet making a poignant comment which the other two would not appreciate at all.

"They all, at this moment, look like such innocent children," he whispered to Dorrie.

"One of them gave up his marbles and pogo-sticks long ago."

Sloane started to laugh, then saw Cossik handing a folded piece of yellow paper to the waiting Actrian. The Actrian palmed it and made no show of having received anything.

"Gentlemen," the alien said as Sloane and Dorrie reached the bottom of the plank behind the others, "welcome to Actria."

VII

They were told about their hotel — Hotel Fantastique — and about their tour. Today they would see the Caves of Love; tonight there would be a fancy dress ball in their honor.

"The air cars are at the gate," the Actrian Klee said.

There were three waiting craft. As Sloane expected, Cossik ended up in Klee's vehicle. When he and Dorrie were seated in their own craft, floating toward the hotel, he said, "You saw the exchange?"

"Naturally. Ears are my speciality, but I *do* have eyes."

"Can you listen in?"

"I already am."

"And?"

"No intrigue. He wants to ascertain from Klee how much the laboratories here need. Right now, they are discussing ways of padding the funds request."

"Well, it *did* seem like we were on to something."

Dorrie sighed. "It would be a pity finding out so soon — before all the adventure."

The air car floated down to the base of the steps that stretched up to the Fantastique's golden, engraved doors that were tied back with velvet-covered cables and flanked the entrance to the main lobby. Everyone met inside, was assigned rooms, freshened up, and set out for the Caves of Love.

They saw the mountain of glass, the plains of onyx, the Caves of Love. And upon seeing the latter, Reamer stuttered. But so did Waltham, Cossik, and the Texan. Indeed, it was a sight to make a man lose control of his tongue in the describing of it. Dorrie and Sloane were rather nervous for the remainder of the day's tour.

When they returned to the hotel, Cossik, Reamer, and Waltham went off to Transmitter Incorporated to send messages to relatives, messages bearing the romantic postmark of Actria. Cannon wandered off with Klee. In a quick moment of decision, Dorrie floated off after them, asking if Klee were going to show Mr. Cannon any more scenery.



"Well," Klee muttered, "in a manner of speaking —"

"Could I come? Please?"

"Well, I —"

"Sure," Cannon boomed, "let the little feller come."

"Good," Dorrie burred gleefully. "What are we going to see?"

"The . . . red-light districts. And . . . the gambling houses."

Sloane watched as the three of them piled into an air car, Dorrie floating just behind the two men and between their shoulders, chattering inanely. He turned then and climbed the stairs to the lobby, caught the elevator to his own floor, and entered their suite.

There was a small, brown package on the bed that was addressed to him. The return address was that of the Earth Consulate on Actria. Perhaps,

he thought, it was something from Talman. He untied the box, lifted the lid, and stared down at the little animal inside. It reminded him vaguely of a big-footed, floppy-eared puppy he had once had. It looked up at him out of multi-colored eyes and mewed slightly. He reached in . . .

Everything spun; the world blanked out; Sloane lost all awareness of everything immediate . . .

VIII

Rags. They were rags, dirty and time-eaten, pasted together with dried glue. Discarded rags. Briscow's flesh, his hands especially, looked like dish-towels and scrub cloths. And worst of all, he knew it.

But her hands were smooth, tan,



soft. She was a hundred percent ripe, soft, and delightful. She stood waiting for him to open the message and see whether he had any instructions.

He forced himself to tear open the envelope, unfold the yellow sheet, and glance at the words: "HAVE BEGUN TO SUSPECT SPY IN DELEGATION. PRINCE DEMOSHKIE LOOKS NOTHING LIKE HIS PHOTO AS A CHILD. FROM BLOND HAIR TO DARK, FAIR SKIN TO BROWN. RAN ACROSS PHOTO BY ACCIDENT IN A MAGAZINE ARTICLE ON ROYALTY WHICH SHOWED SAME PRINCE AT AGE FIVE. HE HAD A PUG NOSE TOO. OUR PRINCE HERE DOES NOT. HAVE TAKEN THE LIBERTY OF PLACING NIGHTMARE RAT IN HIS ROOM AS GIFT FROM EARTH CONSULATE HERE. YOU ARE AWARE WHAT THESE CREATURES CAN DO. TONIGHT, A PARTY. TOMORROW THE PARADISE BIRD. I FEEL SOMEWHAT LIKE PROMETHEUS, BRINGING THIS FIRE OF THE MIND TO MAN. CLOSE."

Well, he thought, for once that baboon was using his own mind. What a delightful move, attempting to drive the prince insane!

He looked back up at the dark-haired lovely. "My dear — " he whispered.

She stepped forward, smiling, trying to hear what it was he said.

He wanted to touch her. He wanted to feel her softness beneath his mummy fingers. Painfully, he began

to raise his hand from the arm of the chair.

IX

Sloane saw the lovely hills with thick, green trees, the tangle of underbrush. He could hear the trilling of birds like thin, sweet flutes. He had always like it here.

The grapevines twined through the bars of the arbor, the ripe bunches of their labor sagging from them, bulbous and heavy. Crickets sang. Dandelions had turned to puff.

"Allie," a soft voice said from behind . . .

He turned, looked . . .

Screamed! There was something familiar about all of this, something he did not want to remember . . .

He screamed. His eyes stung, and his throat burned. He twisted the neck in his hands, mangling, crushing.

There were shouts in the hall.

Blood spurted from a torn artery and splashed his face. Still he shredded it, screaming.

Fists beat upon the door.

When they finally got in, they found him smashing the small form of the puppy-like creature into the terrazzo floor, again and again.

Over and over. There was blood on everything.

They had to pry it from his clutching fingers. They washed him and placed him in bed and gave him a sedative and stationed a sentry by his bed to call the doctor when the prince-king showed signs of waking. And for some hours, Sloane slept a dreamless sleep.

When he woke, the doctor was there, taking his pulse. He was a mustached man with a head of white hair. Somehow the *aurora borealis* of his eyes was heightened by the whiteness of his hair. In the far corner, Dorrie floated, obviously worried. Waltham was sitting in a chair behind the doctor.

"Ah, awake now," the Actrian said.

"Uhh, partially."

"You've had a bad experience."

"I vaguely remember."

"Well, we aren't going to pamper you. The best thing in these cases is to get on your feet. I suggest the party tonight. In fact, I'm leaving it to Mr. Waltham to *make* you attend."

"But what —"

"He can explain too," the physician said, picking up his instrument bag. "I have to deliver a baby." He hustled out.

"Well, Gregory, explain."

"It was a Nightmare Rat."

"Rat?"

"I know it doesn't look at all like a rat. It's cute and cuddly, and that's part of the danger. You see, for everything Nature makes, she makes an antithesis."

"I see," Sloane said groggily, "the Pheasant of Dreams and the Nightmare Rat."

"I was one of the first to your door, and I knew immediately — from the manner in which you were babbling — what was wrong. We broke the door down to get to you." He motioned to where a new door sat on new hinges. "We poets, you see, are a bohemian lot. We try all

the drugs over the years. I still smoke a little marijuana now and again. Years ago, when these creatures were first discovered, right after the true purpose of the pheasant was found out too late, they became the new "drug" of the In set. They were not pretty and had not been exterminated by UW for their furs, so they were plentiful. With friends to snatch them from you if you get too violent, the experience is not so horrible — though still a nightmare. In your case, there was no one to snatch."

"But, how — "

"It re-creates, by touching upon your mind, the worst traumatic experiences of your life."

Waltham shifted his great stomach. He pursed his thin lips and said, "Just what the Hell did it re-create for you that made you so violent? There was nothing left of it but pulp."

"I — " Sloane looked to Dorrie. "I can't remember."

Waltham gave him an unbelieving stare.

"It's true," Dorrie said. "He has a repeating dream that he cannot recall once awake. This is evidently the same dream, and even the Nightmare Rat couldn't force him to relive it and remember."

"You should see a psychiatrist," the poet advised.

"Don't start that," Dorrie said. "His superego intrudes and begins screaming all over the place. It isn't pleasant."

Waltham began to rise. "Why the devil did you get such a thing if you were slightly unstable to begin with?"

"It was a gift, sent by the Consulate."

"False," Dorrie said. "I checked. They mailed no such package. The postmark places it at a common street depository with no means of checking the sender."

"Well, Prince, I'd say you have enemies somewhere — as, I guess, all monarchs do. But extremely nasty ones. A bullet would have been more certain and less painful."

Sloane pushed himself to the edge of the bed. "Did the doctor really say movement was best? My head is falling apart."

"He's right. I told him my past association with the little beasts, and he asked me to guide you this evening, keep you moving until the trauma has been washed from your conscious mind. So, dress and move. We've a party to attend."

The grande ballroom was a wonderland of crystal chandeliers and rich, heavy tapestries. But the dancers were brackking rather than waltzing, flinging their bodies this way and that to the pounding, driving beat of the brackk music from the seven-man band. The sounds washed over Sloane like tidal waves.

Dorrie, however, seemed to enjoy it.

"Are you certain?" Waltham was saying above the roar.

"Yes."

"But the doctor said — "

"I'm fine, Gregory. Thank you for your time, I couldn't have made it without you. I'm feeling fine now, however. Go enjoy yourself."

"Okay," the poet said, shrugging his shoulders. "I certainly will." And he bounced off through the crowd

toward the bar, the thin hands hanging beside the enormous body.

Dorrie floated up close. "Nothing gained from going with Klee and Cannon. They went to view the wrong side of the tracks; Cannon was out to prove his virility. That's all."

"Perhaps they weren't planning that trip until you interrupted their escape."

"Possible. But I doubt it. Somehow, Cannon doesn't seem bright enough to be involved with a plan like this."

"He's not too much of a goon. Remember, he is chief delegate of an entire state."

"I guess so."

Sloane looked around at the dancers. A strobe light had been brought into a corner of the room. The wild, leaping shadows of the brackkers flicked over the walls, glittered darkly in the chandelier. "Let's split and reconnoiter. Mingle. I doubt if there's anything to be picked up here, but try. Keep an eye on as many of the delegation as you can. If one of them escapes your attention for any length of time, get hold of me fast."

"Right, Captain."

"And especially watch Reamer and Cossik. For some reason, I'm as worried about that diplomat as I am about our prime suspect."

"You're just getting paranoid."

Sloane watched the mutant float away then began surveying the action. There were about three hundred people present, most of them important figures on the political scene. There was a great deal of gaiety, the type which is boisterous, bubbling, and more often than not, phoney.

"Excuse me," a voice said to his left, "aren't you Prince Demoshkie?"

He turned and looked into the face of a fair, thin girl-woman of about twenty or twenty-one. She was wearing a black sheath that rose from below her knees to end in a high collar that clutched at the pale line of her throat. Her chest, in between, was boyish, almost flat.

Her eyes were crimson and violet and orange . . .

Now blue-black . . .

"Yes, I am, Miss —"

"Frandida. Monavisa Frandida. I have never met royalty before."

"I'm not very royal. Only a prince."

"But you will be a king."

"Yes. Soon."

"You don't look like a king," she said, her eyes suddenly all white and beautiful. She was actually neuter in sex, her eyes like all Actrian eyes, her body so very thin.

"I didn't know a king was supposed to look a certain way."

She laughed again. "Well, stern. Possibly with a dueling scar below steel gray eyes."

The music of the brackkers erupted anew — the crashing mountains, the crumpling of clouds as the dead body of God falls upon them.

"This way," she talk/shouted, taking his hand and leading him through the clusters of people, beyond a tapestry, and onto a balcony overlooking the huge hotel lake. The dual moons shone upon the water, one casting the red light of anger, the other the soft white light of peace.



"What do you do here?" he asked.

"My father is on the hotel board of directors. I always wrangle invitations to these affairs."

"God, aren't you bored to tears?"

She laughed again. A young laugh it was, adolescent, quick. "No. As a matter of fact, I find it all very exciting." She motioned toward the ballroom. "In there, all sorts of secret tete-a-tetes are being planned — espionage, secret deals. Everything is going on under all that pretense!"

"And you'd like to be part of it?"

"Wouldn't you?"

"Oh, I don't imagine it would be all that thrilling."

"What *would* you consider exciting?"

"A good meal. I haven't had a really good meal since boarding the *Pride!*"

She laughed, leaned to him, kissed his lips.

Done by anyone else, it would have been repulsive. Vaguely, he knew it was wrong, that the body was dirty. But he didn't seem to mind with her. She held his hand.

"Well," he said suddenly, "I have to be getting back in there."

"Oh?"

"Yes."

"But why?"

"Appearances, you know. Royalty and all that."

"But you said it bores you."

He wanted to run from the nearness, the warmth of her.

"We could walk," she suggested. "There is a great deal you have not seen in our city."

He didn't want to; he *did* want to.

It was a new and confusing feeling. "Perhaps to the Gardens of Gold," he said.

She frowned. "Well, I thought, perhaps, to the Fountains of Hope."

"I've seen those so often in the films. I couldn't bear the noise of all that water anyway. The Gardens."

"Okay. But I have to fix my face. Wait here."

"I'll wait."

She walked off behind the tapestries. Seconds later, the cloth parted again. "There you are," Dorrie said, floating over in his formal white attire. "Womanizing, I see."

"I —"

"No need to explain."

Sloane strolled along the balcony that hung from three sides of the building. "I didn't intend to explain."

"I didn't see you. I thought perhaps something had happened."

"Nothing. And there's no need for you to explain."

"Rather like the calm before the storm in there," Dorrie said.

"How can you stand the music?"

They rounded the corner of the balcony, kept on walking.

"Oh, actually, parts of that stuff have been just about lifted whole from Berlioz's *Symphonie Fantastique*. Really not so bad at all if they weren't so godawful loud about it."

They stopped and looked at the moon reflections.

Suddenly, Sloane started.

"What's the matter?"

"I just heard my name. Well, Prince Demoshkie, anyway."

Penevitch floated at shoulder level and cast out the nets of his ears.

"You did. You certainly did."

"What's being said?"

"It's mostly one-sided. Man and woman. She: but you can't expect me to steer him forcefully to the fountains. He: try. She: he'll suspect something. Besides, he can be gotten in the damn gardens just as easily. He: no. She: listen, maybe you think it's easy to —"

Sloane lept over the balcony rail, clambored down the lattice work to the patio below. Dorrie dropped behind him. When he hit the ground, the man had run. The girl was still there, confused. She turned to him, mouth open, colorful eyes wide.

Black-red . . .

Swirling, twisting, washing the globe of her eye, the colors came.

He grabbed her shoulders, shook her. "What the hell? You're with him!"

"Who?" she asked, all innocence.

"You know, slut! They were right. They were always right!"

"Who was right?" she asked.

"Who?" Dorrie echoed.

"Damn it, they were! You're no good! Slut!"

"But —"

"You're on Briscow's payroll, aren't you? You're working for Tate Briscow!"

Briscow: a word transmitted, flowing through space invisibly.

Briscow: a word picked up on a machine to send a certain signal on a certain frequency.

Briscow: deathword.

Sloane staggered backwards when she exploded. He caught her in his arms, her torn neck dangling precariously from her shoulders. He man-

aged to drop her gently to the floor before turning to the balcony and bringing up all undigested things within him.

Police came.

They absolved him of any guilt.

Nothing was solved. The police left.

Everything yet to come rested heavily on their shoulders as they tried to sleep. Sloane was certain he would have a new dream — one with a boyish girl spouting blood like a fountain. But it was the old dream again. The other nightmare . . .

X

Ben Talman read the de-coded cable again and sighed. It was certain now that there was a Briscover man in the party. But outside of that, they had found nothing. And today was the day they would visit the Cave of the Pheasant. Sloane's message was not in the least encouraging.

And Penevitch's was worse yet.

The mutant seemed to think that Sloane was on the verge of mental breakdown. Dreams, nightmares, the mutant said. Well, that wasn't like the Sloane he knew. But then, Penevitch had never made a mistake in judgment in the past.

He was cemented in the middle.

He couldn't take Sloane out on one man's opinion. He couldn't plunge a new agent into the scene without arousing everyone's suspicions.

He was cemented right in the god-damn middle.

There was only one thing he could do: nothing.

Briscover did not like girl killing. It had not been so bad with Rossman. Men kill men.

But a woman. That was different.

But of course, it was to be expected. Working with a bumbling oaf like that, one could expect mistakes. If only he had been younger, only a hundred years younger, he would be down there taking care of it himself. Everything would be over now. The pheasant would be his.

And if he had been able to do it alone, did not have to use this self-centered front man, he could have had the bird all to himself. There would have been no sharing it. Of course, there *would be* no sharing it anyway. He would have to kill the bumbling oaf. That would be a pleasure. It was sad he couldn't perform the murder himself. If he had only been a hundred years younger, he would have been able to wipe out the man himself.

But now his hands were rags.

XI

The escalator that rushed down beneath the reserve lands, crashing toward the lower levels of the museum, was just about fast enough to pin the air out of his lungs and keep it out. Sloane held tightly to the rail, his knuckles white, gritting his teeth, admiring the way Dorrie paced the moving stairs, obviously unhurried.

The next few minutes would do the telling, and still they had no plan. But what plan could they have? Could it be Cannon who was always trying to dodge away — although he seemed only to be hunting more time

in which to patronize the local prostitutes? There was Cossik so terribly interested in the bird and the funds he might get for artificial fertilization, who might also be interested in procuring the pheasant for Briscow. After all, Cossik was in the perfect position. He could ask questions about the reserve and the pheasant without arousing suspicion and could probably even touch the bird if he asked. And there was Reamer who was untalkative and mysterious and highly suspect. Waltham seemed the least threat; his interest in the bird was one of a poet: beauty, exoticism, and the soul-stirring romanticism of the last-of-its-kind quality of the creature. But Sloane was even suspicious of Klee. Klee had been at the party and could have been talking to the dead girl. And since the girl was Actrian, why not secret the agent of Tate Briscow? And an Actrian, constantly on concentrated PBT, longing for the days when the Pheasant of Dreams was there for anyone to use . . .

But he had to concentrate on the delegation. It was the delegation that harbored a thief. Yet, they all looked so guilty and innocent at once, Sloane was too perplexed to make any judgment.

They toured the two floors below the pheasant's dome and worked their way upwards through the exhibits toward the grandest attraction of all: soulbird.

Sloane was surprised, first of all, by the size of it. He had imagined it to be huge. But it was roughly the size of two fists side-by-side. The beak was blunt and orange. The

feathers were all that people claimed they were. They swam with color. But unlike Actrian eyes, the colors were three-dimensional. Behind the lighter reds, darker reds were swirling; behind the greens, darker greens. Mixing, bubbling, flowing, forming faces like the clouds do sometimes, then breaking almost immediately, reforming. . .

Red on red on red over green under blue.

Sloane placed a hand on his belt, ready to toss it up and strike for the pistol beneath his jacket.

A dragon's face of red under red over black. . .

Cannon stood with his hands in his pockets. "Yes sir, some great animal there. We don't have them like that back home!"

A girl's face on white below green. . .

"Mighty fine bird!" Cannon agreed with himself.

Sloane didn't like the hands hidden in the pockets. But he looked at the others. Cossik was closest to the glass wall. Indeed, his nose was pressed against it. That didn't look good either. Klee was giving a brief history of the bird. Reamer was standing to the side. His arms were folded across his chest, a posture which placed both hands under his coat. Sloane limbered his hand, made ready to grab his own weapon.

Crimson, cinnabar, over cinnabar, crimson . . .

Reamer looked at him, looked away.

Sloane swept his eyes around the group. Any one of them could be on

the verge of making his move. They all looked ready to jump. All except Waltham. But where was Waltham? He had forgotten the gentle poet. He turned to see Waltham behind them.

"So damned beautiful!" Waltham stuttered.

The poet with the thin face and fat belly tugged on a black cord within his coat.

He began to deflate, this poet. The gas in his stomach — rather, wrapped around his stomach — was hissing into the room. The gas erupted into a purple cloud, spreading outward faster than any gas Sloane had ever seen.

"Dorrie!" Sloane screamed. He brought his hand up for his gun, but his lungs were burning. His mind spun. He felt himself numbing.

Gamboge, sienna, cobalt, soot, rouge, said the pheasant's feathers.

Dorrie floated toward the ceiling, away from the rapidly expanding fumes. But the clouds were pushing up and up, faster all the time.

Waltham had a miniature breather between his teeth, sucking on the degassed air it gave him. His belly was almost gone.

Sloane's hand was fastened to his chest with bolts. He could not begin to lift the gun. He saw Waltham draw his own pistol, and he saw everyone on the floor from the gas — guards included. He tried to fight it, found it was useless.

Waltham aimed toward the ceiling, fired.

Dorrie lurched, wavered, drifted downwards.

Waltham fired again.

Dorrie fell — and bled.

Sloane choked, found he could no longer swallow, blinked, and was gone into a silent heap on the floor.

XII

Sloane came to after the sky had fallen on him, his head aching. The rest were still out — all but Dorrie. The door to the cage stood open, the guard's keys discarded on the floor.

Waltham.

Why the hell, Waltham? he thought.

He crawled across the floor to the blood-covered lump that was Dorrie Penevitch. He was still alive. The blue eyes were a bit hazy, but they focused easily enough on Sloane.

"Hey," Dorrie choked, "who would have thought, huh?" He coughed blood, dribbling it through his normal lips.

"I'll get a doctor, Dorrie."

"No. No that won't matter. Hell, I'm so smashed up that no one could piece this humpty-dumpty together again."

"Don't get mor — "

"It's true. You should go after him."

"I will." Sloane started to stand. "And listen, Dorrie, if I get him, I'll bring the bird back first thing. You can hold it."

Coughing of blood. "No that wouldn't be good. I don't need no goddamn bird now. That's not a good idea at all."

"Just the same — "

"No. Now get him! That's an order! Remember who's senior — "

The deep voice cut off completely as

the blue eyes closed and the long, two-elbowed arm jerked twice, spasmodically.

Sloane bent down again. "Dorrie. Damn it Dorrie, I — "

He stood and slammed the alarm lever the paralyzed guards had not been able to reach. Then he caught sight of the open door and the empty shaft of the service elevator. He called it back, rode it quickly to the reserve above. When he stepped out, he saw the footprints leading away in the damp earth.

Staggering, his mind swept along in currents he was not sure of, he followed them. Ever since his contact with the Nightmare Rat, his mind had been wavering on the brink of realization. Thoughts of the pheasant started some secret line of memory he knew he was keeping from himself. The mystery of the dream was complicating itself. He wanted out.

The large-leafed tree brushed him as the trail narrowed. Somewhere in the miles of reserve, a rendezvous point had been arranged for Waltham. Another illegal flight would pick up one poet, one Pheasant of Dreams.

He just had to beat Waltham to the meeting place. Rounding a bend, he was confronted by the poet. The pheasant in one hand, Waltham yelled "Catch" and tossed something brown and furry toward Sloane. He brought up his gun, fired a shot that missed, looked down at the puppy-like animal that clung to his shirt, mewing.

Darkness.

The hills were lovely — green trees, the tangle of underbrush. He could hear the trilling of birds like thin, sweet flutes. Crickets sang. Dandelions had turned to puff.

"Allie," a soft voice said from behind . . .

He turned, looked. She was sixteen, going on seventeen. She had long, sunshine hair. Blue eyes. She was blessed with an up-turned nose above rosepetal lips . . .

She had an adolescent body . . . Small, jutting breasts, smooth legs.

She wore the conservative clothes the orphanage women chose for her. When she was old enough and became an agent, she would wear other clothes not as bulky or as long. But she would hate and be ashamed of those.

"Corridor Mother Amy gave us two free hours," she said.

"Corridor Father Avram is gone for the day and has excused us from lessons," he said.

He forced himself to look into her eyes. There was something strange there. In the eternity of blue there floated a mote that was searching for a way out. He looked closer — then suddenly realizing that she knew he was staring, turned away.

"I have something for you to see in the woods, Allie. But first you must promise never to tell any of the Fathers or Mothers."

"Okay," he said.

The wind blew cool in his face.

They climbed a small knoll behind the house and disappeared over the rim into a shaded valley. Under the canopy of leaves, there was little light. She pointed to a thatching of branches, a lean-to against the cliff.

"There is a small cave behind it."

She took his hand and led him behind the cover. They came into the center of the cave. It was delicately lighted by a waterworn hole in the ceiling.

"You won't tell them?" She was shaking.

He was disappointed in finding so small a secret. "No. Of course not." He turned to leave.

"Wait, Allie. There's more. Seat yourself. I'll be back in . . . soon . . ."

He examined the fern mats, the grass chairs. And when she came back in, she was naked. And she threw herself upon him, sobbing. She told him what she had planned to do and that she was now too ashamed to do it. At first he was paralyzed. But warmth came to him, and he put his lips against her cheek —

But the thatched cover was suddenly thrust aside. Ankle-length dresses were silhouetted there.

Corridor Mother Amy lifted the heavy stick, brought it down over Alicia's bare back. She breathed hard. And when Alicia bled, she breathed even harder.

They saved him for the Psychopreacher who had tubes for organs, sensor grids for eyes, and impersonal hypno-tapes for a voice. They put him inside its stomach and told it to teach him a lesson.

"I have come for absolution," he said to it.

I WILL HAVE YOU THREE HOURS, SLOANE. YOU WILL BE IN ME THREE HOURS. THIS IS YOUR SIXTH TIME IN ABSOLUTION. . . YOU CANNOT SEEM TO LEARN. THIS TIME YOU

WILL LEARN WITH GREAT PAIN.

"I understand."

YOU MUST GROW UP TO HAVE A SINGLENESSE OF PURPOSE. THERE MUST BE NOTHING TO DISTURB YOUR FUNCTION AS AN AGENT. YOU MUST BE A GOOD SHAKER.

"Please. It hurts."

Lead poured through his brain cells. . .

IT WILL HURT EVEN MORE. YOU MUST LEARN, SLOANE. YOU WILL NOT REMEMBER THAT FILTHY SLUT AND WHAT SHE TRIED TO DO TO YOU, HOW SHE TRIED TO SPOIL YOU. WE WILL MAKE THE MEMORY TOO PAINFUL FOR YOU TO EVEN WANT TO RETAIN. NOW, WHAT DID SHE LOOK LIKE LAST?

"It hurts!"

WHAT DID SHE LOOK LIKE, SLOANE!

"She had blood on her face!"

He had blood on his face. The Nightmare Rat was dead. He had its blood all over him, and it might have been that which made remember the dream. He dropped the corpse, his hands sticky. Every fragment of the dream roiled in his mind. He had forgotten Alicia and what they had done to her — rather, the memory had been driven into the depths of his mind.

His legs were trembling, his knees like so much jelly. He forced himself completely erect, however, and drew in great lungfuls of air.

Tears stung the flesh of his cheeks.

The memory of that day was now making up for all the time it had been denied possession of his conscious mind. It was re-lived and re-lived like a film loop.

The goddamn Federation had warped all the years and had told him not to remember the twisting! He stumbled into the brush after Waltham. But foremost of all, he ran after the pheasant. He ran faster than he knew he could run, his legs flashing up and down like pistons, plunging him along the trail.

Eventually, croaking, weeping, gasping for air, he came to the edge of the clearing where Waltham sat, his back to Sloane. He raised his gun from his belt, fired once, twice. Waltham leaped under the impact, rolled away from the pheasant, leaped again when the second bullet struck him.

Sloane ran, gathered the bird in his arms, went to the poet. "Why you, Waltham?"

"I've had all the other drugs, the Nightmare Rat, everything. He was going to share it with me. He would hide me and share the bird."

"Not a man like Briscow."

But Waltham was dead. Sloane dragged the body away into the bushes, returned to the clearing as the robot-driven craft descended from the sky, growing from a speck into a bulge. It would be a robot-driven, for Briscow would be taking no chances of a trace being possible in the event of failure. It would be unmarked.

But Sloane was taking no chances either. And for once, he was very, very sure what he wanted.



When the craft settled, he boarded it, sat and waited, strapped in with the pheasant in his arms, for the trip to the Briscow satellite to end. When the craft locked into the docking area of the pleasure platform and the indicators showed full atmosphere in the chamber outside, he leaped through the portal onto the gangway.

A near-corpse in a wheelchair looked at him, its slitted eyes growing wider with surprise. "Who are you? Where's Waltham? Who are you?"

He gunned down the guard behind the ragman.

"Who? Please, who?"

If I only knew, Sloane thought, *I'd tell you.*

He pounded down the gangway to the space yacht docked at the other end, electronically moored to the platform.

"The pheasant!" the corpse screamed.

He clutched the bird tighter. It sighed.

Plunging through the open portal of the giant ship, he blasted the main-

tenance man, climbed the stairs to the control room. After the outer doors were closed, he flipped on the starter engines. He was distantly aware that, in the enclosed space, Briscow would be fried, reduced to nothing but ashes by the blast. But he did not care about Briscow.

He had a yacht with food lockers and water tanks. There were air-producing gardens. He could last at least seven years in deepspace. Which wasn't long. But which was, he knew as he clutched the bird to himself, much more of a life than he had ever known before.

Behind him, the sparkling of a once-satellite belonging to a once-living corpse lit the blackness for a moment in white splendor, then was gone.

He could make his thirty-two years better than Briscow's three hundred. He knew he could. He prayed to God and the Devil that he could.

Someone had stolen the Pheasant of Dreams.

The Dreaming Pheasant.

Soulbird.

END

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LIKE BANQUO'S GHOST

by LARRY NIVEN

*They sent the Snarkhunter probe to far
Centaurus. But some snarks are boojums!*

On a hot, lovely fall day I drove out to Stardrive Laboratories. If all went well, that was the day the Snarkhunter No. 3 probe would send its final message from Alpha Centauri. The *Times* had assigned me to cover the event.

There were coffee and rolls in the anteroom. A diverse lot milled about and introduced each other and shook hands and talked. Pretty secretaries moved briskly through the crowd. I recognized people I'd talked to when I was here two months ago, and one man I knew only from his picture. Jubal Hendricks, Senior, had managed Stardrive Labs thirty years ago, when Snarkhunter No. 3 was launched. He'd retired just afterward, but

here he was, emaciated and tottering, to watch his project's end.

I headed for the coffee table. The man everyone called Butch saw me coming and waited while I drew a cup. He was five feet tall, the color of mahogany, his bright blond hair cropped short in a butch

"How good to see you again, Mr. Lane!" He pumped my hand with enthusiasm. "You do remember me?"

"Of course, Butch, very well indeed." I didn't remember his full name, but then, nobody did. And nobody else seemed to want to talk to him. "How have you been?"

"Very well, Mr. Lane, despite my allergies. I have been taking shots."

"They seem to help," I said. Last time I'd seen him his nose had dripped constantly. "Your accent has improved too."

He laughed self-consciously. "It is nearly eight o'clock. Shall we move into the — " His tongue stumbled, and he had to point.

"The auditorium? Yes, let's."

Two months ago we'd been here to catch the first signals from the Snarkhunter No. 3 probe as it entered the vicinity of Alpha Centauri. The probe had been flying before I was born, but that had been its first message since leaving the solar system. On that occasion it had switched itself on right on schedule, then given us the sizes and locations of the Centaurus planets.

The speed of light barred us from controlling the Snarkhunter from Earth. The probe had been programmed to choose the planets most likely to be Earthlike, and to home on it. We had named that planet Centaura, even before we knew it existed — thirty years ago, when it was known only that the Centauri suns had planets.

Centaura did exist; we knew that now. For the last two months the Snarkhunter should have been moving toward it.

The auditorium hadn't changed much in that time. Stardrive Labs used the same building for all its publicity on all the probes it

currently had flying; but none of those probes had done anything interesting since the Snarkhunter's last report. There were seventy chairs, with ash trays fixed to the backs, set up to face a lighted screen. The screen showed a plot of the Snarkhunter's presumed position with respect to the planet Centaura. Arrows pointed in the directions of Earth and Alpha Centauri A. Naturally the plot was four point three years out of date, due to light lag. Hanging from the ceiling were eight TV screens, each presently showing a diagram of the Alpha Centauri A system. In one corner of the big room was a blank sphere eight feet across, with a clear plastic hyperbola mounted near it. *That* was new.

Butch pointed. "The curve is the projected course of the Snarkhunter. Mr. Hendricks Junior tells me they will draw continents on the sphere as the data arrives."

"Naturally," I said. We found seats. I manfully resisted the urge to smoke, that being one of Butch's allergies.

Time stopped.

I took my coffee in gulps. I'd been up at six o'clock, for the first time in years. My eyes felt gummy; my mouth was centuries old.

Most of the seats were empty. Even under the circumstances, the lack of excitement was remarkable. On screen were a blank circle and

a hyperbola, a couple of arrows, and a little rectangle showing the time remaining until perihelion. The rectangle changed every five minutes, and a new point appeared on the hyperbola, showing the new position of the Snarkhunter instrument package.

From time to time a blurred radio voice echoed in the auditorium.

"I am amazed," Butch said fervently. "To think that it has come so far! Do you think it will fulfill its purpose?"

"As you say, it's come this far."

"I cannot understand why there is so little excitement."

He couldn't, could he? "It's partly the time lag," I said. "Who can get excited about old news?"

"I suppose so. Still, so much hinges on the success of the project."

"My cup's empty. Can I get you some coffee?"

"Oh, no. No, thank you."

I went out and filled my cup, then stayed in the anteroom to smoke a cigarette. Things were happening too slowly. Thirty years the probe had been on its way, but the hours it needed to round Centaura were far too long. Maybe Butch was getting on my nerves.

Not his fault, of course. He was unfailingly polite. You couldn't quarrel with his enthusiasm; it was genuine. It only *seemed* a mockery. And I had to stick with him. Butch's reactions were bigger news

by far than the Snarkhunter itself.

I spent ten minutes by the coffee dispenser, waiting for interviewees. It was the one sure place to find anyone you wanted to see. I caught Hendricks Senior and Hendricks Junior, Markham, who had launched the Snarkhunter, and Duryohana, who ran the project now, and several others.

Butch couldn't stand coffee. What had he been doing out here by the coffee dispenser?

Just what I was doing, of course. Waiting for people to speak to him. And nobody wanted to.

I was heading for my seat when the radio cleared its throat.

"We are receiving the carrier wave from Snarkhunter. Snarkhunter has located Sol and is transmitting correctly. Repeat, location successful. We are now receiving Snarkhunter."

The air was full of a two-tone musical note, the sound of the carrier wave, low and sweet.

Butch was hugging his knees in delight. "Wonderful! What is it telling them? Why doesn't he say?"

The Snarkhunter isn't saying anything," I told him. I'd gotten that information from my interviews. "It's just a locator wave to alert us."

"What kind of wave is the probe using?"

"A light beam, a ruby laser.

Hear that musical tone? That's the laser, translated into sound and then stepped down to the audible range."

The point on the screen moved another notch. Ten minutes to perihelion.

The radio voice said, "We have received our first burst of data from Snarkhunter. Composition of Centaura's atmosphere is as follows. Oxygen sixteen percent, nitrogen eighty-three percent . . ." It continued detailing carbon dioxide, noble gases, water vapor, ozone, surface pressure, and the planet's surface temperature and magnetic field. Butch hugged his knees and made sounds of pleasure.

"Marvelous!" he crowed. "Marvelous! From such a distance! How sensitive, how versatile the instruments!"

"To me it all seems anticlimactic."

"I fear that is my own fault. I am sorry."

The radio saved me from having to answer. "Decoding of Snarkhunter's transmission is now in progress. In a few minutes we should have a rough map of Centaura's surface." It added, "Snarkhunter is about to pass behind the planet. It will reach perihelion three minutes later."

The auditorium became silent. I made a shushing motion at Butch. We heard only the musical sound of the carrier wave.

The sound cut off abruptly. "It will not reappear," Butch said sadly.

"That's a pity. It was programmed to take another set of measurements at perihelion. They would have been a little more accurate."

The point on the screen moved a notch, to its point of closest approach to Centaura.

"Is that where you shot it down?"

"Yes, at perihelion," said Butch. "How were we to know it was not hostile? We would not have believed it was possible at all. An instrument package, with no external guidance, finding its way over such a distance!" He stood up. "A remarkable achievement! Remarkable! To have done so much with so little!"

"Thanks," I said. Thanks for the pat on the head. "Then you'll go ahead with the trade?"

"I will have to wait," said Butch, "to see if your map of our world is accurate. Thus far your measurements have been excellent. Unbelievably so! If your map is as good, we have a bargain. We will trade you our faster-than-light drive for your incredible probes. Together we will explore space!"

"Fine." I had what I came for; I rose to leave.

"It has been a lonely year," said Butch. "I do not think I knew why until now. Mr. Lane, please don't be offended. Did my landing

a year ago cause your people to regard their own technology as inferior?"

"Of course. Why wouldn't it? Our lousy little probe took thirty years to reach Centaura. Your ship took six months! And here you are, like the ghost at the banquet. Oh, damn. I'm sorry, Butch. I lost my head."

"And so you all tend to avoid me. But my own people felt the

same way, when your probe reached us four point three years ago. Our faster-than-light drive was a single lucky discovery. Your probe was the combined result of centuries of single-minded, terribly expensive labor and experimentation. We are awed. We are not capable of such sustained effort. But you cannot believe that, can you?"

I couldn't. And I can't.

— LARRY NIVEN



August 23-25, 1968. DEEP SOUTH SF CONFERENCE VI, New Orleans, Louisiana. Details to be announced. For information: John H. Guidry, 5 Finch Street, New Orleans, Louisiana 70124. Guest of Honor: Daniel F. Galouye. Membership: \$1.00.

August 29-September 2, 1968. BAYCON: 26th World Science Fiction Convention. At Hotel Claremont, Oakland, California. (We have been told that the hotel has already been completely reserved for the weekend. If you are planning to attend the convention, it will be necessary to secure accommodations in other hotels/motels.) Guest of Honor: Philip José Farmer; Fan Guest of Honor: Walter J. Daugherty; Special Guest: Takumi Shibano, leading Japanese fan. Toastmaster: Robert Silverberg. Highlights: Meet the Authors party. Special Programs devoted to: STAR TREK,

TOLKIEN, BURROUGHS, COMICS H. P. LOVECRAFT and the PULPS, and MONSTER FANDOM (conducted by Forrest J Ackerman.) An authentic Medieval Tournament — all participants in costume. Presentation of the Hugos by Harlan Ellison. Also: Project Art Show, daily auctions, gala masquerade ball, and of course appearances by all your favorite sf writers: Poul Anderson, Ray Bradbury, Bob Bloch, James Blish, John Brunner, Lester del Rey, Harlan Ellison, Philip José Farmer, Randall Garrett, Harry Harrison, Fritz Leiber, Frederik Pohl, Norman Spinrad, *et alii*. For information: BAYCON, Box 261 Fairmont Station, El Cerrito, California 94530. Membership: \$1.00 foreign, \$2.00 supporting, \$3.00 attending.

October 18-20, 1968. TOLKIEN CONFERENCE, sponsored by the Tolkien Society of America. At Belknap College, Center Harbor, New Hampshire 03226. Papers are being solicited. Indicate whether you will present a paper or will just attend. Submit title and length of proposed papers early to Ed Meskys (address above).

November 9-10, 1968. PHILCON. At Sylvania Hotel, Broad & Locust Streets, Philadelphia, Pennsylvania. For information: Tom Purdom, 4734 Cedar Avenue, Philadelphia, Pennsylvania 19143.





Dear Editor:

In *If* you attempt to justify traditional sf. That's all very fair. But I feel that the British New Wave, which in the same breath you seem to condemn, should be given the same chance.

Tradition is a mechanism which operates on, and influences, all aspects of cultural life today. It is the call from the grave, the influence of the past upon the present.

There is no word as yet for its antithesis — *prospection* is as good as any — but the new wave sf writers believe it to be an equally valid mechanism, definable, in the same metaphorical terms used above, as the call of the unborn generations, the influence, upon the present, of the future.

They maintain, irrefutably, that the elements by which we judge and gauge the future are no less tangible than those "traditional" elements by which we judge and gauge the past — this pen I hold in my hand today, I held in my hand yesterday and will hold in my hand tomorrow; I live *with* yesterday, but I live *for* tomorrow; while I have no memories of the future, I have prophetic vision and hopes that can create the fact.

It is the nature of the prospective mechanism — which utilizes these elements — that the new wave sf

writers are currently concerned with probing.

When you tried to justify traditional sf you must have realized that for many people it would need no justification. Perhaps the same is true of new wave sf. — Graham Charnock, 2 Warlsingham Mansions, Fulham Road, London SW6, England.

• We agree there's room for all kinds of sf. We object only when new wavers (or any other specialized types) tell us their kind of sf is the only one that's any good, and everything else is trash — *Editor*.

* * *

Dear Editor:

Consider the planet Jupiter. It has been guesstimated that under its tortured atmosphere there is a liquid "hydrosphere" (or should it be "methammoniosphere"?) about 17,000 miles deep, surrounding a solid core. Maybe the liquid merges imperceptibly into solid at those pressures; or maybe there is a definite demarcation. If this were so, then the pressure of the liquid all around would defy the imagination. The solid core might take the form requiring the least surface area, and become a fairly good approximation of a sphere.

And then, what would happen if life were to evolve at the bottom of

the ocean? The complex material composing the living organism would be almost completely two-dimensional. Perhaps the whole of the face of the organism would be bathed in life-supporting fluids, if they were still even vaguely fluid at that depth; or maybe it would have to absorb everything along the plane of its universe.

What conception of a universe would such organisms have? What gods would they worship? And how would they react to a solid-state space probe from another planet? (Maybe Earth, and then again, maybe not.) If the fluid surrounding the solid had a high mutual cohesion, then the smallest space between the organism and its environment would cause it to be sucked off and whisked up into the three-dimensional world. What would the natives make of this? Would they take it as a Sign? And would the unfortunate creature be killed instantly, or if not, what would be its experience?

That is the basis of my idea. It is not properly developed, but then I won't be writing it.

I am looking forward to another Berserker story from Fred Saberhagen. Being fairly new to SF I don't know if that was the first of his stories on that theme, but it was marvelous. As an example of poetic justice — even to the naming of the squash fruit — it stands on a pinnacle. — M. J. Farrell, 17, Garnett Street, Huntingdale, East Oakleigh 3166, Melbourne, Australia.

• Thanks, Mr. Farrell. How about you other fellows? We invited you some time ago to tell us about science-fiction stories you would like to see someone write. We'll publish the most interesting ones here — then it's up to the writers to make stories out of them! — *Editor*.

Dear Editor:

I'll come right to the point. I'm a long-time "astro-nut" who gobbles voraciously everything I can get my hands on about space and what is or may be out there, factual and fictional alike. Now I've run into a sort of astronomical-SF mystery and I was wondering if you have an idea of an explanation.

The question is: What is it about Altair that makes writers persistently provide it with planets, and inhabited ones at that? Here it is, a beautiful, bright, white-hot A5-type speed demon of a star that simply rotates much too fast to permit maintenance of a planetary system in a stable orbit. It's just a kid as stars go, and it has a long way ahead of it before it gets to the stage where it'll get rid of its excess momentum, let alone planets. That is, if it doesn't burn itself out first. Furthermore, no perturbations have been detected in its motion, so it's a cinch it's all alone out there.

Now. I have run into any number of stories where the action takes place on a planet of Altair. You probably remember the movie, *Forbidden Planet* — locale, Altair IV. And on my favorite TV show, *Star Trek* (remember your dire prediction that it wouldn't stay? You were wrong, and I know you're as glad as I am that it's back) — yep, there it was, *Altair with planets*, and guess who wrote the script? Theodore Sturgeon.

Now in this case it may have been a matter of convenience, because the story hinged on First Officer Spock and the necessity of his getting home to his own planet, Vulcan. That planet of the pointed ears is, if I remember correctly, in orbit about Component A of the Eridani system . . . which is maybe .3 of a

light-year away from Altair, practically on top of it as neighboring stars go. So it would be expedient, wouldn't it?, to have the *USS Enterprise* bound for official business on Altair VI when the emergency arises.

But it disturbed me.

So — what's Altair got that makes writers ignore the facts and give it planets? — (Miss) Zita Carno, 2020 Creston Avenue, Bronx, New York 10453.

• Sure, we can answer that. Look at the other named stars authors might use — Betelgeuse, Ras Alhague, Pulcherrima, Zuben el Genubi and even worse. Altair may not be inhabitable. But it's pronounceable! — *Editor*.

* * *

Dear Editor:

I'd send this note to Arthur C. Clarke, but I have no idea how to reach him, so I'll have to ask you to relay the gist of it when you find the time.

I'm afraid that the same Leslie A. Gritten who called Clarke's attention to his having apparently misremembered the author of "The Anticipator" (Guest Editorial, *IF*, 12/67) has misremembered some bibliophilic data of his own.

Alas — Mr. Gritten *couldn't* "clearly recall" the serialization of Wells's "The War of the Worlds" in *The Strand Magazine*, as Clarke says he does. "The War" wasn't serialized there at all, but in the rival and imitative English popular magazine of the time, *Pearson's*, from April, 1897 (in the same issue which saw the conclusion of Kipling's *Captains Courageous*) to December, 1897.

Two Morley Roberts stories were published by *Pearson's* during the run of "The War" — "The Onderdonk," in June, 1897, and "The

Keeper of Waters," in September, 1897. Neither is fantasy, nor is either at all unusual in plot or style. (Gratuitous info, this.)

I imagine the Wells novel Mr. Gritten recalls in connection with *The Strand* is the only one of the early fantastic novels the former wrote to appear in that magazine: "The First Men in the Moon," which ran from November, 1900 to August, 1901 (the same issue which opened with the first installment of "The Hound of the Baskervilles").

All of which probably constitutes a good deal more data on Wells's novels, English popular magazines, and incidental Morley Roberts short stories than you, Clarke, and probably Mr. Gritten care for. But some of it may be of passing interest, and the correction seemed worth making.

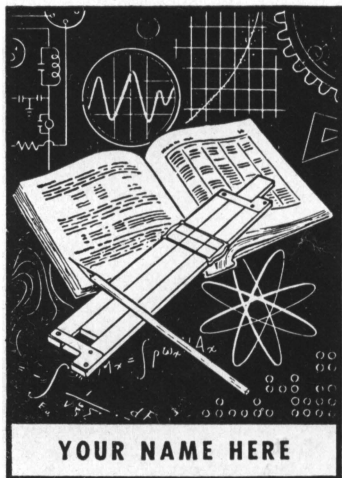
Galaxy and *If* continue on a high level of excellence — at least in their longer fiction, and I was tickled with the line-up of Hugo winners this time (if baffled by Niven's award).

Apropos of the current *If* and the author of its lead novelette: is it true, as rumors have it, that C. C. MacApp conceals the cognomen of Calvin Coolidge beneath those cool, crisp initials? — Bill Blackbeard, 2077 Golden Gate Avenue, San Francisco 94115, California.

• No, actually one C stands for "Carroll", the other for "classified information."

And now for some information that isn't classified: next month we will be bringing you the long-awaited new Van Vogt story, "The Proxy Intelligence." It is a complete short novel and is guaranteed to please all Van Vogt fans. Don't miss this exciting story — or any of the others in the October *IF*. We'll see you next month. — Editor.

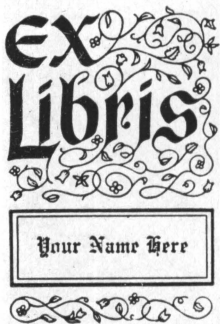
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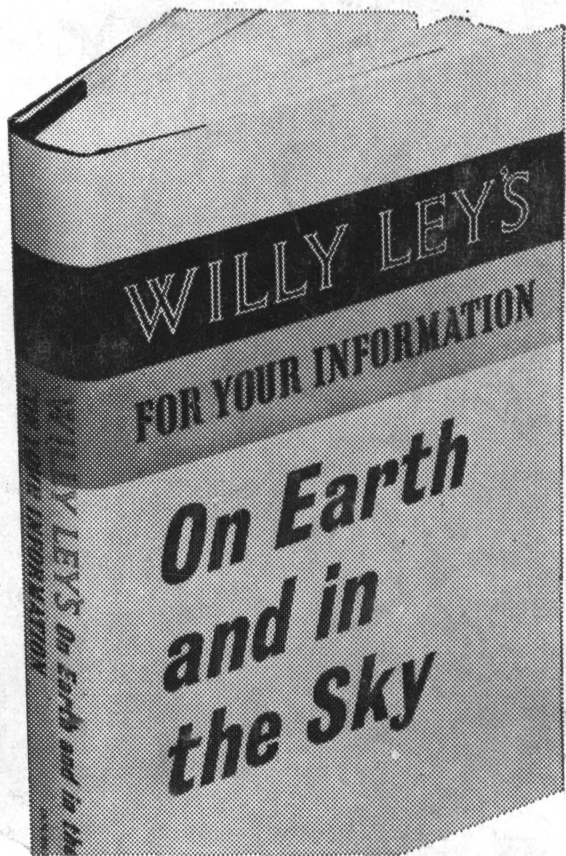
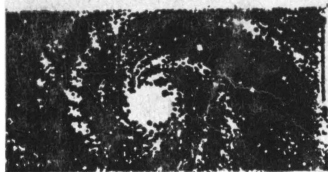
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