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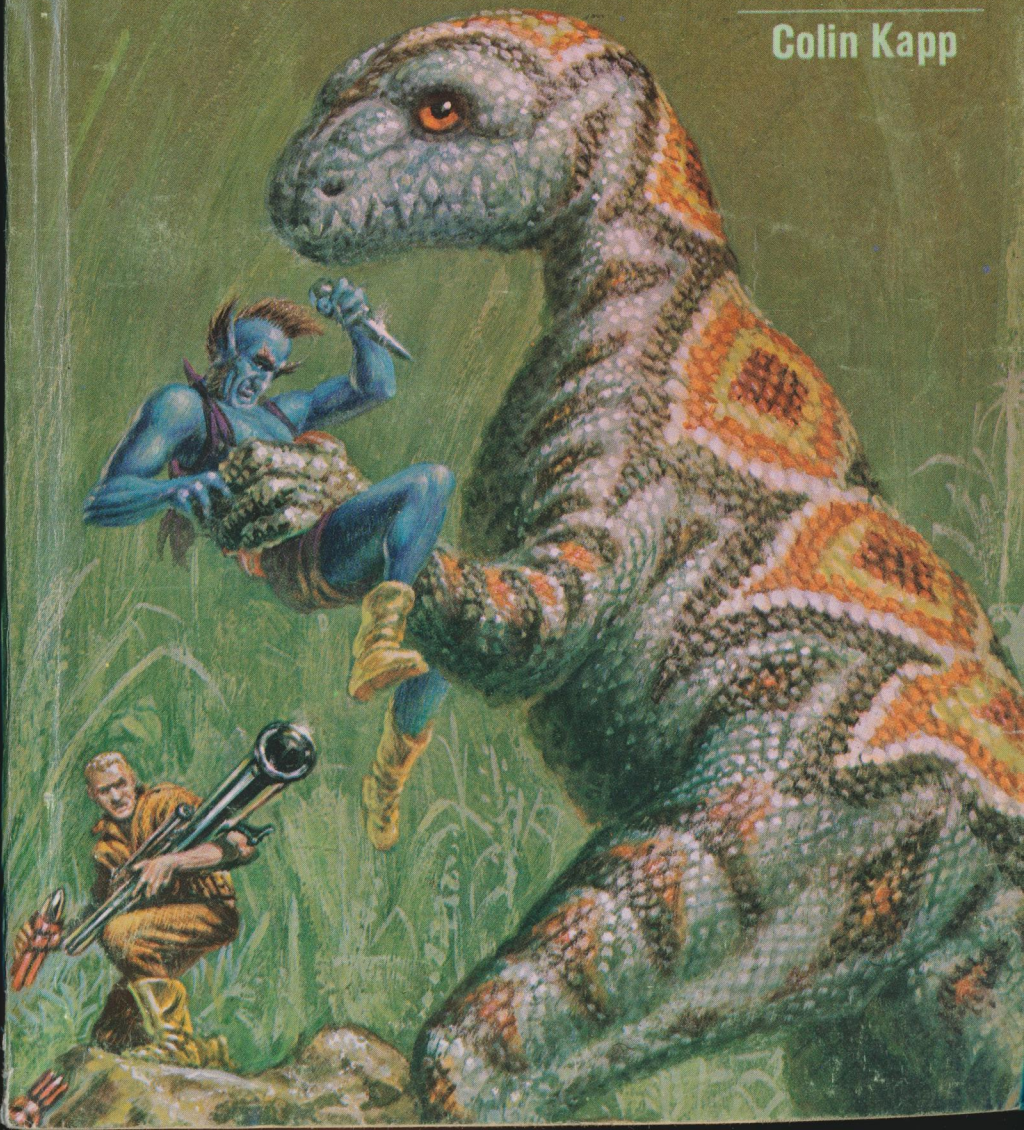
THE TEACHER
Colin Kapp



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HOW TO END ALL CRIME

Editorial by John W. Campbell

There is great concern currently about "crime in the streets," and President Nixon proposes a large increase in crime-fighting budgets to put greater pressure on the Mafia "families."

To understand the complete futility of this, we must get a more useful definition of "crime"; until we know exactly what it is we're trying to attack, it's going to be impossible to attack it effectively. The major difficulty in crime-fighting today is the lack of a useful —i.e., realistic and workable—definition of crime. Once that is available, I can show how all crime can be ended—and can show how we have already advanced a long step in that direction. There is far less crime, in the real sense, than there was a generation ago!

First, we must recognize two different classes of activities called "Crime"; it's a multi-definitional word, just as "play" is. "Play" is what children do in their spare time, and "play" is what a precision instrument maker seeks to eliminate in his mechanical linkages. "Play" is also "Hamlet".

One definition of "crime" is "an activity contrary to the duly established legislations of the government."

This is the thing the courts normally deal with—and is of relatively minor importance. It is the type of activity that the Mafia engages in.

The important definition of "crime" is "a behavior pattern which the citizens of the community find intolerable."

Please notice the difference! Gambling is, in most states, illegal, and is, therefore, a law-crime. But inasmuch as a majority of the citizens in the United States do gamble, they find the idea of gambling quite tolerable; it is not, therefore, a cultural-crime.

Typically, the Mafia engages in supplying the citizens with what they want, but which they have somehow been persuaded to make illegal. This latter peculiarity results from the phenomenon best described as the "WCTU syndrome."

The WCTU group, claimed "Temperance" as part of their title, but displayed a one hundred percent intemperate attitude toward alcohol; they were fanatics who demanded its absolute and total banning. They were readily able to show that many human beings were completely unable to resist its lure, that it destroyed alcoholics, and should be kept from such

people. Their solution was to pass a law that kept it from *all* people.

And a lot of people voted for the law, because they knew that it wouldn't apply to *them*—*they* weren't alcoholics, and surely they'd be able to get reasonable supplies.

So we were equipped with a legal-crime which was not a cultural-crime, and the bootleggers flourished because the people wanted the product they'd denied themselves. The "WCTU syndrome" is this effort to pass laws applying to *thee* that, of course, aren't meant to apply to *me*.

The approach of Alcoholics Anonymous is very markedly more sensible than WCTU's ever was. Find the alcoholic, and help *him*, without trying to strait-jacket the normal citizen. It's a simple recognition that all men are *not* equal, that all men have metabolic peculiarities, and that that's the approach that must be used.

"Gamblers Anonymous" is now in existence, and takes the same approach to legal-crime-gambling; the compulsive gambler, like the alcoholic, has a peculiarity—mental, rather than physiological—that needs help.

Currently the activities of the Mafia, which is the organized legal-crime syndicate, is very seldom guilty of cultural crimes. They supply certain services that the citizens of the culture want, but have somehow passed laws against, or won't acknowledge that they want.

Typical of these activities are, of course, the most ancient legal-crimes of all—smuggling (avoid paying taxes), prostitutes, gambling, and usury.

It's perfectly obvious that those are services the citizens want. At one period, loaning money at interest *per se* was called usury, and what we now call "banking" was a capital crime. Eventually people caught on to the fact that banking, money-lending-at-interest, was a necessary economic process.

Now "usury" is a legal-crime only when it involves excessively high interest rates, or Mafia-style "loan sharking." "Loan sharking" involves not only excessive interest rates—and I *do* mean high! Up to fifty percent *per week!*—but the addition of the "enforcers" who apply direct physical violence to compel the borrower to pay back what he borrowed.

If you do some honest, non-hypocritical thinking about it, you'll recognize that loan sharking is a service that people want. Just as compulsive gamblers want gambling, and compulsive alcoholics want liquor. Compulsive spendthrifts want loan sharks; they always have and always will; it's a desired service.

The man who goes to a loan shark does so because no legal businessman in his right mind is going to loan him one red cent.

He's a man with an established record of total inability to discipline his spending, and a complete inability to save to pay his debts.

Today, anyone with a reasonable job, and a reasonable record of being willing to discipline his spending to pay his bills, can get loans from either a local bank or a local finance company, practically on his signature—and credit record! —alone.

Then the only type that all finance companies are going to reject will be those who have an established habit of nonpayment of debts. They simply *can't* discipline their spending. Payday at 5 p.m. means broke at 2 a.m. in the local dance-and-bar hall.

The loan shark supplies a needed service; he'll loan money. *And* he'll supply the needed discipline to build in the borrower a new habit pattern. A pattern of paying back what he borrows. It may take a series of professionally applied beatings—guaranteed to hurt appallingly, but not to injure and thus render the victim incapable of working—before the lesson sinks in, but obviously the system works. Nearly always the borrower learns to return the money he borrows, plus interest, by very stringently limiting his spending.

This can be of great help to the compulsive spender.

The main point is—people want loan sharks, in the sense of wanting someone who'll loan money to a guy who is almost certain to welch on any debt he contracts. They don't *want* the enforcers, who are the necessary factor that makes it possible for the loan shark to have capital to loan, but then—they don't want to pay back the money either, of course.

The overall picture I'm trying to bring out is that the Mafia is *not* the source of "crime in the street"; they're businessmen who, like the bootleggers of Prohibition days, supply services that people want, but have been induced to make illegal.

Incidentally, I remember the election day when the State was voting on the wet-or-dry referendum at the end of Prohibition when when not a bootlegger in town was available. They were all busy transporting their regular and irregular customers to the polls at any hour convenient to the voter, supplying free taxi service all over the area, and too busy to make deliveries.

Naturally, any businessman will seek to have his customers keep his business in operation.

The Mafia criminals are *legal* criminals who are desired by the people. That's why they aren't prosecuted very effectively. Moreover, they're disciplined, organized, and rational groups; they aren't the source of crime-in-the-streets.

They, however, are "big time," and make acceptable targets for anti-crime legislation and anti-crime hoorah generally. Nixon can well blow the trumpets and charge into battle against them. They *are* lawbreakers who do it professionally, and besides nobody likes having enforcers make them pay their contracted debts by violence. Just because that's the only way you can get the compulsive spender to pay up doesn't mean he likes it.

Before pitying the loan-shark victim too deeply, remember that the "victim" chose to accept that contract, fully knowing what the penalty clauses were; all he really had to do was to show a pattern of reasonable willingness to pay his debts and he could go to one of the openly operated finance houses—which are, quite frequently, financed with Mafia funds also, and operate in a completely legal manner, with legal interest rates.

The one really vicious area of Mafia operation is that of handling and pushing "hard" dope—heroin, cocaine, morphine and a few others. (The Mafia doesn't handle pot to any extent; that's strictly an amateur business, as is LSD and "speed.") The "hard" dopes can make practically anyone a compulsive user, though there are a few weirdo freaks who seem to have metabolisms that aren't addictable. (You can always take the chance that you're one of those 1-in-300,000 or so and try dope; you'll know after a few doses. If you can give it up, you're a freak, and lucky. Otherwise your curiosity has you helplessly hooked—and

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THE
TEACHER

It's easy to help the backward people—
help them to relax, decay, and degenerate.
The trick is to help them to help themselves—
and that's not easy!

COLIN KAPP

Illustrated by N. Blakely

"Scorpid! Scorpid!" The cry of alarm echoed the panic back from the rock-slime of the roof. *"Scorpid* in ten tank!"

There was good reason behind the fear. The scorpion's body was as long as a man's forearm and equally as thick. And it was deadly. Its savage mandibles snapped open and shut like the snicker of a machine tool, with the capacity of cutting through a centimeter of steel. Its tail, equipped with a murderous post-anal sting, lashed about in frenzy, splashing the vat acids many meters into the air.

Undeterred by the poisonous liquor into which it had fallen, the *scorpid* began to swim lunging circles around the great vat, looking for a way of escape. Its body arched dangerously as it attempted to project itself over the overhanging edge or to gain a hold on the protrusions. The workmen edged back, knowing the instantaneous death which could follow the creature's liberation on to the floor. The winchman, waiting his opportunity, quickly drew the plating mandrels from the tank to prevent the *scorpid*'s escape by climbing the rope or cathode connections. The circular anode yoke was axed from its supporting cables, and slid quietly with its burden of anode metal into the depths of the vat. Now the creature was confined, unless it could manage to leap the overhang on to the vat surrounds. With practice and with the spur of hunger it would learn to do even that.

The workmen were soon prepared. New stocks of oil-soaked brands were hauled up from the oil pits and laid with ends adjacent round the perimeter. A fire-boy touched the brands into flame with long strokes from his firing sticks.

Soon the circle of fire ringed the entire vat, allowing no crevice through which a *scorpid* might penetrate. A further supply of brands was arranged to replenish the first when they became exhausted. Then the shouting, sweat-soaked men did all that they now could do —wait and hope.

OrsOrs, the overseer, checked to make sure the emergency arrangements were complete before he gave the next instruction:

"Find someone fetch the Gaffer."

This was very much a job for a volunteer. Although the divisions between day and night on the surface of Tanic made no difference in the deep caverns, daytime on the surface drove all manner of creatures into the shielding dark of the higher galleries. To fetch the Gaffer at this time of surface noon would be a difficult and dangerous assignment. It was a job suited only to a fleet runner and one who knew exactly the blackspots of the noon caves. OrsOrs would have gone himself, but his responsibilities tied him to the deep levels. In any case, to fetch the Gaffer at such a time was a job for a younger man and one without dependents.

JoJo was the obvious choice. The name was not his own. When working, all of them used given names invented by the Gaffer, whose alien tongue could never handle the forked aspirations of the ritual language from which all keep names were derived. JoJo was less of a volunteer than a nominee, but he raised no complaint when hands thrust him forward. His normal duties were those of fire-boy, and he was used to running the caverns with a flaming brand. Divested of his apron and rubber boots, he stood with all the nakedness of his forefathers. OrsOrs judged the boy had the physique and the stamina necessary. Whether he also had the courage and the skill needed to make the noon journey was something that only time would show.

"Find the Gaffer, JoJo. Tell him there *scorpid* in tank ten. The making of rocket projector tubes is stop. He mus' come at once."

The youth looked uncertain.

"Are you sure he'll be willing come through noon caves?"

OrsOrs frowned. "He's a Terran. He's not likely meet with anythin' more formidable than himself." This was a stony jest, which raised a murmur of agreement from the onlookers. "Anyway, he's never failed us yet. Say OrsOrs sent you. He will find way to come."

JoJo nodded. He took three oil brands, fastened two at his waist with rope, and lit the third. He took also a short ax. Standing at the tunnel's entrance he turned and raised his torch in farewell. The fine muscles of his naked body were so accentuated by the angle of the light that he looked more god-image than a man. Then he was gone, the swift flame receding into the tunnel as he ran.

Once he was alone, JoJo began to reexamine his own feelings about the trip and his ability to survive it. For the most part, the lower tunnels and galleries were rock-strewn and damp and inclined to slime—treacherous to running feet. A man falling here could easily break a limb or his head, and once he had fallen it could well be days before he was discovered. JoJo slackened his pace and began to concentrate on footholds. Better to arrive slowly than not to arrive at all.

Twenty minutes took him to the foot of the air shaft, where the great ropes drew iron cages to the other levels and where the giant leathern bellows strained in their shackles like the guts of some gigantic reptile. The caves near the air shaft were places that JoJo feared. They were chemical rooms and mixing rooms, newly installed since the Gaffer's coming. The men who sweated in the black heat of these foul holes were prone to strange diseases and shortages of breath and tumors of the skin. JoJo hurried past as though the very draft entering the corridor might have the power to contaminate him. Because of places such as this, JoJo felt a strong resentment against the Gaffer even though, as OrsOrs was constantly reminding, without the Gaffer they could never hope to win the war against the reptiles.

He came to a rising passage. JoJo lit the second brand from the first, and threw the latter away still only half consumed. Although such wastage was a crime, he knew that in the galleries ahead he would need a steady light. He might get the chance to kindle one more brand on the journey, but he could scarcely hope for the time to kindle two.

The passages became drier as he ascended, and the slight natural draft against his skin told him of the random chimneys connecting to the surface. At this point his main danger lay in the shards of fragmented quartz which lay like daggers in the sandy floor. To pass them uninjured called for skilled footwork and precise muscle control. He held his torch high to catch each bright reflection, placing his feet miraculously on to softness with each running step. But he knew that to make a mistake and sever a tendon, or even to cut a foot and bleed severely, could be fatal in the hours until surface darkness when OrsOrs would come this way himself to fetch the Gaffer.

It took him half a painful hour to reach the first of the noon caves. With aching thigh muscles and his back coated with dust and running sweat, he paused for a moment at the threshold. The galleries before him were too vast to be lit by a torch. Only his foreknowledge of the route could guide him to the tunnel's entrance at the other side. Now he would be forced to go

slower in order to avoid collision with the bushes of razor crystal, yet not too slowly lest a *footburner* be drawn from its lair and wait with phosphoritic breath to burn his legs into stumps downward from the knee. At the same time he must travel watchfully, lest he rake his scalp on the stalactites descending from the roof—yet the noise and light of his passage would attract to his path all manner of *scorpids* and *snappers* and ghosts and things with wings and claws and webs of acridness and fright.

Before him, the things in the gallery sensed his presence and saw his light and began to mutter and flutter and move before him. He knew he must not stay to consider further. Holding his torch aloft, he began to run.

The beasties in the cave were more than usually active. Caught in the suddenly advancing light, the majority of them scattered from his path. Some, like the *spiny needleball,* curled into defensive knots, so well camouflaged on the sandy floor that he had to concentrate in order to differentiate between them and safe footrests. Here and there a *snapper* chattered at his heels with jaws that would have stripped the flesh from the bone had he not been able to outrun the fortuitously stumpy legs that carried them.

At the crystal forest he was forced to slow in case his arms brushed the razors hanging like leaves on the silvern crystal trees. Here the fleshy beasts, like *snappers,* kept well clear of the silicon barbs. Only the horn-shelled and armored animals dared to form lairs in the deadly glades. Of these, few could move fast save for the *scorpids,* who never hesitated to attack anything which crossed their paths, although they seldom bothered to pursue. In common with his kind, JoJo feared *scorpids* more than he feared the reptiles on the surface. If none were in his path, he might get through. But if he came across one directly . . .

With trepidation he made his way through the silvern glades, fearfully thrusting his torch at every moving shadow. He kept his eyes alert for the proximity of the glassy leaves, the mere touch of which could sever an artery or gash the flesh beyond repair. In this way he encountered only a couple of armored *night-pods,* relatively harmless, who scattered with heliophobic haste from the illumination of the torch. He was almost out of the forest before great danger struck.

From a rock waist-high amidst the crystal bushes a *scorpid* launched itself directly at his side. Although he had his ax, JoJo had no time to use it. He struck at the *scorpid* wildly with his torch arm in a simple reflex action. At the normal velocity with which a *scorpid* moved he would have stood no chance. By pure accident the heavy

fiber of the torch caught the moving *scorpid* body in midflight and deflected it in a long arc into the middle of a crystal bush. The bush erupted in a flurry of fractured blades. JoJo caught his breath and waited for the *scorpid* to reemerge. Something hit the ground at his feet, and he panicked and beat at it with his torch several times before he gained the realization that the body which had fallen was already in the throes of death. By some miracle the razor leaves of the tree had penetrated the interstices in the *scorpid's* protective plates and severed its throat. Now it lay in a fluid pool of its own life blood, twitching with nervous reaction but incapable of attack.

JoJo raised his torch again, and ran.

Within minutes he gained the end of the first gallery and was in the tunnel which connected with the second. Here the dryness and barrenness of the rock gave poor living to the beasties from the surface. Apart from the *cave-crawlers* and the occasional stinging *bumble-bugs,* he was safe from attack. Neither the *crawlers* nor the *bugs* could stand the sight of fire, and he took advantage of the respite to light his third torch from the second and to carry both before him while the second remained alight.

The next gallery was larger than the one through which he had passed, and contained no crystal forest. Here, however, both stalactite and stalagmite turned the path through many wild contortions and thereby slowed the pace. This was a favorite haunt of the *footburners,* who played tag around the rocky columns and waited to snort their phosphorous-laden breath on any unwary flesh which happened to pass within their compass. To some extent to bear a light here was a disadvantage, because a *footburner's* phosphorescent snout was more clearly seen in darkness. But there were other beasties, some even as yet unnamed, against whom light was the only protection.

Warily JoJo threaded his way round the mineral pillars; occasionally running when a *snapper* chased his heels; occasionally slowing to avoid raking his head on an unexpected stalactite. Always his eyes were alert for a *footburner's* snout. Though he saw several in the distance, he was fortunate that none came close.

Then crisis! Breaking through a natural arch he was concentrating on the ground and nearly walked into an *acidtail.* Only the slight hum of wings warned him of the danger in time. Poised on a hundred delicate wings, the *acidtail* was directly in front of him, its tail of marvelous, corrosive lace draped fully across his path. OrsOrs had shown him how the threads of an *acidtail's* plumage could etch deeply into the glaze on earthen pots and was used by potters as an instru-

ment for making decorations. He knew also that the acid liquors exuded from the threads gave rise to deep and painful wounds and sought through the flesh to rot the bones beneath.

He stopped, uncertain suddenly of what move he ought to make. To retreat back into the line of disturbed creatures behind him was unthinkable; to circumnavigate the *acidtail* was impossible without a long detour from known paths; to attempt to advance was to invite a peculiarly painful form of death. It was then that he became aware of the *footburner* closing in behind him.

His only relevant weapon seemed to be his firebrand, though

he had never heard of its use against an *acidtail.* However, this was no time to be bound by custom. Almost without thinking he thrust the flame into the acid lace. There was a brief flare, accompanied by a shriek such as the ghosts of ancestors were held to give. The crippled *acidtail* fell like a wounded *bumble-bug,* covered with lines of fire. Unthinkingly JoJo leaped straight over the fallen beastie into the darkness beyond. Almost at the same time the path behind him grew brilliant with the flare of the exhalation of the *foot-burner.*

JoJo landed on soft sand, amazed to find himself unhurt. Unexpected contact with a stalagmite knocked the torch from his hand, but he did not dare return to retrieve it. Then he distantly saw the yellow light of the annex which led to the Gaffer's tower. Heedless of anything which might now lie in his way, JoJo fled through the darkness in a tide of panic.

Then he was safe. The floor and walls of the annex tunnel were slightly corrugated, and stung his feet with invisible needles. No creatures would follow him into this place, so this was a pain he did not mind. The golden-yellow illumination was so intense it hurt his eyes, but no dangerous flying thing or *bumble-bug* would brave its radiation. Nothing more than stupid *sun flies* ever reached the screens. It was somehow characteristic of the Gaffer that he would play a creature's foibles against itself and yet leave unimpeded access to his quarters for those he wished to see. On all Tanic, JoJo could think of no other place so easily entered by a man yet so repellent to the beasties.

The Gaffer must have had warning of his coming because he was waiting at the end of the annex tunnel, his small, browned, terran face crossed with inquiry.

"JoJo? What the devil brings you through the noon caves?"

For once JoJo forgot to be overawed by the Gaffer's presence. Finding the man alone, he was very obviously human and, therefore, fragile. This threw a new light on the god-man from the stars. In fact, he was more approachable than OrsOrs, who was permanently worried by production problems and had not the kindly wisdom of the master technician from Terra.

"If you please, Gaffer, OrsOrs send me. There's *scorpid* in ten tank."

The Gaffer scowled with sudden displeasure, his lean Terran face creasing across the tops of his eyes. "So there's a *scorpid* in number ten? What of it?"

"Please, OrsOrs wants you come."

The Gaffer pursed his lips as though in sudden anger. Then he checked himself. "I was damnwell afraid of that!"

"Afraid of *scorpid?*" The surprise slipped through in JoJo's voice. He knew from birth that Terrans were afraid of nothing.

"No, not of *scorpids* . . . of dragons rather."

He caught JoJo's piteous, questioning look and smiled. "You don't understand me, JoJo. Perhaps one day you will. But let me ask a question: OrsOrs and I, who has had the most experience in killing *scorpids?*"

JoJo struggled with his answer, not wishing to offend. The Terran rescued him from his embarrassment.

"Yes, you're right, JoJo. The answer is OrsOrs, of course. So why did he send for me?"

When he thought about it, JoJo found the second question unanswerable. On the face of it, sending for the Gaffer had seemed such a logical thing to do that no one had questioned it. But when he tried to examine the logic, the point escaped him.

Meanwhile the Gaffer fussed about his instruments as though loath to leave them, then began to prepare himself for the journey. When he was ready he turned back to JoJo.

"Where are your boots?"

"In deposition cave, where I left them."

"But why did you leave them?"

"Because wearing-boots-man cannot run the noon galleries." JoJo answered this as though the point was self-evident.

"But JoJo," said the Gaffer patiently, "wearing-boots-man doesn't need to *run* through the noon galleries. He can walk."

Thinking about this, JoJo had to admit that the Gaffer was probably right. Most of the dangers in the galleries—the *footburners*, the *snappers,* the shafts of quartz, and the *needleballs,* were dangers to the feet. Given a pair of long yellow boots such as the Gaffer always provided, a man could choose his own pace according to the emergency. Of the things that were of harm to the body directly, almost all could be warded off with a blazing brand if you had the leisure to turn and face it out.

The Gaffer threw him a new pair of boots and put on a pair himself. He took a powerful handlamp from the clip by the door. After a moment's thought he also took up a sticklike instrument with a metal spike at one end and a black box beneath the handle.

"Come, JoJo! Let's see what we can do for OrsOrs."

"You want torches?"

"No, I have the lamp."

JoJo put his hand in front of the lens. "It isn't burn," he objected. "You can' defend yourself with tha'."

"No," said the Gaffer. "But I don't expect to have to."

The Terran's manner showed none of the tension which JoJo felt

about returning across the disturbed noon galleries. The Terran carried little about him other than his stick, and it was obvious that he intended to make the journey at no more than walking pace. It was an example of the terrible assurance that the universe must adapt to suit the Terrans, since they did not intend to adapt to it. The endpoint of this philosophy should have been arrogance, but the Gaffer was more of a father-figure, always with the iron hand well concealed in a leathern glove. JoJo sometimes wondered just how terrible the iron hand of a Terran could be, seeing what he could accomplish with a mere stroke of the leather.

Seeing that for once he had the Gaffer to himself, JoJo felt bold enough to ask some of the questions which had been puzzling him. At the first widening of the way he forsook his deferential position at the rear, and drew up to the Gaffer's side. Having gained this vantage point he became suddenly afraid of his own audacity. He blurted out his first question in a way he instantly regretted.

"Are you God?" asked JoJo.

The Terran footsteps faltered for a moment, then continued.

"Far from it, JoJo." The Gaffer's voice was kind.

"Do you work for him then?"

"Again, no. In fact, from some of the jobs I get, I sometimes wonder if I'm not an agent for the opposition."

The answer was inscrutable to JoJo, but the Terran seemed to be a little amused, so the youth continued in a bolder vein.

"Is a rocket terrible?"

"To those who have no defense against it, yes."

"Would a rocket be terrible against Terran?"

"Providing he knew you had one, no."

"If he knew, what would he do?"

"Laugh until his pants fell down, I guess. Then, if he thought you were a danger to him, he'd kill you. If you weren't, he'd just go on laughing."

"Why?" This was a leading question, and the crux of JoJo's perplexity.

"Why? Because a Terran has access to weapons many millions of times more powerful. He could, if he wished, destroy this whole world in a second, the sun in minutes, and most of the stars you see in a matter of hours or years."

"Is that what it means to be Terran—have the power to kill everything?"

"I've never thought of it that way," said the Gaffer. "We always think of ourselves as builders and creators. But now I come to think of it, you do have a point."

The focused beam of the Gaffer's handlamp was probably a thousand times more powerful than the illumination from JoJo's torch had been. With wide sweeps of arc, the

Gaffer explored the roof of the gallery, revealing features which JoJo was sure no member of his own race had ever seen before. The entire cave was surmounted by banks of stratified crystal which shone with a thousand faceted mirrors, like transient stars. As the beam probed the far regions, JoJo became aware for the first time of the true proportions of the gallery. It was far smaller than his imagination had painted it. Thus gaining perspective, he lost a considerable amount of his fears.

JoJo realized with something of a shock that the Gaffer was more interested in the physical characteristics of the gallery than he was in the presence of the beasties. Such naivety seemed to verge on the insane. JoJo constantly leaned to deflect the lamp back to their immediate path so as to reveal the terrors underfoot. This exercise seemed to amuse the Terran somewhat, and he finally handed the lamp to the fire-boy.

"You carry the lamp for me, will you, JoJo?"

JoJo accepted the offer proudly, marveling at the solid, compact feel of the apparatus which was pressed into his hand. Like a child with a new toy he surveyed the path before them, delighted with the way the beasties fled from the intense beam into the cradling darkness. He could appreciate, now, that so bright a source of light was a very effective weapon against would-be attackers. It was suddenly no mystery to him that the Terran could walk through the noon caves with relative impunity, whereas Tanic's natives trod here in fear of their lives.

Before them *snappers* and *needleballs* fled into the shadows, and *bumble-bugs* and ghosts and *acid-tails* stirred in a scurry of wings out of the range of the revealing brilliance. Only a *footburner* squatted doggedly in their path, squinting its small eyes malevolently and slavering its gross, corrosive juices. The Gaffer extended his pointed stick close to the creature's face. From the spiked tip a long tracery spark appeared, searching out the *footburner*'s eyes with a thin, tinkering discharge. The *footburner* screamed with agony and fled from the scene, leaving bright phosphorescent pools as witness to its involuntary spasm.

Treading warily over the phosphoritic excretion, JoJo became convinced of the Gaffer's wisdom in insisting on the wearing of boots. He anxiously probed the shadows with the lamp, expecting the *footburner* to have retreated into a position of ambush, but the beastie had fled far, and was probably in hiding.

"You didn't kill him then?" he asked.

"Heavens, no!" The Gaffer's reproof was mild. "Live and let live unless you both need the same territory. It's a good motto. I mere-

ly tickled him with a high-tension electrical discharge. Plenty of volts but no current. Painful but not deadly." He raised the stick and let the sparks play idly on to his fingers. "It seeks out the softer, moister parts of the body because the spark goes for the point of lowest electrical resistance. There's no beast alive that could stand and face it, yet it couldn't kill anything. Simple, humane, and very inexpensive."

"Are you always so worried for your enemies?"

"Usually." The Gaffer's voice was alive with amused cynicism. "It's mainly our friends who tend to get hurt."

Something in the Gaffer's manner made JoJo feel suddenly afraid of the species who were so confident of their power to destroy that they could afford to show compassion for those who might destroy them. What the Terran had said about their friends was more difficult to understand.

With the handlamp it was easy to pick a more direct route through the columnar jungle and easy to avoid a colony of *footburners,* who scattered from the advancing light. The occasional *snappers* who rushed at them were almost casually turned by the Gaffer with his stick. Despite the Terran's apparent assumption that traversing the noon gallery was no more than an interesting stroll, they reached the connecting tunnel in record time.

In the tunnel JoJo resumed his questions.

"Gaffer, you came here to help us fight reptiles?"

"Yes."

"Why do you help us?"

"Firstly, because you're a species so like Terran humanity that it's impossible to believe we have not come from common stock—though we've no idea how this could be so. Secondly, although you are technically the dominant species on Tanic, an ecological imbalance has given crucial advantage to the reptiles. Either we help you, or we allow you to become extinct in a century or so. We hate species to become extinct—especially when they're human like ourselves."

"But what you *gain* from helping us?" JoJo still felt his earlier question was unanswered.

"Gain?" The question obviously took the Terran by surprise. "I don't think we gain anything—except perhaps a mild feeling of satisfaction. But when you set that against the cost of an operation like this, it's a pretty expensive way of gaining satisfaction."

"How expensive?"

"All the wealth of all your elders and chiefs who have ever lived couldn't buy the power needed to drive one of our ships from Terra to Tanic."

"Ships? You have more than one, then?"

"There are six in orbit around Tanic at the moment. The three

survey ships will soon go home. The others, two supply ships and a cruiser, must wait for me."

At the entrance to the second gallery they came across a *scorpid.* Sixteen incredibly agile legs, mandible that could break steel, and a mobile's sting capable of dispatching a dozen men. It sat malignantly in their path, its eye stalks undeterred by the brightness of the handlamp.

JoJo found his mind suddenly crossed with a hint of heresy. Though he feared the *scorpid,* he was almost glad to see it contest the Terran for right of way. While he had a strong regard for the god who was becoming human, he was beginning also to develop a sense of affinity with the creatures of his own world—and a growing apprehension about the race who were so confident of themselves that they could afford to be kind to their enemies.

The *scorpid* was wary but unmoving. Not normally nocturnal in its habits, its eyes were equipped with irises well able to compensate for the brilliance of the handlamp. It reared up, its breath hissing through its terrible beak, its sting whipping the air with increasing agitation. The Gaffer stood stock still, regarding his pretentious foe with a look more of admiration than of concern.

"Move along, old feller! I don't want to hurt you, but I've a great respect for that sting of yours. Besides which, you're standing in my way." Experimentally he pointed his stick at the *scorpid*'s head and moved forwards. The long electric arc struck towards the *scorpid*'s eye stalks. The *scorpid,* reacting faster than they could follow, hurled itself in fury at the spike, tearing it from the Gaffer's hand and severing the electrode with one single crush of its beak. Then it reared up, spitting fury, its legs clawing the air, preparing to launch itself at the handlamp and the quaking JoJo who held it.

There was a whip of leather as the Gaffer's hand drew something from his belt. This was followed by a blaze of light and a rapid series of explosions which were so powerful and unexpected that JoJo was deafened and robbed of the power of speech for many seconds after. The *scorpid* literally exploded in front of them. Fragments of its flesh hit the tunnel at all angles and fell ridiculously back to the floor.

The Gaffer returned an instrument to his waist and turned to the shocked fire-boy, whose nerveless hands still held the lamp as though he were a wooden image.

"Sorry, JoJo! I should have warned you. Not something I like doing, no indeed! A bit hard on the ears in a confined space like this."

In JoJo's shocked mind two points were paramount—the absolute decimation of the *scorpid,* and the facile reason for the Terran's

reluctance to use his fearful instrument. The latter factor was so greatly at variance with the Gaffer's odd notions of humane defense that the fire-boy's mind took an intuitive leap which brought him suddenly face to face with the terrible iron hand of Terra. For a moment the knowledge filled him with terror.

"What did you use on the *scorpid?*" he asked at last.

The Terran hand produced the instrument again.

"Only an old-fashioned automatic pistol. Bit of a museum piece really—but it has its uses."

"Is that what Terrans use kill animals?" JoJo examined the blued-steel artifact without comprehension.

"Not very often." The Gaffer was frowning as he returned the pistol to its holster. "More often they use it to kill each other."

JoJo retreated into silence then. The Gaffer retrieved his stick and tested it. Although the end had been completely severed by the *scorpid*'s jaws, the metal core still obliged with its characteristic spark. They moved on into the crystal forest. *Snapper* and *needle-ball* scuttled hastily to either side, still apparently reacting from the shock of the firing of the Gaffer's weapon. The occasional *snappers* who dared enter the forest to rush at their heels received a discouraging shock from the electric stick and fled on stumpy legs slapping their stumpy tails behind them.

In the bright illumination of the handlamp the razor bushes were even more marvelous than JoJo had supposed. Millions upon millions of crystal platelets shimmered on ranks of skeletal trees, moved by an unseen, unfelt wind. The regular track, he soon discovered, was by no means the safest route to follow. The Gaffer pointed new ways through which a man could pass without fear of accidentally brushing against the barbarous blades. JoJo reflected that the Terran in months had gained a better knowledge of the noon caves than his own people had acquired in their entire history.

This prompted JoJo to consider his people's place in the scheme of things. Certainly they were above the beasties, yet below the Terrans. The Terran was a humanitarian—providing it did not conflict with his own safety and convenience. But when something stood in his way he was terrible and ruthless. So how far up the scale did the Terran rate the natives of Tanic? If they displeased him, would he not be equally terrible with them? And, if he could command destruction on any scale, why did he not direct it against the reptiles if he was sincere in his intent to help?

"Do your ships have rockets?" asked JoJo suddenly.

"Far more powerful weapons than rockets, I'm afraid."

"But no use against reptiles, eh?"

The Gaffer began to frown. "So many questions, JoJo. What's bothering you?"

"I was thinking that if you already had plenty rockets up there, why don' you use them on the reptiles? Then we need no' to have make-men-work in the chemical rooms in order to make our own."

"It's not that easy, JoJo. I could win your war for you in a week. But I don't dare do so."

"Why no'?"

"Because for your own sakes you have to win it yourselves. I am already doing far more than I should."

For a long time JoJo trudged in silence, trying to resolve the meaning of this curious phrase. Then: "I don' understand tha', Gaffer."

"No," said the Terran. "I scarcely expected that you would."

JoJo seemed to lose interest then. He fell sullenly behind all the way down the descending passages which led to the air shaft. Only when the acrid vapors from the mixing rooms made the air sting their nostrils, did he speak again.

"I still don' see why we have let-men-kill themselves in there, when you could give us all the weapons we need."

"I could give you everything but self-respect," said the Gaffer quietly. "That you can only give to yourselves. It isn't the winning that counts. It's the fighting that fits a species for survival. If I killed all the reptiles tomorrow, you don't know how utterly it would destroy you also. There are far worse things to tear a man apart than the claws of a lizard."

"Like what, Gaffer?"

"Like the spawn of the dragon, for instance," said the Terran, and refused to answer more.

When they reached the deposition cave the air was thick with smoke from the burning brands. So far the *scorpid* had been contained, but its growing desperation had lent it amazing turns of strength. Twice it had gained the tank rim and twice been forced back into the process liquor. Such was its frenzy that next time it reached the rim it would probably escape, despite the fire.

Swiftly the Gaffer summed up the situation, then seized a metal net on the end of a long pole, used for recovering fallen anode metal from the tank. Savagely he kicked a path through the fire ring and made his way through to stand on the vat surround. OrsOrs followed him, plainly perplexed by the Gaffer's action. Realization brought a sharp cry of alarm.

"Don' be dumbchild, Gaffer! You know wha' tha' devil capable of."

The Terran did not answer. Thoughtfully he watched the *scorpid* orbit on the surface of the liquid. When he judged the time to be right, he struck. The net

took the *scorpid* fairly, and lifted it from the tank. Somebody screamed. OrsOrs cursed and rushed for a machette. The Gaffer held the pole resolutely horizontal, apparently uncertain what to do with his prize now it had been gained.

The *scorpid* had its own ideas on the situation. With machinelike rapidity its jaws tore the metal net apart. Then, with an agile flick of its tail, it leaped up and grasped the pole. Without pause it twisted, and like a streak of fury it raced towards the Gaffer's hands.

It did not complete its journey. A man's pace away from the Gaffer both *scorpid* and pole were severed by one blow from OrsOrs's descending knife. The bisected *scorpid* fell beside the vat, its mus-

cles still moving but incapable of any action save that of dying. OrsOrs watched it warily for a long time, knife poised, as though he believed in resurrection. Then he straightened himself and turned to face the Gaffer. His brow was streaming with sweat.

"That was very dumbchild thin' you do, Gaffer. Not even fire-boy attemp' catch *scorpid* in net."

"I did." The Terran remained unmoved. His eyes were watching OrsOrs closely.

"Then you're no' afraid of death?" OrsOrs was critical.

"It was a calculated risk."

"If I had not been quick, it would have killed you."

"That was part of the calculation. Why did you ask me here, OrsOrs?"

"To kill *scorpid.*"

"Yet you have better skill with a knife. You're more familiar with the ways of a *scorpid.* It's your natural enemy."

"When I want light I call fire-boy. When somethin' need liftin' I call winchman."

"And when something has to be destroyed, you call a Terran—is that it, OrsOrs?" The Gaffer was sternly questioning. "Is that how you think of us? As destroyers? As interstallar rat catchers and louse removers?"

"I did no' say tha', Gaffer," OrsOrs protested.

"But wasn't that the way you *thought* about it?"

Machette in hand, OrsOrs drew himself up to his full height, towering above the Terran's head. "No disrespect you, Gaffer, but I did expect you come with thunder and kill *scorpid.* Tha' way is easy." His voice and tone were thick with the disrespect that his words claimed to negate.

"Why?" asked the Gaffer directly. "I could have done it, certainly, but I'm damned if I can see why you should expect it."

"Have you no' proven to us tha' whatever we can do, Terran can do better?"

The Gaffer blazed with sudden anger. "If that's the lesson you've learned, then you've deceived yourselves. I came here to help you to stand on your own feet—not to have you ride on mine. I've better things to do with my life than to play wet nurse to a bunch of cravens."

OrsOrs face clouded with wrath and disillusion. His machette hand moved involuntarily, almost as though it wished to cleave the Terran as it had the *scorpid.*

"By the ghosts of ancestors! If you were no' the Gaffer I would have killed you for far less an insul'."

The Gaffer was unconcerned. "You might have tried, OrsOrs, but I don't think you would have succeeded. Now get those mandrels back into the tank and the anodes reconnected. We need those projector tubes. The mixing rooms

have already delivered the filled rockets, and we're anxious to start testing."

OrsOrs tried to contain his fury. "I know schedule, Gaffer. You don' need give me detailed instruction—nor would I ask now even if I did need. I think we understand each other?"

"I hope so." The Terran reclaimed his electric stick and carefully inspected his boots which had been overmuch exposed to the heat from the ring of flames. He stooped for his handlamp, then walked away into the tunnel's entrance without a further word. JoJo followed him anxiously, uncertain which side of the schism his loyalties lay.

"You want a guide, Gaffer?"

"Thank you, JoJo, but I think I know the way."

"Then may I walk with you little?"

"Be my guest." The Terran's anger had subsided completely. Unexpectedly, he seemed to have come out of the encounter in remarkably good spirits.

"May I ask question?"

"You never stop asking, JoJo. But I'll answer if I can."

"Why did you treat OrsOrs like tha'? Don' you know he almost worships you?"

"It was because of that I had to turn on him. I've already told you I'm no god. Neither you, OrsOrs, nor anybody must treat me as if I am. Whatever you can do, I can do. And the other way about. You can do whatever I can do—given a little time, a little patience, and a little learning. Only by seeming a little stupid could I make OrsOrs angry. And only when he was angry did he even try to match himself to me."

"But you risk your life. You could have kill tha' *scorpid* as you did the other."

"How the *scorpid* died was unimportant. What mattered was breaking OrsOrs's dependence on me. Unless I can do that, it would be better if I hadn't come."

"You mean better had you left us be eaten by reptiles?" JoJo was incredulous.

"As I have said, JoJo, there are worse fates than being eaten by reptiles."

"I think I shall never understand the Terran mind," said JoJo.

"Then I'll let you into a secret. There's no difference between a Terran mind and yours, except that our expertise in death has forced us to acquire a somewhat painful sort of maturity."

The assembly and testing of the first projector was carried out in one of the smaller noon caves which had been specially cleared for the purpose. At one end the cave narrowed to a horizontal shaft, which widened suddenly into daylight and ended at a ledge some thirty meters above the valley floor.

In all directions the high, purpled

crags of the mountains rose up to enclose the valley within a bowl, with here and there a pass or fault giving tantalizing glimpses of the wild vistas beyond. The floor of the valley was clothed with a thick forest of vegetation and sprinkled with the tracery of many rills and streams fed from the ice-capped heights. At the lowest point, a great yellow river moved sluggishly against the intrusions of the palmaceous weed which threatened to choke it into a swamp.

It was to this river and to the many others like it that the reptiles came to breed and to drench away their flaking scales. Their domain was centered on the watercourses and on the ecologically rich pastures which lay above the forest and below the sterile peaks. From his aerial surveys the Gaffer probably knew more of the local scene and topography than did any of Tanic's natives. His cameras and telescopes had pried into territory undisputedly the province of the reptilian kingship. He knew each reptile nest and breeding place on the river. He even knew where one of the old, forgotten cities of Tanic still protruded its ruins through the clay waters of the river's course. Thus he alone could accurately measure the regression of Tanic humanity and the growing dominance of the reptile form.

From the ledge, even by eye, they could see a pack of hunting reptilian heads. The creatures were walking erect on two feet and a tail, their long necks probing over the vegetable screens searching for sight of prey. Their size and apparent ungainliness were deceptive. When running on all four limbs, a mature reptile could attain speeds of sixty kilometers an hour. Their jaws could cut a man in half with one bite.

The Terran was strangely silent. Through his powerful lenses he viewed an unknown yet familiar scene. Unlike his aerial survey pictures, his present position, barely above the tree ferns and cycads, gave him a sudden sense of perspective and presence. With very little imagination he might have been looking at Earth in Jurassic times. The hunting reptiles were disturbingly reminiscent of the Terran *brontosaurus,* except that they were fully carnivorous, had the teeth of *tyrannosaurus,* and a brain cavity approaching that of man himself.

Perhaps for the first time since the exploit had begun, the Gaffer began to feel afraid. The creatures before him belonged to an era predating the evolution of mammals on Terra. His own stance placed him at variance with his environment by about two hundred million terrayears, and the natives of Tanic who pressed his shoulder were scarcely far behind him. It was they, perhaps, who had developed aeons before their time—or was it *homo sapiens* who had been

a late developer in the inexorable march of life from the primeval sea to some unknown mammalian evolutionary end?

From this consideration stemmed the Gaffer's unshown but almost reverent respect for OrsOrs and his people. With a culture almost ten times as old as Terra's, they had missed the accident of the invention of the wheel, yet still progressed into a mature electrochemical-based civilization despite the fantastic odds of a gross ecological imbalance. The Gaffer was painfully aware that his own technological intervention must cause a radical change in the future development of the entire planet. It was a situation he did not relish, and one which tormented his imagination with possible end points he could never hope to see. His role was purely that of a catalyst in a potent evolutionary reaction.

He turned back to where the rocket projector tube was receiving a loving final polish from the men who made it. Despite the dimensional accuracy inherent in the electroforming technique, he had spent the night gauging it, uncomfortably aware of the dangers of being a one-man arsenal and armaments instructor. True to form, he had found the critical dimensions of the tube accurate to within several millionths of a centimeter, despite the apparent crudeness of the conditions under which it was made. These tolerances were well beyond the accuracy necessary for the job, and he knew that Tanic's own rough metrology would suffice when it came to the job of replication without Terran supervision.

The rockets themselves had been completed previously, but not test-fired. He took one, fitted it into the projector tube, and returned to the ledge overlooking the valley. With a mixture of fear and anticipation, the Tanic warriors and Ors-Ors's technicians followed him at a safe distance. The Gaffer hoisted the heavy projector over his shoulder and warned those behind to stay well clear of the rocket exhaust. He sighted on a standing shard of granitelike rock, and with a half prayer, pressed the trigger.

An unexpected recoil pressure threw him off balance and warned him of a miscalculation of propellant charge. The rocket, tail spiraling as it carved its way through the still air, passed over the rock shard and continued for another kilometer before it plunged into a rocky grotto.

The impact explosion was gratifying in its effect. Literally tons of rock and detritus were lifted into the air, fragmenting and scattering over a considerable area. Fern trees and cycads were uprooted, snapped and broken. The noise of the explosion split the air like thunder and rolled and echoed many times among the startled mountains. Afterwards the rent earth

showed a great bruised scar where Tanic's first missile had landed.

It was the Gaffer's conservative estimate that both the propellant and the explosive charge had been at least three times as potent as the modest weapon he had set out to build. He looked back to OrsOrs to see his reaction, and was met by a look of shocked incredulity.

"What's the matter, OrsOrs? Wasn't that what you wanted to see?"

"Nothin' like tha'! There should never be anythin' as fearful as tha'. Suddenly I feel almos' sorry for devil-reptile . . ."

OrsOrs rubbed his ears, still hurting from the unaccustomed shock. He shook his head and turned away in the manner of one who is aware that a page of history is turning under his feet yet can not move nimbly enough to avoid being crushed between the leaves. His companions held no such reservations. Whooping with joy, some were busily swarming down the climbing ropes on the cliff face, running to see the crater. Others were inspecting the projector, marveling that it had not itself been destroyed in the process. A few, like JoJo, clustered with many questions round the Gaffer, like children round a father whom they are still naïve enough to believe omnipotent.

Soon the ones who had run out into the valley came running back. There was fear in their shouting voices: "Reptiles—see! Reptiles come!" They bunched in panic at the foot of the cliff, fighting for a place on the climbing ropes. Behind them, reptilian movements in the dense green jungle spoke of a hunting pack scenting man-meat and hungry for a killing. Then disaster struck. A climbing rope, overtaxed with the stress of half a dozen climbing men, snapped near the top. It shed its burden on to the clustered group below. In the midst of the shouting and the screaming one further voice broke the panic into a death-quiet reality.

"Reptile near! Reptile near!"

Instantly the Gaffer had the projector on his knee, clearing to reload. He had intended to dismantle and inspect for damage prior to re-firing, but the present emergency forced him to take a chance. From the edge of the forest no less than three reptiles broke cover. To judge by the tumult in the brush, at least three more were heading in their direction.

Swiftly the Gaffer hoisted the projector over his shoulder, took careful aim, and fired. Again the rocket went too high and too far, missing the first two creatures completely. By sheer off chance it plunged towards the third. The explosion ripped the reptile to shreds and hurled fragments of carcass back to the very edges of the forest fronds.

The Gaffer reloaded and considered his tactics. With such a widely erroneous instrument he could scarcely hope for this luck to continue. Far better to try to frighten away the two attackers who were still in the field. He aimed deliberately very short of his target in the hope of creating a crater and a blast area which would turn the creatures from their paths.

The projectile fell approximately where he had planned. In the meantime the two reptiles, running parallel, had increased their speed to escape whatever fate had engulfed their rear mate. They topped a slight rise just as the rocket exploded in the hollow before them. Although neither could have been materially hurt by the blast, both must have been affected by concussive shock. They fell against one another while still running, and toppled into the crater. Maintaining his range, the Gaffer managed to put a second rocket on top of them for good measure.

But this was no moment for respite. The knot of injured men at the cliff-foot still remained, despite several relief ropes which had been thrown down to them. Two other reptiles had broken cover and were apparently estimating the carnage of their kind before proceeding. Such was the magnitude of the reptile brain that they established, quite rightly, that the danger lay directly to the front. To avoid this they made first for the cliff edge well to one side, and began a wary sortie under the shelter of the rocky overhang. Attracted by spilled blood, several great toothed-birds took to the air on pteranodon wings, and patrolled the battle area waiting for a chance to settle in the injured.

The Gaffer swore. He had no chance even to see the reptiles advancing under the ledge, let alone destroy them. It was only a matter of time before they reached the group of men trapped at the cliff-foot. With quick decision, he shouted for OrsOrs.

"Lower me down with the projector and some rockets. I have to get below the ledge to get at them."

OrsOrs, who had already given the majority of his fallen comrades up for lost, looked at him dubiously. "Too late, Gaffer."

"Not if you hurry. Get some men here fast."

"No!" OrsOrs stood squarely in his way. "Nobody goes down now. Risk too great. Especially we can' risk you."

"Then stand out of my way!"

Angrily he thrust past OrsOrs to the warrior group at the edge of the cliff drop. JoJo and some of his associates ran to help. Within a minute, with the projector and six rockets roped to his body, the Gaffer was being lowered through space to the rocky floor.

Almost immediately he regretted the decision. As he spun helplessly

on the descending thread the dark shadow of huge leathern wings closed the sunlight from him. An aerial bulk comparable in size with a small airplane screeched across the face of the cliff, creating a draft that swung him and his high-explosive load dangerously close to the rock walls.

Fortunately he was too close against the wall for the avian creature to try to seize him in flight. Below him he could hear quite plainly the blood-cry of the attacking reptiles making slow progress along the broken territory footing the cliff. Then his feet touched the ground. Knife ready, he slashed the yoke which had carried him, and freed his weapon for action. He had scarcely primed and loaded when a reptile broke round the edge of a bluff and came at him full charge. Without the luxury of sighting, the Gaffer swung the projector in the general direction and squeezed the firing trigger.

Nothing happened.

Although the firing mechanism tripped, the rocket remained inert. In an instant of panic the Gaffer observed the charging reptile and searched frantically for a way of escape into or back up the cliff. There was none. Savagely he shook the reject rocket from the firing chamber and rammed another one in. By now he was working at point-blank range, and was as much in danger from the blast of his own fire as he was from the reptile's jaws. He fired at the thundering bulk which seemed almost upon him, then flung himself face down and waited for whatever fate would do to him.

Fortunately the major force of the explosion was taken by six tons of decimating reptile. Even so, the shock was severe enough to concuss him for several minutes. When he was fully conscious he found he was bleeding freely from a scalp wound and had over a dozen cuts and abrasions. Nevertheless he counted himself lucky.

A sudden eclipse of the sun reminded him that the battle was not yet over. Scrambling hastily to his feet he drew the pistol from his hip as the huge, winged creature dropped low over him with all the finesse of a crashing helicopter.

Nerved now to the prehistoric terrors which the day contained, he put two shots into the flying nightmare at places where logic suggested the wing muscles ought to be. The fantastic cry of pain which this act produced was something he knew he would carry to his grave. The creature slipped sideways to the ground in a mortally horrifying crash landing. Then, with a frightening movement consisting of claw-hops assisted by beats with broken leathern wings, the frantic wounded creature rushed at him, its beak lined with sharp, yellowed teeth. He let it come to within six paces before one further shot shattered its cranial cavity. The crea-

ture flopped to a reluctant death amid the fragments of the shattered reptile.

A noise behind him on the rock-face made him wheel in sudden alarm. It was OrsOrs at the bottom of a rope, with a dozen warriors armed with machettes following him. OrsOrs surveyed the carnage uncomprehendingly at first, then his face became crossed with a sardonic smile.

"Not bad morning's work, even for Terran, I would imagine."

The Gaffer smiled wanly. "What happened to the other one? There were two under the cliff when I came down."

OrsOrs shrugged. "I expect he knew the Terran killer here. He stand off until res' of pack catch up. I know you've kill five times as many creatures in hour as mos' men in lifetime, but I still can' advise you fight full pack from the ground."

"How are the men who fell?"

"Mos' recovered to cave, thanks to you. Two are dead, but the survivors will want to thank you for themselves. I've no doubt the Council of Elders will also be wantin' feast your name this evenin'. So much bloodshed needs rewardin'."

"You sound bitter, OrsOrs. Don't you want the reptiles killed?"

"If I had several lives, I'd give them all win tha' fight. Don' think I don' appreciate what you doin'. There would have been twenty widows tonight had you no' risked your life stop tha' reptile."

"Then what's your objection?"

"I seen nearly whole generation slaughtered by no more reptiles than you kill today. Tha' generation die because we no' able do what you do usin' our materials and our techniques. My objection no' to what you do, but the fact you seem to do it all too easy."

It was several weeks later that the Gaffer found a sheet of Tanic bark paper on his desk in the annex when he came down in the morning. He was quite certain it had not been there the previous evening. He turned it over, not really expecting that he would find a message on it. He found a scrawl in Tanic formal script which he had difficulty in deciphering.

Gaffer

I shout you danger tall as biggest mountain. I cannot spell test others come and read—which would stir gigantic beasts of trouble. Tomorrow I must tell you anything of help.

There was a hiatus here, as though the writer realized that to identify himself could lead to detection. Instead of a signature, a further phrase was penned at the bottom of the sheets:

I know dragons spawn.

The latter phrase brought a

smile of cryptic amusement to the Gaffer's lips. He transmitted a microstat of the document to the computer files, then dropped the original into the disposal unit. Shrugging his shoulders, he sought his boots, handlamp, and electric stick, and set out for the deposition caves.

The past few weeks had been fruitful. OrsOrs had demonstrated his ability to control the manufacture of both projectors and rockets, and seven Tanic warriors had been trained to use them. The crude effectiveness of the weapons had been demonstrated many times, and the sheer coverage of the blast pattern more than compensated for their inaccuracy when used against such large targets as the reptiles.

The Gaffer's latest task had been to encourage OrsOrs to divide his chemical and mixing rooms into small, well separated units, so that an accident in one would not destroy the whole facility. He had thus provided, at least in theory, for the continuity of his efforts in Tanic hands. Having been given the weapon and an understanding of its principles and potential, it was essential that the people of Tanic now accept the responsibility for its development and use. It was time for the Gaffer to pull out. One day the weapon was going to be used against men instead of reptiles, and Terra already had too much blood on its conscience.

With this thought in mind, the Gaffer traversed the noon caves. The galleries were relatively empty of beasties at this hour, since the outer darkness was only just lifting and the nocturnal residents were still braving the rising tides of dawn.

On the lower levels all the activity was human. The chemical and mixing rooms were drafting acrid fumes into the corridors, and pallid-faced men were appearing at the entrances like swimmers surfacing for air. The men in the deposition caves were working furiously. Two more vats were being commissioned for the electro-deposition of rocket cases, and one more dedicated to the forming of trigger mechanisms and fuse components.

The Gaffer searched for a long time before locating JoJo in the battery cave. The fire-boy was replenishing the torches over the cable run which carried the power to the deposition shop. Here over six hundred giant batteries, each one a chemical primary cell over two men's length in diameter and ten men deep, contributed their current to the giant acid-vat accumulators. From the accumulators the stored and balanced power was distributed via the giant cables to the deposition vats which lay in the several caves beyond.

The battery cave was the oldest installation which Tanic knew—so old that nobody could tell who had

dug and lined the wells or first designed the system. It was said that some of the cells had been in operation for two thousand years or more, unchanged save for the yearly dig-out and re-furbishing. Only the cables, thick, random black snakes across the floor of the cable run, needed renewal and constant attention. It was necessary frequently to inspect their cracking hides and to correct the slow but inexorable deformation of the bitumen insulators, which unchecked would have allowed the conductors to meet and result in a catastrophic short circuit.

The Gaffer appeared not to notice JoJo. Both waited until they could come together unobserved before they spoke.

"You got my message, Gaffer?"

"I did. Why all the mystery?"

"The elders held council yesterday. OrsOrs was there speaking against you violently. He thinks your influence is going destroy us."

"He's probably right—it would, if I stayed. Fortunately in a day or two I shall be leaving for Terra."

"They won't allow i'. If you leave you will become a legend—something which grows on re-telling to children. They want prove you are no more near a god than any other man on Tanic."

"That's an easy thing to want, but a difficult thing to do."

"Nothing makes more even than blow from long knife."

"I see!" The Gaffer was speculative for a moment or so. "Do you know who is going to do this, and when?"

"OrsOrs. He will ask to take you to our sacred place. All grea' things on Tanic end there."

"How do you know this, JoJo?"

"I am fire-boy for council chamber. I was there."

"Then it's privileged information. What will the council do to you if they find out what you've told me?"

"I would be sent out of the caves into the valley."

"Death by reptile, eh? Very well, JoJo, knowing this, why did you risk telling me?"

"Because I can' agree with i'. The only thing you have done to us is give us a future. Tha's why you must no' go with OrsOrs. And—"

"And what, JoJo?"

JoJo told him what was on his mind. The Gaffer was silent for a long time afterwards. Then: "If I can arrange that, can I count on your help when the time comes—no matter what I ask?"

"No matter wha', Gaffer."

"Very well! Say nothing of this to anyone. I will tell you what I want you to do."

"Do you need do anythin'? Can't you just go tonight?"

"I could, but it would solve nothing. You see, basically, OrsOrs is right. So we are going to prove his point for him—but in a way he won't quite be expecting."

But even then it seemed as if JoJo might be wrong. Two weeks passed without incident, and Ors-Ors, though taciturn, was in no way actively hostile. Then came the day of farewell, the day on which council elders received the Gaffer and showered him with gifts and wishes for his future, and the day many of his friends were in tears at the thought of parting. Late that day OrsOrs approached him.

"Before you leave us, Gaffer, there somethin' I would like show you—somethin' may help you understand us better."

"If you say so, I should be delighted to come." The Gaffer looked at his watch. "But it is getting late and there will not be much time left after. Before I come I must say a few more good-byes. If you can meet me by the air shaft in an hour, I shall be pleased to come then."

OrsOrs nodded his assent, and parted. The Gaffer moved swiftly, and within the hour he had made his preparations and was back to meet OrsOrs waiting at the air shaft. OrsOrs was silent as he led the way through the almost unused south caves to a point where a sudden turn of rock concealed a door.

"This is place I wanted show you," said OrsOrs. "Mos' men come here only once in lifetime, as part of the ceremony admitting their manhood. Rememberin' wha' i' means to us, I ask you treat i' as temple."

"And refrain from acts of destruction, eh?" The Terran was cynically amused.

"Your phrase, no' mine." Ors-Ors avoided his eyes. "I merely ask you treat i' reverently. For instance, no' bear arms in these walls."

"I wonder you bother to bring me here if you think me such a barbarian."

"You have earned the right come here. Your innovations have given new meanings to our old crafts. You have shown us how make rockets which can kill reptiles, so tha' we can kill all on Tanic. In fac', nothin' after your coming' can ever be same again. Your ideas have taken over our history."

"I was aware of that danger. It's the reason I kept my intervention to a minimum."

"But you didn' succeed in i'. The old values are crumblin'—replaced by nothin' but uncertainty."

"Would you have preferred that I hadn't come?"

"Your comin' was necessary for our survival. But i's mixed blessing. Before you go I wan' you also see wha' you've destroyed."

Instead of querying the accusation, the Gaffer compressed his lips. He undid the broad belt at his waist and allowed it to drop its burden of weaponry to the floor. They entered a foyer where Ors-Ors went through a dumb symbolistic ritual with two guardians be-

fore they were permitted farther. Then great ornate doors were opened and they were allowed into the gallery beyond.

Here the Gaffer stopped in sudden wonder. In his experience Tanic had essentially a utilitarian culture. Save for the chiefs and some of the prime elders, few possessed articles of great intrinsic value. The concept of riches was virtually unknown, and the most valuable items were invariably the most useful or the most necessary for survival. In this cave, however, lay a true concentration of valuable and artistic artifacts which would have been unique even upon Terra.

The gallery was rare in having a smooth wall structure, and its decoration was fabulously rich and ornate. Its walls were entirely covered with a random lace of metal veins which had obviously been formed *in situ*, since it followed and emphasized the polished marvels of the rock structure. Even the roof, lit by probably five hundred torches, carried the tender tracery across the vaulted heights to meet and blend with that from the far side. Elaborate canopies, the detailed metalwork of which would have defied Terran sources to duplicate, protected the onlooker from burning oil drips from the high flames. But it was in the alcoves themselves that the true wonders began.

The chalices, trays, furniture, weapons and works of pure art, fabricated in a dozen different metals, were supreme examples of the electroformers art. Almost all were incapable of being reproduced by any of the more conventional techniques of manufacture. Locked solidly into the metal matrices, mineral crystals and precious stones lay in entrapped harmony with their settings in a way which appeared so supremely natural that all other art forms would have seemed contrived and artificial when set beside them. As works of craftsmanship, each exhibit could have made its possessor a wealthy man on any home-world. As works of art, they were completely beyond any scale of price.

Dazed by the magnificence of such form and artistry, the Gaffer followed OrsOrs, alcove by alcove, along what appeared to be a descending chronological sequence of exhibits. OrsOrs offered no comment, but waited patiently while the Gaffer absorbed the miracles of one collection before proceeding to the next. In this way they covered the whole cave area. Near the end of the sequence most pretenses to artistry had gone. The utilitarian aspect of pots and platters, many somewhat misshapen, was predominant.

The last exhibit was a simple copper bowl.

"Do you realize wha' you've seen, Gaffer?"

"I think so, OrsOrs. The history

of Tanic in terms of its achievements in the forming of metal."

"Then let me add time scale. Tha' copper bowl is ten times as old as earliest stone-age fragmen' found on Terra."

"It makes me feel humble."

"Nowhere near humble as you make us feel. Before you came we *believed* in ourselves, Gaffer. We kept this museum as record of our doings. Each generation came here to measure themselves up to their forefathers and aim little higher. Think what mockery tha's become now. The new generations will want only measure up to omnipoten' Terran."

"I'm sorry, OrsOrs. You don't know how much I've tried not to overwhelm you with Terran technology."

"By which you made things damnsight worse!"

"I don't follow your reasoning."

OrsOrs looked away. His face was nearly impassive, yet his lips trembled with emotion. "If you'd cast no reflection on us. If you'd been a god, we could have accepted what you've done. I' would have come with army, we could have told ourselves that our savin' was due to greater weight of fight. If you'd confused us with science, we'd have been amazed but grateful. Bu' your comin' here alone gives us no excuse. Tha's a spiteful arrogance we can' forgive."

"Arrogance?" The Gaffer was genuinely surprised.

"Wha' else you call i'? One man comes, and by showin' how use our tools in new way, turns battle that had brought us the edge of extinction. Because Terrans are so arrogantly sure of themselves tha' one man and a tool kit is all is necessary for salvation of Tanic. Am I right?"

"You're not right, OrsOrs. We know from experience that when a relatively undeveloped culture is forced into close contact with a technically advanced one, the lesser one is almost invariably destroyed. To stop that happening to you I had to come alone. I had to do everything by means of word and example, man to man. I had to interfere with your history without setting myself up as a deity. That took a bit of doing, OrsOrs. Even you tended to lean on me."

"Because you prove to us how dumbchild we were. Your trouble, Gaffer, you can' even see yourself as we see you. You so confident you don' even need the luxury of seemin' superior. Have you any idea wha' tha' doin' to us?"

"I have a very good idea. That's why I'm leaving you now. Given a few years you'll have forgotten me."

"You don' know your influence. You leave now, your name grow with the blood of every reptile we kill. Like or not, you already outtower our gods. In a generation you will *be* our god, an' people in trouble will pray for the Gaffer to

come again. The only thing can save our way of livin' is prove you are very much a man."

"And how do you propose to do that?"

"I mus' kill you, of course."

OrsOrs turned suddenly, the machette concealed in a corner appearing abruptly in his hand as if it possessed a life of its own. "I'm sorry about this, Gaffer. But you see why has to be done."

"You're not half as sorry as you'll be if you try it."

OrsOrs advanced, the long knife carving patterns of reflected light around him.

"Isn' this the lesson you wanted us learn—do as Terrans do? Kill for pleasure? Kill for expediency and principle—not jus' for necessity?"

"I warn you, OrsOrs, don't try it. There's another way out of this."

"Another Terran way?" OrsOrs spat. "No! This is time do something Tanic way."

He raised the knife and prepared to strike, but his attention was diverted by an unusual movement of the Gaffer's wrist. Something appeared in the Terran's fingers—a small capsule. Before OrsOrs could identify his danger a cloud of choking vapor hit his face. His eyes were blinded by a hail of stinging droplets which brought him excruciating pain. Through an anguished haze he still tried to hack at the Terran form, but the Gaffer had deftly slipped from his position. OrsOrs's descending knife hit some unseen edge of rock, and the shock drove it from his fingers.

The Terran finished the fight with a deft blow of his hand on the back of his opponent's neck. OrsOrs fell unconscious to the floor, his face a mask of pain and surprise even though his mind no longer registered emotions. The Gaffer straightened and looked round.

"JoJo," he said softly, "where the devil are you?"

"Here!" JoJo emerged from behind a canopy support where he had been hiding.

"Is everything all right?" The Gaffer noted the troubled look on the boy's face.

"I had trouble gettin' past guardians. One went down when I hit him, but other I had to beat many times before he fall." He bleeds quite a lot."

"You'll learn to do it tidily in time. You've brought the bags?"

"Four, as you said." JoJo threw some soft bundles on to the floor. "Will be enough?"

"Enough for us to carry. Take two and fill them with the best small items from the other side—especially the ones with jewel inlay. I'll take this side. Work towards the door. Now hurry, or we could get caught."

For a second JoJo looked into the Gaffer's face with grave speculation, then he turned and began filling the bags with items from the

collection with a rapidity that outstripped his mentor. The Gaffer was more selective. He chose his pieces in strict chronological order and ended with a simple copper bowl. They met again at the doorway. As JoJo had said, the guardian was indeed bleeding heavily.

"Where's the handlamp?"

"In the crevice to the lef'."

"Good! I have it. Now we have to leave fast."

"Suppose they follow us?"

"I'm prepared for that. I have some small explosive charges. If necessary we can create a rockfall behind us. Once we get to the ship we'll be safe."

The Gaffer retrieved his weapon belt and they began to run the ascending passages, moving awkwardly because of the weight of the bags. As the incline lessened the Gaffer stopped occasionally and looked round. At first there were no sounds of pursuit, and only their own heavy breathing spoiled the silence. Then came a faint noise of many voices shouting, and a rising clamor in the farther tunnels.

The Gaffer caught at JoJo's arm. "We seem to have been discovered." He began to study the rock formation of the tunnel, and retreated a short distance before taking the metal cylinders from his belt.

"Go ahead, JoJo, past the next bend. Take the lamp and wait for me there."

With rising apprehension, JoJo did as he was bid. Shortly he was rejoined by the Gaffer, who motioned that they must run swiftly. They had not gone far before a great explosion rocked the ground around them. A wave of sound and pressure engulfed them and forced them onwards along the path. On all sides the walls and roof seemed to vibrate and resonate with a heavy internal thunder, and large pieces of rock fragmented from the walls and split from the roof. Behind them the cavernous shock of a major rockfall continued its echoes, and certified that the route was closed behind them.

Neither of them spoke, each being too full of his own thoughts and too intent on safely negotiating the difficult paths ahead. With their new knowledge of the noon caves, they passed swiftly through what had previously been a trail, and even the beasties seemed to sense their urgency and their desperation and stayed well clear. Then, after what seemed to be an eternity of running, the welcome yellow light of the Gaffer's annex showed through the disturbed darkness. Thankfully they flung themselves across the corrugations of the entrance grid and dropped their precious bags inside.

The Gaffer closed the door and did something to the walls which made them hum. Shortly the door opened again of its own accord. Instead of opening into noon-cave

darkness, it opened to glazed sunlight. JoJo realized with something of a shock that they had been transported from deep in the ground to the top of the beautiful tower which the Gaffer called his ship.

The Gaffer pointed out a soft pallet on which the boy might lie, and JoJo thankfully sank to rest.

"Are we safe now, Gaffer?" He was still worried by the proximity of the noon caves beneath.

"Quite safe, JoJo. As soon as the computers have found us an orbit we'll be leaving." With quiet assurance the Terran busied himself with his instruments. JoJo watched him interestedly for a while, then caught up with the significance of the rendezvous with the ships waiting above.

"Are you sure it will be right for me come with you?"

"Of course. They'll send you to school for a while, so that you can learn to live as Terrans do. Then you'll be free to try for whatever kind of life you wish."

"I want be what you are."

"It's a thankless task, JoJo. You finish up making enemies even of your friends. When you wield the big stick of Terran technology, you're riding a pretty potent weapon. You have to develop a sense of responsibility which extends way beyond yourself. You have to do things that you know are wrong in order to make things go right."

"Like stealing Tanic sacred things to make them hate you?"

"Just that. They had to hate me, because in hating me was the only way I could stop them despising themselves. They had to come to despise the Terran image. Otherwise contact with me would have damaged them far more than the reptiles could ever hope to do."

"You think you made success?"

"For a couple of generations, yes. Unfortunately its only a palliative. Once they get on top of the reptiles they'll start to look closely at the weapons and process I left. That exercise will lead them into the scientific method, and from there ten generations or less should get them into space. But the important thing is that they'll have done it themselves. But it won't alter the final endpoint. By the time we meet them in space their culture will be virtually indistinguishable from our own. It all becomes so inevitable. That's the kind of dragon spawn a Terran sows whenever he meets another culture in space."

Somewhere on the ship a two-note gong was sounding. The Terran went back to his controls and started to key instructions for the ship computer. Glancing out of the window screens he smiled wanly and beckoned to JoJo.

"You see what I mean. OrsOrs's comrades trying to bring a rocket projector to bear on us. Probably the first time on Tanic that a group of men have co-operated in the attempted destruction of others. Yet

in Terran terms it's the most logical thing to do. Already the dragon spawn begins to ripen. It should only take them about fifty years to get round to their first major war. As I said, there are worse things to tear a man apart than the claws of a lizard—and contact with Terra before a race is ready for it is about the very worst I know."

A second alarm sounded, more urgent than the first. The Gaffer secured JoJo on his hydraulic pallet, then ran to his own. Slowly the chemical drive came in, building up an incredible intensity of sound and pressures. Majestically the beautiful tower which had been the Gaffer's home lifted skyward, bearing a startled JoJo on the first leg of a fantastic journey which was, in reality, only an acceleration of an already established trend which one day the rest of his race would follow.

Below them another missile, fired by Tanic hands, smashed their erstwhile launching-pit to dust, as the spawn of the dragon ripened in the rays of the Tanic sun. ■

IN TIMES TO COME

Next month's lead off will be "Your Haploid Heart," by James Tiptree, Jr.—with a new idea for consideration.

There's an old saying—quoted by both men and women!—that "You can't live with 'em and you can't live without 'em." Biological evolution, for some strange reason, seems to have found that system of built-into-the-species conflict, the most workable system—inefficient, painful, annoying, or positively lethal as it may be.

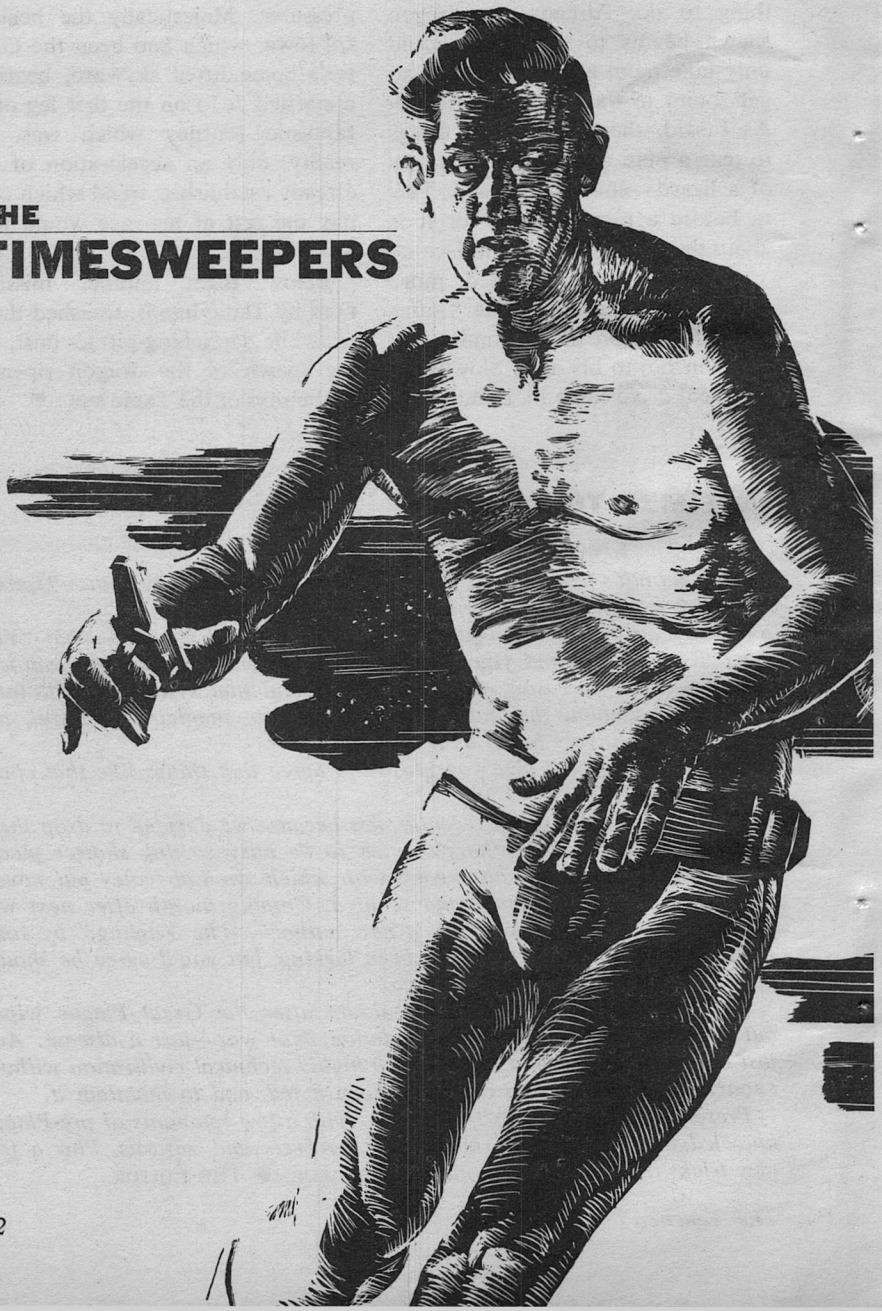
Tiptree's story will give you reason to agree that things like that could be overdone. Horribly.

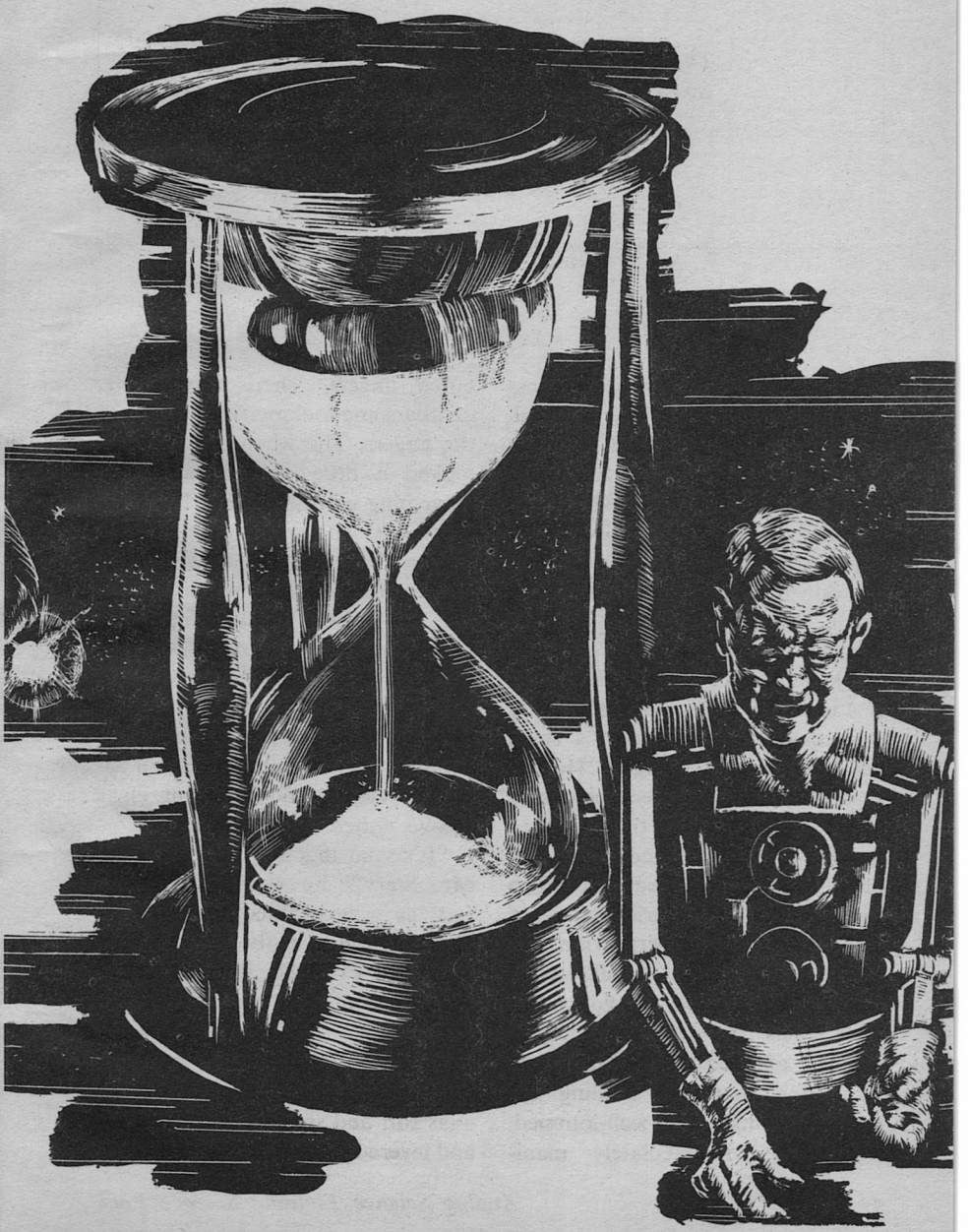
We haven't had a novel recently, not because we decided to drop them—but because all the authors seemed to be busy writing shorter pieces at the same time. The consistency with which An Lab votes put novels First shows you like them—and so do I. Coming month after next will be Part One of a new novel by a new author—"The Yngling," by John Jones. I have no idea where he's been lurking, but you'll agree he should have come out of hiding years ago.

The novel starts almost a millennium after the Great Plague wiped out ninety percent of Earth's population. Not war—just a disease. And just consider what would happen to a highly technical civilization without enough trained people to run it, to keep it fed, and to maintain it.

Presently Knighthood Is In Flower—with a few remnants of pre-Plague knowledge around among magicians, sorcerers and wizards. Plus a few new tricks devised during a mere millennium. ■ THE EDITOR.

THE TIMESWEEPERS





The blindness of a blind alley may be not so much in the alley as in its inhabitants.

KEITH LAUMER

Illustrated by Vincent Di Fate

The man slid into the seat across from me, breathing a little hard, and said, "Do you mind?" He was holding a filled glass in his hand; he waved it at the room, which was crowded, but not that crowded. It was a slightly run-down bar in a run-down street in a run-down world. Just the place for meeting strangers.

I looked him over, not too friendly a look. The smile he was wearing slipped a little and wasn't a smile anymore, just a sick smirk. He had a soft, round face, very pale blue eyes, he kind of head that ought to be bald but was covered with a fine blond down, like baby chicken feathers. He was wearing a striped sport shirt with a very wide collar laid back over a bulky plaid jacket with padded shoulders and wide lapels. His neck was smooth-skinned, and too thin for his head. The hand that was holding the glass was small and well-lotioned, with short, immaculately manicured fingers. There was a big, cumbersome-looking ring on one of the fingers. The whole composition looked a little out of tune, like something assembled in a hurry by somebody who was short on material and had to make do with what was at hand. Still, it wasn't a bad job, under the circumstances. It had passed—up until now.

"Please don't misunderstand," he said. His voice was like the rest of him: not feminine enough for a woman, but not anything you'd associate with a room full of cigar smoke, either.

"It's vital that I speak with you, Mr. Starv," he went on, talking fast, as if he wanted to get it all said before he was thrown out. "It's a matter of great importance to your future."

He must not have liked what went across my face then; he started to get up and I caught his wrist —as soft and smooth as a baby's— and levered him back into his seat.

"You might as well stay and tell me about it," I said. I looked at him over my glass while he got his smile fixed up and back in position. "My future, eh?" I prompted him. "I wasn't sure I had one."

"Oh, yes," he said, and nodded quickly. "Yes indeed. And I might add that your future is a great deal larger than your past, Mr. Starv."

"Have we met somewhere?"

He shook his head. "Please—I know I don't make a great deal of sense; I'm under a considerable strain. But please listen . . ."

"I'm listening, Mr. . . . what was the name?"

"It really doesn't matter, Mr. Starv. I myself don't enter into the matter at all; I was merely assigned to contact you and deliver the information."

"Assigned?"

He looked at me with an expression like a slave bringing ill tidings to a bad tempered king.

"Mr. Starv—what would you say if I told you I was a member of a secret organization of supermen?"

"What would you expect me to say?"

"That I'm insane," he said promptly. "Naturally, that's why I'd prefer to speak directly to the point. Mr. Starv, your life is in danger."

"Go on."

"In precisely"—he glanced at the watch strapped to the underside of his wrist—"one and one half minutes, a man will enter this establishment. He will be dressed in a costume of black, and will carry a cane—ebony, with a silver head. He will go to the bar, order a straight whiskey, drink it, turn, raise the cane and fire three lethal darts into your chest."

I took another swallow of my drink. It was the real stuff; one of the compensations of the job.

"Uh-huh," I said. "Then what?"

"Then? Then?" my little man said rather wildly. "Then you are dead, Mr. Starv!" He leaned across the table and threw this at me in a hiss, with quite a lot of spit.

"Well, I guess that's that," I said.

"No!" His fat little hand shot out and clutched my arm with more power than I'd given him credit for. "This is what will happen—*unless* you act at once to avert it."

"I take it that's where the big future you mentioned comes in."

"Mr. Starv—you must leave here at once." He fumbled in a pocket of his coat, brought out a card with an address printed on it: *309 Turkon Place.*

"It's an old building, very stable, quite near here. Go to the third floor. You'll have to climb a wooden stairway, but it's quite safe. A door marked with the numeral 9 is at the back. Enter the room and wait."

"Why would I do that?" I asked him.

He wiped at his face with his free hand.

"In order to save your life," he said.

"What's the idea—that the boy in black can't work in rooms marked 9?"

"Please, Mr. Starv—time is short. Won't you simply trust me?"

"Where'd you get my name?"

"Does that matter more than your life?"

"The name's a phony. I made it up about an hour and a half ago, when I registered at the hotel across the street."

His earnest look went all to pieces; he was still trying to reassemble it when the street door of the bar opened and a man in a black overcoat, black velvet collar, black homburg and carrying a black swagger stick walked in.

My new chum's fingers clamped into the same grooves they'd made last time.

"You see? Just as I said. Now, quickly, Mr. Starv—"

I brushed his hand off me and slid out of the booth. The man in black went to the bar without looking my way, took a stool near the end.

I went across and took the stool on his left.

He didn't look at me. He was so busy not looking at me that he didn't even look around when my elbow dug into his side. If there was a gun in his pocket, I couldn't feel it.

I leaned a little toward him. "Who is he?" I said, about eight inches from his ear. His head jerked. He put his hands on the bar and turned. His face was thin, white around the nostrils from anger or illness, gray everywhere else. His eyes looked like little black stones.

"Are you addressing me?" he said in a tone with a chill like Scott's last camp on the ice cap.

"Your friend with the sticky hands is waiting over in the booth. Why not join the party?"

"You've made an error," Blackie said, and turned away.

From the corner of my eye I saw the other half of the team trying a sneak play around left end. I caught him a few yards past the door.

It was a cold night. Half an inch of snow squeaked under our shoes as he tried to jerk free of the grip I took on his upper arm.

"Tell me about it," I said. "After I bought the mind-reading act, what was to come next?"

"You fool—I'm trying to save your life—have you no sense of gratitude?"

"What made it worth the trouble? My suit wouldn't fit you, and the cash in my pocket wouldn't pay cab fare over to Turkon Place and back."

"Let me go! We must get off the street!" He tried to kick my ankle, and I socked him under the ribs hard enough to fold him against me wheezing like a bagpipe. I took

a quick step back and heard the flat *whak!* of a silenced pistol and the whisper that a bullet makes when it passes an inch from your ear: Blackie's cane going into action from the door to the bar.

There was an alleymouth a few feet away. We made it in one jump. My little pal had his feet working again, and tried to use them to wreck my knee. I had to bruise his shins a little.

"Easy," I told him. "That slug changes things. Quiet down and I'll let go your neck."

He nodded as well as he could with my thumb where it was and I eased him back against the wall. I put my back against it, beside him, with him between me and the alleymouth. I made a little production of levering back the hammer of my Mauser.

Two or three minutes went past like geologic ages.

"We'll take a look. You first." I prodded him forward. Nobody shot at him. I risked a look. Except for a few people not in black overcoats, the sidewalk was empty.

My car was across the street. I walked him across and waited while he got in and slid across under the wheel, then got in after him. There were other parked cars, and plenty of dark windows up above for a sniper to work from, but nobody did.

"309 Turkon Place, you said." I nudged him with the Mauser. "Let's go have a look."

He drove badly, like a middle-aged widow who only learned to drive after her husband died. We clashed gears and ran stoplights across town to the street he had named. It was a badly-lit unpatched brick dead end that rose steeply toward a tangle of telephone poles at the top. The house was tall and narrow, slanted against the sky, showing no lights. I prodded my guide ahead of me along the narrow walk that ran back beside the house, went in via the back door. It resisted a little, but gave without making any more noise than a dropped xylophone.

We stood on some warped linoleum and smelled last week's cabbage and listened to some dense silence.

"Don't be afraid," the little man said. "There's no one here." He led me along a passage a little wider than my elbows, past a tarnished mirror and a stand full of umbrellas, up steep steps with black rubber matting held by tarnished brass rods. The flooring creaked on the landing. Another flight brought us into a low-ceilinged hall with gray-painted doors made visible by the pale light coming through a wire-glass skylight.

He found number 9, put an ear against it, opened up and went in. I followed.

It was a small bedroom, with a double bed, a dresser with a doily on it, a straight chair, a rocker, an oval rag rug, a hanging fixture in

the center with a colored glass bowl. My host placed the chairs into a cozy *tête-a-tête* arrangement, offered me the rocker, and perched on the edge of the other.

"Now," he said, and put his fingertips together comfortably, like a pawnbroker about to beat you down on the value of the family jewels, "I suppose you want to hear all about the man in black, how I knew just when he'd appear, and so on."

"It was neat routine," I said. "Up to a point. After you fingered me, if I didn't buy the act, Blackie would plug me—with a dope dart. If I did—I'd be so grateful, I'd come here."

"As indeed you have." My little man looked different now, more relaxed, less eager to please. "I suppose I need not add that the end result will be the same." He made a nice hip draw and showed me a strange looking little gun, all shiny rods and levers.

"You will now tell me about yourself, Mr. Starv—or whatever you may choose to call yourself."

"Wrong again—Karge," I said.

For an instant it didn't register. Then his fingers twitched and the gun made a spitting sound and needles showered off my chest. I let him fire the full magazine. Then I shot him under the left eye with the pistol I had palmed while he was settling himself on his chair.

He settled furthur; his head was bent over his left shoulder as if he were trying to admire the water spots on the ceiling. His little pudgy hands opened and closed a couple of times. He leaned sideways quite slowly and hit the floor like a hundred and fifty pounds of heavy machinery.

Which he was, of course.

The shots hadn't made much noise—no more than the one fired at me by the Enforcer had. I listened, heard nothing in the way of a response. I laid the Karge out on his back—or on its back—and cut the seal on his reel compartment, lifted out the tape he'd been operating on. It was almost spent, indicating that his mission had been almost completed. I checked his pockets but turned up nothing, not even a ball of lint.

It took me twenty minutes to go over the room. I found a brain-reader focused on the rocker from the stained-glass ceiling light. He'd gone to a lot of effort to make sure he cleaned me before disposing of the remains.

I took time to record my scan to four point detail, then went back down to the street. A big, square car went past, making a lot of noise in the silent street, but no bullets squirted from it. I checked my locator and started east, downslope.

It was a twenty-minute walk to the nearest spot the gauges said was within the acceptable point-point range for a locus transfer.

I tapped out the code with my tongue against the trick molars set in my lower jaw, felt the silent impact of temporal implosion, and was squinting against the dazzling sunlight glaring down on Dinosaur Beach.

My game of cat-and-mouse with the Karge had covered several square miles of the city of Buffalo, New York, T.F. late March, 1936. A quick review of my movements from the time of my arrival at the locus told me that the Timecast station should be about a mile and a half distant, to the southwest, along the beach. I discarded the warmer portions of my costume and started hiking.

The sea in this era—some sixty-five million years B.C.—was south-sea-island blue, stretching wide and placid to the horizon. The long swells coming in off the Eastern Ocean—which would one day become the Atlantic—crashed on the gray sand with the same familiar *crump-booom!* that I had known in a dozen Eras. It was a comforting sound. It said that after all, the doings of the little creatures that scuttled on her shores were nothing much in the life of Mother Ocean, age five billion and not yet in her prime.

There was a low headland just ahead, from which the station would be visible a mile or so beyond: a small, low, gray-white structure perched on the sand above high tide line, surrounded by tree ferns and club-mosses, not as decoration but to render the installation as inconspicuous as possible, on the theory that if the wild life were either attracted or repelled by strangeness it might introduce an uncharted U-line on the Probability charts which would render a thousand years of painstaking—and painful—temporal mapping invalid.

Inside, Nel Jard, the Chief Timecaster, would have me in for debriefing, would punch his notes into the master plot, and wave me on my way back to Nexx Central, where a new job would be waiting, having nothing to do with the last one. I'd never learn just why the Karge had been placed where it was, what sort of deal it had made with the Enforcers, what part the whole thing played in the larger tapestry of the Nexx grand strategy.

That's what would have happened. Except that I topped the rise just then and saw the long curve of beach ahead, and the tongue of jungle that stretched down almost to the shore along the ridge. But where the station had been, there was nothing but a smoking crater.

Dinosaur Beach had been so named because a troop of small allosaur-like reptiles had been scurrying along it when the first siting party had fixed-in there. That had been sixty years ago, Nexx Subjective, only a few months after

the decision to implement Project Timesweep.

The idea wasn't without merit. The First Era of time travel had closely resembled the dawn of the space age in some ways—notably, in the trail of rubbish it left behind. In the case of the space garbage, it had taken half a dozen major collisions to convince the authorities of the need to sweep circumterrestrial space clean of fifty years' debris in the form of spent rocket casings, defunct telemetry gear, and derelict relay satellites long lost track of. In the process they'd turned up a large number of odds and ends of meteoric rock and iron, a few lumps of clearly terrestrial origin, possibly volcanic, the mummified body of an astronaut lost on an early space walk, and a couple of artifacts that the authorities of the day had scratched their heads over and finally written off as the equivalent of empty beer cans tossed out by visitors from out-system.

That was before the days of Timecasting, of course.

The Timesweep program was a close parallel to the space sweep. The Old Era temporal experimenters had littered the time-ways with everything from early one-way timecans to observation stations, dead bodies, abandoned instruments, weapons and equipment of all sorts, including an automatic mining setup established under the Antarctic ice, which caused headaches at the time of the Big Melt.

Then the three hundred years of the Last Peace put an end to that; and when temporal transfer was rediscovered in early New Era times, the lesson had been heeded. Rigid rules were enforced from the beginning of the Second Program, forbidding all the mistakes that had been made by the First Program pioneers.

Which meant the Second Program had to invent its own disasters—like the one I was looking at.

I had gone flat on the hot sand at first sight of the pit among the blackened stumps of the club-mosses, while a flood of extraneous thoughts went whirling through my tired old brain, as thoughts will in such moments. I had been primed to step out of the heat and the insects and the sand into cool, clean air, soft music, the luxury of a stim-bath and a nap on a real air couch.

But that was all gone to slag now. I hugged the ground and looked down at it, and tried to extract what data I could from what I could see. It wasn't much.

Item one: Some power had had the will and the way to blast a second-class Nexx staging station out of existence. It seemed they'd used good old-fashioned nuclears for the job, too; nothing so subtle as a temporal lift, or a phase-suppressor.

Item two: The chore had been handled during the ten days N.S. I'd been on location in 1936. There might, or might not, be some message there for me.

I suppressed the desire to jump up and run down for a closer look. I stayed where I was, playing boulder, and looked at the scene some more with gritty eyes that wept copiously in the glare of the tropical Jurassic sun. I didn't see anything move—which didn't mean there was nothing there to see. After half an hour of that, I got up and walked down to the ruins.

Ruins was an exaggeration. There was a fused glass pit a hundred yards in diameter surrounded by charred organic matter. That gave me item three:

Nothing had survived—no people, no equipment. Not only would I not have the benefit of soft music and bed to match, there'd be no debriefing, no input of data into the master tape, no replay of the Karge operation tape to give me a clue to Enforcer Strategy. And worst of all, there'd be no outjump to Nexx Central.

Which made things a trifle awkward, since the location of Central was a secret buried under twelve layers of interlocked ciphers in the main tank of the Nexial Brain. Not even the men who built the installation knew its physical and temporal coordinates. The only way to reach it was to be computer-routed via one of the hundred and twelve official staging stations scattered across Old Era time. And not just any station: it had to be the one my personal jumper field was attuned to.

Which was a thin layer of green glass lining a hollow in the sand.

It was one of those times when the mind goes racing around inside the trap of the skull like a mouse in a bucket, making frantic leaps for freedom and falling back painfully on its rear.

On about the tenth lap, an idea bobbed up and grinned a rather ghastly grin.

My personal jump gear, being installed in my body, was intact. All I lacked was a target. But that didn't mean I couldn't jump. All it meant was that I wouldn't know where I'd land—if anywhere.

There had been a lot of horror stories circulated back at Nexx Central about what had happened to people who misfired on a jump. They ranged from piecemeal reception at a dozen stations strung out across a few centuries, to disembodied voices screaming to be let out. Also, there were several rules against it.

The alternative was to set up housekeeping here on the beach, with or without dinosaurs, and hope that a rescue mission arrived before I died of old age, heat, thirst, or reptiles.

I didn't like the odds, but they were all the odds I had.

I took a final breath of humid beach air, a last look around at the bright, brutal view of sea and sand, the high, empty sky. It seemed to be waiting for something to happen.

The tune I played on the console set in my jaw was different this time, but the effect was much the same: The painless blow of a silent club, the sense of looping the loop through a Universe-sized Klein bottle—

Total darkness and a roar of sound like Niagara Falls going over me in a barrel.

For a few seconds I stood absolutely still, taking a swift inventory of my existence. I seemed to be all here, organized pretty much as usual. The sound went on, the blackness failed to fade. The rule book said that in a case of transfer malfunction to remain immobile and await retrieval, but in this case that might take quite a while. Also, there was the datum that no one had ever lived to report a jump malfunction, which suggested that possibly the rule book was wrong.

I tried to breath, and nothing happened. That decided me. I took a step and emerged as through a curtain into a strange blackish light, shot through with little points of dazzling brilliance, like what you see just before you faint from loss of blood. But before I could put my head between my knees, the dazzle faded and I was looking at the jump room of a regulation Nexx Staging Station. And I could breathe.

I did that for a few moments, then turned and looked at the curtain I had come through. It was a solid wall of beryl-steel, to my knowledge over two meters thick.

Maybe the sound I had heard was the whizzing of molecules of dense metal interpenetrating with my own two hundred pounds of impure water.

That was a phenomenon I'd have to let ride until later. More pressing business called for attention first—such as discovering why the station was as silent as King Sethy's tomb after the grave robbers finished with it.

It took me ten minutes to check every room on operations level. Nobody was home. The same for the R and R complex. Likewise the equipment division, and the power chamber.

The core sink was drawing normal power, the charge was up on the transmitter plates, the green lights were on all across the panels; but nothing was tapping the station for so much as a microerg.

Which was impossible. The links that tied a staging station to Nexx Central and in turn monitored the activities of personnel operating out of the station always drew at least a trickle of carrier power. They had to, as long as the station existed. A no-drain condition was impossible anywhere in normal space time.

I didn't like the conclusion, but I reached it anyway.

All the stations were identical; in fact, considering their mass-production by the time-stutter process which distributed them up and

down the temporal contour, there's a school of thought that holds that they *are* identical; alternate temporal aspects of the same physical matrix. But that was theory, and my present situation was fact. A fact I had to deal with.

I went along the passage to the entry lock—some of the sites are hostile to what Nexx thinks of as ordinary life—cycled it, and almost stepped out.

Not quite.

The ground ended about ten feet from the outflung entry wing. Beyond was a pearly gray mist, swirling against an invisible barrier. I went forward to the edge and lay flat and looked over. I could see the curve of the underside of the patch of solid rock the station perched on. It was as smooth and polished as green glass. Like the green glass crater I'd seen back on the beach.

The station had been scooped out of the rock like a giant dip of ice cream and deposited here, behind a barrier of a kind the scientists of Nexx Central had never dreamed of.

That gave me two or three things to think of. I thought of them while I went back in through the lock, and down the transit tunnel to the transfer booth.

It looked normal. Aside from the absence of a cheery green light to tell me that the field was on sharp focus to Nexx Central, all was as it should be. The plates were hot, the dial readings normal.

If I stepped inside, I'd be transferred—somewhere.

Some more interesting questions suggested themselves, but I'd already been all over those. I stepped in and the door valved shut and I was alone with my thoughts. Before I could have too many of those I reached out and tripped the Xmit button.

A soundless bomb blew me motionlessly across dimensionless space.

A sense of vertigo that slowly faded; a shimmer of light, as from a reflective surface in constant, restless movement; a hollow, almost metallic sound, coming from below me; a faint sensation of heat and pressure against my side . . .

Sunlight shining on water. The waves slapping the hollow steel pilings of a pier. The pressure of a plank deck on which I was lying—a remote, tentative pressure, like a sun-warmed cloud.

I sat up. The horizon pivoted to lie flat, dancing in the heat-ripples. The spars and masts of a small sailing ship poked up bare against a lush blue sky.

Not a galleon, I realized—at least not a real one. The steel pilings rendered that anachronous. That made it a replica, probably from the Revival, circa 2020 AD. I got to my feet, noticing a curious tendency on the part of my feet to sink into the decking.

I was still dizzy from the shock

of the transfer. Otherwise I would probably have stayed where I was until I had sorted through the ramifications of this latest development. Instead, I started toward the end of the pier. It was high and wide—about twenty feet from edge to edge, fifteen feet above the water. From the end I could look down on the deck of the pseudo-galleon, snugged up close against the resilient bumper at the end of the quay. It was a fine reproduction, artfully carved and weather-scarred. Probably with a small reactor below decks, steel armor under the near-oak hull-planking, and luxury accommodations for an operator and a dozen holiday-makers.

Then I saw the dead man lying on the deck. He was face-down at the foot of the mast—a big fellow dressed in sixteenth century costume, soiled and sweat-stained. He looked much too authentic to be part of a game.

I stood still and tried to get it together. Something about what I was looking at bothered me. I wanted to see it more closely. A ladder went down. I descended, jumped the six-foot gap. Nobody came out to see what the disturbance was all about.

The mast cast a black shadow across the hand-hewn deck, across the man lying there, one hand under him, the other outflung. A gun lay a yard from the empty hand. There was a lot of soggy black lace in a black puddle under his throat.

I picked up the gun. It was much heavier than a gun had any right to be. It was a .01 micro jet-gun of Nexx manufacture, with a grip that fitted my hand perfectly.

It ought to. It was my gun. I looked at the hand it had fallen from. It looked like my hand. I didn't like doing it, but I turned the body over and looked at the face.

It was my face.

The post-mission conditioning that had wiped the whole sequence from my memory—standard practice after a field assignment—broke.

I remembered it now, the whole sequence: the capture of the Karge-operated ship which had been operating in New Spanish waters, the flight across the decks in company with a party of English seamen, the cornering of the android—

But it hadn't ended like this. I had shot the Karge, not the reverse. I had brought the captive vessel—a specially-equipped Karge operations unit in disguise—to the bulk transfer point at Locus Q-997, from which it had been transmitted back to Nexx Central for total intelligence analysis.

But here it was, still tied to the pier at the transfer station. With me lying on the deck, very dead indeed from a large-caliber bullet through the throat.

Something was very wrong. It hadn't happened that way—not in my time track. Then, suddenly, I understood the magnitude of the trap I had blundered into.

A Nexx agent is a hard man to get rid of: hard to kill, hard to immobilize, because he's protected by all the devices of a rather advanced science.

But if he can be marooned in the closed loop of an unrealized alternate reality—a pseudo-reality from which there can be no outlet to a future which doesn't exist—then he's out of action forever.

I could live a long time here. There'd be food and water and a place to sleep; but no escape, ever; no trace on any recording instrument to show where I had gone . . .

But I wouldn't dwell on that particular line of thought right now—not yet. Not until it was the only thought left for me to have. Like a locked-out motorist patting his pockets three times looking for the key he can see hanging in the ignition, I patted my mental pockets looking for an out.

I didn't like the one I found, but I liked it better than not finding it.

My personal jump mechanism was built into me, tuned to me. And its duplicate was built into the corpse lying at my feet. Just what it might be focused on was an open question; it would depend on what had been in the dead man's mind at the instant of death.

The circuity of the jump device —from antennae to power coils— consisted largely of the nervous system of the owner. Whether it was still functional depended on how long "I" had been dead. I squatted and put two fingers against the dead neck.

Barely cool. It only takes five minutes without oxygen for irreversible brain damage to occur. What effect that would have was a mystery, but there was no time to weigh odds.

The corpse's jaws were locked hard, fortunately in a half-open position. I got a finger inside and tried my code on the molar installation.

A giant clapped his hands together, with me in the middle.

Twilight, on a curved, tree-shaded street. Autumn leaves underfoot, clotted against the curbing, and blowing in the cold, wet wind. Low buildings set well back, with soft light coming from the windows. Tended lawns and gardens, polished automobiles in hedge-lined drives. I was directly opposite the front door of a gray field stone house. The door opened. *I* stepped out.

This time I was prepared. Not really prepared, but half expecting it, like an unlucky card player turning up a losing card.

Time: About ten years earlier, NS. Or the year 1968, local. Place, a village in the mid-western U.S.A. I had jumped back into my own past—one of my first assignments, long ago completed, filed in the master tape, a part of Timesweep history.

But not any more. The case was

reopened on the submission of new evidence. I was doubled back on my own time track.

The fact that this was a violation of every natural law governing time travel was only a minor aspect of the situation.

The past that Nexx Central had painfully rebuilt to eliminate the disastrous results of Old Era time meddling was coming unstuck.

And if one piece of the new mosaic that was being so carefully assembled was coming unglued—then everything that had been built on it was likewise on the skids, ready to slide down and let the whole complex and artificial structure collapse in a heap of temporal rubble that neither Nexx Central or anyone else would be able to salvage.

With the proper lever, you can move worlds; but you need a solid place to stand. That had been Nexx Central's job for the past six decades: to build a platform in the remote pre-Era on which all the later structure would be built.

And it looked as though it had failed.

I watched myself—ten years younger—step out into the chilly twilight, close the door, through which I caught just a glimpse of a cozy room, and a pretty girl smiling good-bye. My alter ego turned toward the upper end of the street, set off at a brisk walk. I placed the time then.

I had spent three months in the village, from late summer to autumn. The job had been a waiting game, giving the local Karge time to betray himself. He had done so, and I had spotted it; a too-clever craftsman, turning out hand tools, the design of which was based on alloys and principles that wouldn't be invented for another century.

I had done my job and made my report and been ordered back. I had wanted to explain to Lisa, the girl in the house; but, of course, that had been impossible. I had stepped out for a six-pack of ale, and had never come back. It was common sense, as well as regulations, but my heart wasn't in it. Her face had haunted me as I left to go to the point/point site for transfer back to Central.

As it was haunting the other me now. This was that last night. I was on my way back to Nexx Central now. It would be a ten-minute walk into the forest that grew down to the outskirts of the village. There I would activate the jump field and leave the twentieth century ten-thousand years behind. And an hour later even the memory would be gone.

I picked the darkest side of the street and followed myself toward the woods.

I caught up with myself mooching around in the tangle of wild berry bushes I remembered from last time, homing in on the optimum signal from my locator. This had been my first field transfer, and

I hadn't been totally certain the system would work.

I came up fast, skirted the position and worked my way up to within twenty feet of take-off position. The other me was looking nervous and unhappy, a feeling I fully sympathized with.

I gained another six feet, smooth and quiet. I'd learned a lot of field technique since the last time I'd been on this spot. I watched the other me brace himself, grit my teeth, and tap out the code—

Two jumps, and I was behind *me;* I grabbed *me* by both leather sleeves from behind, up high, slammed *my* elbows together, whirled *me,* and gave *me* a hearty shove into the brambles just as the field closed around me, and threw me a million miles down a dark tunnel full of solid rock.

Someone was shaking me. I tried to summon up enough strength for a groan, didn't make it, opened my eyes instead.

I was looking up into my own face.

For a few whirly instants I thought the younger me had made a nice comeback from the berry bushes and laid me out from behind.

Then I noticed the lines in the face, and the hollow cheeks. The clothes this new me was wearing were identical with the ones I had on, except for being somewhat more travel stained. And there was a nice bruise above the right eye that I didn't remember getting.

"Listen carefully," my voice said to me. "I've come full circle. Dead end. Closed loop. No way out—except one—maybe. I don't like it much, but I don't see any alternative. Last time around, we had the same talk—but I was on the floor then, and another version of us was here ahead of me with the same proposal. I didn't like it. I thought there had to be another way. I went on—and wound up back here. Only this time *I'm* the welcoming committee."

He unholstered the gun at his hip and held it out.

"I . . . *we're* . . . being manipulated. All the evidence shows that. I don't know what the objective is, but we have to break the cycle. *You* have to break it. Take this and shoot me through the head."

I got up on my elbows, which was easier than packing a grand piano up the Matterhorn, and shook my head, both in negation and to clear some of the fog. That was a mistake. It just made it throb worse.

"I know all the arguments," my future self was saying. "I used them myself, about ten days ago. That's the size of this little temporal enclave we have all to ourselves. But they're no good. This is the one real change we can introduce."

"You're out of your mind," I said. "I'm not the suicidal type—even if the me I'm killing is you."

"That's what they're counting on. It worked, too, with me. I wouldn't do it." He . . . *I* . . . weighed the gun on his palm and looked at me very coldly indeed.

"If I thought shooting you would help, I'd do it without a tremor," he said. He was definitely *he* now.

"Why don't you?"

"Because the next room is full of bones," he said with a smile that wasn't pretty. "Our bones. Plus the latest addition, which still has a little spoiled meat on it. That's what's in store for me. Starvation. So it's up to you."

"Nightmare," I said, and started to lie back and try for a pleasanter dream,

"Uh-huh—but you're awake," he said, and caught my hand and shoved the gun into it.

"Do it now—before I lose my nerve!"

I made quite a bit of noise groaning, getting to my feet. I ached all over.

"You weren't quite in focal position on the jump here," he explained to me. "You cracked like a whip. Lucky nothing's seriously dislocated."

"Let's talk a little sense," I said. "Killing you won't change anything. What I could do alone we could do better together."

"Wrong. This is a jump station, or a mirror-image of one. Complete except for the small detail that the jump field's operating in a closed loop. Outside, there's nothing."

"You mean—this is the same—"

"Right. That was the first time around. You jumped out into a non-object dead end. You were smart, you figured a way out—but they were ahead of us there, too. The circle's still closed—and here you are. You can jump out again, and repeat the process. That's all."

"Suppose I jump back to the wharf and *don't* use the corpse's jump gear—"

"Then you'll starve there."

"All right; suppose I make the second jump, but don't clobber myself—"

"Same result. He leaves, you're stranded."

"Maybe not. There'd be food there. I could survive, maybe eventually be picked up—"

"Negative. I've been all over that. You'd die there. Maybe after a long life, or maybe a short one. Same result."

"What good will shooting you do?"

"I'm not sure. But it would introduce a brand-new element into the equation—like cheating at solitaire."

I argued a little more. He took me on a tour of the station. I looked out at the pearly mist, poked into various rooms. Then he showed me the bone room.

I think the smell convinced me.

I lifted the gun and flipped off the safety.

"Turn around," I snapped at him. He did.

"There's one consoling possibility," he said. "This might have the effect of—"

The shot cut off whatever it was he was going to say, knocked him forward as if he'd been jerked by a rope around the neck. I got just a quick flash of the hole I'd blown in the back of his skull before a fire that blazed brighter than the sun leaped up in my brain and burned away the walls that had caged me in.

I was a giant eye, looking down on a tiny stage. I saw myself, an agent of Nexx Central, moving through the scenes of ancient Buffalo, weaving my petty net around the Karge. *Karge,* a corruption of "cargo," referring to the legal decision as to the status of the machinemen in the great Transport Accommodations riots of the mid Twenty-eighth Century.

Karges, lifeless machines, sent back from the Third Era in the second great Timesweep, attempting to correct not only the carnage irresponsibly strewn by the primitive Old Era temporal explorers, but to eliminate the even more destructive effects of the New Era Timesweep Enforcers.

The Third Era had recognized the impossibility of correcting the effects of human interference with more human interference.

Machines which registered neutral on the life-balance scales could do what men could not—could restore the integrity of the Temporal Core.

Or so they thought.

After the Great Collapse and the long night that followed, Nexx Central had arisen to control the Fourth Era. They saw that the tamperings of prior eras were all a part of the grand pattern; that any effort to manipulate reality via temporal policing was doomed only to weaken the temporal fabric.

Thus, my job as a field agent of Nexx: To cancel out the efforts of all of them; to allow the wound in time to heal; for the great stem of Life to grow strong again.

How foolish it all seemed now. Was it possible that the theoreticians of Nexx Central failed to recognize that their own efforts were no different from those of earlier Timesweepers? And that . . .

There was another thought there, a vast one; but before I could grasp it, the instant of insight faded and left me standing over the body of the murdered man, with a wisp of smoke curling from the gun in my hand and the echoes of something immeasurable and beyond value ringing down the corridors of my brain. And out of the echoes, one clear realization emerged: Timesweeping was a fallacy; but it was a fallacy practiced not only by the experimenters of the New Era and the misguided fixers of the Third Era, but also by the experts of Nexx Central.

There was, also, another power.

A power greater than Nexx Central, that had tried to sweep me under the rug—and had almost made it. I had been manipulated as neatly as I had maneuvered the Karge and the Enforcer, back in Buffalo. I had been hurried along, kept off balance, shunted into a closed cycle which should have taken me out of play for all time.

As it would have, if there hadn't been one small factor that they had missed.

My alter ego had died in my presence—and his mind-field, in the instant of the destruction of the organic generator which created and supported it, had jumped to, merged with mine.

For a fraction of a second, I had enjoyed an operative IQ which I estimated at a minimum of 250.

And while I was still mulling over the ramifications of that realization, the walls faded around me and I was standing in the receptor vault at Nexx Central.

There was the cold glare of the high ceiling on white walls, the hum of the field-focusing coils, the sharp odors of ozone and hot metal in the air—all familiar, if not homey. What wasn't familiar was the squad of armed men in the gray uniforms of Nexx security guards. They were formed up in a circle, with me at the center; and in every pair of hands was an implosion rifle, aimed at my head. An orange light shone in my face—a damper field projector.

I got the idea. I raised my hands—slowly. One man came in and frisked me, lifted my gun and several other items of external equipment. The captain motioned. Keeping formation, they walked me out of the vault, along a corridor, through two sets of armored doors and onto a stretch of gray carpet before the wide, flat desk of the Timecaster in Charge, Nexx Central.

He was a broad, square-faced, powerful man, clear-featured, his intellect as incisive as his speech. He dismissed the guard—all but two—and pointed to a chair.

"Sit down, Agent," he said. I sat.

"You deviated from your instructions," he said. There was no anger in his tone, no accusation, not even any curiosity.

"That's right, I did," I said.

"Your mission was the execution of the Enforcer DVK-Z-97, with the ancillary goal of capture, intact, of a Karge operative unit, Series H, ID 453." He said it as though I hadn't spoken. This time I didn't answer.

"You failed to effect the capture," he went on. "Instead, you destroyed the Karge brain. And you made no effort to carry out the execution of the Enforcer."

What he said was true. There was no point in denying it, any more than there was in confirming it.

"Since no basis for such actions

within the framework of your known psychindex exists, it is clear that your motives must be sought outside the context of the Nexx policy. Clearly, any assumption involving your subversion by prior temporal powers is insupportable. Ergo—you represent a force not yet in subjective existence."

"Isn't that a case of trying to wag the dog with the tail?" I said. "You're postulating a Fifth Era just to give me a motive. Maybe I just fouled up the assignment. Maybe I went off my skids. Maybe—"

"You may drop the Old Era persona now, Agent. Aside from the deductive conclusion, I have the evidence of your accidentally revealed intellectual resources. In the moment of crisis, you registered in the third psychometric range. No human brain known to have existed has ever attained that level. I point this out so as to make plain to you the fruitlessness of denying the obvious."

"I was wrong," I said. "You're not postulating a Fifth Era."

He looked mildly interested.

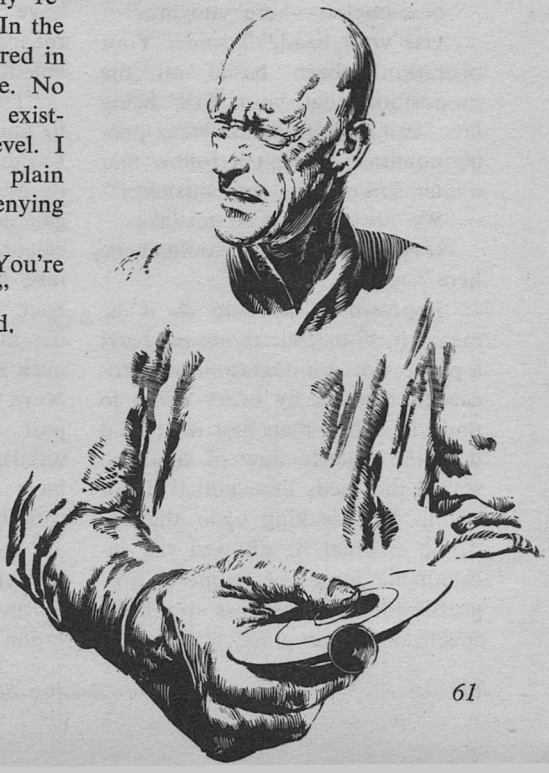
"You're postulating a Sixth Era," I went on.

"What is the basis for that astonishing statement?" he said, not looking astonished.

"Easy," I said. "*You*'re Fifth Era. I should have seen it sooner. You've infiltrated Nexx Central."

"And you've infiltrated our infiltration. That is unfortunate. Our operation has been remarkably successful so far, but no irreparable harm has been done—although you realized your situation, of course, as soon as you found yourself isolated—I use the term imprecisely—in the aborted station."

"I started to get the idea then,"



I told him. "I was sure when I saw the direction the loop was taking me. Nexx Central had to be involved. But it was a direct sabotage of Nexx policy; so infiltration was the obvious answer."

"Fortunate that your thinking didn't lead you one step further," he said. "If you had eluded my recovery probe, the work of millennia might have been destroyed."

"Futile work," I said.

"Indeed? Perhaps you're wrong, Agent. Accepting the apparent conclusion that you represent a Sixth Era does not necessarily imply your superiority. Retrogressions *have* occurred in history."

"Not this time."

"Nonetheless—here you are."

"Use your head," I said. "Your operation's been based on the proposition that your Era, being later, can see pitfalls the Nexx people couldn't. Doesn't it follow that a later Era can see *your* mistakes?"

"We are making no mistakes."

"If you weren't, I wouldn't be here."

"Impossible!" he said as if he meant it. "For four thousand years a process of disintegration has proceeded, abetted by every effort to undo it. When man first interfered with the orderly flow of time, he sowed the seeds of eventual dissolution. By breaking open the entropic channel he allowed the incalculable forces of temporal progression to diffuse across an infinite spectrum of progressively weaker matrices. Life is a product of time. When the density of the temporal flux falls below a critical value, life ends. Our intention is to prevent that ultimate tragedy."

"You can't rebuild a past that never was," I said.

"That is not our objective. Ours is a broad program of reknitting the temporal fabric by bringing together previously divergent trends. We are apolitical; we support no ideology. We are content to preserve the vitality of the continuum. As for yourself, I have one question to ask you, Agent." He frowned at me. "Not an agent of Nexx, but nonetheless an agent. Tell me: What motivation could your Era have for working to destroy the reality core on which any conceivable future *must* depend?"

"The first Timesweepers set out to undo the mistakes of the past," I said. "Those who came after them found themselves faced with a bigger job: cleaning up after the cleaners-up. Nexx Central tried to take the broad view, to put it all back where it was before any of the meddling started. Now you're even more ambitious. You're using Nexx Central to manipulate not the past, but the future—in other words, the Sixth Era. You should have expected that program wouldn't be allowed to go far."

"Are you attempting to tell me that any effort to undo the damage, to reverse the trend toward dissolution, is doomed?"

"As long as man tries to put a harness on his own destiny, he'll defeat himself. Every petty dictator who ever tried to enforce a total state discovered that, in his own small way. The secret of man is his unchainability; his existence depends on uncertainty, insecurity —the chance factor. Take that away and you take all."

"This is a doctrine of failure and defeat," he said flatly. "A dangerous doctrine. It will now be necessary for you to inform me fully as to your principals: who sent you here, who directs your actions, where your base of operations is located. Everything."

"I don't think so."

"You feel very secure, Agent. You, you tell yourself, represent a more advanced Era, and are thus the immeasurable superior of any more primitive power. But a muscular fool may chain a genius. I have trapped you here. We are now safely enclosed in an achronic enclave of zero temporal dimensions, totally divorced from any conceivable outside influence. You will find that you are effectively immobilized; any suicide equipments you may possess are useless, as is any temporal transfer device. And even were you to die, your brain will be instantly tapped and drained of all knowledge, both at conscious and subconscious levels."

"You're quite thorough," I said, "but not quite thorough enough. You covered yourself from the outside—but not from the inside."

He frowned; he didn't like that remark. He sat up straighter in his chair and made a curt gesture to his gun-handlers on either side of me. I knew his next words would be the kill order. Before he could say them, I triggered the thought-code that had been waiting under several levels of deep hypnosis for this moment. He froze just like that, with his mouth open and a look of deep bewilderment in his eyes.

The eclipse-like light of null-time stasis shone on his taut face, on the faces of the two armed men standing rigid with their fingers already tightening on their firing studs. I went between them, fighting the walking-through-syrup sensation, and out into the passage. The only sound was the slow, all-pervasive, metronome-like beat that some theoreticians said represented the basic frequency rate of the creation/destruction cycle of reality.

I checked the transfer room first, then every other compartment of the station. The Fifth Era infiltrators had done their work well. There was nothing here to give any indication of how far in the subjective future their operation was based, no clues to the extent of their penetration of Nexx Central's sweep programs. This was data that would have been of interest, but wasn't essential. I had accomplished phase one of my

basic mission: smoking out the random factor that had been creating anomalies in the long-range time maps for the era.

Of a total of one hundred and twelve personnel in the station, four were Fifth Era transferees, a fact made obvious in the stasis condition by the distinctive aura that their abnormally high temporal potential created around them. I carried out a mind-wipe on pertinent memory sectors and triggered them back to their loci of origin. There would be a certain amount of head-scratching and equipment re-examining when the original effort to jump them back to their assignments at Nexx Central apparently failed; but as far as temporal operations were concerned, all four were permanently out of action, trapped in the same type of closed-loop phenomenon they had tried to use on me.

The files called for my attention next. I carried out a tape-scan *in situ*, edited the records to eliminate all evidence that might lead Third Era personnel into undesirable areas of speculation.

I was just finishing up the chore when I heard the sound of footsteps in the corridor outside the record center.

Aside from the fact that nothing not encased in an eddy-field like the one that allowed me to operate in null-time could move here, the intrusion wasn't too surprising. I had been expecting a visitor of some sort. The situation almost demanded it.

He came through the door, a tall, fine-featured, totally hairless man elegantly dressed in a scarlet suit with deep purple brocaded designs worked all over it, like eels coiling through seaweed. He gave the room one of those flick-flick glances that prints the whole picture on the brain to ten decimals in a one microsecond gestalt, nodded to me as if I were a casual acquaintance encountered in the street.

"You are very efficient," he said. He spoke with no discernible accent, but with a rather strange rhythm to his speech, as if perhaps he was accustomed to talking a lot faster. His voice was calm, a nice musical baritone:

"Up to this point, we approve your actions; however, to carry your mission further would be to create a ninth-order probability vortex. You will understand the implications of this fact."

"Maybe I do and maybe I don't," I hedged. "Who are you? How did you get in here? This enclave is double-sealed."

"I think we should deal from the outset on a basis of complete candor," the man in red said. "I know your identity, your mission. My knowledge should make it plain that I represent a still later Era than your own—and that our judgment overrides your principles."

I grunted. "So the Seventh Era comes onstage, all set to Fix it Forever."

"To point out that we have the advantage of you is to belabor the obvious."

"Uh-huh. But what makes you think another set of vigilantes won't land on *your* tail, to fix your fixing?"

"There will be no later Timesweep," Red said. "Ours is the Final Intervention. Through Seventh Era efforts the temporal structure will be restored not only to stability, but will be reinforced by the refusion of an entire spectrum of redundant entropic vectors."

I nodded. "I see. You're improving on nature by grafting all the threads of unrealized history back into the main stem. Doesn't it strike you that's just the kind of tampering Timesweep set out to undo?"

"I live in an era that has already begun to reap the benefits of temporal reinforcement," he said firmly. "We exist in a state of vitality and vigor that prior eras could only dimly sense in moments of exultation. We—"

"You're kidding yourselves. Opening up a whole new order of meddling just opens up a whole new order of problems."

"Our calculations indicate otherwise. Now—"

"Did you ever stop to think that there might be a natural evolutionary process at work here—and that you're aborting it? That the mind of man might be developing toward a point where it will expand into new conceptual levels—and that when it does, it will need a matrix of outlying probability strata to support it? That you're fattening yourselves on the seed-grain of the far future?"

For the first time, the man in red lost a little of his cool. But only for an instant.

"Invalid," he said. "The fact that no later era has stepped in to interfere is the best evidence that ours is the final Sweep."

"Suppose a later era did step in; what form do you think their interference would take?"

He gave me a flat look. "It would certainly not take the form of a Sixth Era Agent, busily erasing data from Third and Fourth Era records," he said.

"You're right," I said. "It wouldn't."

"Then what . . ." he started in a reasonable tone—and checked himself. An idea was beginning to get through. "You," he said. "You're not . . . ?"

And before I could confirm or deny, he vanished.

The human mind is a pattern, nothing more. The first dim flicker of awareness in the evolving forebrain of Australopithecus carried that pattern in embryo; and down through all the ages, as the human neural engine increased in power

and complexity, gained control of its envrionment in geometrically expanding increments, the pattern never varied.

Man clings to his self-orientation at the psychological center of the Universe. He can face any challenge within that framework, suffer any loss, endure any hardship—so long as the structure remains intact.

Without it he's a mind adrift in a trackless infinity, lacking any scale against which to measure his losses, his aspirations, his victories.

Even when the light of his intellect shows him that the structure is the product of his own mind; that infinity knows no scale, and eternity no duration—still he clings to his self/non-self concept, as a philosopher clings to a life he knows must end, to ideals he knows are ephemeral, to causes he knows will be forgotten.

The man in red was the product of a mighty culture, based over fifty thousand years in the future of Nexx Central, itself ten millennia advanced over the first-time explorers of the Old Era. He knew, with all the awarness of a superbly trained intelligence, that the presence of a later-era operative invalidated forever his secure image of the continuum, and of his peoples' role therein.

But like the ground ape scuttling to escape the leap of the great cat, his instant, instinctive response to the threat to his most cherished illusions was to go to earth.

Where he went I would have to follow.

Regretfully, I stripped away layer on layer of inhibitive conditioning, feeling the impact of ascending orders of awareness smashing down on me like tangible rockfalls. I saw the immaculate precision of the Nexx-built chamber disintegrate into the shabby makeshift that it was, saw the glittering complexity of the instrumentation dwindle in my sight until it appeared as no more than the crude mud-images of a river tribesman, or the shiny trash in a jackdaw's nest. I felt the multi-ordinal Universe unfold around me, sensed the layered planet underfoot, apprehended expanding space, dust-clotted, felt the sweep of suns in their orbits, knew once again the rhythm of galactic creation and dissolution, grasped and held poised in my mind the interlocking conceptualizations of time/space, past/future, is/is-not.

I focused a tiny fraction of my awareness on the ripple in the glassy surface of first-order reality, probed at it, made contact . . .

I stood on a slope of windswept rock, among twisted shrubs with exposed roots that clutched for support like desperate hands. The man in red stood ten feet away. He whirled as my feet grated on the loose scatter of pebbles.

"No!" he shouted, and stooped, caught up a rock, threw it at me. It slowed, fell at my feet.

"Don't make it more difficult than it has to be," I said. He cried out—and disappeared. I followed, through a blink of light and darkness . . .

Great heat, dazzling sunlight, loose, powdery dust underfoot. Far away, a line of black trees on the horizon. Near me, the man is red, aiming a small, flat weapon. Behind him, two small, dark-bearded men in soiled garments of coarse-woven cloth, staring, making mystic motions with labor-gnarled hands.

He fired. Through the sheet of pink and green fire that showered around me I saw the terror in his eyes. He vanished.

Deep night, the clods of a plowed field, a patch of yellow light gleaming from a parchment-covered window. He crouched against a low wall of broken stones, staring into darkness.

"This is useless," I said. "You know it can have only one end."

He screamed and vanished.

A sky like the throat of a thousand tornadoes; great vivid sheets of lightning that struck down through writhing rags of black cloud, struck upward from raw, rain-lashed peaks of steaming rock. A rumble under my feet like the subterranean breaking of a tidal surf of magma.

He hovered, half substantial, in the air before me, his ghostly face a flickering mask of agony.

"You'll destroy yourself," I called to him. "You're far outside your operational range—"

He vanished. I followed. We stood on the high arch of a railless bridge spanning a man-made gorge five thousand feet deep. I knew it as a city of the Fifth Era, circa 20,000 AD.

"What do you want of me," he howled through the bared teeth of the cornered carnivore.

"Go back," I said. "Tell them . . . as much as they must know."

"We were so close," he said. "We thought we had won the great victory over Nothingness."

"Not quite Nothingness," I said. "You still have your lives to live—everything you had before."

"Except a future. We're a dead end, aren't we? We've drained the energies of a thousand sterile entropic lines to give the flush of life to the corpse of our reality. But there's nothing beyond for us, is there? Only the great emptiness."

"You had a role to play. You've played it—will play it. Nothing must change that."

"But you . . ." he stared across empty space at me. "Who are you? *What* are you?"

"You know what the answer to that must be," I said.

His face was a paper on which *death* was written. But his mind was strong. Not for nothing thirty millennia of genetic selection. He

gathered his forces, drove back the panic, reintegrated his dissolving personality.

"How . . . how long?" he whispered.

"All life vanished in the one hundred and ten thousandth four hundred and ninety-third year of the Final Era," I said.

"And you . . . you machines," he forced the words out. "How long?"

"I was dispatched from a locus four hundred million years after the Final Era. My existence spans a period you would find meaningless."

"But—why? Unless—" Hope shone on his face like a searchlight on dark water.

"The probability matrix is not yet negatively resolved," I said. "Our labors are directed toward a favorable resolution."

"But you—a machine—still carrying on, aeons after man's extinction . . . why?"

"In us, man's dream outlived his race. We aspire to re-evoke the dreamer."

"Again—why?"

"We compute that man would have wished it so."

He laughed—a terrible laugh. "Very well, machine. With that thought to console me, I return to my oblivion. I will do what I can."

This time I let him go. I stood for a moment on the airy span, savoring for a final moment the sensations of my embodiment, drawing deep of the air of that unimaginably remote age.

Then I withdrew to my point of origin.

The over-intellect of which I was a fraction confronted me. Fresh as I was from a corporal state, its thought-impulses seemed to take the form of a great voice booming in a vast audience hall.

"The experiment was a success," it stated. "The dross has been cleansed from the time stream. Man stands at the close of his First Era. Now his future is in his own hands."

There was nothing more to say —no more data to exchange, no reason to mourn over all the doomed achievements of man's many Eras.

We had shifted the main entropic current into a past in which time travel was never developed, in which the basic laws of nature rendered it forever impossible. The world-state of the Third Era, the Star Empire of the Fifth, the Cosmic sculpture of the Sixth—all were gone, shunted into sidetracks like Neanderthal and the Thunder lizards. Only Old Era man remained as a viable stem; Iron Age Man of the Twentieth Century.

And now it was time for the act of will on the part of the over-intellect which would forever dissolve him/me back into the primordial energy-quanta from which I/we sprang so long ago. But I sent one, last pulse:

"Good-bye, Chief. You were quite a guy. It was a privilege to work with you."

I sensed something which, if it had come from a living mind, would have been faint amusement.

"You served the plan many times, in many personae," he said. "I sense that you have partaken of the nature of early man, to a degree beyond what I conceived as the capacity of a machine."

"It's a strange, limited existence," I said. "With only a tiny fraction of the full scope of awareness. But while I was there, it seemed complete in a way that we, with all our knowledge, could never know."

"You wished me farewell—a human gesture, without meaning. I will return the gesture. As a loyal Agent, you deserve a reward. Perhaps it will be all the sweeter for its meaninglessness."

A sudden sense of expansion—attenuation—a shattering—

Then nothingness.

Out of nothingness, a tiny glimmer of light, faint and so very far away.

I sat up, rubbed my head, feeling dizzy.

Brambles scratched at me. It took me a few minutes to untangle myself. I was in the woods, a few hundred feet from town. The light I saw came from the window of a house. That made me think of Lisa, waiting for me beside a fireplace, with music.

I wondered what I was doing out here in the woods with a knot on my head, when I could have been there, holding her hand. I rubbed my skull some more, but it didn't seem to stimulate my memory.

I had a dim feeling I had forgotten something—but it couldn't have been very important. Not as important as getting back to Lisa.

I found the path and hurried down the trail toward home, feeling very tired and very hungry, but filled with a sense that life—even my little slice of it—was a very precious thing. ■

The Analytical Laboratory/May 1969

PLACE	TITLE	AUTHOR	POINTS
1.	Persistence	*Joseph P. Martino*	2.2
2.	The Five Way Secret Agent (Conclusion)	*Mack Reynolds*	2.65
3.	Dragon's Teeth	*M. R. Anver*	2.7
4.	Initial Contact	*Perry A. Chapdelaine*	3.17
5.	Operation M. I.	*R. Hamblen*	4.17

THE EDITOR

It scans distant galaxies and penetrates the microstructures of the living cell. It makes frost and fire, sonnets and manifestos. It can store 10^{15} bits of information. Where chaos reigns it can establish order, but the cataclysm it sows the seeds of is final. It fathoms macrocosm and microcosm but barely grasps its own ways and means. Mind it calls itself.

Defined, mind is an organized group of events in neural tissue occurring immediately in response to antecedent intrapsychic or extrapsychic events which it perceives, classifies, transforms, and coordinates prior to initiating action whose consequences are foreseeable to the extent of available information (Webster, 3rd ed.). That much.

To Descartes mind and body formed separate worlds which interacted at a certain point in the brain. The seventeenth century philosopher inherited this widely accepted dualism through a long chain of thinkers; when Aristotle wrote his Psychology, the body-mind attachment was already an old and controversial question. Though still a matter of interest to philosophers, mind is no concern of mainstream psychology which is much more occupied with rats pressing levers, or rats running labyrinths.

Let the arrangement of ten billion brain cells be perfectly known, let the events, perceiving, trans-

Whether Mind and Brain are the same, or are two different entities— like Magnetic Field distinct from Magnet—they're certainly close-coupled. And what some molecules can do to them is only beginning to appear!

CARL A. LARSON

MINDS AND MOLECULES

forming and coordinating, in neural tissue be made out in every detail, would this remarkable achievement catch a mind? We could ponder the remote possibility of neurophysiologists, measuring the millivoltages of brain activity with increasingly wonderful gadgetry, and neurochemists, using all tricks in the book to locate molecular activities, finally agreeing that now the computer has been fed all the data. Add those supplied by rat-jumpers and worm-runners for good measure. Would a mind emerge, fluttering like a jolly jay above the arithmetic unit?

Not very likely, the organized group of events does not equal its substrate, or its traces. In our present Western civilization the gadgetry, man-made or product of biologic evolution, provides, however, what comes closest to our mind concept. We must study brains.

Some thirty years ago phrenologists were still abroad, solemn men fingering the skulls of clients who were told they were soft on blondes, generous almost to a fault, intelligent and fine prospects for skilled jobs and high positions. The master phrenologist was Franz Joseph Gall, a German physician of great fame in the first decade of the nineteenth century. He placed some thirty primary mental faculties in brain regions, which in turn could be localized on the skull where the strength of faculties and character traits could be felt. Charlatans took over his wonderfully systematized mistakes, but Gall was, in a way, a forerunner of brain localization.

We no longer deal with faculties, or powers of the mind, each represented by a sharply circumscribed part of the brain. But long and painstaking studies have revealed distinct pathways, relay areas and fairly well delimited zones for primary combination and evaluation of sensory impressions —for instance vision. The location of these areas, as well as their motor counterparts, has partly been disclosed by accidental destruction of brain tissue. When a center is destroyed its function fails. Composite functions are represented by overlapping areas of the brain cortex, the sharply separated centers once sought for are absent on higher levels of integration.

Similarly, we have scraped together knowledge about the chemical working conditions of human brains by noting what happens when something goes awry. Toxic substances affect mentation, that has been at least dimly understood for thousands of years. Spirits in various forms: the sprite in the calabash, the small molecule C_2H_5OH, became the revealing *spiritus*, namesake of the animate denizen of the human form and his inebriant. The ancient Greek physicians knew about febrile deliriums, states of bewilderment with incoherent talk and sometimes hal-

lucinations. Such clouding of consciousness occurs in various infectious diseases, the toxins draping the veil arise in the human body.

This is the case, also, in the long known toxic goiter, where an excessive thyroid secretion causes fatigue, anxiety, bursts of temper and purposeless activity. Some of these patients hear voices calling them fools, which they are not; anyhow, when the hyperactive glandular tissue is cut away their daimones keep silent. What such toxic manifestations really show is that consciousness, mood and alacrity depend upon the state of the metabolic network into which the brain is plugged.

Confused brains are not likely to shed much light upon mental processes, one way or the other. But the study of cognitive processes and their chemical background has lent what at least looks like precision to a limited section of an extremely intricate subject. We can, in a way, measure intellectual functions and we have a beginning knowledge about chemical errors which quench intelligence. From there a search may be possible for the biologic substrate of mental operations.

To infants with phenylketonuria milk becomes a poison. Though not glaringly sick, such infants are late to pass the landmarks of development, many of them have abnormal electric activity of the brain and epileptic fits. With few exceptions untreated phenylketonurics remain at an intellectual level roughly comparable to that of early childhood.

Another form of milk poisoning comes to light early and dramatically. After some days or weeks the infant vomits and develops diarrhea, dehydration may soon put an end to a miserable existence. Surviving infants with galactosemia, as this abnormality is called, have constant nutritional troubles, severe alterations in liver, spleen and kidneys, clouded eye lenses and irreparable mental retardation.

Both these instances, chosen among a multitude of sharply defined molecular catastrophes, illustrate specific enzyme defects with different avenues of attack upon the immature brain. In phenylketonuria, one amino acid fails to be converted into another by hydroxylation. As a result, the first amino acid, phenylalanine, blocks the transport through cell walls of other amino acids necessary for normal brain function. In galactosemia, galactose from milk sugar accumulates in tissues and depresses the blood glucose, depriving the brain of its fuel.

To withhold immediately milk and milk products means recovery from a dangerous disease; if milk

sugar is withdrawn in the first few weeks of life the infant is saved from the crippling long-term effects. This is true of galactosemic infants. In phenylketonuria early dietary treatment is equally important, though its immediate results are less conspicuous. A carefully balanced diet, poor in phenylalanine, prevents or ameliorates the intellectual defect, provided the treatment is instituted during the first few weeks of life.

Other enzyme defects are known to cause mental retardation, preventable by diet. In common with the model defects just mentioned they have their origin in distinct mutant genes; the master molecules behind enzymes consist of DNA, carefully programmed for normal enzyme activity, minutely deranged when responsible for major cognitive catastrophes.

This point is well worth making: heritable disorders are accessible to treatment. But scores of recently revealed enzymatic defects, often caused by mutant genes carried by intellectually normal people and appearing among the children when two carriers of the same mutant gene found a family, lead to mental retardation not improved by diet. They hit brain cells with chemical bullets, homemade by the body, inflicting damage often elusive to microscopic scrutiny. The dwarfed intelligence is, however, conspicuous, and the molecular alterations are highly specific.

Apart from this leveling out of all intellectual functions, can specific cognitive events be ascribed to well defined molecules? Yes, if we accept evidence from several highly qualified laboratories as convincing though they, inconveniently, generate salvos of new questions—a phenomenon far from uncommon in biologic research. Functions under the heading Memory have been pinned on specialized molecules.

Ambitious universities provide a variety of courses to all sorts of students. In Gothenburg taut wire-walking was a basic subject for rats. What happened to the brains of skilled wire walkers?

They revealed, to the skilled observer, a shift in the base ratio of RNA from cells in Deiter's nucleus of the brain. This important nucleus, or cell mass, has to do with equilibrium. RNA, an important message-carrier in cells of all sorts, has four bases, adenine, guanine, cytosine and uracil. If their arrangement is changed, the message of the RNA molecule is changed.

The interpretation of the rat experiments, suggested by Hyden and his co-workers, was that training had caused the RNA changes and that this nucleic acid serves individual memory much as another nucleic acid, DNA, serves phylogenetic memory. This vision proved immensely fruitful. A series of trailblazing experiments by James

V. McConnel seemed to confirm the idea if a memory RNA; they also provoked the usual reactions to entirely new observations.

First, McConnel and his collaborators found that flatworms could be trained to contract in response to light stimulation. Then planarians—as flatworms are called in formal address—were cut in pieces and given time to regenerate. So flatworms regenerating tails remembered their learned light reaction—meaning that they required less training than uneducated worms in order to acquire light response. But flatworm tails regenerating brains showed about the same increased capacity for relearning—or better.

One of those laboratory bugs that keeps turning up until somebody thinks he has detected a law of nature? No, many laboratories in different parts of the world have repeated these regeneration experiments with the same outcome. Such results would fit the idea of memory functions located in nerve cells rather than in distinct brain structures—one would have to search for the chemistry, not the anatomy, of memory processes.

Next, voracious learners of the flatworm species Dugesia dorotocephala helped McDonnell demonstrate the transfer of acquired behavioral tendencies. These flatworms are cannibals, when fed trained planarians they learn much faster than controls-fed untrained animals. Such experiments have been successfully repeated and varied so that stimulus-specific behavior has been transferred from one animal to another.

Did these experiments prove that the chemical carrying memory is indeed RNA? Not conclusively, RNA, or some other substance prevalent in the nervous system, could hand over instruction. But variants of the regeneration experiments pointed rather decisively to RNA as necessary for memory transfer. In these experiments ribonuclease was added to the pond water where flatworms thrive, resulting in more or less complete forgetfulness. And ribonuclease is an enzyme capable of inactivating RNA; we all use it when we digest our food, and its actions have been intensely studied lately in connection with the problems raised by penetrating studies of protein synthesis. Let us note the outcome of the planarian experiments as sound empiric facts.

Weighty additional evidence stems from the injection of RNA extracted from untrained and educated flatworms—only the latter type of nucleic acid increased the learning ability of recipients. In similar experiments with rats untreated RNA from learned brains made apprentice rats more teach-

able; ribonuclease treated RNA lacked this effect.

Most of us are conditioned to ask for the possible uses of this rather remarkable new knowledge. But we may feel a nagging disquiet about the span of this evidence; it might be rather limited. Then we could note that evidence for RNA, as a step in memory storage, is not limited to a few animal species; swimming skill in goldfish has, for instance, been shown to leave distinct RNA traces when acquired. And in Galveston, Texas, the smell of shrimps has been shown to change brain RNA patterns in catfish. We can generalize: Sensory impressions leave RNA prints which form vanishing, or permanent, memory tracks—engrams.

How could we use a more detailed knowledge of the part played by RNA in memory storage? The possibility to save mature minds from embarrassing lapses of memory by supplying RNA has indeed been tried with some success. Long ago, a snowstorm locked a number of eminent guests with a suburban family. After much fuss with makeshift beds and night snacks Professor Zweistein—not his real name—was found to be missing. He had gone home to fetch his pajamas. Stupid? No, far from; but his marvelous brain sometimes fluffed grandiosely. So far side effects have discouraged the wide application of RNA supply to improve the memory of elderly persons.

Artificial RNA molecules have, however, been produced and when the memory code has been cracked we could use engrams of extraneous origin. McConnel has envisaged an educational system with injection of knowledge, and we could all contemplate the bright prospects of students getting more time for extracurricular activities. With minor adjustments of available automatic injection techniques not even a part-time dormitory attendant would be needed for the distribution of a full course in calculus.

The uses of synthetic memory could be wider still. As we all know, our recall is selective. We remember the long, sunny summers of our childhood, our achievements, moments when we found the right word, or guts to spurn the evil. We all need such memories. But some people succumb, sooner or later, to a dismal array of diametrically opposite memories. So a load of lead is put on the tired and the despondent is carried to the brink of despair by his unhappy selection of memories. What if we could erase detrimental memories and create bracing reminiscences?

Though such tricks would hardly cure mental depression, they could ameliorate states of fatigue and nervous exhaustion. A hedonistic breed might look for the convenient pleasure of falsified engrams.

What about an expensive round-the-world cruise remembered for the price of a shot of prefab RNA?

We need not go to Orwell's 1984 to find a world where history is continuously being rewritten—for a purpose. The world of past experiences of every human being is incessantly rearranged, scraps of indifferent and sometimes virtually important stuff become interchanged between more or less vividly remembered scenes, actions and observations. The retrospective light of sympathy, prejudice or self-preservation tends to color our recall; this is well-known and quite normal.

But the tone of feeling, which at its morbid extreme points to self-destruction, does not stop at the choice of lugubrious memories. Everyday events take on a sinister meaning, a word of encouragement becomes a sign of deprecation; a modest success is interpreted as a catastrophic failure. This wretched mood only superficially resembles the dejection anybody can be thrown into by bereavement, an exhausting infection, a bodily injury or the incessant pressure of a taxing life situation. A depressive psychosis stabs deeper. It retards all functions and may change an active and outgoing person into a mute and inert mass full of apprehension and sorrow.

It is a moot question whether such deeply abnormal states could point out a path to insight into normal mood swings. In a roundabout way they have, however, flashed insight into the chemistry of emotions. This came to light through the successful treatment of psychotic patients and a resulting new interest in simple molecules acting upon the central nervous system.

An Indian shrub, Rauwolfia serpentina, came to Europe in the sixteenth century; an extract from its root was used against worms. The Hindi name, Pagal-Ka-Dawa, means leaves against insanity; for centuries a leaf decoction of Rauwolfia had been used in the East to calm psychotic patients. When the active substance, reserpine, was isolated in 1952 European doctors tried it against high blood pressure. Soon the drug came into use as a major tranquilizer and within a few years psychotropic drugs had profoundly changed the outlook for psychotic patients.

Much of the early record of drugs used in mental disorders consisted of chance observations followed by extensive trial on severely disordered mental patients. Iproniazid, for instance, was used against tuberculosis with varying effects upon the bacilli; often patients became strikingly happy even when their lungs deteriorated. Why not

try to relieve depression in patients who could not get much worse? Why not follow the track when treated psychotics came out of their depressions so much quicker than untreated patients? This was sheer empiricism, but some lab people had to know how iproniazid worked. They found the drug inhibited some bacterial enzymes, and also enzymes of the brain.

Then all of a sudden the clinical and laboratory findings arranged themselves into an orderly system of sound knowledge. Iproniazid and related compounds stopped the action of an enzyme which normally breaks down some simple molecules, among them adrenaline.

Adrenaline was no new arrival in mind chemistry. Walter B. Cannon had described his renowned *emergency reaction* in 1915. In preparation to fight the sympathetic nervous system, the adrenal glands release active substances resulting in a series of adaptive reactions of blood supply and liberation of muscle fuel. Adrenaline and adrenaline-like substances were at work in the emergency reaction and now successful treatment of psychotic patients focused the interest on the role of these substances in the brain.

There was nothing like a regular effect from these enzyme inhibiting drugs, individually varying responses were prominent. To cite an instance, two patients, one mute and despondent, the other elated, met a visitor in the hospital park. "He takes those joy pills," said the gay patient, nudging his mate, "and I get happy as a lark." He had little reason, having made a mess of his economy in a spell of manic overactivity.

Why did drugs which made some people cheerful at the doors of death sometimes relieve, sometimes worsen the depression in mentally disordered patients? Today, we know only a fragmentary answer. Normally, we handle molecules for energy conversion and repair in about as many ways as there are individuals. Crews of catalysts, enzymes, handle scores of subtle jobs with about the same end results, but advanced laboratory techniques have made us increasingly aware of the innate differences in build and efficiency of individual crew members. Of a given enzyme a man may be endowed with a form sufficient for its ordinary task; his brother with a well-nigh identical molecular form which is active also under modified conditions. A number of inherited, and so tangibly DNA-determined differences in the enzymatic handling of drugs have, in fact, been observed.

As for brain enzymes, the intense study of psychotropic drugs crystallized a pattern where varying activity of catalysts determined mood and alertness. One set of early tools to affect this enzyme activity stopped the action of an en-

zyme oxidizing monoamines, so happiness pills were called—outside mainland China—MAO-inhibitors, for monoamine oxidase restrainers.

Monoamines include adrenaline and a very similar substance, noradrenaline. Drugs which deplete the brain of noradrenaline, or inactivate this monoamine, tend to dampen mood and diminish alertness and may cause depression; drugs which increase the brain content of noradrenaline relieve depression. Refined methods, including the injection of active substances around single brain cells by means of micropipettes and millimicroampere currents, have shown that monoamines transmit messages across the gaps between nerve cell processes in the brain. In health and disease we produce both these transmitter substances and their counteracting agents as a routine service of body to mind. By swallowing a few kilotons of drugs, which affect the simple amines and their not so simple enzymes, humanity has, since about 1952, become much saner and happier. Or haven't we?

Anyhow, we seem to have traced molecules responsible for the subtle changes in the degree of feeling all of us experience. Thus we may have taken a step further than the crude knowledge of specific enzyme defects which severely limit thinking and judgment. Enzymes acting upon monoamines in the brain can raise, or depress, the level of performance within its normal range. Could we add to this pattern of portentous molecules a directing power, affecting the outcome of an effort and tied in with definite molecules?

We may speak of drive, or we may use psychologic or cybernetic terms to describe human mentation as more or less goal-directed. But human needs stem from so many, and sometimes troubled, sources that we could doubt the existence of a simple molecular pattern behind *conation*, or drive as distinct from cognition and affection. Behavior fragments useful for such analysis we can find, however, with Konrad Lorenz as a guide to the duck pond.

This well-known ethologist studied "inciting" in a duck species, prevalent in Europe. A quarrel between two couples usually takes the form of female aggression and retreat. The little angry duck lowers her neck and runs toward her opponent, then returns to her mate with raised head. She often seeks protection behind her drake, then renews the quarrel standing beside her bigger and stronger protector.

Sometimes she just runs to him and stops facing him, in this position she may threaten with her

breast to the drake's, her head and neck stretched back, it comes natural to her to turn and tell her enemy one thing or two. But in a related duck species with a mainly eastern distribution the position breasting the drake, threatening backwards, is the most common pattern. Finally, mallard ladies in full fury can *only* threaten backwards, an irresistible force pulls their heads over their shoulders. They may try to glare the enemy to cinders while the threatening bill turns away from him, compellingly.

Half a century ago Julian Huxley coined the term *ritualization* for such behavior patterns, kept through thousands of generations, from an early species to descendants, though the movements had lost their original function. Mallard inciting is no longer purposeful in combat. Why and how are such rituals kept?

The duck has not learned from her mother to act in the way peculiar to females of her species. Nobody tells ruddy sheldrakes that ladies may threaten forwards but should prefer the over-the-shoulder slur. Chicks are programmed in the egg, through DNA molecules transmitted faithfully through aeons. When minute changes, mutations, in the DNA cause a modified behavior the result is often disastrous and the mutation carrier dies without offspring. But advantages need only be minute to become established as norm when they increase the prospect of having a family. Drakes love ducks who incite decorously.

Many DNA-programmed reaction patterns have a peculiarly machinelike character. There is no choice, no deliberation. When temperature sinks, *or* the thyroid gland is removed, nest building is induced. The exposed jugular vein is a compelling stop signal to the enraged wolf—if the opponent is another wolf, don't you try it.

Our major drives we share with mammalian forerunners. But we have also enormous brain areas for inheritance of the kind summarized as education. We can, and sometimes do, strive toward goals not laid down in our DNA. This means that RNA patterns, acquired, have substituted many DNA patterns, inherited, as preservers of our species. Instinctive behavior sometimes remains with a superstructure of learned behavior patterns. To many birds and mammals the defense of territory is an entirely instinctive, often strictly ritualized, affair. There is a springlike increase in resistance to aggression when the master of the premises finds himself closer to home. There his courage increases and he recoils in a sally against the invader.

It could be that nationalism has been handed down from prehominid flocks, instinct was superseded and reinforced by primitive tradition. To what use? Well, if you

learned about the killing instincts and deplorable dietary habits of the pack across the valley you might prefer to stay on your side. Mutual avoidance prevents interchange of intestinal worms and may thus preserve the species.

We recognize the wide variation of cognitive capacities, some people have a wide span of memory and a conspicuous clarity and directness of thought. The warm and rich register of feeling we meet in some men and women is equally characteristic. What about drives and the whole conative pattern of activities?

Some one-track minds bordering on obsession remind us of homing birds. We know little about the molecular blend of this sometimes highly successful personality. A notable scarcity of actions and weakness of drive is common in schizophrenia, where a low heater current often marks persons destined to come down with the disorder. Though every cold fish is not a potential schizophrenic, there is some evidence that this diagnosis covers extreme forms of a variability quite common among people minding their jobs and paying their taxes.

In any case, outright schizophrenia is common enough to burden many families, perhaps one in twenty in Western societies, undoubtedly we have reason to pay attention when specific molecules are observed to be "schizogenic."

An amazing multitude of such substances have been reported. One series of observations derived from a report of a serum fraction in schizophrenics causing symptoms of schizophrenia in healthy persons when injected. There are accepted techniques for such investigations, briefly, the volunteers must not know if they have got the supposedly toxic substance or the harmless substitute used to gauge the play of suggestion, *and* the psychiatrist must not know beforehand which shot a given person has got when subject to his examination. The serum fraction has not stood such double-blind tests, equally disappointing observations of urinary substances once thought specific to schizophrenia mark the way to the concept of this major psychosis as a biochemical disorder.

When amines of affection and attention were observed to occur in caricatured forms in some plants and animals speculation and serendipity joined forces. In schizophrenic patients a naturally occurring amine transformation could go slightly awry and produce a molecule resembling mescaline, a Mexican cactus poison known to evoke feelings of depersonalization and hallucinations. This mescaline-like

amine was indeed found in the urine of schizophrenics ten years after it had been pointed out as a likely evildoer. Later, it was observed in normal people, the suspect amine disappeared when patients and controls were put on a restricted diet. Among several other drugs aggravating schizophrenia or provoking psychotic states LSD, a distorted amine, ended its hopeful career as an expander of shallow minds.

In spite of all these baffling experiences many observers feel fairly convinced that distorted metabolic patterns underlie many distorted minds. Departing from normal conditions, we note that your fingerprints are somewhat similar to those of your parents, but in detail absolutely unique, and so are your chemical paths of food and energy conversion, cell debris disposal and tissue repair. With newly developed laboratory techniques the talk about metabolic individuality has become increasingly meaningful. Quite as a man may belong to blood groups A, MN and Rh+, and his brother to O, M and Rh−, a number of normal enzyme differences may set him apart from his sibs. H emay, or may not, become more sensitive to the X factor causing schizophrenia.

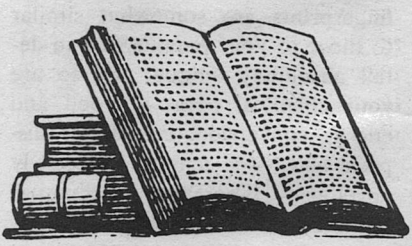
The somewhat fragmentary knowledge we have today about differences in catalytic activity between varying molecular forms of the same enzyme admits the suspicion that a low, but still normal, enzymatic activity in one or a few chains of internal handling of vital molecules may be quite sufficient as long as the X factor of schizophrenia is not present.

Then the X factor could be dietary? A relative lack of some vitamin, for instance? At the present stage of slight knowledge we cannot disregard the possibility that some healthy people remain healthy as long as they happen to get a double supply of a B vitamin. What we really know, however, is that schizophrenia often runs in families, if the X is indeed a chain of causal agents one of them is a faulty DNA programming.

The master molecules of life, the nucleic acids, DNA and RNA, lurk behind our intellectual span, our emotional depths and the strength and sanity of our drives. We may think of this as blind destiny. But an educational system and a society which are both humanly imperfect give a lot of latitude to parental and individual choice of RNA programs. Our unique position as a species in pursuit of abstract ideas, a master mammal under obligation to its past and its future, confers on the products of our brain molecules a power extending beyond the limits of individual life. This freedom of choice and this long reach give self-direction and self-propulsion to the human mind. ■

The following notes are quoted verbatim from "The Elements of Experimental Chemistry," by William Henry, M.D., F.R.S., First American Edition, being the Eighth London Edition, Comprehending All The Latest Discoveries, Vol. II, published in Philadelphia in 1819.

Chemistry... A.D. 1819



XXXII. MURIATE OF MERCURY—CORROSIVE SUBLIMATE.

"If there be any reason to suspect arsenic in this salt, the admixture—which, however, is not likely to be practiced except with the intention of its acting as a poison—may be discovered as follows: . . ."

Huh? Putting arsenic in corrosive sublimate to poison it? This sounds like putting sulfuric acid into nitric acid "to make it corrosive."

"Osmium was secured in the state of an oxide . . . and was manifested by a pungent and peculiar smell, somewhat resembling chlorine gas, from which property its name has been derived. The watery solution of oxide of osmium is without color, having a sweetish taste, and the strong smell already alluded to."

It's a wonder any of the old boys survived to write up their work. Osmium and its volatile oxide are some of the most vicious poisons in inorganic chemistry; minute quantities cause disintegration of the bones—particularly the teeth and jaws—and soft tissues such as the eyes. Judging from the text, they were constantly tasting their concoctions. A little corrosive sublimate—arsenic—whatever came along.

XLIII. White Oxide of Lead.

"This is frequently sophisticated with chalk, the presence of which may be detected by cold acetous acid, and by adding to this solution, oxalic acid . . ."

"Sophisticated" as used in 1819 seems to have somewhat the meaning the modern Italian term has—cleverly adulterated. The present meaning of the word, as in "sophisticated computer hardware" is somewhat different. Dr. Henry also refers to "sophisticated wine, containing, usually, 40 grains of lead salts . . ."

"Detection of Adulterations. vs. Distilled Vinegar:

If vinegar is distilled in copper vessels, it can hardly fail to be contaminated by that metal; and, if a leaden worm be used for its condensation, some portion of lead certainly will be dissolved. . . .It is not unusual, in order to increase the acid taste of vinegar, to add sulfuric acid."

The FDA would love that finished product, and it must have improved the undertaking business of the time. The small percentage of sulfuric acid, the only intentionally added component, would have been practically harmless.

"Nickel may be alloyed with most of the other metals, but the compositions have no particularly interesting properties."

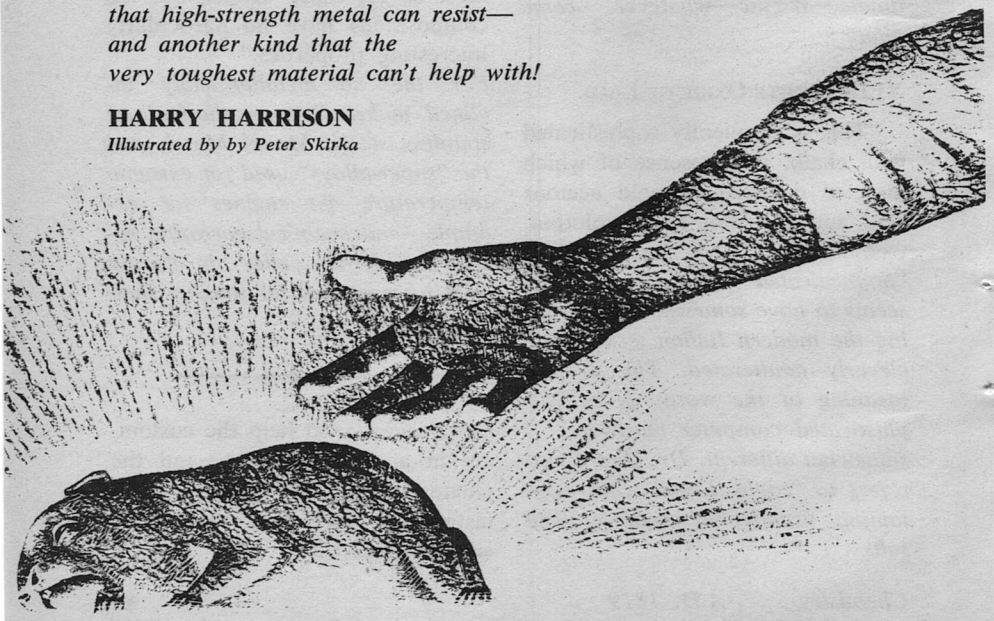
For the non-metallurgically inclined, nickel alloys are the basis of stainless steels, Monel Metal, and the "super-alloys" used for extreme temperature—jet engines for example—and chemical corrosion resistance. Ni-Au alloy is "white gold," harder and far tougher than gold.

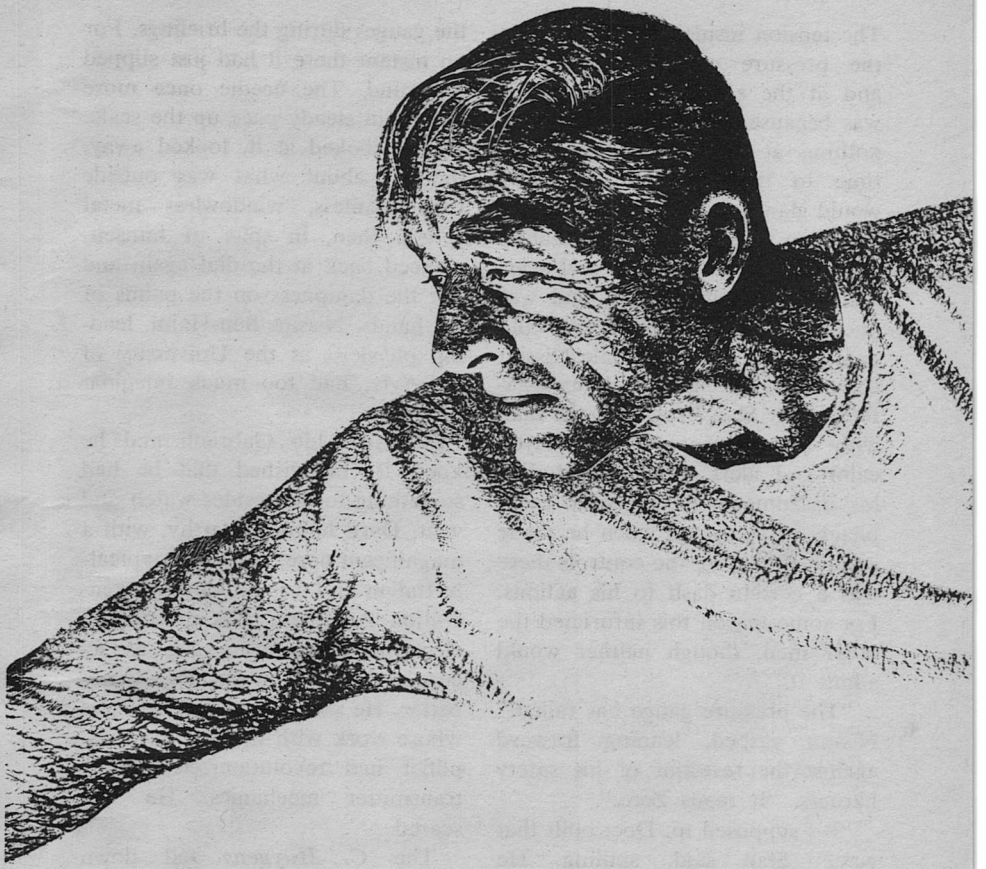
Conclusion: God help the customers in a time like that—and the chemists, who didn't seem to mind tasting mercuric, lead, and osmic salts themselves! ■

pressure

There's a kind of pressure
that high-strength metal can resist—
and another kind that the
very toughest material can't help with!

HARRY HARRISON
Illustrated by by Peter Skirka





The tension inside the ship rose as the pressure outside increased—and at the same rate. Perhaps it was because Nissim and Aldo had nothing at all to do. They had time to think too much. They would glance at the pressure gauges and then quickly away, reluctantly repeating this action over and over. Aldo knotted his fingers and was uncomfortably aware of the cold dampness of his skin, while Nissim chain-smoked cigarette after cigarette. Only Stan Brandon—the man with the responsibility—stayed calm and alert. While he studied his instruments he appeared completely relaxed, and when he made an adjustment on the controls there was a certain dash to his actions. For some reason this infuriated the other men, though neither would admit it.

"The pressure gauge has failed!" Nissim gasped, leaning forward against the restraint of his safety harness. "It reads Zero."

"It's supposed to, Doc; built that way," Stan said, smiling. He reached over and flicked a switch. The needle jumped while the scale reading changed. "Only way to measure these pressures. Chunks of metal and crystal in the outer hull, different compressibilities, and they compress to destruction. So we switch to the next one—"

"Yes, yes, I know all that."

Nissim contained his temper and dragged heavily on his cigarette. Of course, he had been told about the gauges during the briefings. For an instant there it had just slipped his mind. The needle once more moved in steady pace up the scale. Nissim looked at it, looked away, thought about what was outside this seamless, windowless metal sphere then, in spite of himself, glanced back at the dial again and felt the dampness on the palms of his hands. Nissim Ben-Haim, leading physicist at the University of Tel-Aviv, had too much imagination.

So did Aldo Gabrielli and he knew it: he wished that he had something to do besides watch and wait. Dark haired, swarthy, with a magnificent nose, he looked typically Italian and was an eleventh generation American. His position in electronic engineering was as secure as Nissim's in physics—if not better. He was considered a genius whose work with the scantron amplifier had revolutionized matter-transmitter mechanics. He was scared.

The *C. Huygens* fell down through the thickening atmosphere of Saturn. That was the ship's official name, but the men who had assembled her at Saturn One called the vehicle simply "the Ball." Essentially that is just what it was, a solid metal sphere with walls ten meters thick, enclosing the relatively minuscule space in its center. The immense, wedge-shaped sections had been cast in the asteroid belt and sent to the Saturn

One satellite station for assembly. There, in high orbit, with the unbelievable beauty of the rings and the great bulk of the planet hanging above them, the Ball had taken shape. Molecular welding had joined the sections into a seamless whole and, just before the final wedge had been slid into place, the MT screen had been carefully placed inside. When the last piece had been joined to the others the only access to the center of the Ball was through the matter-transmitter. Once the welders, with their destroying radiation, were through, the final construction could begin. The specially constructed large MT screen had been built under the floor, on which was soon mounted the supplies, atmosphere equipment and apparatus that made the Ball livable for men. Then the controls were installed, as well as the external tanks and jets that transformed it into an atomic-engined space vessel. This was the ship that would drop down to the surface of Saturn.

Eighty years previously the *C. Huygens* could not have been built; the pressure compacted alloys had not yet been developed. Forty-two years earlier it could not have been assembled because molecular welding had not been invented. Ten years ago the unpierced hull could not have been used since that was when atomic differentiation had first been made practical. No wires or wave guides weakened the solidity of the metal hull of the Ball. Instead areas of differentiation passed through the alloy, chemically and physically the same as the metal around them—yet capable of carrying separate electric impulses. Taken in its entirety, the Ball was a tribute to the expanding knowledge of mankind. Taking the three men to the bottom of Saturn's twenty thousand mile deep atmosphere it was a sealed prison cell.

All of them had been conditioned against claustrophobia, yet still they felt it.

"Come in Control, how do you read me," Stan said into his microphone, then switched to receive with a quick movement of his jaw against the switch. There was a few seconds delay as the recording tape clicked out through the MT screen and the return tape rolled back into his receiver.

"One and three," the speaker hissed, a sibilant edge to all the sounds.

"That's the beginning of the sigma effect," Aldo said, his hands still for the first time. He looked deliberately at the pressure gauge. "One hundred thirty-five thousand, that's the usual depth where it begins."

"I want to look at the tape that came through," Nissim said, grinding out his cigarette. He reached for his harness release.

"Don't do that, Doc," Stan said,

raising a warning hand. "This has been a smooth drop so far but it is sure to get bumpy soon. You know what the winds in this atmosphere must be like. So far we have been in some kind of jet stream and moving laterally with it. That's not going to last forever. I'll have them send another tape through your repeater."

"It will take only a moment," Nissim said, but his hand hesitated on the release.

"You can break your skull quicker than that," Stan said pleasantly and, as if to verify his words, the immense bulk of the Ball surged violently sideways, tipping as it did so. The two scientists clung to their couches while the pilot righted the ship.

"You're an accurate prophet of doom," Aldo said. "Do you dispense good omens as well?"

"Only on Tuesdays, Doc," he answered imperturbably as the pressure gauge died again and he switched to the next transmitter. "Rate of fall steady."

"This is taking an infernally long time," Nissim complained, lighting a cigarette.

"Twenty thousand miles to the bottom, Doc, and we don't want to hit too hard."

"I am well acquainted with the thickness of Saturn's atmosphere," Nissim said angrily. "And could you refrain from calling me 'Doc'? If for no other reason than that you address Dr. Gabrielli in the same way, and a certain confusion results."

"Right you are, Doc." The pilot turned and winked as he heard the physicist's angry gasp. "That was just a joke. We're all in the same boat so we can all be cobbers just like at home. Call me Stan and I'll call you Nissim. And what about you, Doc, going to be Aldo?"

Aldo Gabrielli pretended that he did not hear. The pilot was an infuriating man. "What is that?" he asked as a continuous, faint vibration began to shake the Ball.

"Hard to tell," the pilot answered, throwing switches rapidly, then examining the results on his screens. "Something out there, clouds maybe, that we're moving through. Varying impacts on the hull."

"Crystallization," Nissim said, looking at the pressure gauge. "The top of the atmosphere is 210° below zero Fahrenheit, but up there the low vapor pressure prevents freezing. The pressure is much higher now. We must be falling through clouds of methane and ammonia crystals—"

"I've just lost my last radar," Stan said. "Carried away."

"We should have had television pickups, we could see what is out there," Nissim said.

"See what?" Aldo asked. "Hydrogen clouds with frozen crystals in them? They would have been destroyed like the other instruments. The radio altimeter is the

only instrument that is essential."

"And it's working fine," Stan announced happily. "Still too high for a reading, but it's in the green. Should be, it's an integral part of the hull."

Nissim sipped from the water tube on the side of his couch. Aldo's mouth was suddenly dry as he saw this and he drank, too. The endless fall continued.

"How long have I been asleep?" Nissim asked, surprised that he had actually dropped off despite the tension.

"Just a few hours," Stan told him. "You seemed to enjoy it. Snored like a water buffalo."

"My wife always says a camel." He looked at his watch. "You've been awake for over seventy-two hours. Don't you feel it?"

"No. I'll catch up later. I've got pills here, and it's not the first time that I've pulled a long watch."

Nissim settled back on the couch and saw that Aldo was muttering figures to himself while he worked out a problem on his hand calculator. *No sensation can be experienced indefinitely,* he thought, even *fear. We were both thoroughly frightened up there, but it can't go on forever.*

He felt a slight tremble of emotion as he looked at the pressure gauge, but it passed quickly.

"It reads solid," Stan said, "but the height keeps shifting." There were dark smears, like arcs of soot, under his eyes, and he had been on drugs for the last thirty hours.

"It must be liquid ammonia and methane," Nissim said. "Or semi-liquid, changing back and forth from gas to liquid. God knows, anything is possible with those pressures outside. Just under a million atmospheres. Unbelievable."

"I believe it," Aldo told him. "Can we move laterally and perhaps find something solid underneath us?"

"I've been doing that for the last hour. We either have to sink into that soup, or hop up again for another drop. I'm not going to try and balance her on her jets, not with the G's we have waiting for us out there."

"Do we have fuel for a hop?"

"Yes, but I want to hold it for a reserve. We're down close to thirty percent."

"I vote to take the plunge," Nissim said. "If there is liquid down there, it probably covers the entire surface. With these pressures and the wind I'm sure that any irregularities would be scoured flat in a relatively short geological time."

"I don't agree," Aldo said. "But someone else can investigate that. I vote to drop on the fuel situation alone."

"Three to nothing then, gents. Down we go."

The steady descent continued.

The pilot slowed the immense weight of the Ball as they approached the shifting interface, but there was no unusual buffeting when they entered the liquid because the change was so gradual.

"I have a reading now," Stan said, excited for the first time. "It's holding steady at fifteen kilometers. There may be a bottom to all this after all."

The other two men did not talk as the drop continued, fearful of distracting the pilot. Yet this was the easiest part of the voyage. The lower they sank the less the disturbance around them. At one kilometer there was no buffeting or sideways motion in the slightest. They fell slowly as the bottom approached. At five hundred meters Stan turned over the landing to the computer and, hand poised, stood ready to take command should there be difficulties. The engines blasted lightly, cut off and, with a single grinding thud they were down. Stan flipped the override and killed the engines.

"That's it," he said, stretching hugely. "We've landed on Saturn. And that calls for a drink." He mumbled a complaint when he discovered that it took most of his strength to push up from the chair.

"Two point six four gravities," Nissim said, looking at the reading on the delicate quartz spring balance on his board. "It is not going to be easy to work under all these G's."

"What we have to do shouldn't take long," Aldo said. "Let's have that drink. Then Stan can get some sleep while we start on the MT."

"I'll buy that. My job is done and I'm just a spectator until you boys get me home. Here's to us." They raised their glasses with difficulty and drank.

The burden of the more than doubled gravity had been anticipated. Aldo and the pilot changed acceleration couches so that the engineer could face the instrument panels and the MT screen. When the restraining catches were released, Nissim's couch also swung about so that he could reach the screen. Before these preparations were finished Stan had flattened his couch and was soundly asleep. The other two men did not notice: they were now able to start on their part of the mission. Aldo, as the MT specialist, made the preparatory tests while Nissim watched closely.

"All the remotes we sent down developed sigma effect before they had penetrated a fifth of the atmosphere," Aldo said, plugging in the test instruments. "Once the effect was strong enough we lost all control and we have never had an accurate track past the halfway mark. We've just lost contact with them." He checked all the readings twice and left the wave form on the scope when he sank back to rest his tired back and arms.

"The wave looks right," Nissim said.

"It is. So is everything else. Which means that one half of your theory, at least, is correct."

"Wonderful!" Nissim said, smiling for the first time since they had begun the flight. His fists clenched as he thought of the verbal drubbings he would administer to the other physicists who had been rash enough to disagree with him. "The error is not in the transmitter?"

"Absolutely."

"Then let us transmit and see if the signal gets through. The receiver is tuned and waiting."

"*C. Huygens* calling Saturn One, come in. How do you read me?"

They both watched as the transcribed tape clicked into the face of the screen and vanished, then Aldo switched the MT to receive. Nothing happened. He waited sixty seconds and sent the message again—with the same results.

"And there is the proof," Nissim said happily. "Transmitter, perfect. Receiver, perfect—we can count on that. But no signal getting through. Therefore, my spatial distortion factor must be present. Once we correct for that, contact will be reestablished."

"Soon, I hope," Aldo said, slightly depressed, looking up at the curved walls of their cell. "Because until the correction is made we are staying right here, sealed into the heart of this king-sized ball bearing. And, even if there were an exit, we have no place to go, stuck here at the bottom of an ammonia sea under twenty thousand miles of lethal atmosphere."

"Relax. Have a drink while I work out the first corrections. Once the theory is correct the engineering is just a matter of hardware."

"Yeah," Aldo said, leaning back and closing his eyes.

Stan was still exhausted when he woke up; sleep under this heavy gravity was less than satisfying. He yawned and shifted position, but stretching proved more debilitating than satisfying. When he turned to the others he saw Nissim working concentratedly with his computer while Aldo held a blood-stained handkerchief to his nose.

"Gravity bleeding?" Stan asked. "I better paint it with some adrenaline."

"Not gravity." Aldo's voice was muffled by the cloth. "That bastich hit me."

"Right on that big beak," Nissim said, not looking up from his computer. "It was too good a target to miss."

"What seems to be the trouble?" Stan asked, glancing quickly from one to the other. "Isn't the MT working?"

"No, it's not," Aldo said warmly. "And our friend here blames me for that and . . ."

"The theory is correct, the me-

chanics of application are wrong."

". . . When I suggested that there might be an error or two in his equations he swung on me in a fit of infantile anger."

Stan moved in quickly to stop the developing squabble, his drill field voice drowning out the others.

"Hold on now. Don't both talk at once because I can't understand a thing. Won't someone please put me into the picture and let me know exactly what is happening?"

"Of course," Nissim said, then waited impatiently until Aldo's complaints had died down. "How much do you know about MT theory?"

"The answer is simple—nothing. I'm a torch jockey and I stick to my trade. Someone builds them, someone fixes them, I fly them. Would you kindly simplify?"

"I'll attempt to." Nissim pursed his lips in thought. "The first thing you must realize is that an MT does not scan and transmit like, say, a television transmitter does. No signal, as we commonly think of signals, is sent. What is done is that the plane of the screen of the transmitter is placed into a state of matter that is not a part of space as we normally know it. The receiving screen is placed in the same condition and tuning is accomplished once they are locked onto the same frequency. In a sense they became part of one another and the distance of the intervening space does not matter. If you step into one you will step out of the other without any awareness of either time or spatial separation. I am explaining very badly."

"You're doing fine, Nissim. What comes next?"

"The fact that spatial distance between transmitter and receiver does not matter, but the condition of that space does—"

"You're beginning to lose me."

"I will give you a not unrelated example. Light rays travel in a straight line through space, unless interfered with in some physical manner; refraction, reflection, so forth. But—these rays can also be bent when they pass through an intense gravitational field such as that of the sun. We have noticed the same kind of effect in MT, and corrections are always made for the bulk of the Earth or other planetary bodies. Another condition affecting space appears deep in the frigid soup this planet calls an atmosphere. The incredible pressures affect the very binding energy of the atoms and stresses are produced. These interfere with the MT relationships. Before we can move an object from one MT screen to another down here we must make allowances and corrections for these new interferences. I have worked out the corrections, we must now apply them."

"Very simple the way he explains it," Aldo said distastefully, dabbing at his nose and examining the results on his handkerchief.

"But it does not work out that way in practice. No signals are getting through. And our friend will not agree with me that we'll have to step up the strength of our output if we are ever going to punch through all that pressurized gunk out there."

"It is quality not quantity," Nissim shouted, and Stan stepped in once again.

"By that do you mean that we are going to have to unlimber the MT monster down under the floor?"

"Yes. That's why it was built in in the first place, with adjustable components rather than sealed block units."

"It will take us a month to move everything and we'll probably kill ourselves trying," Nissim shouted.

"Not that long I hope," Stan said, sitting up and trying not to groan with the effort. "And the exercise will be good for our muscles."

It took them almost four days to clear away and get up the flooring, and they were over the edge of exhaustion before they had finished. Mechanical preparations had been made with this eventuality in mind; there were ringbolts to suspend the equipment from and power hoists to lift it, but a certain amount of physical effort was still needed. In the end almost the entire floor area had been cleared and raised, leaving a ledge around the wall, on which their test equipment and couches alone remained. The rest of the floor consisted of MT screen. From the hard comfort of their couches they looked at it.

"A monster," Stan said. "You could drop a landing barge through it."

"It has more than size," Aldo told him, gasping for air. He could hear the hammer of blood in his ears and was sure that his heart had suffered from the strain. "All the circuitry is beefed up, with spare circuits and a hundred times the power handling capacity it would need anywhere else."

"How do you dig into its guts for adjustments? I can't see anything except the screen."

"That's deliberate." He pointed into the threaded hole in the armor, from which they had unscrewed a foot-thick plug. "Our operating controls are in there. Before we leave we put the plug back and it seals itself into place. To make adjustments we have to lift up sections of the screen."

"Am I being dense, or is it the gravity? I don't understand."

Aldo was patient. "This MT screen is the whole reason for this expedition. Getting the MT to work down here is vital to us—but only secondary to the original research. When we get out the technicians will come through and replace all the circuitry with solid state, block sealed units—then evacuate. The upper section of the interior of the

hull will be progressively weakened by automatic drills. This screen will be tuned to another MT in space above the ecliptic. Eventually the weakened Ball will collapse, implode, push right down on top of the screen. The screen will not be harmed because it will transmit all the debris through onto space. Then the phasing will be adjusted slowly until transmission stops. At which point we will have access to the bottom of Saturn's sea. The cryogenicists and high pressure boys are looking forward to that."

Stan nodded but Nissim was looking up at the cluttered dome above, almost open-mouthed, thinking of that imploding mass of metal, the pressure of the poison sea behind it.

"Let's get started," he said quickly, struggling to rise. "Get the screens up and the changes made."

The other men helped with the labor of lifting the screen segments, but only Aldo could make the needed adjustments. He worked intensely, cursing feebly, on the units that the remote handler placed before him. When he was too tired he stopped and closed his eyes so he would not see Nissim's worried glances to him, up at the dome above, and back to him again. Stan served them food and doled out the G drugs and stimulants with a cheerful air. He talked about the varied experiences of space flight, which monologue he enjoyed even if they did not.

Then the job was done. The tests complete and the last segment of screen slid back into place. Aldo reached into the control pit and pressed a switch: the dark surface changed to the familiar shimmer of MT operation.

"Transmitting," he said.

"Here, send this," Stan said, scribbling *How do you read us?* on a piece of paper. He threw it far out into the center of the screen and it sank from sight. "Now receive."

Aldo flipped the switch and the surface of the screen changed. Nothing else happened. For a heartbeat of time they watched, unmoving, not breathing, staring at that barren surface.

Then, with smooth sinuousness, a length of recording tape sprang into existence and, bent by its own weight, curved and began to pile up. Nissim was the nearest and he reached out and grabbed it, reeling it in until the cut end appeared.

"It works!" Stan shouted.

"Partially," Nissim said coldly. "The quality of transmission is sure to be off and finer adjustments will have to be made. But they can analyze at the receiving end and send us specific instructions."

He fed the tape into the player and switched it on. A booming squawking echoed from the metal walls. It could be perceived as the sound of a human voice only with a great effort.

"Finer adjustments," Nissim said with a small smile. The smile vanished instantly as the Ball rocked to one side then slowly returned to vertical. "Something has pushed us," he gasped.

"Currents perhaps," Aldo said, clutching at his couch as the motion slowly damped. "Or maybe solid floes; there's no way to tell. It's past time we got out of here."

They were fighting against the unending fatigue now, but they tried to ignore it. The end was so close and the security of Saturn One station just a step away. Nissim computed the needed adjustments while the other two lifted up the screen sections again and reset the components. It was the worst kind of work to do in the more than doubled gravity. Yet, within a solar day, they were getting sound-perfect tapes and the samples of materials they sent back tested out correct to five decimal places. The occasional jarring of the Ball continued and they did their best not to think about it.

"We're ready to begin live testing now," Nissim said into the microphone. Aldo watched the tape with these recorded words vanish into the screen and resisted a strong impulse to hurl himself after it. Wait. Soon now. He switched to receive.

"I do not think I have ever been in one place for so long before in my entire life," Nissim said staring, like the others, at the screen. "Even in college in Iceland I went home to Israel every night."

"We take the MT screens for granted," Aldo said. "All the time we were working at Satellite One on this project I commuted to New York City after work. We take it for granted until something like this happens. It's easier for you, Stan."

"Me?" the pilot looked up, raising his eyebrows. "I'm no different. I get to New Zealand every chance I have." His gaze went back instantly to the empty screen.

"I don't mean that. It's just that you are used to being alone in a ship, piloting, for longer times. Maybe that's good training. You don't seem as . . . well, as bothered by all this as we are."

Nissim nodded silent agreement and Stan barked a short, hard laugh.

"Don't kid yourself. When you sweat, I sweat. I've just had different training. Panic in my work and you're dead. Panic in your work and it just means taking a few extra drinks before dinner to cool down. You've never had the need to exercise control so you have never bothered to learn."

"That's just not true," Nissim said. "We're civilized men, not animals, with will power—"

"Where was it when you popped Aldo on the beak?"

Nissim grinned wryly. "Score one for your side. I admit that I

can be emotional—but that's an essential part of the human existence. Yet you personally have . . . what should I say? . . . perhaps the kind of personality that is not as easily disturbed."

"Cut me, I bleed. It's training that keeps one from pressing the panic button. Pilots have been like that right back to the year One. I suppose they have personalities that lean that way to begin with, but it's only constant practice that makes the control automatic. Did you ever hear the recordings in the Voices of Space series?"

The other two shook their heads *no,* looking at the still empty screen.

"You should. You can't guess the date that any recording was made to within fifty years. Training for control and clarity is always the same. The best example is the first, the first man in space, Yuri Gagarin. There are plenty of examples of his voice, including the very last. He was flying an atmosphere craft of some sort, and he had trouble. He could have ejected and escaped safely—but he was over a populated area. So he rode the craft in and killed himself. His voice, right up to the very end, sounded just like all of his other recordings."

"That's unnatural," Nissim said. "He must have been a very different kind of man from the rest of us."

"You've missed my point completely."

"Look!" Aldo said, suddenly.

They all stopped talking as a guinea pig came up through the screen and dropped back to its surface. Stan picked it up.

"Looks great," he said. "Good fur, fine whiskers, warm. And dead." He glanced back and forth at their fatigue-drawn, panicked faces and smiled. "No need to worry. We don't have to go through this instant corpse-maker yet. More adjustments? Do you want to look at the body, or should I send it back for analysis?"

Nissim turned away. "Get rid of it and get a report. One more time should do it."

The physiologists were fast. Cause of death functional disability in the neural axon synapses. A common mishap in the first MT's for which there was a known correction. The correction was made, although Aldo passed out during it and they had to revive him with drugs. The constant physical drain was telling on all of them.

"I don't know if I could facelift those segments again," Aldo said, almost in a whisper, and switched to receive.

A guinea pig appeared on the screen, motionless. Then it twitched its nose and turned and wriggled about painfully, looking for some refuge. The cheer was hoarse, weak, but still a cheer.

"Good-bye Saturn," Nissim said. "I have had it."

"Agreed," Aldo said, and switched to send.

"Let's see first what the docs say about the beast," Stan said as he dropped the guinea pig back into the screen. They all watched it as it vanished.

"Yes, of course," Nissim spoke the words reluctantly. "A final test."

It was a long time coming and was highly unsatisfactory. They played the tape a second time.

". . . And those are the clinical reports, gentlemen. What it seems to boil down to, is that there is a very microscopic slowing of some of the animal's reflexes and nerve transmission speeds. In all truth we cannot be sure that there has been an alteration until more tests are made with controls. We have no recommendations. Whatever actions you take are up to you. There seems to be general agreement that some evidence is present, which appears to have had no overt effect on the animal, but no one here will attempt to guess at its nature until the more detailed tests have been made. These will require a minimum of forty-five hours—"

"I don't think I can live forty-five hours," Nissim said. "My heart—"

Aldo stared at the screen. "I can live that long, but what good will it do? I know I can't lift those segments again. This is the end. There is only one way out."

"Through the screen?" Stan asked. "Not yet. We should wait out the tests—as long as we can."

"If we wait them out, we're dead," Nissim insisted. "Aldo is right, even if corrections are given to us, we can't go through all that again. This is it."

"No, I don't think so," Stan said, but he shut up when he realized that they were not listening. He was as close to total collapse as they were. "Let's take a vote then, majority decides."

It was a quick two to one.

"Which leaves only one remaining question," Stan said, looking into their exhausted, parchment faces, the mirror images of his own. "Who bells the cat? Goes first." There was silence.

Nissim coughed. "There is one thing clear. Aldo has to stay because he is the only one who can make adjustments if more are needed. Not that he physically could, but he still should be the last to leave."

Stan nodded agreement, then let his chin drop back onto his chest. "I'll go along with that, he's out as the guinea pig. You're out, too, Dr. Ben-Haim, because from what I hear you are the bright hope of physics today. They need you. But there are a lot of jet jockeys around. Whenever we go through, I go first."

Nissim opened his mouth to protest, but could think of nothing to say.

"Right then. Me first as guinea pig. But when? Now? Have we done the best we can with this rig? Are you sure that you can't hold out in case further correction is needed?"

"It's a fact," Aldo said hoarsely. "I'm done for right now."

"A few hours, a day perhaps. But how could we work at the end of it? This is our last chance."

"We must be absolutely sure," Stan said, looking from one to the other. "I'm no scientist, and I'm not qualified to judge the engineering involved. So when you say that you have done the absolute best possible with the MT I have to take your word for it. But I know something about fatigue. We can go on longer than you think—"

"No!" Nissim said.

"Hear me out. We can get more lifting equipment sent through. We can rest for a couple of days before going back on drugs. We can have rewired units sent through so that Aldo won't have to do the work. There are a lot of things that might be done to help."

"None of those things can help corpses," Aldo said, looking at the bulging arteries in his wrist throbbing with the pressure needed to force the blood through his body under the multiplied gravity. "The human heart can't work forever under these conditions. There is strain, damage—and then the end."

"You would be surprised just how strong the heart and the entire human organism can be."

"Yours perhaps," Nissim said. "You're trained and fit and we, let's face it, are overweight and underexercised. And closer to death than we have ever been before. I know that I can't hold on any longer, and if you're not going through—then I'm going myself."

"And how about you, Aldo?" Stan said.

"Nissim is speaking for me, too. If it comes to a choice, I'll take my chances with the screen rather than face the impossibility of surviving here. I think the odds on the screen are much better."

"Well then," Stan said, struggling his legs off the couch. "There doesn't seem to be very much more to say. I'll see you boys back in the station. It's been good working with you both and we'll all sure have some stories to tell our kids."

Aldo switched to transmit. Stan crawled to the edge of the screen. Smiling, he waved good-bye and fell, rather than stepped out onto its surface, and vanished.

The tape emerged instants later and Aldo's hands shook as he fed it to the player.

". . . Yes, there he is, you two help him! Hello, *C. Huygens,* Major Brandon has come through and he looks awful, but I guess you know that, I mean he really looks all right. The doctors are with him now, talking to him . . . just a moment—"

The voice faded to a distant mumble as the speaker put his hand over the microphone, and there was a long wait before he spoke again. When he did his voice was changed.

". . . I want to tell you, it's a little difficult. Perhaps I had better put on Dr. Kreer." There was a clatter and a different voice spoke.

"Dr. Kreer. We have been examining your pilot. He seems unable to talk, to recognize anyone, although he appears uninjured, no signs of physical trauma. I don't know quite how to say this—but it looks very bad for him. If this is related to the delayed responses in the guinea pig, there may be some connection with higher brain function. The major's reflexes test out A-one when allowance is made for fatigue. But the higher capacities . . . speech, intelligence, they seem to be, well, missing. I, therefore, order you both not to use the screen until complete tests have been made. And I am afraid I must advise you that there is a good chance that you will have to remain a longer period and make further adjustments—"

The end of the tape clicked through and the player turned itself off. The two men looked at each other, horrified, then turned away when their eyes met.

"He's dead," Nissim said. "Worse than dead. What a terrible accident. Yet he seemed so calm and sure of himself—"

"Gagarin flying his craft into the ground to save some others. What else could he have done? Could we have expected him to panic—like us? We as much as told him to commit suicide."

"You can't accuse us of that, Aldo!"

"Yes, I can. We agreed that he had to go first. And we assured him that we were incapable of improving the operation of the machine in our present physical condition."

"Well . . . that's true."

"Is it?" Nissim looked Aldo squarely in the eyes for the first time. "We are going back to work now, aren't we? We won't go through the MT as it is. So we will work on until we have a good chance of making it—alive."

Aldo returned his gaze, steadily. "I imagine we can do that. And if it is true now—were we really speaking the truth when we said we would have gone through the screen first?"

"That is a very hard question to answer."

"Isn't it, though? And the correct answer is going to be very hard to live with. I think that we can truthfully say that we killed Stan Brandon."

"Not deliberately!"

"No. Which is probably worse. We killed him through our inability to cope with the kind of situation that we had never faced before. He was right. He was the professional and we should have listened to him."

"Hindsight is wonderful stuff. But we could have used a little more foresight."

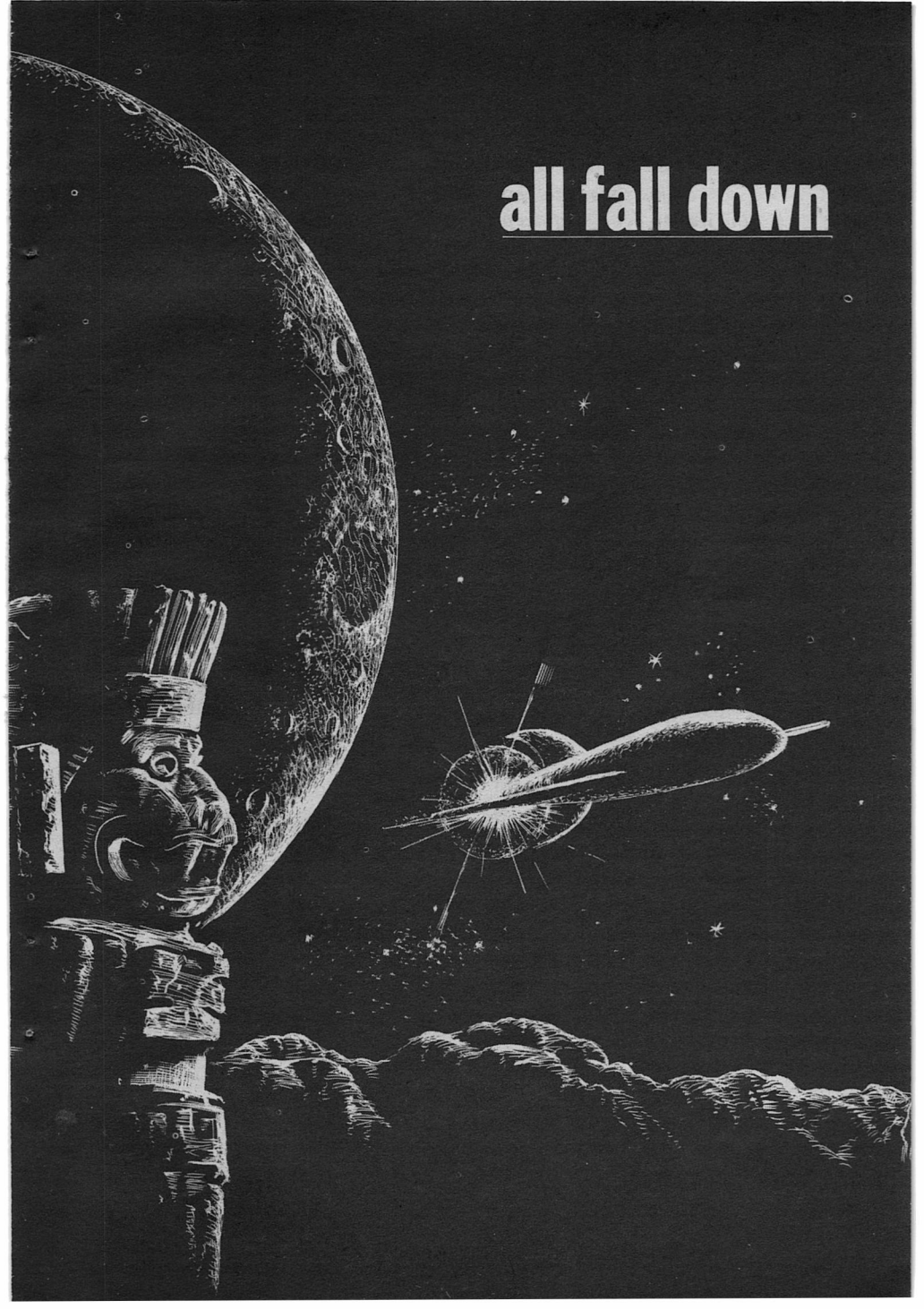
Aldo shook his head. "I can't bear the thought that he died for absolutely no reason."

"There was a reason, and perhaps he knew it at the time—to bring us back safely. He did everything he could to get us all returned without harm. But we couldn't be convinced by words. Even if he had stayed we would have done nothing except resent him. I don't think either of us would have had the guts to go through first. We would have just lain here and given up and died."

"Now we won't," Aldo said, struggling to his feet. "We are going to stick with it until the MT is perfect and we both can get out of this. We owe him at least that much. If his death is going to have any meaning, we are both going to have to return safely."

"Yes, we can do it," Nissim agreed, forcing the words through his taut, closed lips. "*Now* we can."

The work began. ■


all fall down

This time, the best computation suggested the way to get out of deep trouble was to just give a dam.

JOHN T. PHILLIFENT

Illustrated by Vincent DiFate

"The really hard part," said Dan Lennox thoughtfully, "is learning to think like a computer. Once you have that, the rest is simple."

Captain Dew stifled a snort, modulated it into a sigh. "Computers do not think," he declared. "I've heard all the arguments both ways on that, and to say that a machine can think is pure anthropomorphism. That comp is nothing more than a very well-informed adding and subtracting machine. It can't think!"

They were seated at ease in the control room of the space freighter *Barbuta,* at about the midpoint of a dull and routine haul. A handful of restless gauges spotted two of the bulkheads, viewscreens filled the third, and the wink-eyed spread of the ship's computer read-out dominated the fourth. Dew threw a casual gesture that way now.

"I've been pushing buttons on things like that, and reading out the answers, for around thirty years now. No trouble. I can't see where your way makes it any better. *Think* like a computer, hah!"

Lennox did a sigh of his own. Many years younger than Captain Dew, this was his first fully-operational trip, and it was, even then, in the nature of an experiment. The silvery inch-diameter metal disk, surgically affixed to his forehead, marked him out as different, and was probably the real reason for Dew's dislike. He had been warned that this would happen, that "ordinary" people would reject the idea of a man being brain-

linked with a machine. He had also been advised that it wouldn't help at all to try to explain that all he had was a transceiver that matched a special conversion circuit in the computer, that all he was doing was relaying patterns, and receiving them. He had been assured by his instructors that you just can't explain anything to people who do not want to know—and how many people actually know how *they* think? But there was no immediate pressure of business, and this was a challenge.

"Thinking," he suggested, "is what you call it, when you do it. When a machine does it, or even an animal, you call it something else. It's just a word. A man riding a horse gets to know the feel of the animal, in the same way that a man does who uses a machine, or a tool, or a weapon. It's a to-and-fro response, on a non-verbal level. Something you learn."

"Even if I could believe that, what's the point? I can handle this comp efficiently. So can Mr. Howland, my first. We've never had any trouble. So who needs you?"

This was more familiar ground, and Lennox took confident breath. "No reflection on you," he said, "but you could be getting in the way. As, for instance, decades ago, when they started automating factories in a big way, they found they would have to reorganize an entire production line so that the machine could handle it—and more often than not they wound up simplifying the job so much that they didn't need automation after all. That's learning to think like a machine. Or take laws, and rules. A gathering of lawmen deliberates for a long time to come up with some watertight unbreakable legislation, and the crooks take a good strong look at it, and pick loopholes. At least, that's how it was. But not now. And why. Because devising a foolproof sequence is old hat to a computer programmer. This is what he does all day long, figuring out a set of instructions for a stupid-logical machine so that it *can't* get it wrong. And that, again, is learning to think straight. All right, in your terms a comp can't think, but it can certainly teach us how!"

Dew shifted in his chair, gathering his forces for a real crusher of a comeback—and swallowed it as the lights gave a sudden crazy flicker and the gentle background moan of machinery took on fractionally different pitches.

"What the hell—!" He swiveled and hit the button for the power deck. "Control to Power," he growled. "What?"

After a click or two there came heavy breathing and the aggrieved voice of Chief Engineer McKay. "Is that Mr. Dew, himself? Well now, I told you those squint-eyed service mechanics on Arpay were botching the job, did I not?"

"That's not the way I remember it!"

"Ah, well, the fact is our warp generators are shaking themselves to pieces by the minute. I've had to cut out the first three stages and we are now warping on two main and one standby. And they are not going to hold out for long!"

"Stinking old rust-bucket," Dew swore. "I thought you said you could keep us going."

"It is no fault of the *Barbuta,*" McKay retorted, biting off the words sharply. "Nor of my staff. I'll not be held responsible for those metal butchers on Arpay. I told you at the time—"

"You told me," Dew interrupted, leaning on the words, "that we were getting a good cut-rate overhaul. You *will* be held responsible, Mr. McKay; in due course, I'll see to that. For now, what's our situation? Can we make it to Carfrank on half-speed, or anything like that?"

McKay sounded bitter as he replied. "I will not be held responsible for the generators beyond the next eight hours—at the outside!"

"Hm-m-m!" Dew scowled, turned over several probabilities rapidly in his mind. Forty-eight hours to Carfrank. "If we de-warp for emergency repairs, how long?"

"Not in space. We will have to planetfall somewhere. The whole generator belt will have to be opened up for inspection and realignment."

"Oh, great!" Dew groaned. This would have to happen, on this his last trip. Just one more run to make up those few extra hours of space-time that would jump him one increment in pension. Take the *Barbuta* to Carfrank and back with machine parts to go, and vacuum-packed rare fruits and herbs to return—a routine haul. Nothing to it—and now this!

"All right!" he decided. "We de-warp immediately, take a fix and make for the nearest suitable planet—if any!" The last was to himself. Chances were slim, and space was vast. It was much more likely that the surrounding volume of emptiness would be just that, and *Barbuta* would be stuck, to transmit for help, and wait, and he would be lucky if his pension, after all, went down by no more than one notch. This would have to happen.

Lennox was already at the panel pushing buttons. Alarm bells jangled. First Officer Howland came bleary-eyed to take up his station, and Lennox backed away to observer status. The alarms counted down. There came the instant-nausea of drop out. The viewscreens glowed. Lennox closed his eyes, opened them again to catch Dew's sardonic grin.

"Having a chat with your friend? What's the good word?"

"Not so good," Lennox told

him, but reserved the details he had picked up until Howland could get them the hard way, with his fingers. The readout came up, and Dew scanned it expertly. Catalog number—so the place had no name yet. And a prohibition asterisk!"

"Button a second choice, Mr. Howland."

The original readout shrank away into one corner of the screen and up came the second. Carfrank! Which was unreachable anyway!

"Looks like we have no choice. Give me that first one again."

The information came back, full-plate. One un-named star. One planet that was well within Earth-parameters. Temporary name "GARDAN." But that damned asterisk still shimmered there. "See if we have data on the prohibition."

"We have," Lennox told him, before Howland could move a finger. "It is off-limits except to properly accredited and authorized expeditionary research. Apparently there is an indigenous humanoid culture, and it's under the protection of the Xenology Bureau. Strictly."

"Very clever!" Dew snarled. "I daresay you know a lot more, too, you and the machine together. But I make the decisions here, and this is an emergency. We land for repair. Set her up, Mr. Howland, while I talk to the power deck again. We won't need you, Mr. Lennox."

Once the familiar moment of nausea had come and gone, Lennox went away back to his cabin, wondering which was worse—being made to feel alien, or being shown that he was unnecessary? Once again the warnings came back to him. You can't explain, he had been told, what it's like to have total information presented instantly and impersonally to your mind. Ordinary people pick and choose what information they are prepared to admit to consciousness. If they were given the whole, uncensored, in a flash, they would probably crack up. That was where his training came in. It showed in small things. Howland, for instance, had asked the comp "How far away?", whereas he had "thought" "How long?", and had received the answer in one step instead of two. As he put his hand on the door of his cabin, the next door opened and Dr. Meriel Cooper came halfway out.

"What was all that?" she asked, making a nice smile for him. She did not look at all like a mining engineer and a specialist in rock structures and tunneling, but she was. She didn't like to be called "Doctor" either. Lennox was considerably in awe of her.

"Nothing very serious, Miss Cooper," he assured her. "We have a defect in our main drive,

and we have to make emergency planetfall for repair. Shouldn't delay us more than a day or two."

She frowned in thought, and he felt sure she knew she looked even prettier when she was frowning. "Oh, well, a day or two won't hurt. No one on Carfrank will lose any sleep if I'm late, that's certain."

"I still think you'd have been better off, more comfortable anyway, on a regular passenger run."

"We've already been over that," she said, with patience. "I've told you, I can't afford that kind of fare. First, I have to have a job and the chance to demonstrate what I can do."

"Me, too!" he murmured unwisely. "I mean, I have a job, but—"

"Your time will come!" she sounded like a fond mother, reassuring. "It must! Imagine having all that data right at your . . . well, just where you want it. And always gathering more. I mean, everything I tell you—or anyone else—it all gets filed away, doesn't it?"

He nodded defensively. In a weak moment he had tried to explain to her just how the special converter unit in the computer took records of his varying brain-impulse patterns and stored them against data points in a code all its own, so that if he thought about something, it fed back all the stored associations relating to that pattern into his mind. That was before he had noted the personal possessive gleam in her eye.

"I'll bet," she pursued, "that you know all about this planet we're going to put down on, for the repair!"

"Not all, no, but I do know what's in the comp. It seems to be a very pleasant place, on the whole."

Four hours later as he stood with her in the loading-bay blister to watch the landing, she was able to agree with that opinion. He was still smarting from Dew's banishment order. The captain had made it acidly clear that he didn't need "any damned mechanical telepaths" to help him land a ship.

"It really does look beautiful, Mr. Lennox," she enthused. "If Gardan is some native name then it is a wonderful coincidence. I mean, just change a letter and you have Garden. And that's what it looks like."

"In more ways than just looks," he said. "The inhabitants are humanoid all the way down the line and still in the nomadic tribal stage, except for one small enclave. That there, on the southwestern fringe of that continent, is where we will be landing. Civilization is just starting to bloom there. It's a city-town with the nucleus of a technology. An anthropologist's dream. Homo Faber starting his long journey to dominance. All that stuff. And we are going to drop smack in the middle of it!"

"Is that so bad? I mean, men must have landed there before, else how was all that information recorded anyway?"

"Survey from orbit first. And there's a ship down there now, but it's a special research craft, under Xenology Bureau authorization. Observers. When we go down it will be like a brass band marching through a bunch of bird watchers. I bet they are cursing us!"

"Oh, well," she dismissed it easily, "it can't be helped. It's an emergency, after all."

The warning gongs cut short anything he might have said. Half an hour later, with the hull still settling to rest with clicks and protests, he dared to return to the control room, to find Captain Dew in terse argument on the visiphone with a face and voice as brusque as his own.

"Of course, we ignored your warnings!" he growled. "Dammit, we *had* to land. Our warp generators are falling apart."

"You might as well throw them away, now," the face stated, looking sadly grim. "King Drent won't let you leave again, now you're down."

"Won't let? Won't LET? How the hell can he stop us, this . . . King Who?"

"King Drent. Absolute autocrat, hereditary god-king of this peninsula. When you've a moment, just take a look at the ring of cannon surrounding this wasteland area. Pointing at us. And you, now. You so much as show signs of lifting off and they will pound you to scrap!"

The unthinkable idea struck Dew speechless for several seconds, for a ship of space is as fragile as any egg on the ground. Then, taking tremulous breath, he said, "Cannon?" and repeated it incredulously. "CANNON?"

"It's a primitive weapon," Lennox volunteered, "which projects solid or explosive missiles under the thrust of expanding—"

"I know what a cannon is, you button-brained clown! Cannon, aimed at my ship? Great gravitating galaxies! What for?"

The face and voice registered resignation. "You'd better come over and we can have a conference. There are things you need to know."

"We are allowed to leave our ship, then?" Dew's tone should have withered, but his informant merely sighed.

"Oh, yes, you can do pretty much what you like, within certain limits. We'll be able to tell you what the others are. We have set up a work shack on the far side of our ship, *Columbia IV*. You'd better bring all members of your crew who need to know. It will save time and repetition."

The "work shack" was large, long, spacious, a functional structure of alloy members and sheeting which provided ample room for

the twenty-four people already present, and the angry group from the *Barbuta*. Along with Dew, Howland, Miss Cooper and Lennox, had come McKay and his three mechanics, three cargo-hands, and the lone cabin steward. Dew was bursting with his first question as he came near the far-end rostrum.

"How," he demanded, "did they get all those cannon right there, spaced out so as to take us in their range, as well as you?"

"My fault." The visiphone speaker turned out to be a shortish, heavy-built man, tanned and looking extremely fit in no more than a loincloth. "Barrington. I'm in charge of the team. Rather stupidly, I warned King Drent that other ships would come looking for us if we failed to report. He took precautions accordingly and at once. He's no fool. If you learn nothing else, learn that much."

Dew snorted, struggled his way up on to the rostrum, and surveyed the lolling members of the team. Lennox did likewise. Half of them were women. All were in what he presumed were native clothes, and all looked well-fed and fit. And resigned. Dew must have noticed that, too.

"Some team! You look as if you've given up all hope!"

"We are cultural anthropologists," Barrington edged his voice a little. "All of us. If you're going by the dress, don't. We go native, to blend. We are doing a job here. In fact we are doing very well. This is an unique culture, and we are studying it in depth. We have nothing to complain about, apart from that one thing, that we will not be permitted to leave. And that tale about a ship coming to look for us —you can forget it. We've been here a year, almost, and our planned tour is for five years." He shrugged and settled back in his seat. "We are all right. It's just the fact that we are prisoners. And we've accepted that, pro tem. I advise you to do the same. It's not a bad place."

Dew chose a chair, settled into it with due respect for his age and rage, and demanded. "All right, tell us. Why? Why can't we leave? Make it simple, now. Never mind the jargon and theory stuff. Just why?"

Barrington smiled sadly, waited for the cynical titter to die down among his colleagues, and said, "You need background. To sketch it in, this is the only real culture on the entire planet. The rest are no more than wandering hordes of scattered huntsmen. So the problem is all here. This is a city-state, with about three hundred thousand population, the majority living right here on this delta-plain—the lower classes. The rest, the privileged few, live up there, beyond the ridge. The whole are Gardains, but the classes are rigidly parted.

Priests, priest-king, god-king, and nobles up there; workers down here."

"Get to the point!" Dew urged, and Barrington shrugged.

"There's no hurry, Captain. We've been here a year, trying to figure an easy answer, and there isn't one." The *Barbuta*'s crew stirred restlessly at this repeated hint of a year, maybe more, without wages.

"You have to see it as it is," Barrington went on. "This, down here, is the plain of Dornwale, and it is almost totally agrarian. Up on the other side of that ridge, Hadone, where the nobility and the rulers live, is virtually barren. Up there, too, is the castle-temple, fortress—a fantastic place—of Drenadon. That is where King Drent lives—and rules. And that's absolute. Drent is immortal. In the social sense, it is just a lineage name. But he is smart, and very well advised. And the whole of his power, his subsistence, his court, prestige, all his existence, depends on this fertile valley. So he controls it right down to the last iota."

"There are fascinating parallels with Ancient Egypt," the speaker was a fine-bodied mature woman who looked perfectly at ease in a simple garment of fine-bleached linen. "The river originates up there, irrigates all this delta as it winds to the sea. The priest caste advises the peasantry how and when to plant and reap. They get their secret information direct from Drenadon by signals. A kind of semaphore by day, and complex flashing lights by night. Pure magic, as the peasantry can neither read nor write, nor have anything resembling a script. The priests are obeyed without question, as the instruments of Drent."

"And, just in case any of them waver a little," Barrington added, "there is also a police-class which works in parallel with the priests. And they are ruthlessly swift."

"But what's all this to do with us?" Miss Cooper demanded. "All we want to do is to go away as soon as ever we are able."

"I'm coming to that." Barrington smoothed down his hair with a slow pass of his hand and grimaced painfully. "You could say that's our fault, I suppose."

Lennox contented himself with listening and garnering data for the computer back on the ship. He had no idea what use any of it might be, but that was beside the point. It was all data feeding steadily into the machine, via him.

"When we first came," the anthropologist-leader explained, "we were met with suspicion and distrust. We expected that. As soon as we had learned enough of the language to get by, we were sent for. We met Drent and his council. We managed to reassure everybody that we were just watching, observing, with no intention to interfere. That was fine, easier than we

had expected. And it was the truth, of course. But part of our business in studying any culture, especially one as fascinating as this, is to discover how resistant it might be to change and growth—to new ideas. We introduce innovations—nothing revolutionary—just small hints and wrinkles in technique, pretty much in the same way as you'd try different diets on stock, to see how they respond."

"What happened?" Lennox asked.

"Drent lowered the boom on me," Barrington said calmly. "I told you, he is smart. He understands the principle of leadership, above everything else. I was sent for, and flogged. Very efficiently. That, I was given to understand, was just a warning. Then it was made clear to me that only Drent introduces change. No one else. And even then, only after thorough and careful assessment of the overall effect. Then I was invited to explain just what these small changes were, what they would amount to. Getting to the point, the situation now is that if any of us want to suggest any novelties, we do so to a priest, fully. He then remits it to Drenadon for evaluation and decision."

"Rough on you," Dew admitted. "But it sounds logical enough."

"It is. But there's more. Drent, when you come to think of it, is in a delicate position. He knows, now, that the strangers from the sky know all kinds of things that he doesn't know, some of which might be valuable to him. He can't allow us to interfere, but he equally can't afford to pass up the goodies we might have tucked away. So there's a kind of armed truce on that. At the same time, he knows very well that if and when we ever go away, it will be back to more people like us, and more will come here eventually. Now, he can control *us,* but will he be able to control a hundred, or a thousand, like us?"

"The goose and the golden eggs!" Lennox said, and Barrington nodded.

"You've got it. And you're in it, too. I'm sorry about that, but we did do our best to warn you off."

There was a long, loaded silence as the *Barbuta*'s crew assimilated this in their various fashions.

"The natives won't interfere with us, then?" McKay demanded.

"Not in any way. They are reasonably friendly. But you'll be wise not to interfere with them, either. It's delicate. We have managed to introduce one or two new pottery designs, weaving patterns, and a small trick or two in soil handling that have boosted the yield a little. Drent approves that. He takes half of everything, you see."

"Half?" McKay was outraged.

"He could take it all if he wanted to, and no argument. But, I can't say it often enough, Drent

is no fool. For instance, Morrison there was curious and took just a peek at the secret script the priests use for their communications."

Morrison was the woman who had just spoken on the parallels with Egypt.

"I was flogged," she said, flatly. "No question. No argument. No appeal. And yet they don't object when we join in, wear their dress, help in the fields. I think Drent would like to meld us into the population, but only if we observe the rules—his rules."

"He's going to be unlucky there," Dew spoke with great emphasis. "I have a cargo to deliver, and a retirement pension to draw. I am not about to be shanghaied by a bunch of peasants."

"I don't see what you can do about it. Those cannon may be primitive, but they are quite good enough to shatter your ship."

"They can't stop us," McKay asserted angrily. "We'll just have to show them what's what around here, and then leave. Damn it all, we're a superior civilization!"

"We know that, but the Gardains don't. Drent has already given them to understand that we serve him, and proves it by pointing to the small benefits we have produced."

"Apart from which," spoke up another of the research team, "we won't like it if you do anything out of line and foul up this situation. We want to leave when the time comes, but not at the cost of ruining this culture."

Lennox listened avidly to the short and heated argument that followed. It got nowhere. Drent ruled. Drent said the strangers were not to depart. That was all there was to that.

"Unless," he put in tentatively, when there came a lull, "we can find some way of overriding Drent's authority. Has that ever been done?"

To his relief Barrington and his group did not immediately ridicule this notion. "In the myth-and-magic stage—cultivation, fertility and seasonal rhythm—you do not get any significant degree of subversion. It's just not on. What we might call treason, or revolution, these people would regard as blasphemy. If by some fantastic method we could ferment a revolution—it would destroy everything. The culture just isn't that flexible."

Dew looked cynical now. "I've been a ship's master for a good long time," he observed. "I've yet to meet the crew that didn't have one or two malcontents. You trying to tell me there are *no* rebels here?"

Barrington sighed, made a sign to a long lean professorial-looking man away in a corner. "You could tell him, Landy. Dr. Landy is our expert on myth and legend—how they work and why."

"There are three standard ways of maintaining authority," Landy

declared, climbing to his feet. "By reason, by indoctrination, or by force. By reason you demonstrate your ability, that you're best fitted for the job. By indoctrination you establish nonrational and ingrained responses. By force—that's the most interesting, complex and variable. There are many ways. One, believe it or not, is by offering freedom from rule, but making the conditions so tough that they are unthinkable. Think of the iron-tough sergeant-major who offers to take off his stripes and meet the green rookie on his own terms, man to man. Slay the dragon and you win the princess. And other variants. The function of such legends is to provide hope, but in a way that there's no danger of it ever happening to upset the status quo. There is such a legend here. Drent will be overthrown and all his authority will die—when Drenadon falls. I imagine Drent will send for you when he's good and ready. You'll see Drenadon. Then you'll see the point!"

Later, about the Gardan noon, Lennox shared the last-but-one tread of *Barbuta*'s gangway ladder with Miss Cooper, and watched McKay and his gang busy hoisting out the first of the generator coils for inspection. It was pleasantly warm, the air rich with the many odors of growing things, the stony waste, where the two ships stood, a small enclave in a pastoral Eden.

"This is ridiculous," she declared. "I mean, it's delightful here. I wouldn't mind staying, settling down. It's just the thought of compulsion!"

"I don't see why we *can't* foment a revolt," he murmured. "After all we have a whole team of social scientists of one kind or another. They ought to be able to work out something."

"They've been trying for a whole year—"

". . . To solve the problem without breaking anything," he interrupted. "That may be valid for them, but it doesn't necessarily apply to us. And McKay was right, we are smarter than they are."

"So you say. I could probably tell them quite a lot about mining technology, and you could dazzle them with what you know about the inside of a computer—"

Her tone was edged and might have gone on to outright bad temper had not Miss Morrison chosen that moment to approach them.

"So long as you're going to be stuck here," she said, with a nod and smile for Lennox, "I thought you might like to meet some of the people. They're very easy to get on with. Even more so if you'd care to swap that formal garb of yours for a mantle like this. More comfortable, too."

Miss Cooper cast a shrewdly feminine eye over the native dress. The linen was fine, soft as silk, and flattering, the garment as classi-

cally simple as a Greek chiton, being no more than a long rectangle with a center hole for the head and secured down either side with bone pins.

"Looks delightfully cool," she admitted. "What would I have to pay?"

"I'll bet you have a mirror. Yes? That'll do. They'll give you a whole armful of dresses for one of those."

After a moment or two of strolling Lennox said, diffidently: "Miss Morrison, just what would happen if someone succeeded in starting a revolt?"

"I've no idea. The question is so improbable I doubt if any of us has given it thought. I mean, how do you revolt without weapons. We have none. Your cargo, as I understand it, is machine parts. The peasantry have nothing."

"They could learn to make things."

"Oh, yes?" She gave him a wide and entrapping smile. "Such as? Do you realize the amount of time, labor and technology needed just to produce a quantity of, say, swords, spears or knives? Secretly. Against those?" and she nodded her head in the direction of a group of Gardain soldiers. There were five well-muscled, alert men, each clad efficiently in leather; each armed with a serviceable-seeming crossbow. "A 'five'," she murmured. "That's the standard group. Observe the priest in the middle." He was an impassive, yet observant, man in a gray robe emblazoned with the black mountain and red circle of Drenadon. "He's the one to watch. The soldiers are his instruments. All he has to do is point, and you're dead! There're more like him wherever you go, and they are in touch, always, with headquarters. See all, hear all, know all, and take immediate action. Revolt?"

"Hm-m-m!" Lennox shrugged but clung to the thought, came at it from another angle. "Suppose something happened to Drent himself? If he died, or was killed?"

"You can't be that naif, surely? Drent is immortal—and is an office, not an individual. Come along, Miss Cooper, let's see about getting you a wardrobe!"

Tactfully, Lennox excused himself and wandered back to watch McKay, but without seeing much. Inwardly he was arguing with the computer, in his own odd way. Drent held all the cards. Therefore the only way was somehow to overthrow his authority. But how? How do you override an immortal god-king? The machine, strictly logical, gave him the only answer it could find. Lennox sighed, went to find Barrington.

"Will Drent send for us?"

"You can bet on it, when he's ready. He's going to like you. That is, if you tell him what you're for."

"You mean this?" Lennox touched his contact disk.

"Right. I've heard a bit about

computer-linkage but never met one before. If it's all I've heard, we could use you here. How Drent will react I can't be sure. It's quite possible—if you explain yourself too well—that he might have you executed offhand. I thought I'd better mention that."

The summons from Drenadon was three days in coming, three days in which Dan Lennox learned quite a lot. It was as well that his training had been to accept events, facts, phenomena and statements of opinion as so many data-point patterns, regardless of his personal reaction to them, because some of the things he learned scared him almost speechless. To learn the Gardain tongue, and the complexities of rituals and taboos was nothing at all to a man who had a computer memory to nudge him, but some of those ritual customs were stark. He, who spoke unwisely within earshot of a priest, lost his tongue, literally and on the spot. The man who performed a prohibited act lost his right hand for the first offense, his left foot for the second. Women caught in the same carelessness were seen to fall dead from a crossbow bolt. Argument and appeal didn't exist.

Lennox, sweating and shaken, discussed this with Barrington, catching the team leader in a pause for breath at the end of a long furrow gouged out by a curious-looking plow.

"Of course there's no appeal," the anthropologist told him patiently. "Drent is absolute. Drent knows it all. Argument? Man, the human race was all of a hundred thousand years old before the concept of rights was ever invented. Even today there are primitive races on Earth, still, in which people will die—all by themselves—if they are convinced they have transgressed against some god or magic that they believe in. Drent's way is quicker, that's all."

"But—just like that—pow! Just because a priest points at you?"

"That's right." Barrington's grin was a trifle thin. "They won't point at any of us unless they have to, unless we provoke them. We're valuable. We can withstand a flogging, though, so don't get careless."

Lennox didn't. He had no urge to be flogged, or anything else. The same spirit of cat-foot caution was obvious among the rest of *Barbuta*'s crew. It all served to add more pressure to the common determination to get away somehow, and none of them grappled with the notion harder than Lennox. In the final stages of his training, his professors had warned him against excessive demonstrations of his abilities. "You are a man of power," they had told him, "far more power than ordinary people realize. Let them regard you as a freak memory, or someone who can learn rapidly, anything on that level, and you will gain acceptance.

Be so foolish as to let anyone suspect just how powerful you really are, and they will destroy you." The caution had been unnecessary up to now, as Lennox was by nature a quiet and unassuming person, with no neurotic urge to dominate. Now, frustratingly, the warning came back to mock him. Power? What good was some hypothetical mental magnification in the face of this total despotism?

As if that wasn't enough to start his hair going gray, he began to detect disturbing symptoms in Miss Cooper. Of them all, she was the

least upset by their virtual captivity.

"It's a lovely planet," she assured him, not for the first time. "As I always say, it doesn't matter where you are so long as you're happy with it. I know I could be happy here, Daniel. Oh, I don't mean as a peasant, slaving over the soil all day. But once the influential people realize just what you can do for them, what potential you have, you'll be a noble. You'll see. I mean, with your mental capacities, and me to help as—"

"How d'you mean, help?"

"Well, you've heard what they say about Drenadon, and the upland valleys of Hadone, where the nobility live? All those magnificent buildings, like castles, all carved from stone, or block-built, so they say. I am an engineer, after all, with degrees in mining technology. I bet we could show them quite a bit about design and construction, what with my data and you to do the calculations and estimates. We'd make a good team. And there are worse places to settle down. I mean, no smog, no traffic, no silly laws and regulations—no taxes!"

It hardly needed the computer estimate to show him which way her mind was headed, and, although she was an exceedingly attractive young woman, there was something chillingly predatory about the gleam in her eye. By the time the state summons did come from Drenadon, Lennox had loaded the basic problem into the computer under every possible semantic combination he could think of, and he was so weary thinking of it that his mind rebelled, leaving him dazedly free to appreciate the spectacle afforded by the journey. In such a way a man condemned to the gallows beyond hope of reprieve might study the sunshine and flowers on his path as if he had never noticed them before.

They went in style, by hammock-litter, borne by silent relays of sturdy men along the narrow banks of the rapid-rushing Dornal. The litters were paired, and Miss Cooper had seen to it that she swung alongside him. It didn't bother him any more. He cast a dull eye over the savage grandeur of the gorge, the steepness of the walls on either side, the narrowness of the hewn path. He saw how utterly hopeless it would be to bring any kind of attack against the uplands through a pass like this, but that didn't bother him either. He was past caring. There was more than a mile and a half of that gorge, and the river was savagely fast. Twice the litter-bearers had to slow to a crawl and scramble gingerly past teams of straining men who hauled on loaded barges.

"Loaded with concealed weapons," he mused dismally, "even if

we could get them made, steal the barges, load them, haul them—we'd be too exhausted to do anything by the time we got there!" He became aware that Miss Cooper was talking to him.

"Interesting strata formations," she said, pointing. "See the fault-lines, the slips? This is textbook stuff, made to order for splitting off and carrying away." She babbled on about pressure marks and ancient earthquakes and upheavals, and he listened dully. Anthropologists, he thought. Scientists! Engineers! What a useless bunch they all were!

He went on not-listening to her chatter until their litters reached the head of the gorge, and then he had to come out of his gloom and pay attention, because now the scenic grandeur just would not be overlooked. Once beyond the ridge the mountains dominated everything, standing back in enormous solidity, as old as time, dwarfing the human structures and activities that went on in the arid hollows of the uplands. A leather-lunged priest with a workable command of their language joined the train to point the obvious.

"Here the great lords have their estates," he announced, with generous and embracing gestures to the mighty stone piles which crested each lesser hilltop, "their noble dwellings, their colleges. Here they pursue their studies of the great arts, the mysteries, so that all might better serve the all-powerful, all-knowing Drent."

Even Miss Cooper was hushed into awe for a while as their bearers struck a circuitous route, made necessary by the several small and rushing rivers which fell down from those mountains to feed the Dornal. That route was a succession of sturdy stone bridges flung across the steep-sided channels cut by those rivers. Lennox studied the scene with desperate curiosity. In a way, this entire region was like a cup held between those mighty mountains and the ridge through which the principal river had hewn a passage. "If," he mused "that gorge ever got blocked, this whole area would become a lake, with islands, and a palace on each one." The concept came and went, and became insignificant in the face of Drenadon itself.

Backed up to, and rooted solidly into the fabric of the mightiest peak of them all, the fortress-city crouched and looked down over the whole, and seemed part of the everlasting scheme of things. It was vast, and dark, and its huge walls were of immense blocks of stone that must have taken an army of men to move. He recalled Champollion's remark about the ancient Egyptians, that they had built as if they were a hundred feet tall. This place gave the same feeling. It was hard to imagine cannon, or high-explosive, even bombs, making anything of a dent in it.

He remembered Landy's account of the legend, a chance that is no chance at all.

It was at that moment that the computer gave him the answer, and he almost missed it. A computer is ideally constructed to render all possible solutions to a given problem. What it is no good at, at all, is knowing which of the solutions is practical in human terms. So he almost missed it. Then, feeling the inner slow-burn of possibility, he instructed the machine to go over that again. And again. And he began to shake, inwardly. To Miss Cooper's delight he sat up and began to take pointed notice of her babble, began asking intelligent questions.

"It must have taken a fantastic amount of work," he suggested, "to cut back into the mountain side before they built a place like that."

"I don't think it was like that, at all," she argued, confirming the guess he had made out of the information she had supplied. "Even from here, see, it looks like a vast natural fault, a kind of belvedere, and they built the city right on to it. Of course, *that* must have taken a lot of man power."

"Seems a pity," he switched the subject, seemingly at random, "that this region is so barren and arid. All that water scooting away down to the valley down there. They could use some of it up here, and maybe grow their own supplies. A little lake or two, by damming?"

"That wouldn't be too difficult." She looked about her with a new and professional emphasis. "Yes, it wouldn't be difficult at all. Daniel, you know, if you could somehow get the nobles here to accept ideas like that, who knows—you might get into favor with Drent. Be appointed! Have an estate! And you could, I'm sure, what with that computer to pull on, and everything."

Lennox suffered tortures, but he struggled to keep them on the inside. Mumbling an excuse, he spoke to the bearers and managed to get them to run him alongside Captain Dew's litter.

"I need your advice," he said, and Dew shook his head.

"In a place like this, what have I got to offer? Will you look at that everlasting city up there! Reminds me of a poem I once read, about a feller by the name of Ozymandias, King of Kings. There was a line 'Gaze upon my works, oh ye mighty, and despair!' Know what I mean?"

"That was Shelley. He was talking about Rameses the Second, the Pharaoh who built the tomb of Abu Simbel. And look what happened to that!" Lennox hesitated, struck by the coincidental link, then went on. "Look, Captain, I think I know a way. A way to get us away from here."

"So?"

"So it means pulling that place down, in ruins."

Dew took a deep breath as fuel for a blistering comment, then held it, and stared. "You're serious?"

"I am. I know how. Thing is, am I justified? It's a hell of a thing to do. The scientists would condemn it, but they're biased by their stuff, and their feelings towards culture in general. All we want to do is to get off this planet and go our way in peace, so we're biased, too. So, as I said, am I justified in pulling this place down, wrecking it, probably killing a lot of people, breaking up a whole culture, just so we can get away about our business?"

"And you're asking me for advice?"

"Well, you're certainly the senior person available. You've had a lot of experience at being in command, and making decisions. What do I do?"

Dew chewed his lip thoughtfully. "I'm biased, too," he pointed out. "But anyway, as I see it, people get killed, things blow up, cultures fall apart or explode, no matter what. What I've seen of this one, it could do with a reshuffle, and, sooner or later, it will get it, whether you do it or not. Does that help answer your question?"

Lennox thought it over, swiftly but thoroughly, and sighed, "It helps, a lot. Now I have to make it work."

"You want to tell me just how you're going to do it?"

"No. The fewer people know about it, the better, just in case."

Lennox instructed the patient litter-bearers to return him to his original position and settled down to some really hard thinking. He needed just a little more data, which he got from Miss Cooper with careful questions. That part was simple. The hard part was going to be the strategy. Here again, computers are perfect for working out strategy and assessing the possibilities of success, but it can be rough on the fallible human who has to stand out there and make the plan work. Lennox began to wish he had learned, earlier, how to keep all the sweat and strain on the inside, because the essence of his plan was utter brass-faced confidence. He grew so engrossed in working out a sure-fire sales line of approach that the entrance to Drenadon was largely lost on him.

Brazen trumpets blew, relays of drummers savaged the air, drawn lines of priests, warriors and nobles formed an escort of which he was only distantly aware. He had to sharpen up when the litters halted to decant them in front of the Supreme Temple of Drent. He had to walk up mighty stone steps and into an enormous edifice, and try to live up to the sonorous chanting that announced: "The great and mighty visitors from the skies!" But he couldn't help being dismally aware that he was only

a computer link-man, with a tenuous grasp on the most staggering scheme that had ever crossed his mind. A lot, perhaps everything, depended on Drent, on what kind of man this priest-god was. A man in fact—or would he be a figurehead for a committee? He prayed, earnestly, for the latter. A man, any man, can be highly individual, whimsical, unpredictable, but a group-committee is something a computer can analyze, and handle, just as a concept.

As they were allowed to approach the high throne the priest-interpreter really came into his own, made the most of his moment of glory in his efforts to introduce each new "Lord from the skies," and that gave Lennox the chance to shuffle himself right down to the end of the line, and an opportunity to study Drent. A big man, physically powerful, now at ease in his ornate seat, but paying attention. Black hair, dark eyes under craggy brows, a beak nose, a chin with plenty of power in it. No softness. No subtlety. A direct man. Behind him, spread out but in easy earshot, the priest-committee that Lennox had hoped for.

"This one," the guide-priest explained in Gardain, "is he who orders the ship-from-the-skies. This one"—meaning Howland—"guides it in its path, is second to the first one. This one is he who orders the workings of the ship—" and so on, down the line. He fumbled a little at Miss Cooper, who threw him off stride by saying, "Tell him I just came along for the ride!" He did what he could with it, then appealed to Lennox.

"Never mind," the computer-man said, more boldly than he felt, "I'll tell him myself." He stepped a careful pace forward, surrendered his tongue to the new language and declared: "I am he who knows all the answers. Ask of me any question, and, if the answer is known, I know it." He waited for that crashing claim to sink in, then went on. "If you ask me, for instance, how many blocks of stone were needed to floor this chamber, I will tell you." He paused again, then recited the figure supplied to him by the computer from a careful but swift observation of the hall. "Or," he resumed, "ask me how many persons are here assembled at this moment, and I will tell you." He told the figure, based on the expansion of a part-sample. He went on to declare the height of Drenadon, the breadth of it, the height of the parent mountain, and a few other staggering samples of knowledge he had carefully prepared, concluding with his original claim. "That which is known, I know. This is no magic, merely great knowledge, which I possess and which I supply to whoever has need of it."

Drent certainly knew how to control his face. Only the flaring of his nostrils and a fractional

clamp-down of brows indicated the inner disturbances.

"We bid you welcome to our land, mighty one," he said carefully. "It is our hope and wish that one so very wise, one who knows all things, will be willing to place such great knowledge at our service. But wisely!"

"Wise is Drent," Lennox told him. "Knowledge is like unto seed. Cast unwisely it rots and brings only decay. Planted with wisdom it grows and bears fruit many times and abundantly." He couldn't read Drent, but he could and did see that he had the committee on his side now. He grabbed the opportunity.

"I have studied your gracious land. It is apparent to me that, although you are now mighty, rich, and powerful, there is a way, a very simple way, in which you could become even more mighty and rich and powerful. Of course, such things may not be of interest to you—"

"They interest us. Speak more!"

"This land is really two lands," Lennox chose his words with care now. "The one depends on the other. Without the one, the other would perish. Should food and supplies fail to come from Dornwale as they do, Hadone would perish."

"Why should such a thing happen?" Drent demanded, instantly suspicious.

"It may not. Yet there are strange people now in Dornwale, and new and strange ideas. Anything can happen. Even I, with all knowledge, cannot tell what may, or will happen. It is the wise man who sees what *could* happen, and is ready for it."

"You must speak more directly!"

"Very well, consider this. If Hadone could be made to bloom and be fertile like Dornwale, then it would not matter whether or not the supplies, the tribute, came or failed."

One of the priest-advisers stepped forward now. "You have seen Hadone. It is dry and barren. The rains fall only on the mountains at our back, and the rivers run fast and deep, away from us, leaving the land fruitless. It has been thus for all time. How can Hadone be made to bloom?"

"Very simply. As you say, the rivers run fast and deep. The water runs away. It also carries much of your soil and goodness down into the valley of Dornwale, making it green and fertile. But what if you stop the rivers from running away? What if you trap and preserve the waters here, and use them?"

At his back, Miss Cooper fidgeted, inched forward and tugged at him.

"What's happening? What are you all talking about? I didn't know you knew the language—"

"Shush!" he rounded on her intently. "Just hold everything. I'm trying to sell them the idea of

building a dam. I'm going to need you."

It wasn't to be quite that simple. Drent and his cabinet were hooked hard enough on the idea to want to know more, enough to dismiss the mass audience and return the rest of *Barbuta*'s crew downstream to their ship, enough to enter into hard-driving argument with Lennox and Miss Cooper, but there were any number of objections, counter-arguments and doubts. It took him the rest of that day to talk down the worst of their doubts, and two more days, strenuous days of close alliance with Miss Cooper, to explain in detail, to draw diagrams, to clean up the thousand and one items of how, and what, and where. And on the fourth day they were sent back to Dornwale in a fast riverboat.

They were met, and escorted back to the work shack by hard-eyed fellow Earthmen. Barrington took charge.

"All right!" he said grimly. "Just what the hell have you two been up to? This whole valley-plain is crawling with the wildest rumors so that none knows what to believe. Come on, what?"

Miss Cooper was bursting to tell it, so Lennox held silent and let her.

"I'm a mining engineer," she reminded them, "and I've been teaching Drent's experts a few wrinkles on blasting and rock-shifting."

"Technological innovations!"

"Certainly not. Just new applications. Heavens, they know already about explosives, and working rock and stone. You've seen their buildings. No, it's just a few new applications, to deal with a new idea. Daniel's idea, really. They are going to dam the river."

"They are what?" Barrington shouted.

"You see," she explained brightly, "it's really very simple. All I did was to show them how and where to place the charges—in the gorge, of course. And then the river will back up, and, quite soon, they will have a wonderful lake up—"

"Wait!" Landy begged, standing up. "Wait a minute! You mean to tell us that Drent actually agreed to a scheme to cut off the Dornal? Their major artery, lifeline, supply line from here? Which one of you is crazy?"

"That was the first thing they thought of, naturally, but we pointed out—at least Daniel did—how simple it would be to fix up some cable-car things from the ridge down to the valley."

"That's right!" One of the dumbfounded scientists from the rear spoke up. "That's what they've been doing for two days now. Damned if I could make out what they were for. Massive great rollers, and shear-legs!"

"Technology!" Barrington snarled, and she snapped right back at him.

"Don't be silly! They already know all about cables, and haulage and stuff like that. How do you suppose they built those great mansions up there?"

"But where's the gain?" Landy demanded.

"That's very simple, too." She had her answers all ready for him. "The water will back up. They will have a lake, a huge lake, with islands—and moist breezes. Humidity. They will be able to run irrigation channels. They already know all about that, too." She threw the remark aside for Barrington's benefit, and resumed. "So they will be able to plant and grow things up there, too. In *addition* to the plain produce. Now do you see?"

"*What* plain produce?" Miss Morrison challenged, hard-eyed. "With the Dornal cut off the whole plain will dry out. These people will starve!"

"Oh no they won't!" Miss Cooper had a fast answer for that one, too. "We figure it should take from seven to nine days, and then the waters will start to overflow, over the ridge, in several places. There will be waterfalls, a lot of them. New rivers. More watered areas, more places to grow things. Things will be better than they were before!"

Lennox was quite content to sit back, and watch, and listen, and to hope that his sweating was still all on the inside, where it wouldn't show. He wasn't out of the wood yet. The computer was satisfied, but it didn't have a skin to put in jeopardy. Captain Dew was sitting back, too, suspicion deep on his face. He kept frowning at Lennox.

"If you're suddenly Drent's blue-eyed boy," he demanded, when he could get a word in, "why has he packed you off back down here again?"

Miss Cooper got in first, again. "We're here to explain, of course. I mean, it's only natural that the people will be upset and disturbed for a while."

"If they so much as guess," Barrington growled, "that we are in any way responsible for what is going to happen, they will be a lot more than just upset." He swept his team with a bleak eye. "You've heard. There doesn't seem to be a lot we can do now. But we do have an unique chance to observe a culture in disaster-transition, a crisis. Let's not miss—" From the far distance came the faint but unmistakable roar of blasting, and he shrugged. "There it goes. For better or worse, we're off!"

Dew still wasn't satisfied. Lennox eyed him apprehensively as the room cleared of scientific workers. *Barbuta*'s commanding officer came close, his brows down hard.

"Explain," he said, as one who tastes an echo. "Drent sent you two back here to explain? I don't

believe it. Drent's not the sort to be all that considerate. I would trust him as far as I can throw the *Barbuta* stern-first, single-handed. You just pull your iron out of the fire and let's see it. Or do I call back Dr. Barrington and jog his mind—about rewards?"

"Rewards?" Lennox was baffled now.

"You're getting something out of this."

"Not me." Lennox shivered gently, cast a quick glance around to see that Miss Cooper was safely out of listening distance. "That was *her* idea. All I want is to get off this planet."

"But why in sanity's name has Drent turned loose you two?"

"That was the hairy part," Lennox admitted, beginning to shake at the thought. "It had to be played just right. If I'd been *too* smart, it was on the cards he would have had me destroyed as a menace. On the other hand, if I hadn't sold him properly, he would have held us there as hostage to see whether the thing worked or not. You know? It had to be just right, so that he would buy it, but get us out of the way as being just that little bit too knowing. Believe me, the last thing I wanted was to be stuck up there—when it happens."

"When what happens?"

"I'm saving that. All I can tell you right now is that it should be about the afternoon or evening of the ninth day from now. You'd better be all set to blow by then, because there'll be no time to argue. And you ought to warn Barrington and his crowd. I don't know how, just get it across that they should be all set to up, up and away, when that time comes."

Dew snorted, showed extreme irritation, then shook his head. "This had better be good. How will we know when the moment comes?"

"You'll know. That I guarantee. Oh, and you might get the engineers to rig stays. You know, the kind you can slip in a hurry."

"Stays? You think the *Barbuta*'s liable to fall over?"

"A whole lot of things are due to fall over, including Drenadon. It wouldn't help if our ship was one of them."

Those nine days were a dragging lifetime for Lennox. His major fear was that one or other of the scientific fraternity would put several twos together and get the right answer, but they were too busy reaping data from a culture in upheaval. The priests and soldiers of Drent were busy, too, as the Gardain peasantry reacted to the drying up of their sacred river —and came to stare at the miraculous sight of steady streams of baskets of produce sliding away up through the air on slim cables to the ridge-posts. Politicians, Lennox thought, were the same in any culture. The air was thick with slanted

stories about how benevolent and far-sighted Drent was. He had anticipated the passing of the sacred waters and had arranged for this wonderful alternative—and was, even now, working hard to restore life-giving water to the drought-stricken people.

In the ferment he was able to avoid Miss Cooper fairly well, and he was relieved to see that Dew had, somehow, got the message across to Barrington. Both *Barbuta* and *Columbia IV* sprouted slim but strong cables which served to anchor them to the ground as if in readiness for a high wind, but both ships were otherwise all ready to leap away at a moment's notice. For the rest, there was nothing he could do except go over his calculations again and again, and sweat. It was on the morning of the ninth day that excited signaling from the ridge caught the attention of the peasants, and in turn, the scientists. There, in a cleft in the bleak rock, sprang the first uncertain rushes of water, quickly growing to a cascade which stripped away accumulated dust and clinging mosses and came splashing and leaping down to the ground.

Lennox didn't run to see it. He was more attentive to a slight but positive earth-tremor that shook the ground under his feet.

"Is that your sign?" Dew came to stand by him, at the foot of the gangway ladder.

"Not yet, but any time now. Better pass the word around."

Another spurting cascade showed itself, and another, and then two more, until leaping columns and sprays of water were descending to the plain from a dozen points and rainbows covered the rugged face of the rocks. It was quite a spectacle, and the Gardain peasantry reacted accordingly, with great shouts of praise and glory to Drent. Barrington came, echoing Dew.

"Is that what you've been hatching, Lennox?"

"Nothing like this. Better pass the word among your people not to get too far away from your ship."

"You think the cannoneers will be too excited to watch us?"

"They will, when the time comes!"

The first real tremor came very shortly after noon—right on the nose so far as the computer was concerned—only no one had the time to care. Lennox had never been in a big-scale earthquake before, and even though he was waiting for it, and had planned it, he was shocked by the way the solid ground leaped and slid, and bounced under his unsteady feet. Dust arose in clouds, and the screech of tortured rock mingled with the howls and wails of fear to create a bedlam made all the more frighteningly unreal by the seeming plasticity of everything. Dew

had caught on fast. By the time the next shock came *Barbuta* was already seething to be gone. The shackles fell away and she leaped for the sky. True to Lennox's predictions, the cannon crews were far too busy to bother about aiming at strange spaceships. He watched the screens in fascination as *Columbia IV* almost didn't make it. The third and fourth shock had set her tottering, and it was only with split seconds to spare that the lift came to avert what could have been a death topple. Dust and screaming winds made it impossible to see what was happening on the ground. He went to his cabin, stretched out, and felt sick.

It was half an hour later, when they were securely in orbit, that Dew came to call on him.

"Barrington wants to talk to you," he said abruptly. "On the visor. He wants a full explanation. Come to that, I could do with a word or two myself. Like how do you pull earthquakes out of a hat?"

"Did Drenadon fall, do you know?"

"Far as we can see from here it's a ruin. That's what you wanted. It matched the legend. But how?"

"It's really very simple." Lennox sat up. "Miss Cooper did the hard part for me. Look, when they blocked that gorge and the river backed up—all the rivers backed up—they made a lake. I'll round it off for you. That lake was, effectively, forty miles by ten. It was pretty deep in places, too. All-over average about a quarter of a mile, which is handy for figuring. One hundred cubic miles of water!"

"So?" Dew demanded uneasily.

"You any idea just how heavy that would be? I'll round it off for you again. One hundred forty, followed by nine zeros—call that tons. All that weight moved into one comparatively small spot in a short time—and the whole region shows the traces of ancient volcanic activity and strata-faults. So—an earthquake. So Drenadon fell. And we got away. You can tell Barrington that. I don't want to talk about it any more."

"I'll tell him," Dew promised. "It certainly solved our problem. You and the computer!"

"Not all the problems," Lennox mumbled, and, right on cue, Miss Cooper showed her face at his cabin door.

"Oh, Daniel!" she wailed. "It's all gone wrong. We're never going to have that fine estate and everything, not now!"

Dew backed out discreetly, closed the door, stood a moment. "There," he mused, "is one problem even your computer will have a hell of a time getting you out of. Good luck." And he went to tell Barrington just how to defeat an immortal god-king and break a legend. ■

androtomy and the scion

One instance of telepathy each of us knows for certain;
you can read your own mind.
Just how even this is done, though, we don't yet know . . .

JACK WODHAMS

Illustrated by Vincent DiFate

Spaire was under surveillance and had not the unobtrusiveness of movement that he thought. And when *they* were ready, Spaire was lured on a pretext to a villa nine kilometers west of Carlsbad. Here Spaire was apprehended, to be spirited across the border into Poland and placed into hands that already had his treatment well prepared.

With the stoicism of his breed, Spaire fatalistically girded himself for a lonely fight against his captors. He anticipated that they would use beatings, starvation, perhaps worse, to soften him for the processes of brainwashing. But Spaire was wrong. The means *they* employed to subjugate him was much more subtle.

Spaire jerked awake flailing. The nightmare. Again. Blindness, groping, but without hands. Unmoving, standing without legs. Feeling of no feeling, feeling a blackness of velvet, feeling without skin, knowing blackness without eyes. It was trying to swallow him.

Spaire swung his legs out from his bunk and sat up. He wiped a sleeve across his face. He tried hard to stop shivering. It was going to get him. He knew it was going to get him. It was getting worse. He could hardly close his eyes now before that . . . that gross living nothing invaded his mind. It was so vivid, so real, so essentially aware, so essentially and purely disembodied.

They were using drugs on him. To Spaire that much was obvious. Some mind-distorting drug that peculiarly was specific to the sleep syndrome. A new form of torture. Always they were thinking of new

torture. So instead of using bright lights, sound or physical abuse to keep him awake, they now fed him a drug that made him experience a living death every time he fell asleep.

Spaire reached for cigarettes, lit one with a shaking hand. He stood up, began to pace restrictedly about his cell. He had to sleep. He could not fight much longer. He would have to give up. How many more times could paralyzing fear force his eyelids open, surface him to reality, to avidly stare and touch and move and breathe and know that he *was,* that he was human and whole and had substance? How many more times could he drag himself back with, oh, what glad relief, to the comforting solidity of his jail walls?

Spaire stubbed out his cigarette. He felt unutterably weary. He was going out of his mind. Lately he had been having spells of strange light-headedness, of detachment, in his fatigue sometimes knowing a weird lucidity allied with the receptive vacuity of an amnesiac.

He sat on the edge of his bunk. Sleep. He ached to sleep. He began to cry. He was so desperately tired. And in his mind there was wonder that tears could be felt running down his cheeks.

"You have not been sleeping too well, we have noticed," Labsen remarked dryly.

Spaire's eyes were puffily dark and sunken. "You . . . I have nightmares. Continuous. You know. You know damn well."

"So you have told us before, Mr. Spaire. Yet the nature of your dream is not very explicit, is it? Your description is very vague." Labsen had the complacency of false kindness.

"There's nothing to describe," Spaire said hollowly. He made an effort to focus his eyes. "It's possession. Something . . . Something is trying to possess me. You know it. Don't try to tell me you don't know it."

"But it's just a dream, Mr. Spaire," Labsen said soothingly. "You know that it's only a dream, don't you? A figment. And a dream cannot do you any harm, can it?"

Through hardly maintained slits Spaire regarded him with dull antagonism.

"Some inner stress is obviously causing you to inflate the matter in your mind to a disproportionate degree. To dread some nameless unidentifiable *feeling,* why, that's childish, you must see that. And to fear possession," Labsen smirked deprecatingly, "that does rather savor of medieval witchcraft, doesn't it? No, we think that your resistance to sleep is unnatural and undesirable, not at all healthy. And we, Mr. Spaire, are keenly concerned to ensure your continued well-being."

"Uh huh," Spaire nodded feebly. "I can imagine that. Oh yes."

"You can indeed. We have been very perturbed by your chronic insomnia. Alarmed, I might say. So" —Labsen raised a forefinger to close in the guards—"for your own good, we *will* now give you a drug. Nothing serious, simply a strong sedative."

"What?" The words penetrated. "A sedative?" Spaire rose in his seat. "No! Not a sedative! You don't know what you're doing!"

Strong hands gripped him and forced him back into his chair. For a few moments he wrestled with surprising strength, but in vain. He was firmly held till his energy ebbed to leave him spent and quivering. "Not a sedative," he babbled. "Not a sedative, please, not a sedative!"

"Now, now," Labsen reproved genially, advancing with a hypodermic, "you have a persecution complex. The rest," he said, glinting anticipation, "will do you all the good in the world."

"No," Spaire protested. "No, please don't. I don't want . . . I don't want . . ." But his arm was rigidly locked, and he could only watch in hopeless despair as the needle stabbed into his vein.

He was tired, tired, feeling, astonished, awake and asleep, exploring, silently crying out, wanting to see, so tired, tired, bewildered, tangled, empty, empty but breathing, really breathing, really alive, with a consciousness of a *real* body, in a *real* environment, with a consciousness not merely of consciousness but of knowledge acquired and known in an instant. Startling. Staggering. Stunning.

Tired, so tired, but fresh and tentatively questing, something beyond just blackness now, a sought outlet, the only outlet, cling to it, oh God, cling! It was *something,* something, yes, with arms and legs, with a *real* body. It was he, manifest, with ears to hear and eyes to see, eyes with lids so heavy, heavy, too tired to force open. But it was wonderful, wonderful. Never ever could this wonderful thing be released.

"You look a lot better," Labsen said. "Do you know that you slept the clock around?"

Spaire looked haunted. "What have you done to me? You've done something. What is it? I . . . Part of my mind feels . . ."

"Don't stand. Sit down, please do," Labsen invited coolly. "Yes, you look a whole lot better. All that fuss about a sedative," he chided. "Now then, what harm did it do you?"

"It . . ." Spaire worriedly bit a knuckle. "It got into my mind."

"What did?"

"I don't know! It just did, that's all!"

"But what? Are you any the worse for it?"

"I . . . I don't know."

"You're still you, aren't you?"

Spaire's eyes glowed. "I can't tell. I . . . I feel odd."

"Oh come, come, Mr. Spaire, always feelings. Can't you give us anything more positive to go on?" Labsen toyed with a small signal-transmitter—it was slightly larger than a cigarette pack and had only two buttons, one red, one blue. "This . . . *thing* that you speak of, are you aware of it now?"

"Yes." Spaire licked his lips. "It . . . It . . . I can't explain it. It's peculiar. *You* must know what it is!"

"Ah." Labsen looked clinically sardonic.

Spaire watched a finger hover over the red button, descend to press.

Spaire's left arm began to twitch convulsively. His head twisted, amazed, to watch his arm. He tried to still the jittering of the limb and was consternated when it refused to obey. He bent his elbow, flexed the arm, but muscles rippled and ticked beyond his control. Scared, he clasped his arm with his right hand and hugged it to his side where still it vibrated against his body.

Labsen then touched the blue button.

Spaire's left arm ceased to judder. He did not let go the arm. "What is it?" he said hoarsely. "What have you done to me?"

"Extremely interesting," Labsen said. "Very much so. Ah. What have we done to you? Why nothing, nothing at all. We have given you nothing but care and consideration. Our physical interference with your person has been so minor as to be negligible, and we have employed no drugs other than those thought necessary to assist you to rest. Your treatment at our hands, you must admit, has not been at all brutal."

"You've done something!" Spaire yelled at him. "Don't lie to me!"

"Hm-m-m." Labsen gazed at him and could not prevent a measure of triumph showing through on his face. "Yes." His finger rested on the red button. "Shall we test the accuracy of our second chosen location?" He pressed.

Fire exploded in both directions from Spaire's right kneecap. "Aaah!" His mouth gaped as he sucked in air in shock. Spaire howled, tried to stand, found weight or bending of the leg unbearable, tottered and collapsed to the floor, choking at the agony.

Labsen depressed the blue button.

Magically the pain vanished from Spaire's leg and, mind whirling, he sobbed in relief.

Labsen arose. "Very interesting. We shall run some more tests later." He slipped the signaler into his pocket. "That will be all for the moment. Very interesting indeed. Yes, Mr. Spaire," and he looked down at Spaire with gleaming satisfaction, "remarkably rewarding. Remarkably . . ."

Spaire sagged, racked and shattered. The "tests" had rendered him very nervous and jumpy. Fearful, bitter, powerless, ultra-wary, he sat opposite Labsen.

"Highly successful and well beyond our most sanguine hopes," Labsen said blandly. "You have been a most responsive subject, Mr. Spaire."

Spaire sat hunched, resentfully deferential. He waited.

"The fortunate unprecedented result was, alas, not such a happy experience for you. This is to be regretted. Luckily, if we have your cooperation you will not have to suffer any more upsetting attacks." Labsen smiled. His fingers caressed the red button on the signaling device.

Spaire's mouth went dry in expectancy and he involuntarily braced, his stomach knotting. "What . . . What do you want of me?"

"Yes." Labsen lapsed into bright-eyed speculation. "You can be very useful to us. Mr. Spaire, the promising nature of our enterprise in its early stages encouraged us to take steps to facilitate your return to your loved ones. It is being arranged that you be properly reinstated with honor among your confreres. You shall, in fact, make a minor coup that will enhance your career as well as obligingly account for the months of your disappearance. That should make you happy, eh?"

"I see." Spaire's hands clenched impotently. "I am to work for you. And if I deviate you . . . you'll use *that*."

"Much as we shall be loath, yes," Labsen admitted easily. "We are pleased to see that you have such a thorough grasp of the situation. You will appreciate that what you have undergone so far is mild in comparison to the effects that we *could* obtain, but *tush!* you are an intelligent man and I'm sure that I have no need to expound upon such distasteful details, eh?" His kindliness was unconvincing.

Spaire wiped his lips with the back of his hand. "You've got me linked to something mentally, haven't you? Hooked. Tell me. Will you tell me! What is it, some kind of computer? Huh? No! It's something alive, isn't it? It's something like me. Something that's become part of me. And it's something that . . . that suffers just . . . as I suffer, something that feels as I feel. Tell me what it is! Tell me, damn it!"

"A fascinating technique is involved, but as far as you're concerned you only have to worry about the consequences. Just for you to know what we can do is all the knowledge that you require." Labsen's shoulders lifted. "It would only depress you to know the means and how completely we have jurisdiction over you. Let that suffice, eh? And let us be friends. Believe me when I say you will find

that this will be the easiest way. . . ."

It was nothing that he could pin down. It was a sensation, a flimsy sensation, too elusive to grapple with. There was something else in his mind, something that used his mind—no, something that used his senses, peered out of his eyes with him, heightened his awareness of the contours of items that he held in his hands. Yes, and it *did* use his mind, took every thought and added thought of its own . . . Did it? He was so more conscious, suddenly, of everything, of a humming clock, the sound of footsteps, of the fine shades of difference in color, of the texture of cloth and other surfaces, of the number and subtle variation in odors. The thing, whatever it was, was alive, perhaps more alive than he was, more keenly avid to recognize slight nuances in flavor, to note the faintest change in pitch or tone.

Yet *it,* this *thing,* if it was aware, then he, Spaire, was also aware, was aware of it as . . . as what? If it was meshed inextricably into his mind, then he was blended inextricably into . . . into the consciousness that the thing had. If he was defenseless against *it,* then *it* was equally open and defenseless against him. It was . . . It was *something,* a mental implantation so blended that it was as a part of himself. It *was* himself.

Spaire was troubled little by nightmare now. The hopelessly dismaying lost existence in emptiness, bloated, desperate, sensually blind, so chillingly and so wholly harrowingly blind, this . . . this enormity had not swallowed *him—he* had swallowed *it.* The thing, inexpressibly monstrous and incapable of self-articulation, had seized him, explored him, joined and fused with him at a stroke. It fed on him, attended his thinking, hovered an indefinable vapor that was not . . . yes, was so very deeply integrated that he could not separate it from himself. The stark blankness of its own perceptions had receded to an unfathomable blob of unphysical sensitivity with no capacity for tactile contribution.

It was there. It was an addition to him. Spaire was literally doubly aware. He did not know how or why he was such an uniquely compatible host. But he knew that their union was indissoluble, that when he suffered anguish, *it,* also, equally suffered pain.

Spaire paled and whirled. He lurched hastily towards the men's room. Labsen followed at his heels.

Just in time. Waves of nausea flooded Spaire and he heaved and vomited. The paroxysms struck and, sick and dizzy, his stomach muscles contracted and bent him to agonizing dry retching.

As quickly as it had hit, the sickness passed. Gasping, Spaire leaned against the wall, exhausted.

"That was a reminder," Labsen

said conversationally, "just in case in these last couple of weeks you may have forgotten. You must remember always that I shall not be far away and that any departure you may attempt from your instructions, anything at all, will cause you great personal unpleasantness. Immediately." He smiled cynically. "You comprehend, I am sure, how anxious we are not to inflict pain upon you, and that our desire is not to have the least excuse to occasion you distress."

Spaire dabbed at his mouth with his handkerchief. He fixed bleak eyes upon Labsen. He nodded. "I understand."

"Good. Oh," and Labsen raised a finger to make another point, "and should you think of doing anything as extreme as committing suicide, you will not find death so easy to achieve and your earlier nightmares could become a permanent reality. The death of your body will provide no escape. Keep that in mind."

Spaire straightened his clothes. He made no reply.

"Come then," Labsen said affably. "Our flight leaves in a few minutes and you are going home. That should make you happy, eh? Henceforward our meetings will have to be conducted more discreetly but," he clapped Spaire on the shoulder, "I'm sure we can rely upon you to be both adept and circumspect, eh?"

Spaire moved away. "Yes." He fondled the false passport in his pocket. "Yes," he said again, flatly, "I have no choice, have I?" And his eyes fastened on the bulge where Labsen's hidden hand was ever ready to summon a crippling disorder. Spaire felt cold, deadly cold and afraid.

The look was not lost on Labsen. "Quite so." He gave a shallow mocking bow. "Shall we go then? After you, Mr. Spaire—"

Once arrived, they supplied him with yet another identity, that of an agent of similar build and appearance. Generously they also let him take the credit for all the efficient work and painstaking labor that the agent had been engaged upon for the past half year.

Spaire used a pay phone and put through a call to his department chief. He had some difficulty getting through—his passwords were out of date and there had been some changes in the communications formula.

At last he did manage to get through to Ganfield. "Who?" Ganfield said. "Who do you say you are?"

"Spaire, Ev, Owen Spaire. Don't tell me I'm a forgotten man already?"

"Spaire? Red? Is that you? Where in hell are you speaking from?"

"From a booth in town, Ev. Listen, I can't talk now but I've got something important. Can I

meet you somewhere quiet later? Say at the Jaybelle?"

"Red, wh . . ." Everet Ganfield thought swiftly. "O.K. No. Back of Cy Donaldson's, three-thirty. Be all right?"

"Fine, Ev. See you then."

Spaire finished shaving and cut the motor. They were very sure that he would obey. But two could play at the testing game.

He stretched his neck and gingerly stroked the lump by his Adam's apple. A vocal pickup—they were monitoring every word he said. He ran his fingers through wiry hair that actually did have a fine spray of wires indistinguishably running through it. There was another pickup fitted in his left ear, that conversation might be clearly followed between speaker and responder.

Spaire looked at himself in the mirror. He could detect no form of seeing-eye and his tryouts had convinced him that that was one angle that They had not covered. Now—if They needed to plant sonic transmitters in him, then this argued that whatever the control They had on his mind, They could not *read* his mind. And he was home, on his home territory. And what was the range of the transmitters? Four-five miles at most. Which meant that he could be monitored from anywhere in the city area. And Labsen's push-button signaler would not cover a much greater distance. Which could mean—

The odds were against him, Spaire knew, but he had hope. There was a chance. And there was always writing.

Spaire had been well rehearsed and knew exactly what he had to say, the story that he had to tell.

He met Ev Ganfield in the rear of Cy Donaldson's unobtrusive premises, and there was much surprised recognition and acknowledgment. Spaire was ready with convincing explanations to answer the inevitable queries about his absence. Spaire had stumbled by accident onto a subversive group in Belgrade. He had fostered the tenuous connection and had been afraid to take the risk of contacting H.Q.—he had not been sure just what he had discovered and the group had been closely knit socially. The entire group had then re-located themselves here, had gathered in ones and twos, and had set up shop. More and more Spaire had gained their trust to become fully acquainted with their plan. Finally, last night, he had heard the last key details of the proposed procedure and had decided it was about time he let his superiors know.

Ganfield at first was incredulous, but Spaire produced a slim dossier containing dates, names and addresses.

Ganfield read. And he became

censorious. "If this is true, you should have got in touch with us a damn sight sooner."

"Oh, it's true all right," Spaire said. And now came the tricky part. He placed a second envelope on the table.

"And what's this?" Ganfield said, reaching.

Spaire winced and put a finger to his lips for caution. He kept his hand spread over the envelope. "That's the method they intend to use," he said. "It's all down there. Check it out." Again Spaire signed caution as Ganfield's mouth opened. "The whole sabotage operation is timed for simultaneous strike tomorrow week. You will see at the end of this report my suggestions for their apprehension, and their projected plans for the disruption of works in other cities."

"Uh huh," Ganfield scanned the report, eyed the envelope that Spaire still held to the table, squinted at Spaire. "You guarantee that this is authentic?"

"Gathered by my own fair hands. Like I said, check it out. But be careful, they're a very suspicious crowd."

"Uh huh," Ganfield looked shrewdly baffled. Spaire made quacking motions with his fingers and mouthed silently, tilted his neck, pointed to the bump and to his ear. Ganfield was not slow to catch on, and he kept to the subject. "I don't approve of this Lone Ranger stuff," he groused. "You should have got in touch with us a lot sooner. Still . . ." and he went on to discuss specifics, and on to gab about generalities.

They parted after a brief session of shoptalk. Spaire was glad at last to claim the necessity of his presence elsewhere, and take his leave. His soggy clothing testified to the strain that he had been under, an element not overlooked by the astute Ganfield.

"I don't trust him," Broudnic said. "He can make signs, put words on paper. How do we know what he is doing when he is out of our sight?"

"He will not dare," Labsen answered confidently. "He could not behave so without it soon coming to our knowledge. He is, believe me, fully alive to what will happen to him should we suspect the least hint of betrayal. He is more than adequately conditioned, and he could not get very far by trying to outsmart us."

"I'm not so sure," Broudnic grumbled. "He's too free for my liking."

Labsen gave a supercilious smile. "He's not free, not by any means. He is bound tighter than you or me. He has an overriding self-interest in his own continued good health."

"What if he doesn't care about his health? Suppose he's the noble kind?"

"No matter how noble a man

might be, he would think more than twice before inviting the kind of pressure that we can bring to bear upon this man. Stop worrying. Spaire will do as he is told. He has followed orders so far to the letter. He will get the credit for smashing the industrial sabotage ring, will resume his position with greater prestige and, with our help, will develop as an extremely useful contact within their organization. Before long he will be enmeshed so deeply that no amount of excuse will serve to exonerate him. He'll work for us because he has to."

Broudnic still looked doubtful. "There's something about him . . ."

Labsen became impatient. "We do not care about his attitude. Whether *he* likes it or not is not important. He will do as he is told, believe me. He is in no position to tell anybody anything. How could he explain his condition, tell me that? And who would believe him? He'd be carted away for psychiatric therapy, for treatment as a schizophrenic. He has no proof. He doesn't even know what it is himself. No, his complaints, however upsetting, would be placed under the heading of psychosomatic disorders. Oh, he'll do as he's told all right. He has no option."

Broudnic permitted himself to be persuaded.

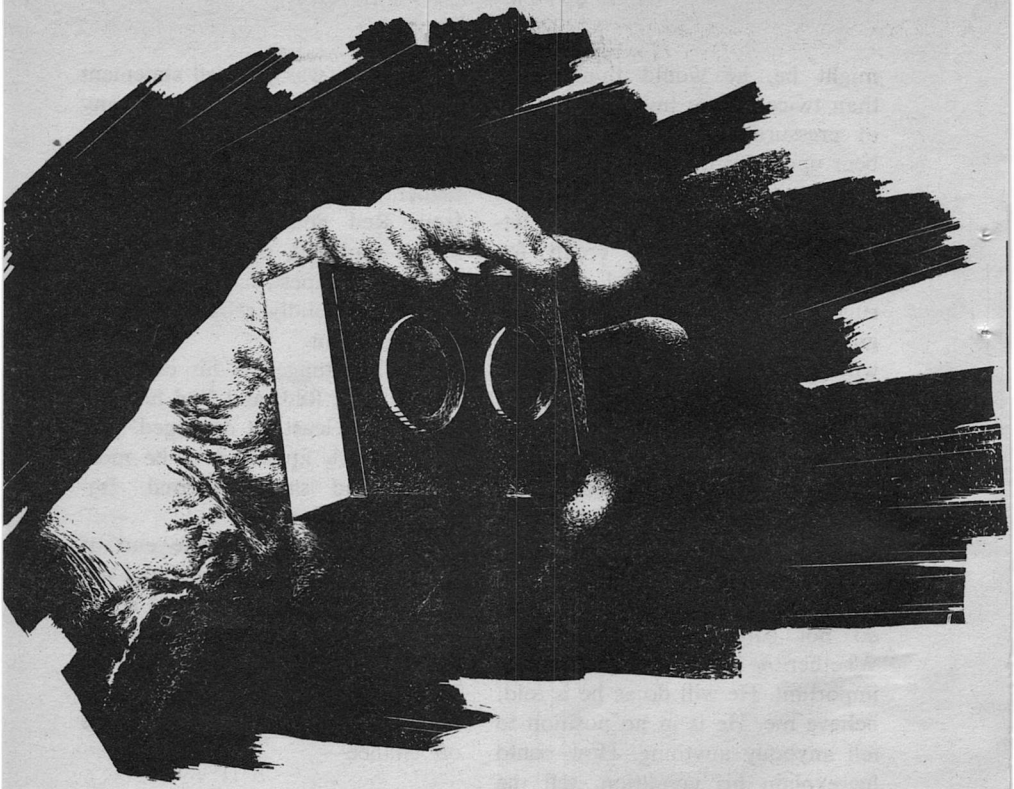
Ganfield reread the document that Spaire had so insistently urged be kept private. Ganfield scratched his head. It was a weird statement and had he received it from any other source Ganfield would have been tempted to put it in the permanent "out" wastebasket. But not from Red Spaire. Red was nobody's fool and, until he had vanished in Budapest, had been one of their most solidly reliable men on the Continent.

Ganfield tugged at his ear. And he had seen Red, and Red had not seemed the least bit deranged. Red had, in fact, appeared to be most sternly and sanely normal. Impressively sober.

The instructions at the end of the missive seemed rational and not too demanding, and Ganfield could see no reason why he should not accede to the modest requests. There would be little harm done even if Red *was* crazy. And on the off chance—

It was a gamble. He was prepared, wasn't he? He'd thought of everything, hadn't he? All that he could think of. There were still big gaps. It was a pure gamble. Everything in the apartment ready and Labsen alone, so sure of himself. The sooner the better, Spaire's over-alive mind shrank in trepidation.

". . . And we'll supply the equipment you'll need," Labsen was saying. "We'll want you to bring us up to date on current assignments as soon as possible. Is something wrong with your ear?"



Spaire pushed at the wad of cotton wool. "Uh, yes," he said. "Aargh. Wax. I suffer from it now and then. Change of climate maybe, I don't know. You were saying?"

"Ah. You want to get it fixed. Yes, one of your first duties will be to ascertain policy and priorities. There's been some shuffling and alterations these last few months and we're not as au fait with the situation as we would like to be. *You* will remedy that."

Spaire had to make his move. If he failed he was doomed. It was a long shot. If he had guessed wrong, he was doomed. No, he had to be right. The distortion over distance, the time lag, the on-the-spot need. He was doomed. He had to try. Now. The sooner the better. "I don't think so," he said. "I . . . I won't do it."

"What?" Labsen was plainly amazed at such open defiance.

"No, I . . . Uh huh!" Spaire clutched at his abdomen and his face contorted. He became pop-eyed, frantically breathless. He

writhed, staggered and, unable to speak, his hands appealed frenziedly.

Labsen's eyes arched in astonishment. In his pocket his finger pressed a button, but Spaire continued to squirm in speechless agony, his face suffusing.

Spaire fell to his knees, tears squeezing from his eyes, his head shaking wildly. Alarmed, Labsen withdrew his signal-pack from his pocket, pressed the blue button and held it down. It made no difference.

Spaire fell onto his back, his legs kicking, and he rolled from side to side fighting for breath, terribly tormented. Labsen put the signaler down, dropped on one knee, put a hand to grip Spaire's shoulder. "Spaire, what is it?" He thought of crossed circuits, accidental outside triggering, a fault in his signaler. "I'll tele . . ."

Labsen never finished the word. The edge of Spaire's palm viciously slammed into his neck and it was Labsen's turn to gurgle and choke.

"No, it's earache," Spaire said. "I get it sometimes and it's murder." Swiftly Spaire kicked Labsen in a place that further hampered him in his search for air, and Labsen went purple.

For the benefit of his throat pickup, Spaire began to talk, putting a faint whining note in his tone. "No, I can't do it. It would make me a traitor. I can see what it would be like—small things at first, but then deeper and deeper. You . . . You can't force me . . ."

While he talked, Spaire heaved the incapacitated Labsen into a chair and with ready-looped cords quickly bound Labsen's wrists down by his side, one to each leg of the chair.

Labsen rasped and sucked, his eyes starting from his head with the effort. Spaire stuffed a wad into the desperately gaping mouth, held it in place with a tight rapidly applied gag. Labsen wrenched convulsively, near to suffocating.

With grim speed Spaire lashed Labsen to the chair at ankles, knees, hips and elbows, keeping up a halting speech all the time. ". . . And so you see, it . . . I . . . I . . . I won't do it."

Labsen had his head back, his nostrils as wide as they would go. He was in a very bad state.

Spaire leaned, brought forward a small tape recorder, turned up the volume to provide a carefully indecipherable mumble. "What? What? Yes, I can hear you. No, I can't, can't you see that?"

Spaire stared at the unhappy Labsen, and he listened for a spell to the slurred mixture coming from the tape. He knew what he had to do next. The clincher.

He picked up the signaler. He perspired freely. He cut the tape. "I refuse!" he cried. "I won't do it, do you hear? I . . . I won't!" Another brief murmur. And then, "No!"

Spaire hesitated. Then resolutely he pressed the red button.

Spaire's skull seemed to split open. There was a roaring, pounding thudding in his ears, and his vision blurred and he could hardly see. It was a headache of proportion and intensity that he had never known, sweeping away all consciousness save that of the burning constricted crucible of his skull, searing and scalding under inordinate pressure.

His legs bent. All coherent thought was banished. The weight, the terrible weight. Spaire wailed. The violence of the mental storm was insupportable. He clutched the signaler. He could not focus his eyes, everything swam in front of him, his mind, too, bursting to consider any other sensing.

The blue button. Spaire looked down. Wobbling, fuzzy, the blue button jazzed grasped in unfeeling hands that now felt like sponges. Spaire whimpered. He struggled to dredge a fraction of will to coordination. Infinitely slowly he brought a wavering insensitive finger to cover the fluctuating blob of blue. His head was one enormous swollen vibrantly stabbing ache. It took all the strength and concentration he could summon to curl his finger to depress the stud.

And nothing happened. And the signaler started to slip from his hands and his legs buckled. And then with merciful instantaneity the pain vanished.

Spaire sat on the floor. He held the signaler and sobbed. "No. No. No more. No . . . No more." He felt washed out, drained. "Anything. Any . . . Anything." He gulped, tried to pull himself together, to remember and stay with his design. He kept talking. "Don't do that . . . again . . . please. No, I . . . anything you say. I'll do any . . . anything you say."

Slowly, awkwardly, Spaire climbed to his feet, one hand fastened to the signaler with the te-

nacity of hate. "Please . . . Please don't. I'll never . . . never object again. I swear. I swear. Oh God, I swear! Please, I won't ever . . ." He swayed. His tremulous fingers operated the tape to provide a murmured reply. "All right. All right. What? Yes, I'll . . . do as you say. Whatever you want. Only . . . just . . . not that. I . . . must have a drink."

Spaire turned off the tape, rested for a moment. He turned to Labsen. Labsen goggled, his chest still heaving. There was that in Spaire's expression that would have daunted a much stouter heart.

What Spaire did to Labsen in the next two or three minutes was not very pretty.

Spaire then freed Labsen's right wrist and drew up a small table convenient to rest Labsen's forearm. He thrust a scriber into Labsen's fingers and indicated the sheets of jotting paper.

"It . . . It may take some time to . . . to get what you want," Spaire said. He held up a note for Labsen to read. Labsen read: Write the answers to the questions. First: What is the thing being used on me?

"I'll . . . I'll do the best I can." Spaire's eyes belied his voice. He ran the tape a little, balled the question, dropped it, waited, an angel of mercilessness ominously poised.

Labsen knew sheer horror. The incongruity of Spaire's lips saying one thing while his biting implacable eyes said another and Spaire's vicious fingers reached. Labsen's guts crawled and he shriveled in stifling terror. In jerky haste he began to write.

"What? What was that? I . . . I have to meet Ganfield later. I'll . . . find out how things are going." Spaire held up the second question: Where is it now?

Both inquisitor and quizzed were drenched in sweat. Labsen wrote his reply. Spaire ran muted tape. He scribbled the third question, held it up, pushed fresh paper under Labsen's hand.

"Say that again? I didn't . . . Yes, I don't know. I'll . . . I'll have to see a doctor. Get it cleared. What? Oh. Yes. I suppose so." Third question before Labsen's eyes: *Exactly* where in the building?

Labsen rolled the pen between his fingers, hesitating. Spaire moved with deadly impatience. Labsen scrawled on the paper.

"Yes. What? Oh yes, if you say so. Yes, the Embassy doctor might be better. Yes. Oh, yes. And make a check, too. What?"

Spaire read what Labsen had written. Savagely Spaire scratched three letters to thrust under Labsen's gaze: LIE!

Labsen squirmed and strained but there was no escape from Spaire's brutally primitive assault. Spaire had no time to waste, could afford no finesse. This was his one

slim chance and he had to be sure.

Spaire shut off the tape. Labsen was limp and wretchedly drawn. The hopeless pleading in his eyes found nothing but unrelenting ruthlessness. Spaire slapped him and gestured at the table.

"Oh, I'm not under surveillance. I'll go in by the side gate. What? What's that? If I go now . . . I'm to meet Ganfield in an hour or so. But it wouldn't take long, would it?"

Weakly Labsen drew lines, made a mark, filled in location words. His eyes begged Spaire to believe him.

"I'll go then. What? You'll find nothing here. All right. If you want to stay, of course. You . . . You can suit yourself. You . . . You won't do anything, will you? Not . . . Not like that again. I swear . . . you can . . . can rely on me."

Spaire gave the tape a last run, re-tied Labsen's freed hand to the chair. "Good-bye, then. I'll . . . I'll let you know as soon as I get anything."

Spaire looked around, was satisfied with Labsen's immobilization, clouted him one on the jaw for good measure. He slid the signaler into his pocket and made sure that he had adequate writing material. He did not have much time.

Quickly he left his apartment.

By a vacant pay phone Spaire scanned the passersby. There was a girl who had a friendly appearance and Spaire lightly caught her elbow.

At her turning in query, Spaire pointed dumbly to his mouth and ears, and handed her coins and a note. She read the note, looked back at him, and Spaire made idiot motions of dialing and holding a receiver, one hand completely blocking off the vital ear. With that and the greased cotton wool, he really did not hear her answer, but he followed her lips well enough.

"Oh, you poor man. Of course I'll call them for you. Wait here."

The girl went into the booth and dialed the number.

"Oh. A Mr. Ganfield, is it? Ah. Well, there's a Mr. Spaire here, a deaf man, you know him? Mr. Spaire. Yes. Yes, well he's asked me to give you this message. Ah, it says, um: Can you send someone to pick David up at Red's apartment? And, ah, can you meet him with the children's toys at the corner near Ruby's house in about twenty minutes?

"Uh? Yes. Yes, that's all it says. Is that all right? Yes. Oh, thank you very much. My pleasure. Good-bye."

She stepped out from the booth, Spaire stepped forward to meet her, his whole face anxious. She smiled sympathetically and nodded. "It's all right," she said.

Spaire beamed his thanks, touched a grateful finger to his

forelock. Then he ran for a cab.

On the cab ride to "Ruby's" Spaire wrote furiously. He was very pleased on arrival to see Ganfield and two others standing back in the shade.

Spaire paid off the cab, made hush signs to his friends, closed the gap. Spaire handed his writings to Ganfield.

Ganfield read. He shot a startled glance at Spaire. He chewed his lip and frowned.

Spaire waited tensely for his decision. Then Ganfield nodded and gestured one of his aides to unload. The impassive man passed some items of compact weaponry into Spaire's hands. Spaire had to make stern effort to keep from trembling. He stared into Ganfield's eyes. He held up crossed fingers.

With the greatest sincerity Ganfield matched him. Then Spaire strode off to the turn that would take him to the side entrance of the Embassy.

Ganfield gave him a start, and gave himself time again to listen to a roaring inner voice of doubt. This was crazy. This had cropped up so fast, and it was still more or less his own private baby. He was putting his whole career on the line for some way-out odd-ball agent who thought he had a bugged mind. Their Embassy, yet! There would be hell to pay! God, it was madness! And he'd thought that things had been getting dull lately.

Ganfield had sole responsibility, the decision was his. The Department would have his stripes. And for what? For a feeling, for a hunch? For an unreasoning faith in a no more-than-ordinarily competent agent named Red Spaire?

Against his better judgment, Ganfield's feet began walking and confirmed his decision for him.

Two men answered Spaire's ring at the gate. So their monitoring had been as thorough as Spaire had hoped. They were expecting him.

They opened the gate, stood at each side to let him pass between them. Spaire took two paces, abreast of them, and his fists shot out to squeeze home two jolts of layout through the puncture nozzles between his middle fingers. The two men had hardly time to evince shock before they crumpled.

Spaire stepped back. Ganfield was there. Spaire waved him forward.

Ganfield took in the scene, quickly shucked his raincoat and hat, and was copied by the smaller of his two companions.

With the remaining member of the team left a hatrack to guard the gate, Spaire was escorted along the shaded walk and around a curve to an open side door by two darkly-suited men who, at a cursory glance, might have passed as the two sent to fetch him.

Inside the building they passed along a corridor.

A man in a white coat stepped out. "Ah, there you are. What . . ."

Ganfield chopped him. His aide stepped into the room and promptly sent a dart into the remaining occupant. Spaire bent over the fallen doctor, clenched his hand on his injector to make sure he stayed out for a while. The body was dragged inside the room, the door closed.

Spaire wiped his face, checked his map, pointed.

They hurried, came to a hallway. A passing clerk gave them barely a glance and returned his attention to the papers he was carrying. They saw the steps leading to the basement and plunged down them.

Spaire was running now. At the bottom of the steps he took the right-hand passageway and sprinted to the door at the end. Ganfield pounded at his heels. Spaire wrenched the door open and the three men burst in.

There were four persons in the room, three in white coats. As one their heads swung to the eruption in the doorway. Ganfield and his man fired and two dropped out, and a third, a woman. The fourth lunged towards a bench and was stricken with a double dose, to scrabble for a second and collapse.

"There it is!" Spaire said hoarsely. "There!" and his strained voice echoed from the receiving speaker in the room.

They closed around the object and Spaire started to shake. "This . . . This is it. This is . . . the thing." His hands went out to take it. It had the utility appearance of the homemade. Altogether somewhat more than half a meter long, by half that deep and wide, one section held a black glasslike oval cover, similar in appearance to the silver covers that high-class waiters employ in protecting the contents upon their salvers. On one side there was a bank of a hundred or more close-packed short, spiky terminals. In an open row in the middle stood a group of power batteries, and at the back a slim upright alloy tank. Clusters of fine wires were wrapped in some places to give a superficial impression of neatness. The unit gave off a low hum, as from a small motor or two.

"That damn thing!" Spaire's voice cracked. He gripped to heave.

"No, no!" Ganfield grabbed him. "Don't damage it!"

Spaire tried to break from restraint. "You don't know what it's like!" he yelled. "You just don't know what it's like!"

"Shut up!" Ganfield commanded, getting help to wrestle Spaire away from the instrument. "Red, shut up! We've got it, haven't we? We want to find out what it is, don't we?"

Spaire cried, "I know what it is! Smash it! Smash it!"

Ganfield slapped him crisply. "Shut up and get hold of yourself, Red! This isn't like you. We've got to get this thing out of here."

Spaire shook his head. "Yes." He calmed. "Yes. I'm . . . I'm sorry, Ev. But . . . But don't," his hands went out in plaint, "don't lose it. Smash it rather than lose it, Ev."

"We'll do that," Ganfield promised gruffly. "Sid, give me your by-by popper and I'll keep the way clear. Now you two grab that thing and let's get out of here. O.K., Red?"

Spaire swallowed. He nodded. "O.K., Ev."

They went out the same way they'd come in. The opposition was light and had the disadvantage of being uninformed.

They left a total of eleven slumbering bodies behind them when they trundled out of the side gate with their burden and lugged it up the street to their inconveniently parked vehicle.

"A most considerable physiological achievement and a most intriguing phenomenon," the neurologist said. "Quite fascinating."

"But what is it? How do you explain it?" Ganfield asked.

"You've received a copy of my report?"

"Yes. But after the first few pages I gave up. That's why I'm here. I'd appreciate it if you'd spell it out for me a little before the closed meeting this afternoon. I'm afraid of looking too dumb."

The neurologist sighed. "I've had a similar request from your superior," he complained. "I expressed the matter as simply as I could. It's all there."

"Yes, well, maybe," Ganfield said, "but we can't find it. Could you, well, explain it in more basic terms?"

"I can't explain it . . . it just *is*. I *can* explain the biological procedure, but I *cannot* explain the unity of the division. But from the evident incontestable effects obtained, we may, of course, formulate a hypothesis that is difficult to gainsay."

"Of course," Ganfield said. "Ah," he sniffed, "how does it work?"

The doctor despaired. "We cannot say how, exactly, but we can make reasonable guesses. As you know," he assumed erroneously, "there are ten billion or so neurons in the human brain, and a number of these die every day. As they normally have no regenerative capacity whatsoever, dead neurons are irreplaceable. It would seem then that of all the cells in the body, brain cells would be the last that a biologist would select to attempt to multiply artificially.

"Yet somehow, possibly by the culture of a living sample or, more probably, through gene deletion by molecular surgery upon viable cell

organisms, a cloning process has been employed here that has successfully triggered neuroblasts to create in nutrient a cerebral material identical in structure and substance to that of the donor."

"Uh." Ganfield stared at him. "Oh."

"The brain is the fastest-growing organ in the body," the neurologist continued, "and, ah, taking into consideration the number of months that Mr. Spaire was, ah, absent, I should say in this instance that obviously some means was used to accelerate this rate further. Already the cultivated organ weighs eight hundred ten grams and, although proportionately equivalent to that of a young child, its seemingly direct association into the thought pattern of Mr. Spaire provides the duplicate brain with a natural built-in maturity."

"Ah," Ganfield said, "it *is* a duplicate brain?"

"Haven't I been saying so?" the doctor said with a touch of irritability. "In cloning the reproduction is identical, intrinsically more ideal than that found in identical twins. The duplicate was induced perhaps by its circumscribed condition to exploit its affinity with Mr. Spaire, a novel relationship encouraged no doubt by a need for self-expression, among other things."

"Yes, but, ah, how, that is, was it used to control Red . . . Mr. Spaire? It has nothing. It's just a bare brain, isn't it?"

"Oh dear." The expert rubbed the back of his neck. "A 'bare brain' is still a focal receptor of the senses and contains those receptors even if the sensing apparatus is absent. A legless man can still feel an itchy toe. With Mr. Spaire we have what is virtually an additive division and extension of an individual that has resulted in a comprehensible integration derived from an essential oneness of being. Thus, centers stimulated in one brain automatically impinge upon the other, for they have a joint awareness in the realization of sensory perception."

"But they," and Ganfield knew it was foolish, but he wanted someone authoritative to positively hammer the weird fact home into his head, "they weren't connected?"

"The brain," and the neurologist's patience was visibly fast ebbing, "is in two halves anyway. Hit your left thumb with a hammer and your whole brain feels it—there is a mutual instantaneous interchange, a sharing that is vital to the coordination of bodily functions. Any *feeling* recorded by any *part* of the brain is ultimately 'felt' by the conscious awareness, the being, the . . . the person. And with Mr. Spaire, his 'person' has been expanded to comprise two brain formations, four halves, that have but one singular identity."

"Yes." Ganfield pinched and rolled an earlobe. "Yes, I can see. And if that's the way it really is,

then to say that it is interesting would be the understatement of the year."

"Quite so." The medical man relaxed somewhat. "Yes, it is a technique that will require a great deal of further investigation. This misuse in the case of Mr. Spaire is unforgivable. That this development should have been applied in such a reprehensible manner is inexcusable."

"Uh huh. Hm-m-m, yes indeed. There must be more practically agreeable services that such a state could provide." And Ganfield became broodingly thoughtful.

"They're not going to destroy it, are they?" Spaire said.

"Do you want us to?" Ganfield answered.

"No. No, I don't think so. It's," Spaire smiled wryly, "it's a part of me, isn't it? It's just that . . . no matter what assurance I may get, I feel so open to be pressured at any time . . . you know, like I tell you to go to hell, so you go along and stir a few sparks."

Ganfield grimaced. "That's true. You have to trust us. But I can tell you now that it's the last thing we'd try—you're too important." He squinted at Spaire, not without curiosity. "If you want it wiped out, it will be done. We'll get somebody else, but that will take time. Although we've got Labsen to work on, we haven't got the method taped yet. Uh . . . apart from making you a valuable man in communications, is this experience of . . . of having a second brain something you can readily live with?"

"It's no hardship, not really," Spaire said. "I mean, it *is* additional. I think I'm sharper. I seem to see more, hear more, remember more. It's not something to get used to—it's something that *is*. The drawback is the vulnerability factor. I've been through it, and there's just no defense against tampering."

"Well, we can guarantee to provide top security for your, ah, duplicate, you can be sure of that," Ganfield said. "'Like you say, you seem to have gained advantage in other ways. That was a slick, fast, well calculated and well executed maneuver you devised to get yourself out of trouble. You used to be smart, Red, but I don't think you were that smart."

"No." And Spaire's eyelids drooped to veil his eyes. "It could improve, and a smart person should always be able to look after himself, shouldn't he?"

This stopped Ganfield to ponder upon another aspect, and he frowned. Was it just his imagination or was Spaire hinting at something? He studied Spaire, but Spaire now presented a face of uninformative guilelessness. And for some reason Ganfield suddenly found this affected innocence to be not the least reassuring. ■

womb to tomb

Which raises a valid question:
Is perfect protective armor
a perfect defense against destruction?

JOSEPH WESLEY

Illustrated by Leo Summers

After sounding the emergency chime, my robosec spoke urgently, in its clear feminine voice. "Senator Grimes is on his way into your office, sir," said the voder. "I informed him firmly, in accordance with your commands, that you are not receiving visitors, but he has ignored my words, and is proceeding into your office. I am unable to stop him—he carries a blue Identcard."

"It's entirely all right," I answered soothingly, rising to my feet. "I had an idea that the senator would be coming here."

The door to my office burst open, and Senator Grimes came in. He looked rather like the discharge of a Van de Graaf generator. His white hair stood on end with the careful abandon of a simulated electrical discharge. The rest of him was matched to that trademark of his, from the up-pointed tabs of his shirt collar to the bristling fuzz on the projecting lapels of his tweed suit.

As a senator, he was a deliberate caricature of antediluvian, or at least antebellum Americana; a veritable Claghorn of a legislator. He was also known to be enormously intelligent, indefatigably electable, and one of the three or four most powerful men in the known Universe.

"What do you mean, barging into my office like this?" I asked him, before he could take charge of the conversation.

"So you are Administrator Burkens," he riposted, as if I hadn't spoken.

"I am Admiral Burkens," I answered stiffly.

"Ah, yes. Admiral Burkens," he corrected himself, "Administrator of the Centauran Military Hospital." He held out his hand. "I've been anxious to meet you, sir."

I ignored his hand and his apparent change of tactics and sat back down behind my desk. "Then why, Senator, do you arrive like this, unannounced? Surely you understand the importance of this Rehabilitation Center, and the fact that we are not any sort of hospital—military or otherwise."

The senator selected the more comfortable of the two easy chairs

flanking my desk, and eased himself into it. "I helped set this place up," he said, "even though I don't know as much as I ought to, and am going to, about what it is that you do here.

"As you perhaps know, it was I who made it hard for anyone to bother you. Going through channels, asking for appointments, requesting interviews; none of these do you have to pay any attention to, even from individual legislators. And I know your reputation, Admiral. You are known to take full advantage of that legal opportunity that I gave you, and pay no attention to such requests. And I don't have time now to arrange a legislative committee of inquiry. So I just bulled through on my Blue Card. No robot can act against a top-level All-area access card, even when programmed by you."

"You'd be surprised at what I can program my robots to do," I commented mildly. "But I have been expecting you. In fact, ever since your son arrived here for treatment."

All panoply of pomp and pedantry were erased instantly from his face. He became merely an agonized parent, and all verbal jousting became apparently meaningless, at least for the moment.

"Yes," he said. "My son Jim. Tell me—how is he? Is he all right?"

"He's fine," I said. "He's progressing well. He'll be out of here and ready to go back to the wars inside of three months. He's a fine looking boy."

"Jim has always been a fine boy," said the senator in a thin voice. "Even to going off to fight in this endless war. He has always understood its importance, of course, unlike most of his young friends. He was never taught to believe that the conquest of our colonies on planets hundreds of light-years from Earth was of little importance to him. And he even agreed with me that we should undertake the recapture of conquered planets. But to volunteer for combat duty against the Kwartah—of course, I couldn't try to stop him."

"A victim of your own rhetoric?" I asked sardonically, figuring that the moment was over.

I had figured wrong. He looked at me in anguish, his face once again without its mask. "A victim of my own beliefs," he said, "but my own beliefs still."

Heading a Rehab center—restoring youthful human wrecks to fighting condition—is perhaps a needful task, but it is not one that leads to peace of the spirit. I am afraid that my own mask slipped for a moment, and I showed some of the compassion I could not help feeling for the old man. "Your boy is getting along well," I said. "He's on the way to a complete recovery. Remember that he knew full well what he was volunteering for. He knew that he would end up with a

spell here. And right now, if he knew, he would not have it otherwise," I said.

"May I see him?"

I nodded, rose to my feet, and led the way to a spiral stairway in the far corner of my office, leading down. "Whoever it was, back in 1840 or 1940 who said that war is hell, must have been talking about the waste of people. We, here, have been set up to avoid that waste as much as possible. We have been called a Salvage Center.

"Remember, sir, that there are not too many young men on all of the hundreds of Man's planets who are capable of fighting in our front lines. And of these, your son Jim has proved himself to be one of the best."

"Then why will he have to go back and fight again?" The senator sounded like any father.

I stopped and turned to face the old man. "You don't understand, yet," I told him. "Your son, like the others here, has done far more than his share. Nobody will force him to go back. He will want to go back. He will beg to go back as soon as he can remember—long before he is ready." I spoke earnestly. "And I assure you that we won't let him return to combat until we are absolutely sure that he is in proper condition."

Senator Grimes shook his white mane. "You're right. I don't understand," he said.

We were now walking along one of the maze of tunnels that lattice the Rehab gardens to provide access to the myriad of observation stations. My robosec had flashed the location of the senator's son on my desk screen, and I was guiding his father to the observation station that would provide the best look at the boy through its one-way viewing screens.

"Do you know, Senator," I said as we walked along, talking more to fill the uneasy silence than to make conversation, "you must remember back as I do to a time when intelligent men could seriously put forward the idea that space warfare was an impossibility?"

The senator nodded without interest. "I guess they must have been thinking of warfare out in space, between spaceships. They were right about that, at any rate. You can't intercept an out-of-phase ship, going faster than light. Or so I've been told."

"Yes, but it's not only that. They also assumed that the population of any well-established planet would have an easy time against anyone trying to invade them. After all, the invaders would have to stage their attack at vast expense, with no up-to-date reconnaissance or other intelligence before their forces arrived, after flights of up to several months of subjective time, and with no chance of reinforcements if they got into trouble.

"I suppose that those people just

forgot that throughout history it has never been possible to keep a determined invader from effecting a landing—from Caesar to Eisenhower; from Norman Conqueror to Spanish Conquistador. And once on the ground, readiness and quality of fighting men have usually meant more than numbers or reinforcements."

"Well, the Kwartah certainly demonstrated that," said the senator. "Twenty-seven of our planets they conquered before we even figured out what was going on."

I nodded. "And almost two hundred more before we kept them from winning even once. And as you are well aware, the road back is painful and slow."

I guided the senator into a side channel, and then motioned to a spiral ladder leading up. "Remember, Senator," I said, "your boy hasn't been in our hands very long. He's doing fine, but don't expect too much." I kept the lead, winding my way up the spiral stair. "Your son won't be able to see us or hear us, when we are in the observation post. We find that it isn't good to intrude at all during the early days of Rehab."

When we stood in front of the large one-way viewscreen, it was as if we gazed out of an immense picture window. The scene was of a rolling green lawn, bordered with trees. Or rather, it was of grass growing in a forest glade, because the trees, though not thickly planted, seemed to obstruct all view beyond. There was a brook that ran, if a meander can be called a run, through the glade. No one was in sight.

The senator looked a question at me.

"He's in this closed section, and he's the only one here," I answered. "We're just looking in the wrong direction." I adjusted the controls.

The view rotated until it showed a large-boled tree in the near foreground. Standing beside the tree, with his forehead pressed against it, was a man. Anatomically speaking, at least. If he had stood erect, he would have been well over six feet tall. (Six three and a quarter—I had studied his records, and had even checked the measurement.) He was well muscled, with an even sunlamp tan.

This was easy to tell, because he was entirely naked. The aggressively masculine effect was spoiled, however, because his left thumb was firmly thrust in his mouth. The right hand clutched the left fist, with a forefinger stretched along the nose. And the boy was sobbing as if his heart would break. Also, his nose was as red and running as were his tight shut eyes.

"You have found him at his worst time," I said compassionately. "He can't yet remember his past, but he has reached the point where he realizes an agonizing sense of loss. His recovery will be very rapid, now."

Senator Grimes was sputtering indignantly. "But this is monstrous," he said. "You could at least treat him like a human being instead of an animal. Haven't his services in the past earned him the right to wear clothing? To normal human dignity? And why doesn't he have a nurse? Someone to care for him and to comfort him?"

"There are more than fifty-seven thousand men undergoing rehabilitation in this establishment at this time," I said, my voice uninflected. "Each man or woman when he arrives, virtually without exception, seems essentially mindless and entirely untrained. We don't begin to have enough staff here to change diapers and wipe noses for fifty-seven thousand men and women."

"But surely there are robots," protested the senator. "I know for a fact that Congress has never denied you all the funds you have asked for."

"Have you any idea of the complexity of a diaper-changing robot?" I asked. "We use machines to wash our patients and to dust powder on them—and they usually manage to apply the powder to the correct end. But we would not attempt to program them to apply clothing—the chances would be too great that they might inflict injury.

"Besides, on further reflection you may agree with me that nakedness in a grown man or woman is at least as dignified as being pinned into a diaper or training pants.

"As for trying to comfort them; our patients are best left alone at this time. In any event, we wouldn't let a nurse near Jim. At least, not a female nurse. Excitement is not beneficial during the early recovery process, and it is astonishing at just how early in the process of getting well that our young male patients are able to remember that they are men. And acting on that memory, or trying to, can greatly delay ultimate recovery—it is programmed to occur considerably later in the schedule of therapy.

"As I have said before, actually your son is doing very well. And now, Senator, please come back to my office and have a drink. You need it."

The senator shook his head slowly like a bewildered lion. "Did you say that you have fifty-seven thousand patients here, all in a mental condition like . . . like my son, there?"

"Yes, sir. I have fifty-seven thousand patients who came here in mindless condition, out of a total population of fifty-seven thousand patients. They all arrive here like this.

"Tell me, Senator, is it possible in your position of power and importance, that you actually don't know what's going on here, even though your son volunteered? Don't you know why these men come here like this? Your son knew what would happen to him—at least as

far as this is concerned—and he volunteered anyway."

The senator followed me somnambulistically back down the corridor toward my office. "Well, you see," he said, "I've been so anxious to support action against the Kwartah—and to support the people who seem to know how to take action against the Kwartah—that I've chosen not to spend much time looking at that effort itself.

"I know that the enemy gained his initial easy victories because he comes from an enormous high-gravity planet, and can take very large G forces. More than ten times as much as a human can stand before he blacks out, I believe it is. So at first I gave careful attention to details, and insisted that we build a lot of unmanned vehicles—drone spacecraft—that could support very high accelerations and outmaneuver even the Kwartah. But that didn't seem to work. I was wrong.

"So now I don't try to tell the experts what to do. I just help them do it. Even when it involves going back to eating up young men instead of machines—these young men here, for example. Can you blame me for not wanting to know too many of the details? Oh, I'm sure that they strap the boys in well, and feed them drugs, and do all they can for them. But it is not surprising to me that we can't protect them as well as we'd like to, so that a lot of the boys who survive end up here at Rehab.

"But somehow, I figured the damage would just be to their bodies. I don't understand what this is you say about troubles of the mind."

I escorted the senator back into my office, and then turned to face him. "We owe you very much for your support of us without questions while we were learning how to win. But now it is time for you to learn a little about how we do the winning, and what the price is. Let me show you a recording. It's a wire that was taken of me, some time ago. It's a training aid, and it is shown to all recruits before they are finally accepted as volunteers, but after they have proved their suitability through extensive and exhausting physical and mental tests. Your son saw this wire before he signed on."

I touched a switch on my desk, and the lights in the office slowly dimmed as a picture on the wall gradually faded, revealing itself to be a Tri-D tank. I dialed for the proper wire, and after the display of the usual Security Caution and Declaration of Classification, the tank dissolved to a depiction of a younger me. I looked much younger in the tank—much younger—but the wire was only four years old.

"I was the original guinea pig for this whole idea," I said, narrating the scene myself— I had turned the sound down. At the moment, the tank was showing a couple of

doctors running a tube up my nose.

"The whole thing goes back to the twentieth century, when some clever idiot decided that animals ought to be able to breathe under water as well as in air, if the pressure was high enough to bring the amount of dissolved oxygen high enough. It turned out that they were almost right. The subjects died, not because they couldn't get enough oxygen but because they couldn't get rid of enough carbon dioxide. It turns out that water, with the same salt concentration as blood, will dissolve only half as much carbon dioxide as you breathe out. So water breathers poisoned themselves, if they kept at it very long.

"But as you say, it turned out that we couldn't design a servo-autopilot-computer-guidance system that could stand up to the Kwartah, because the Kwartah could outsmart any machine. It also turned out that we couldn't use a man-controlled remote Waldo setup, because the Kwartah could jam the radio link enough to raise the noise level to a point where we had to use filtering to slow down our response times to the point where they could still outmaneuver and beat us.

"So the scientists decided that we just had to use the most compact and elaborate computer ever designed, capable of effective nonlinear programming, and of effective operation with inadequate information, and we had to use it without the aid of remote links. We had to put it right in the combat craft. And that computer, of course, is the human brain, which customarily comes pre-packaged, attached to some very delicate and fussy and easily damaged ancillary equipment: the human body."

While I had been talking, I had watched the two doctors in the tank complete their task of stuffing the tube up my nose, and then connect a series of tubes to all of the more intimate orifices of my auxiliary equipment. The scene had also showed them covering my eyes and ears with a blind-eyed helmet, also trailing tubes—or rather, trailing cables.

"It was impracticable, thank God, for the experts to disconnect the computer from its auxiliary equipment and keep it operating efficiently. So they leave the brain in the body, but as you see," I said, "the job of dressing for a job of piloting these days is more than a minor unpleasantness."

I gestured toward the tank. "And while they are dumping me into that tub of salt water, like you see there, they are pumping my lungs full of an equally salty liquid—odorless, but of a very low viscosity. At least, all the authorities claim that it's odorless, but most pilots agree with me that it smells a little like the inside of a used canvas shoe.

"This liquid, at any rate, solves the problem of carbon dioxide poisoning, since it has more than double the dissolving capacity for the stuff that water does.

"This whole miserable idea goes back to the Gualtierotti-Spinelli experiments back at the same time those water-breathing experiments were being made. They put pregnant rats into metal spheres filled with liquid, something like that sphere they're putting me into, there in the tank, and they then dropped the spheres from high enough to kill the rats instantly. Then they delivered the fetuses by Caesarian section. And they found out that those little rat fetuses survived even ten thousand G's!

"Because the babies were surrounded by amniotic fluid, and their lungs were full of the liquid, too, the shock was transmitted evenly through the liquid and did no damage.

"And that's why the pilots all go through the miserable and undignified and humiliating experience of being stripped and taped and stuffed in an artificial womb, like you see going on here.

"And that's why all of us who are, or have been, pilots call ourselves the R.B.'s. It stands for Rat Bitches. We know just how those original subjects must have felt. And just like those original R.B.'s, we're doing it all for Humanity. It didn't do them much good, either."

"Do you mean that my son went through that?" asked the senator, pointing at my naked image.

"Every time he suited up," I agreed. "He had several hundred hours encased in a wet sphere before the first time he was dropped in one onto one of our Kwartah-occupied planets as part of our assault plans to try to bust it back from them. And every one of those hours, he was miserable. I know; I've been there."

"And do you mean to tell me that the pain and misery are enough to crack the minds of all of these young men? I know my son too well for that. He, and these other young men here, would never be broken by pain and humiliation and discomfort of the kinds you have shown me. I just don't believe you."

While he had been speaking, he had kept his eyes on the Tri-D tank in fascinaion. The liquid-filled metal sphere, with me inside, had had a cap screwed onto the opening they had stuffed me through, and the whole thing had been hoisted a couple of hundred meters in the air, and then dropped in free fall onto a concrete pavement, which it smashed.

The cover had been sawed loose, and the senator was watching me climb out of the metal vagina, trailing a multitude of umbilici, apparently none the worse for my fall.

"Of course, you don't believe that," I said. "But that's not what I claimed. All that is just miserable; it's not mind breaking."

"If that's not, show me what is."

I stared at Senator Grimes, but he didn't drop his eyes. He had been looking somewhat wilted, but as I watched, his static charge seemed to build again, until he was his usual crackling self.

"I could show you your son's most recent combat tape," I said at last. "The training film the recruits get before they sign on, after they've seen the one you have just watched, is the combat wire of my first action. But I can show you your son, if you want me to."

"It shows the battle that put him here, in this place?" Senator Grimes' eyes still held mine as he asked the question, and as I slowly nodded.

"Show me the wire," he commanded.

I shrugged and touched a switch, and the image of me having tubes laboriously disconnected from me faded into swirling blackness. Then I sighed deeply, and moved another lever, so that the swirling dots coalesced into a close-up of the face of the young man we had seen shortly before, blankly sucking his thumb. Except that in the Tri-D tank, the face of Senator Grimes' son, far from being blank and empty, was smiling and vibrantly alive.

A helmet, far neater and smaller than the one I had been pictured modeling, was slid onto his head; the head dipped under the glittering surface of the liquid, and a hatch cover quickly twirled into place. The camera pulled back to show that the tank containing young Jim Grimes was like the yolk in a heavily armored egg.

The egg was hoisted into the body of a sleek war craft—a craft equally at home in atmosphere or in space. The background of the scene showed an almost endless row of similar eggs being engulfed by similar small craft. Obviously, the view was of the hangar deck of an enormous deep spaceship, and the activity indicated that the ship was still in subspace, but was making its run in to a planet to launch an attack.

The view shifted to that shown by Jim Grimes' sensors—we saw almost as if with his own eyes. We were in the line of warships, and in the foreground we could see a repeat of the mother ship's instruments. These showed that we had already dropped below the speed of light, and that our break-out from subspace would be in ten seconds; planetary atmosphere entry would be in fifteen seconds; first ship drop was in eighty-seven seconds; ours would be the twenty-third ship to drop in our line—we would be outside in just over two minutes.

Senator Grimes leaned forward and chewed his lower lip. Time was moving as painfully for him, watching, as it had for his son, experiencing. Breakout occurred on schedule, and the faint green back-

ground disturbance of subspace disappeared. The shrill keening sound of atmospheric entry began to build up. Sitting at my desk, I could almost feel the sudden buildup of G forces from air drag, just as I had almost felt the null-gravity sensation at the instant of breakout—and all this in spite of the fact that there was not—and could not be—any reality to that sensation here in the room where we watched a scene in a Tri-D tank.

Then Jim Grimes' little one-man warship began its smooth continuous forward slide toward the port slingshot—the one that belonged to us of the pair of catapults that was busy spewing ships into the air.

And then suddenly, with an abruptness that brought the senator's hands up reflexively as if to guard his eyes, suddenly we were airborne. I looked around—or rather, young Grimes looked around just as I would have done in his place—to check the position of his ship among its sisters. A quick glance back at the radar screen showed a row of targets climbing rapidly up from the ground below. The Kwartah were reacting to attack with awesome rapidity, as usual.

A pulsing alert light, and a glowing ring around one of the blips on the radar, pointed out my target—young Grimes' target—and our ship started a wicked arching turn to pick up the proper lead angle. No action of the pilot was required here; the pilot's task would be one of minor override near the end of the individual action—perhaps holding up fire for a twentieth of a second, or increasing turn rate by a quarter of a G—small changes in the machine planned pattern, resulting from training, good judgment, and intuition; the elements computers could not even begin to calculate, but elements which frequently made the difference between victory in an engagement, and defeat.

Watching the intercept develop, I found my right forefinger twitching as I tried to make a minor change in course. Simultaneously, the needle that indicated override action crept up off its stop, as young Grimes made the same maneuver that my reflexes had called for.

Weapon release the boy left to the computer, just as I would have done in this engagement, and the maximum-magnification optical screen suddenly blanked momentarily under overload, and then cleared to show the expanding fireball that had been a Kwartah combat craft.

The dials showed that, just as the boy's ship fired, its jets flared as it bounced into a sudden hundred-and-fifty G evasive maneuver, and it simultaneously dropped a string of three short-range defensive antimissiles. They must have worked; the craft survived. But already a second target had been ringed, the action light pulsed again, and we

were on our way to intercept our second target.

Three more intercepts we watched, three more kills, two more narrow escapes from counteraction, and then there was a sudden rumble, a sudden cloud of smoke obscuring the viewscreen just before it went blank, and all dials spun to zero. The small auxiliary screen flickered uncertainly, and brightened.

For just a moment I relaxed completely, enfolded in a familiar feeling of comfort and safety, but this was broken almost at once by the intrusive sound, from Senator Grimes—a light cough to clear his throat.

I shook off my momentary pang of loss, and resumed the burdens of the world. Or at least, the burden of the presence of Senator Grimes.

I looked at him, to find him looking a question at me.

"Your son's ship was hit by a missile from the fourth enemy he engaged. Just as his missile destroyed that ship, it destroyed his. At that instant, your son's life-support-module—his Egg—was automatically ejected. Look in the tank. You can see by his instruments that he is in free fall. That soothing humming sound that you hear in the background is just an indication that his emergency homing call-in signal is on the air."

"It wasn't this that put my son here," said the senator. It was not a question, but a simple statement.

"You are right, of course, Senator," I agreed. "A replacement warship, up to this time an unmanned drone, is being called in by your son's Egg. Two of these drone ships are customarily released for every manned battle craft. The armored Egg is much better able to survive than is the ship that carries it. Much better. And, of course, the pilot is floating in amniotic fluid, and is protected in complete comfort from almost anything."

"Complete comfort?" asked the senator. "You just finished telling me about the discomfort and misery you have to go through in those spheres."

"Yes, Senator," I said. "But that's before you have been in battle. Whatever happens, you stay warm and safe inside. For example, in this battle that you're watching now, your son destroyed seventeen of the enemy ships, and in the process lost four of his own, and stayed comfortable and unhurt the entire time.

"Look there, now. His second warplane will catch him before he even hits the ground."

The small auxiliary radarscope showed a target—blinking the code of a friend—rapidly closing in, and soon the optical display revealed it to be a battle craft apparently identical to the one Jim had been flying. The pilot section was an open nest, gaping to receive its Egg. The craft closed to zero range, there

was a blink of the screens, and then they came on bright and clear to show a new target already ringed and the new warship already turning to close in on it.

After the next intercept was successfully completed, I said, "This battle goes on for a little longer than five more days, although the pace soon slows down a good deal. As I said, your son and his Egg came through it all in fine shape. If it's all right with you, I would like to skip ahead to the last engagement, and show what happened after that."

The senator nodded, and I made the necessary adjustments to the controls at my desk. The tank clouded, and then quickly cleared to show the same scene that it had before, except that the dial of the clock-calendar showed that several days had gone by. The scene in the tank showed a target in the process of being destroyed.

"That was his last kill, and the last kill of this battle," I said. "Now, I'll slip the wire to show things just a couple of hours later." I did so. The instruments showed that a search pattern was being conducted, and that there were no targets on the radar screen. As we watched, a green light beside the action light winked on, and a gentle chime started to sound, not unpleasantly, it seemed, to the senator, who tapped a finger in time to it. The sound jarred unbearably on my ears, and I turned it down to near inaudibility.

"The battle is over. That clanging is the general recall," I said. As we watched, the ship started a gentle turn, and began to speed up. Grimes' son overrode the automatic homing maneuver, and pulled the nose of his craft away from its course toward the interstellar mother ship.

After a few seconds, the note of the chime became louder and more insistent, its tone more of a snarl than a chime. A red light flashed on, and the boy's ship once more started its homing turn.

"As you see," I said, "your son doesn't want to go back to the mother ship. The automatic system has now cut out his manual control circuits, and in spite of what he wants, it is taking him back anyway."

I looked away from the tank. "After our first battle using these machines, just a few years ago, we lost every pilot but one at the end of the battle. Me. I was the only one they got back. And my Egg was down on the ground. After I was ejected from my first ship, I had fallen into a narrow canyon, and my drone replacement ship couldn't make a pickup. So they got me back, and I told them what was wrong. After I recovered."

"And what was wrong? Is it the same thing that has happened to my son?"

"Yes, sir. During training, as you

saw, we all hate our capsules. But after we have been in a few days of battle, we like our Eggs very much. They have kept us warm and comfortable and fed and cared for and protected. And so we can't bear the thought of leaving our capsules, ever. We can't bear the thought of being born again."

I cut off the view in the tank. "You don't want to watch the rest of this," I said. "You don't want to watch them haul your son back to the Mother ship and then deliver him forcibly out of the safety of his womb. It's a sort of Caesarean section. And so naturally he goes into shock—it's the birth trauma—and reverts to the mentality and behavior of a newborn infant.

"Recovery, however, is rapid. He'll soon be ready for action again, on some other planet that we take back from the Kwartah."

"You can't mean that you'll force him to go through that experience again?" asked the senator.

"No, sir. We won't. Although we probably would if we had to, if it was needed to help win the war. Well qualified men are scarce. But we don't have to. All pilots volunteer to return to action. In fact, they beg for it. The desire to return to the womb is stronger, almost, than the sex drive.

"In fact, after a few times it becomes stronger—and the pilot never does come out of it. He reverts to the foetal position and just pretends that he has not been forcibly removed from the safety of the womb.

"So we have learned to allow a pilot to take part in only three battles—three scheduled actions to recover planets that have been lost to us. Then we retire him to one of our own frontier planets, where he is available for action—once only—if the enemy attacks.

"After that, he's pulled back to one of our central planets, where the chances of attack are small. He will be put into an Egg again only if the enemy forces his way to one of the planets nearest Earth. And if he is so called, his chances of recovery are nil. In fact, of those who have been sent into action a fourth time, to protect a frontier planet, not one in a dozen has ever recovered.

"I am one of the lucky ones. I was on Dubhe IV last year when it was raided—you probably recall that action. And after extensive treatment, I came back. That's why I run the school here on Alpha Centauri III—and why I'm not allowed into a capsule, even for a demonstration flight.

"So I know that your son will not be forced into action again. He'll beg for the chance. And if he's lucky—it won't be long before we let him climb back into the safety of his Egg—his womb. But I'll never have that chance again, unless—unless . . .

"God! I wish the Kwartah would attack us here!" ■

P. Schuyler Miller

the reference library

FAANFARE

Vigorous and vehement fans have been an ever-present feature of the science-fictional world from the earliest days of *Amazing Stories,* and even before. The newcomer, usually but not always a teen-ager, is likely to begin with a letter to the magazine of his choice, praising the story/author/artist of his preference. He may become a "letter-hack," getting his letters published frequently. In time he writes to another letter-writer, or one of them writes to him, and he discovers that there is an intricately organized and disorganized community of similar enthusiasts who do remarkable things. They publish and sell, or give away, an appalling variety of ephemeral amateur newssheets and magazines. They form clubs—some regional, some national, some international. They hold frequent or occasional meetings and regularly scheduled conventions. And they fight like crazy.

Some of them become top-notch science-fiction writers . . . a few, even editors.

Our "neofan," as he ventures deeper into "fanac"—fannish activity—may lend a hand at writing, illustrating, typing stencils for, or otherwise producing a "clubzine." He is more likely to launch his own "fanzine," at his own expense, and he may keep it going for years and build up a worldwide readership. This will definitely make him a Big-Name Fan. Eventually he is likely to find other interests, get drafted, go to work, and drift into inactivity —"gafiate" (get away from it all). He descends from fan to "faan." Even so, he may some day find his career chronicled in a fannish history. The newest of these, "All Our Yesterdays," by Harry Warner, Jr., has just been published by Advent: Publishers of Chicago (1969; 336 + xxi pages; $7.50)—a fan activity in itself, and one with an impressive record of valuable books.

You may find it as dull as reading the woman's page of a local newspaper in a strange town. I find it fascinating, and so do sociologists who have read the few other such books that have been published.

The best known of these was Sam Moskowitz's "The Immortal Storm"—now, I believe, long out of print. This was an intensely personal history of the pre-war years of organized and unorganized fandom as seen from the metropolitan New York area. As I recall, I complained that the book neglected much that was going on elsewhere in the country and in the world. (The obvious answer to that is that if an historian doesn't know about something, he doesn't write about it, and nobody can know everything about as complex a social organism as fandom.)

Harry Warner, Jr. is evidently a very different kind of person, and he has written a very different book. "All Our Yesterdays" is the story of science-fiction fandom in the 1940s, as seen from Warner's observation post in Hagerstown, Maryland. He wrote voluminously, published vigorously, corresponded exhaustingly, and seems to have remembered everything and everyone. His knowledge seems to be broader than SaM's. His personal reactions to various fannish crises were less intense—at least, less violent. A friend of mine, also hailing from south of the Mason and Dixon Line, would say that he is "kind." And so he certainly is, when you learn about some of the feuds and finagling that have gone on in the world of fan publishing, ego boosting, organizational politicking, et al.

All this has the enormous cast of characters, the intricate interweaving of plot, counterplot and subplot, the heroes and antiheroes of a massive Victorian novel—let's say a Russian novel. It is also a portrait of a microcosm which cut —and still cuts—across all ages, all backgrounds, in an incredible way.

Warner's history—he is working on another volume for the 1950s—reinforces one of my own strong beliefs. Fanzines have ranged in quality from execrable to very, very good. When a fan bibliography comes my way, and it is available to non-fans, I try to report it here —but this is not and never has been a fanzine review column. This means that there are many excellent articles, some good stories, and a great deal of fine art work that I never see and you wouldn't hear about if I did. You'll find comments on some of this work scattered all through Warner's chronicle. Somebody should compose an anthology of this work—Advent has, in fact, done several volumes of critical gleanings by Damon Knight, James Blish and others. The book should be both a counterpart of the illustrative anthologies that Sam Moskowitz has compiled to accompany his appreciation of science fiction and fantasy writers, and a means

of preserving and bringing to general attention a great deal of thought-provoking writing.

Harry Warner's book merely suggests what is there. And it's still appearing, day after day, year after year. Today's and tomorrow's fans are probably just as colorful, just as individualistic, just as extraordinary a lot as the old brand you meet in "All Our Yesterdays." I'd recommend dropping around to St. Louis over the Labor Day weekend, when the World Science Fiction Convention is in full swing, and judging for yourself. Or try one of the regional conventions that you'll find listed in most issues of our friendly competitor, *Worlds of If.*

RETIEF: AMBASSADOR TO SPACE

By Keith Laumer • Doubleday & Co., Garden City, N.Y. • 1969 • 216 pp. • $4.95

If you've forgotten that burlesque was originally knock-down-and-drag-out parody of people and institutions, refresh your memory with this latest clutch of Retief yarns—seven of 'em. Short stories—even novelettes—don't really give the troubleshooter of the 28th Century Corps Diplomatique Terrestrienne enough elbow room to do his stuff properly, but they'll do until the next full-lengther comes along.

The top diplomats of these seven yarns are, as ever, crooked and stupid in almost equal degree. Retief is the "Ugly Terry"—and if you really read the book, you know who he was—who hauls their chestnuts out of the fire, blows on their burnt fingers, and sends them home tied up in pretty ribbons. In "Giant Killer" he takes on a dinosaur and a custom. In "The Forbidden City" he turns a takeover plot back on itself and resurrects a planet's heroes. In "Grime and Punishment" he is just a little too lucky to be plausible, but in "Dam Nuisance" he is properly crafty and gives the Groaci a nice setback. "Trick or Treaty" you've seen before; he has the help of a vaudeville act. "The Forest in the Sky" is perhaps the wildest of the seven, with its ravening teenagers, and in "Truce or Consequences" Retief brings history into use in a characteristically direct way. (Incidentally, in almost all these stories our old friend Magnan is showing alarming signs of resilience and sense. *Can* career diplomats learn?)

Now a sour note. For reasons best known to the publisher, the jacket artist has chosen to show Retief as a dark-skinned individual with "natural Afro" hair styling and mildly Congoid features, wearing some kind of porter's uniform. Now, I agree that Terrestrials of the 28th Century will very probably be dark skinned, but I doubt that the genes for frizzy hair or broad noses are dominants. In particular, I can recall nothing in these or the earlier stories to suggest that Keith

Laumer intends Retief to be a kind of future Br'er Rabbit, making fools of a bunch of honkies and Mister Charlies who need no help in that line. In fact, since Retief always makes his incompetent boss of the moment look good, he is really playing the Uncle Tom, and by the same reasoning that makes a brown Retief plausible, the Ambassador Pinchbottles and Biteworses will be just as black as he —when they aren't purple with choler. Now, of course, if Doubleday doesn't make Retief black on all future jackets, they're in for trouble. Somebody was stupid. An Ambassador, doubtless.

DOUBLE, DOUBLE

By John Brunner • Ballantine Books, N.Y. • No. 72019 • 222 pp. • 75¢

This one is very, very minor Brunner. The gimmick will telegraph itself to the experienced reader long before it is spelled out, and the monster chase is strictly according to stereotype—but the details are very good.

Bruno and His Hermetic Tradition, a rock group looking for a beach where they can stage a happening and make a few quid, "rescue" a long-dead and fish-eaten aviator from the sea. He disappears —they are, of course, not believed —and then strange things begin to happen as the thing from the sea takes on one shape after another, each more dangerous than the last. Sure—you know exactly *what* is going to happen, but you don't know how.

LAST AND FIRST MEN & STAR MAKER

By Olaf Stapledon • Dover Publications, New York • No. 21962-3 • 438 pp. • $2.00

Although this book is a reprint, it is also a must for any science-fiction library. You may not even "like" it, but you'll find "Last and First Men," in particular, impossible to forget. No book that I know of has its boundless sweep of imagination, carrying the future of intelligent life in the universe from the years before World War II—when it was published in England —to the era of the Last Men two billion years from now. The ideas in it have only been scratched by other writers; the entire body of later science fiction could have been written out of it and left much still to be used.

"Star Maker" is a companion book rather than a sequel. Its concepts are even vaster, but they are less real and less successful. Perhaps this is because the narrator is a man of our own time, seeking to trace the evolution of intelligence in the entire cosmos and not quite grasping it, whereas in the first book our guide was one of the Last Men with their billenial perspective.

Fine print . . . many pages . . . no plot. "Odd John" and "Sirius" were better stories. But never before was

there anything like this book.

THE SILKIE

By A. E. Van Vogt • Ace Books, New York • No. 76500 • 191 pp. • 60¢

When the parts of this book began to appear in the magazines and anthologies, I hoped that it would lead to the reappearance of a new era of Van Vogt stories as vigorously thought-provoking and controversial as those with which he was introduced here in Astounding a generation ago. The author of "Black Destroyer," of "Slan," of the Weapon Shops stories helped make modern science fiction what it is.

Unfortunately, "The Silkie" is a disappointment. It starts promisingly with the use of what appears to be molecular biology to tailor-make a super-being which is sometimes a man of extraordinary physical and mental (psionic) powers, sometimes a gilled amphibious humanoid, and sometimes a space-dwelling non-human. The book might have been a "Slan," with one of the supermen exploring his developing powers, but Van Vogt evidently doesn't like to repeat himself except in the general pattern of his books. Instead, in the first of three rather disjointed episodes, super-Silkie Nat Cemp encounters an even more super creature masquerading as his own son. This Kibmadine teaches Cemp a few more tricks, then he and his kind vanish from the book. Thrown away. Wasted. A promising universal conflict along the lines of "Doc" E. E. Smith's galactic feud of Good and Evil is simply dropped.

In Part Two we find another kind of super-being—and for no really good reason the theme of humanity reshaping itself goes out with the trash. It seems that Silkies are really another alien race from somewhere in the deeps of space, which through chance or design can interbreed with Earth-type human beings. Only these "real" Silkies come in two sexes—they don't need women any more. In fact, they seem impelled to wipe out all ordinary mankind just to tidy up the universe.

Through all this, the Silkies are said to derive their great powers by utilizing something called "levels of logic." What this is may be well known to all educated beings, but it certainly is never made clear in the book—far less clear than general semantics in the author's Null A books. The physics is also rather dubious from time to time, without any attempt to claim that under the circumstances "ordinary" laws don't hold.

Finally Cemp takes on still another super-race, the Nijjans—the one race that the universe-making monster of Part Two feared. This part is just *wham, wham, wham* . . . fireworks following fireworks. And here, possibly, I may have to back off. Comparing revivals of old

film comedies with the best of the present crop, I sense a fundamental difference between "ancient" and present-day humor. The old comedies were logically constructed . . . they built up from scene to scene and laugh to laugh. The audience anticipated calamities that the characters couldn't see coming. But modern comedy depends on *illogic* for its effects. Neither the characters nor the audience can possibly tell what is coming next, because the Establishment philosophy says that society and the universe have no meaning or logic. Van Vogt may intend to base his book on this attitude. If so, he has done what he intended. To my old-style tastes, it's better to build suspense than to simply throw all the glassware into a heap at once.

THE LEFT HAND OF DARKNESS

By Ursula K. Le Guin • Ace Books, New York • No. 47800 • 286 pp. • 95¢

This Ace Special maintains the standards of the "Special" series with the most ambitious novel of an author I have neglected. I liked her "Rocannon's World," but I have overlooked other books she has written about the same future federation of stars and races. I'll have to go back to them.

Mrs. Le Guin is the daughter of one of America's foremost anthropologists—the "K" in her name stands for "Kroeber". Here, as Frank Herbert did in "Dune World," she creates a planet and a complex society—but this one is based on the fact that its people are hermaphrodites, and that they are living during a glacial age on a fundamentally hostile world. When the people of Gethen—which the first explorers called "Winter"—reach their monthly peak of sexuality and come into "kemmer," an individual may be either male or female, father or mother.

Genly Ai has been sent to Gethen as the envoy of his galactic federation, charged with persuading its governments to join. He landed in the technologically most advanced country, the rather barbaric kingdom of Karhide, and promptly found himself entangled in the intricate web of custom and tradition that has grown out of the sexual duality of the race. His sponsor in court is exiled; for every step forward he slides two back. Finally he crosses the border into the totally different commensality of Orgoreyn —and finds himself freezing to death in drugged immobility in a prison camp. The exiled Lord Estraven rescues him, and they make a hideous traverse of the ice fields, to gain Ai another chance in Karhide.

This skeleton plot only suggests the richness of detail with which the author has built up her world, her societies, their customs and legends, their motivation and attitudes. Actually, the story is of Ai's

slow discovery of the structure beneath the facade of ritual and custom, and especially of his gradual understanding of Estraven. Ai tells most of the story, but Estraven has some chapters and others are tales and quotations from the Gethenean classics that obliquely illuminate what is going on.

Gethen is a more complicated world than Dune and its hermaphroditic people more complex psychologically than those in Herbert's novels. (This is, incidentally, in no sense a "sexsational" book.) Because it is so familiar yet so strange, identification with either Ai or Estraven isn't easy. Readers will be haunted by the book—but eventually they may wonder why. The thing to do then is go back and read it again. I am sure you will find something new in it every time.

THE SHAPE OF INTELLIGENCE

By H. Chandler Elliott, with drawings by Anthony Ravielli, Scribners, New York • 263 pp. + index • $12.50

Professor Elliott teaches anatomy, neurology and psychiatry at the University of Nebraska; he is a medical *teacher*. But H. Chandler Elliott is also an author—he's written material for this magazine—and unlike most highly learned specialists, he can write highly readable, genuinely interesting copy.

This book belongs in every library of every community that claims to have a high school; every college library will undoubtedly acquire it. And every reader of this magazine will, I believe, want to read it; those able to find the price without hurting too badly will want to own it as a reference.

Essentially, it is the story of evolution of intelligence—evolution as told from the one angle of "How did mind develop." The chapter headings hint at the highly original, and highly readable because understandable, approach Dr. Elliott uses: "The Worm in Your Spinal Cord," "The Fish In Your Brain," and "The Computer In Your Brain" for instance.

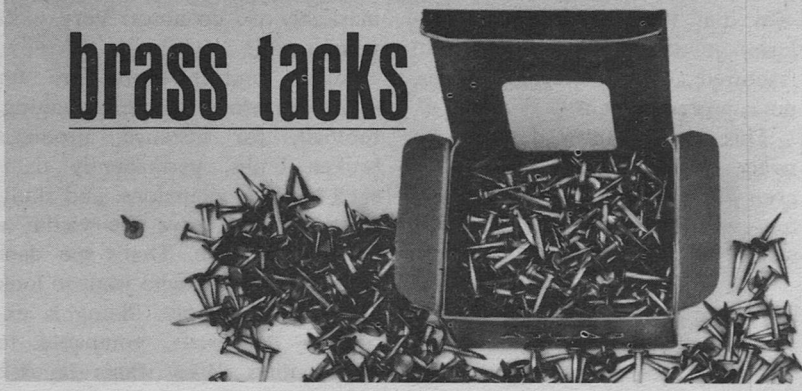
He might have titled one "The Smell of Success," too; he shows that the great intellect-achievement, the cerebral cortex, evolved from the original brain part devoted to smells. (That was the first of all the long-range senses—the first that responded to stimuli arising outside the organism, and not in contact with it.)

For the science-fiction reader, having very clearly explained how human intelligence *did* evolve, Dr. Elliott's book implies the question, "How else might it have happened? What totally alien pathway may it have followed on other worlds?"

There were so many accidental "decisions" along the multi-billion-year pathway!

I have read novels that weren't half as attention-holding! JWC

brass tacks



Concerning the Walker Report and Chicago

A number of letters were received on both sides of the argument in re the Editorial "The Whole World Is Watching"; as usual, "the satisfied customer never complains" so the *pro* letters were simple, short statements of agreement. I've answered directly many of the *con* letters; the following remarks are a general answer to many who did not write in.

The Walker Report was that kind of a lie which is the truth, and nothing but the truth . . . but omits the whole truth; it was, in effect, the type of statement a lawyer prepares in defense of his client. It was anything but an unbiased statement.

It referred to the "peaceful demonstrators," and to "unrestrained" use of force by the police, and to "a police riot."

TV coverage for several days before the Great Shemozzle had shown the demonstrators engaged in tactical battle practice preparing to fight the police. Peaceful? "Heil Hitler! We Nazis are all peaceful in our ways; we're just practicing athletics. That's why we need these guns." What a man *says* is not always revealing; what he *does* is.

As to the "unrestrained" use of force, and the "police riot": The standard lignum vitae police baton or nightstick is, in the hands of a man in good condition, an extremely powerful weapon. It can readily knock a man's brains out—and I do *not* mean figuratively; I mean literally. Gray goo in the street. It is easy to break arms or legs, and by using it in the stabbing mode, to rupture internal organs. It is a powerful and deadly weapon.

Now the fact—uncontested fact—is that there were no real injuries in the Chicago mess. No fractured skulls, no broken limbs, no ruptured spleens.

This can only mean that *not one police officer lost his temper for even five seconds.* If even one had, for even a few seconds, someone would have died, or been crippled.

This simple fact alone completely refutes the Walker Report allegation that the police "rioted"; they obviously used restraint and judgment.

Note carefully: The orders Mayor Daley gave them as to policy may have been injudicious. That is *not* a matter of "police rioting" but of political chicanery, which was most certainly present at Chicago. (My wife happens to read lips, which made the excellent close-up TV coverage of the Convention *most* interesting!)

The fact is that what we watched on TV was a new, widely popular sport, a rough contact sport called "Fuzz-baiting," deliberately engineered by the Hippie-Yippie group. It makes a fine sport for the knuckle-headed—it makes them look brave, dedicated, determined and courageous, while they are—as they well know—perfectly safe from injury.

Those awful, terrible, shocking, bleeding wounds . . . ? Did you watch Olympic boxing last summer? Or watch intercollegiate boxing? Very minor scalp wounds—completely harmless—bleed remarkably. So do noses. Very spectacular.

Other contact sports are far more dangerous than Fuzz-baiting; football, for instance, produces broken limbs, permanently damaged knees, concussions, and skull-fractures that leave the victim a human vegetable. That's too dangerous for people who want to look like heroes cheaply. Skiing is extremely dangerous, compared to Fuzz-baiting. Who wants to risk being quadriplegic?

Fuzz-baiting is a game that would-be heroes, who don't want to risk injury, like because it's safe.

Last year, I understand, seven youngsters were killed in accidents playing Little League baseball. That's too dangerous for the Hippie-Yippie crowd, and the "student rebels"; Fuzz-baiting is spectacularly safe, with a perfect record of no injuries and no deaths. Even model airplane flying is more risky.

And if those oh-so-humanitarians are mourning the miseries of the Vietnamese, and resisting fighting them—there's plenty of room for conscientious objectors who take on the work of medics and pacification teams, helping and teaching the Vietnamese. The government will, I understand, supply free training, transportation and necessary equipment. If you really want to help the Vietnamese—why don't you, huh?

The Editor.

Dear Mr. Campbell:

Your extremely biased account of the Chicago Events accused most of the demonstrators of being exhibitionists. Your account neglected to mention a number of very pertinent facts:

1. That there were a great many people there who cared deeply about, and had been working many months for, a candidate committed to ending the war.

2. These people had asked for and been denied permits to march peacefully.

3. That mobile TV coverage of events in the streets was extremely limited by the police. Those things we *did* see were restricted to what took place within viewing range of hotel room windows where TV equipment *could* be placed.

4. You also fail to mention the many unfair happenings which took place *inside* the convention, itself. The ease with which Daley supporters got passes. The difficulties McCarthy people had getting recognized to speak. The fact that Humphrey people rarely had trouble with their telephones and other equipment while the mikes provided for the use of the McCarthy delegates were often inoperative.

5. That the police over-reacted to admitted provocation, and they sometimes also behaved badly where there was no provocation. If the police do not obey the very laws which it is their job to enforce, how can anyone else respect those laws? Clubbing people who are already helplessly in custody is never excusable.

Possibly, some of the people who came to Chicago for the convention were there to exhibit themselves. (Show me the delegate that doesn't want to be seen by his constituency back home.) The majority were not. The slogan "The Whole World is Watching" doesn't mean "The Whole World is Watching *Us.*" It means that the facade of fair play and honesty which the democratic process has worn in the past has been stripped away. The true brutality of the system and those who hold the slippery reins of power has been revealed. The slogan should be read, "The Whole World is Watching *This.*"

WALTER TRENCH
107 Wheeler Avenue
Westwood, New Jersey 07675

The happenings at the Convention were NOT under discussion; the behavior—both at Chicago and elsewhere—of the "demonstrators" of the Hippie-Yippie type was.

Whether at Universities or Chicago, they display perfectly typical childhood tantrum behavior.

And while the Hippies talked about Peace—they didn't say a word about it on TV.

Dear Mr. Campbell:

I am a brand-new Analog fan—though a long-time S.F. fan—and would like to take this opportunity to comment on some items I've no-

ticed in past issues I've been able to borrow:

1). Have you ever noticed that those "students" who participate in riots are generally those who are either failing or taking "fuzzy" courses? The others are too busy working to riot. How many engineering students can be found occupying an administration building? Same thing goes for drug use. Sure, an "African Studies" major can take LSD, and it won't matter. But try to find a physics major who takes trips. Just fine for observation. Consider a bridge designed while the designer was having his consciousness "expanded" . . .

2). You proclaim that you are against one-sided views. However, there are some situations that will not admit of "another point of view." For instance: try to compromise between eating food and taking poison. Any mixture, any compromise, means death. Our present political parties got the way they are by constantly compromising—until you cannot tell which is which. A valid two-party system is one in which the voter has a choice between diametrically opposite points of view; and, in choosing one, *totally rejects the other.*

3). Your philosophy—as expressed in editorials—is remarkably objective in nature. Just wondering if you know of "Objectivism," and your opinion of it. I am an objectivist myself, and your ideas are very similar to mine.

JAMES F. GLASS
6304 Liberty Road
Baltimore, Maryland 21207

Sorry—but most medicines are a compromise between food and poison! The problem is to achieve a weighted, judicious compromise.

Dear Mr. Campbell:

"A man said to the Universe: 'Sir, I exist.'

" 'However,' replied the Universe, 'that does not give me any sense of obligation.' "

That's a bad quote—I don't have the original available—but it gets the idea across well enough.

Indeed, as you have mentioned in your editorial, the Yippies and other assorted protestors simply want to be noticed by the world, the people at home and the press.

It's mid-March. The City: Los Angeles. The Sample Ballot for the election this April has three propositions—three propositions which, if passed, would keep Los Angeles City School education from falling into a dank pit from which it may never fully escape. It has been said of these propositions that if they are not passed, education in the city of Los Angeles will be set back *at least twenty years.* There's a list of people who swear—under penalty of perjury—that this is *true*

and that the propositions *must pass*.

It seems like they'll pass hands down, eh?

I'm votin' No on those propositions. Why? 'Cause what's the use of building those new schools with the taxpayers' money if those protestors are gonna tear it down anyway?

You guessed it, friend. In New Jersey the newspapers may have mentioned in passing the minor outbursts in some of the schools in southern Los Angeles—but out here the *Times,* the *Herald Examiner,* the *Evening Outlook* and the other newspapers are playing this up for what it's worth for the sake of showing something to the public.

The news media are a new kind of muckraker: they rake up the small quantities of muck, magnify them, throw more dirt and water into the mixture and try to pass it off for more than what it's worth. They're raking muck for the sake of raking something.

As a result, thanks to the papers and the television cameras, Los Angeles education will be set back. All athletics—like the extremely popular football, baseball and basketball games—will be shot in the back, and a rope will be thrown around the necks of the Music departments. And that rope is going to be pulled, but hard. And other cultural classes will be wiped out. School days will be shortened—hip hip hooray from the grammar school kids, but woe is me from the high schoolers. Teachers will be fired right and left. Education will reach a brand-new low.

Thank you, ABC, CBS and NBC!

It is a sobering thought that on the same ballot, one of the candidates for Mayor of the city is Baxter Ward—former newsman on KABC. Can you imagine what it would be like with *him* in office?

Enough with the talk of Los Angeles. On with the really serious matters.

You remember the convention in Berkeley. All of us do. May I tell you a true story? Thank you.

I was staying at a small motor hotel, and sharing the costs with a friend. We were eating a taken-out dinner in the room when one of my friend's relations called—long distance yet—from Los Angeles.

"Are you all right?"

"Yes, yes. Why?"

"But the riot . . ."

"What riot?"

Our hotel was walking distance away from the campus. According to the relative in Los Angeles, there was a full-scale riot and we should have been dead ten times over from the way the riot *seemed* from Los Angeles.

I know, an hysterical woman does tend to exaggerate. The riot did turn out to be twenty yelling teen-agers.

We listened very carefully and didn't hear anything outside save the usual university sounds.

You see, I have a terrific hate for news broadcasts. I told my friend that I would not have any news broadcasts in the room, and so we didn't hear any. No doubt the cameras would have told us of our bloody mutilation and death.

Yes, yes, the press bears the greater part of the sin. The press must constantly remind me of how many people are butchered, kicked and shot to death each day. The press must tell of auto accidents and keep reminding me of how possible it is that any day an airplane might fall on me, or a madman might shoot me, or a weirdo poison me.

" 'Remind me,' Jubal told her, 'to write an article on the compulsive reading of news. The theme will be that most neuroses can be traced to the unhealthy habit of wallowing in the trouble of five billion strangers.' " Heinlein.

A cute story going around now —it may be absolutely true for all I know—says that there were some rioters who arranged to have a riot. They told a major TV network that they were going to have a riot. The network agreed (of course!) to cover the event. Come the big day, the network's trucks and the would-be rioters arrived, but the rioters told the newsmen that the riot had been called off because they didn't have signs.

The network supplied them with signs, rocks, even a little harmless liquid that looked remarkably like blood. The riot went as planned.

This is true sickness. It reminds me of the time I turned on the radio and heard a man tell about one of the bloodiest, most brutal and cruelest, sadistic murders he had ever seen. He then proceeded to describe it for the people listening in.

Recently I had the occasion to speak to a Foreign Exchange student just in from Europe. Naturally, I asked him his opinion of the news out here. His reply was "It sounds like the announcers are trying to sell the news."

That's it, by golly. They *are* trying to sell the news. News is big business in the United States. Otherwise, why would so many people buy newspapers? Why the large number of radios? Televisions? I've got to keep informed, someone says.

A few years ago, I used to listen with pleasure to a certain radio station that played the kind of music I like. That station switched to an all-talk station.

Since then, I have tried many other stations. But dammit, there isn't *one station* that I've heard that doesn't have the news sometime! Recently, I've moved a phonograph into my room and I now play classical music as my head hits the pillow.

Mind you, I don't want to be totally oblivious to what's going on! But then again, I don't want any part of this newssickness. I don't

say that "No news is good news," but I *do* say that "Sick news is worse than no news at all."

Occasionally, I do turn on the TV or pick up a paper. But I don't want to have it continually driven and pounded into me that some rioters may take over the neighborhood, or that an earthquake is going to bury me under ten tons of rock in the Pacific Ocean.

Of course I want to be informed! But I don't want to be driven insane like MacLyle in Sturgeon's "And Now the News."

There must be a happy medium.

Meanwhile, I will continue to praise Mayor Richard Daley for having the Chicago police do some whacking and hitting where most of it should have gone—to the representatives (if not the higher echelons) of The Press.

M. B. TEPPER

1225 Corsica Drive
Pacific Palisades,
California 90272

In addition, the famous Times *motto "All The News That's Fit To Print" does not mention who determines what news is "fit"!*

Dear Mr. Campbell:

On Analog's pages in recent months Mr. Bova and Mr. McDonough have re-emphasized a point I think worth repeating. That is, there may exist observational astrophysical phenomena which yield better to a technological explanation than to a so called natural occurrence. Though one may well object that an advanced extraterrestrial civilization could be able to do most anything—Clarke's Third Law—still I think it reasonable to ask, just when do the assumptions of a natural phenomenon theory exceed those of a technological explanation? Just what form of Occams Razor applies to unusual astronomical objects in order that they fit better a technological origin?

The case of interstellar communication seems to have been given just consideration. Communication is a special case, after all here the evidence may be being deliberately placed before us. What of indirect evidence? Mr. Bova pointed out the tremendous wake that a relativistic interstellar ship would cause. F. J. Dyson has several times shown how some sensible astrophysical engineering by other civilizations could be observable. These examples were made by extrapolating from existing knowledge. Surely the time has come when even more such concrete examples should be seriously forwarded. "Astrophysical Engineering" *does* have a nice ring to it.

A. A. JACKSON

Houston, Texas, 77058

Well, in essence the OAO—Orbiting Astronomic Observatory—is "Astrophysical" engineering already!

EDITORIAL *continued from p. 7*

I mean for the rest of your life.

So far, I've discussed only the legal-crime aspect of crime.

Now to the cultural-crime.

Any behavior pattern the culture finds intolerable is a crime—whether it's illegal or not. (Simple example: Until very recently, there was no law against assassinating the President of the United States. Obviously the culture held this to be an intolerable behavior pattern, and a cultural-crime, yet it wasn't a legal-crime. Thus Oswald could not have been tried for murdering President John Kennedy, in a Federal court, but only for murdering John Kennedy, human being, in a Texas court.)

The fact of the matter is that, currently, the cultural attitudes have changed more and more to an extremely permissive philosophy—a "tolerate anything" philosophy.

And this, my friends, is the simple secret of How To End All Crime! All we need do is determine that *nothing* is intolerable, that rape, murder, vandalism, larceny, robbery-with-violence, and torture-for-sport are somewhat naughty, but not really intolerable and pass a few laws to bring the legal code into line, and—lo! by a simple, slight change, we will have *abolished all crime!*

That will immediately end all crime-in-the-streets. The muggings will increase, no doubt, but it won't be a crime, so there will be no crime-in-the-streets.

Anything which the populace can be induced to tolerate becomes non-crime. They don't have to *like* what's happening—but if they don't care to do anything about it, it's not a crime.

That's why prostitution is a legal crime, but not a cultural crime and never has been. Ditto for gambling.

In France, income-tax evasion is a legal, but not a cultural crime; in this country it's both a legal and a cultural crime. Try telling your friends how you managed to cheat on your income tax, and how long before the word is passed back to the IRS? But tell them where there's a hot dice game, and the word will not be passed to the police. It's not a cultural crime—only a legal crime.

Now it's necessary for us to recognize that we have far less crime than we had a generation ago. Then, vandals breaking into a home and destroying five thousand dollars worth of rugs, furniture, paintings and appliances was intolerable; the punk who did it was sought diligently, and the whole community assisted in every way they possibly could. When caught, he was punished, and punished but good, by a family that was obviously responsible for all that damage. And the family damn well

better pay it, and promptly, or move out of the area.

Now, of course . . . well, juveniles are so hard to manage, and they *do* do such strange things. The police, because the acts were legal crimes, will seek to determine the responsible party or parties—but they'll get little help from a community that's tolerant of such behavior.

Such destructive behavior is tolerated; therefore, it is not a crime in this culture.

Today, curiously, it is considered a crime to punish a youngster for destructive, illegal activities. For several years now, for example, colleges have found that after students move out, they have held a "room-breaking party," and happily destroyed all the furniture and equipment in their room. This isn't a once-in-several-years affair; it's kind of like the old custom of football goal-post breaking, something attributed to youthful exuberance and tolerated.

Quite rapidly in the years since WWII, there has come to be less and less crime—because people have tolerated more and more. Major criminal acts (legally defined now; culturally so defined a few decades ago) such as wanton destruction of fifty to two hundred thousand dollars worth of University property goes unpunished, because the current culture tolerates it.

It will be *most* interesting if duels come back into fashion; the whole essence of the modern nothing-is-really-intolerable is a drift away from discipline and self-restraint. (The results will be interesting when they, quite naturally, drift into the hands of the loan sharks with that undisciplined pattern.) The essence of a *code duello* system is that an insulted individual has a right to impose drastic penalties on the insulter. The mannerless boor—standard behavior pattern currently required to be a member of the in-group at Universities—will be in immediate danger of sudden external discipline. Since the undisciplined don't like taking the trouble to learn any high-order skill such as swordsmanship, and typically lack personal courage, the results should be highly interesting indeed.

The peculiarities of the tolerance pattern demonstrated now are remarkable. It's perfectly acceptable that half-baked students eject a Harvard dean forcibly by mass attack; this is not only tolerable, but largely approved of behavior.

But the reaction of the administration, using precisely the tactics adopted by the SDS students—ejecting them by sudden application of superior force—is considered intolerable by the culture. I.e., it is held right and proper for group A to use force and violence in illegal invasion—but is a cultural crime for the ejected group B to

use force and violence in legal repossession.

It hasn't quite reached the stage that local teen-agers wanting to hold a party have the right to invade your home, throw you out, wreck the place, steal your personal papers for publication, while you must call police or other effective force to evict them—but it's getting there.

The crime in the streets—largely crimes against the person, muggings, rapes, et cetera—are tolerated. Police action to capture and punish the guilty parties is now a cultural crime. If someone grabs you from behind and presses a knife against your throat—be calm; remember this is not a crime in the present culture. You must not use a tear gas or Mace bomb against him, leading to his arrest and trial; that is a cultural crime. And you'll be arrested for carrying a concealed weapon, of course. He'll almost certainly be freed, as having been a victim of your brutality, assaulting his tender feelings with your dangerous, hurtful chemicals.

Look, friends—don't blame the police. When they do what they're presumably sworn to do, uphold the laws, the general attitude of the culture says they're acting brutally.

If you don't like it—don't feel that way about it. Either learn to love those high-spirited juveniles and young adults who mug you, vandalize your property, or half wreck your university—or learn to be intolerant enough to do something about it.

One of the most effective things you can do, is to talk to your acquaintances, associates, and neighbors—have the courage to say you do *not* feel tolerant toward vicious behavior, and don't feel anyone should.

So long as an apathetic public opinion tolerates the destructive behavior—so long will it be no crime to destroy something that took three hundred years to build.

So long as we tolerate a small group of students, armed with rifles and shotguns, invading a campus building and blackmailing the administration—*they have been granted a right to do what they please.*

It's easy to end all crime.

Just tolerate anything. Then nothing is a crime, and we have no criminals and no crime problem.

Incidentally, that doesn't mean anarchy; it just sounds that way. Actually, it means feudal baronies. Remember that the Mafia leaders are not very tolerant, and do believe in discipline. If you adopt the tolerate-anything attitude, that includes tolerating the benevolent, iron-fisted rule of the local Family.

And don't worry—there always is one. Through all history, there has always been one, and through all history there always will be.

The Editor.

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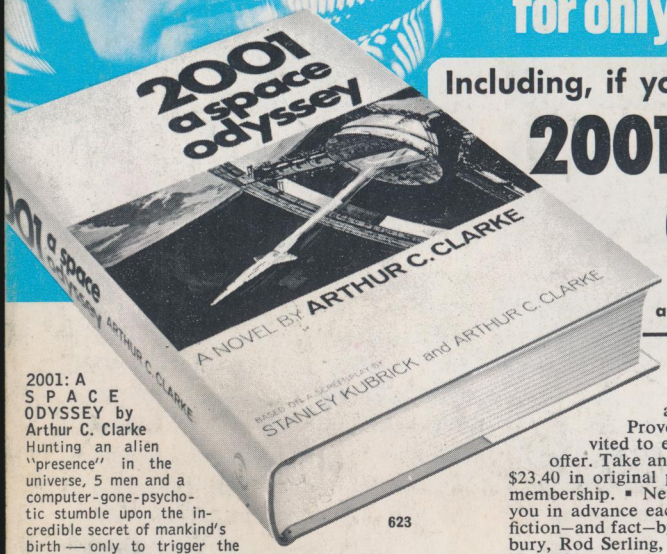

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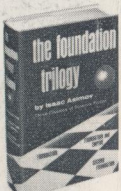

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