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# **A Hole In Space**

**Larry Niven**

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I started writing ten years ago. I wrote for a solid year and collected nothing but rejection slips.

Most beginning writers can't afford to do that. They take an honest job and write in their spare time, and it takes them five years to make their mistakes, instead of one. Me, I lived off a trust fund.

The trust fund was there because my great-grandfather once made a lot of money in oil. He left behind him a large family of nice people, and we all owe him.

To EDWARD LAWRENCE DOHENY

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# RAMMER

I

Once there was a dead man.

He had been waiting for two hundred years inside a coffin, suitably labeled, whose outer shell he had been surrounded by liquid nitrogen. There were frozen clumps of cancer all through his frozen body. He had had it bad.

He was waiting for medical science to find him a cure.

He waited in vain. Most varieties of cancer could be cured now, but no cure existed for the billion-dollar variety of cell walls ruptured by expanding crystals of ice. He had known the risk. He had gambled anyway. Why not? He'd been *dying*.

The vaults held over a million of these frozen bodies. Why not? They'd been *dying*.

Later there came a young criminal. His name is forgotten and his crime is secret, but it must have been a terrible one. The State wiped his personality for it.

Afterward he was a dead man: still warm, still breathing, even reasonably healthy-but empty.

The State had use for an empty man.

Corbell woke on a hard table, aching as if he had slept too long in one position. He stared incuriously at a white ceiling. Memories floated up to him of a double-wailed coffin, and sleep and pain.

The pain was gone.

He sat up at once.

And flapped his arms wildly for balance. Everything felt wrong. His arms would not swing right. His body was too light. His head bobbed strangely on a thin neck. He reached frantically for the nearest support, which turned out to be a blond young man in a white jumpsuit. Corbell missed his grip; his arms were shorter than he had expected. He toppled on his side, shook his head and sat up more carefully.

His arms. Scrawny, knobby-and not his.

The man in the jumpsuit said, "Are you all right?"

"Yeah," said Corbell. *My God, what have they done to me? I thought I was ready for anything, but this-* He fought rising panic. His throat was rusty, but that was all right. This was certainly somebody else's body, but it didn't seem to have cancer, either. "What's the date? How long has it been?"

A quick recovery. The checker gave him a plus. "Twenty-one ninety, your dating. You won't have to worry about our dating."

That sounded ominous. Cautiously Corbell postponed the obvious next question: *What's happened to me?* and asked instead, "Why not?"

"You won't be joining our society."

"No? What, then?"

"Several professions are open to you-a limited choice. If you don't qualify for any of them we'll turn you over to someone else."

Corbell sat on the edge of the hard operating table. His body seemed younger, more limber, definitely thinner, not very clean. He was acutely aware that his abdomen did not hurt no matter how he moved.

He asked, "And what happens to me?"

"I've never learned how to answer that question. Call it a problem in metaphysics," said the checker. "Let me detail what's happened to you so far and then you can decide for yourself."——

There was an empty man. Still breathing and as healthy as most of society in the year 2190. But empty. The electrical patterns in the brain, the worn paths of nervous reflex, the memories, the *persona* had all been wiped away as penalty for an unnamed crime.

And there was this frozen thing.

"Your newspapers called you people *corpsicles*," said the blond man. "I never understood what the tapes meant by that."

"It comes from popsicle. Frozen sherbet." Corbell had used the word himself before he became one of them. One of the corpsicles, the frozen dead.

Frozen within a corpsicle's frozen brain were electrical patterns that could be recorded. The process would warm the brain and destroy most of the patterns, but that hardly mattered, because other things must be done too.

Personality was not all in the brain. Memory RNA was concentrated in the brain, but it ran a through the nerves and the blood. In Corbell's case the clumps of cancer had to be cut away. Then the RNA could be leached out of what was left. The operation would have left nothing like a human being. Corbell gathered. More like bloody mush.

"What's been done to you is not the kind of thing that can be done twice," the checker told him. "You get one chance and this is it. If you don't work out we'll terminate and try someone else. The vaults are full of corpsicles."

"You mean you'd wipe my personality," Corbell said unsteadily. "But I haven't committed a crime. Don't I have any rights?"

The checker looked stunned. Then he laughed. "I thought I'd explained. The man you think you are is dead. Corbell's will was probated long ago. His widow—"

"Damn it, I left money to myself!"

"No good." Though the man still smiled, his face was impersonal, remote, Unreachable. A woman smiles reassuringly at a cat due to be fixed. "A dead man can't own property. That was settled in the courts long ago. It wasn't fair to the heirs."

Corbell jerked an unexpectedly bony thumb at his bony chest. "But I'm alive now!"

"Not in law. You can earn your new life. The State will give you a new birth certificate and citizenship if you give the State good reason."

Corbell sat for a moment, absorbing that. Then he got off the table. "Let's get started then. What do you need to know about me?"

"Your name."

"Jerome Branch Corbell."

"Call me Pierce." The checker did not offer to shake hands. Neither did Corbell, perhaps because he sensed the man would not respond, perhaps because they were both noticeably overdue for a bath. "I'm your checker. Do you like people? I'm just asking. We'll test you in detail later."

"I get along with the people around me, but I like my privacy."

The checker frowned. "That narrows it more than you might think. The isolationism you call privacy was—well, a passing fad. We don't have the room for it... or the inclination, either. We can send you to a colony world—"

"I might make a good colonist. I like travel."

"You'd make terrible breeding stock. Remember, the genes aren't yours. No. You get one choice. Corbell. Rammer."

"Rammer?"

"I'm afraid so."

"That's the first strange word you've used since I woke up. In fact-hasn't the language changed all? ~~You don't even have an accent.~~"

"Part of my profession. I learned your speech through RNA training, many years ago. You'll learn your trade the same way if you get that far. You'll be amazed how fast you learn with RNA shots to help you along. But you'd better be right about liking your privacy, Corbell, and about liking to travel too. Can you take orders?"

"I was in the army."

"What does that mean?"

"Means yes."

"Good. Do you like strange places and faraway people, or vice versa?"

"Both." Corbell smiled hopefully. "I've raised buildings all over the world. Can the world use another architect?"

"No. Do you feel that the State owes you something?"

There could be but one answer to that. "No."

"But you had yourself frozen. You must have felt that the future owed you something."

"Not at all. It was a good risk. I was dying."

"Ah." The checker looked him over thoughtfully. "If you had something to believe in, perhaps dying wouldn't mean so much."

Corbell said nothing.

They gave him a short word-association test in English. That test made Corbell suspect that a good many corpsicles must date from near his own death in 1970. They took a blood sample, then exercised him to exhaustion and took another blood sample. They tested his pain threshold by direct nerve stimulation-excruciatingly unpleasant-then took another blood sample. They gave him a Chinese puzzle and told him to take it apart.

Pierce then informed him that the testing was over. "After all, we already know the state of your health."

"Then why the blood samples?"

The checker looked at him for a moment. "You tell me."

Something about that look gave Corbell the creepy feeling that he was on trial for his life. The feeling might have been caused only by the checker's rather narrow features, his icy blue gaze and abstracted smile. Still... Pierce had stayed with him all through the testing, watching him as Corbell's behavior was a reflection on Pierce's judgment. Corbell thought carefully before he spoke.

"You have to know how far I'll go before I quit. You can analyze the blood samples for adrenal and fatigue poisons to find out just how much I was hurting, just how tired I really was."

"That's right," said the checker.

Corbell had survived again.

He would have given up much earlier on the pain test. But at some point Pierce had mentioned that Corbell was the fourth corpsicle personality to be tested in that empty body.

He remembered going to sleep that last time, two hundred and twenty years ago.

His family and friends had been all around him, acting like mourners. He had chosen the coffin, paid for vault space, and made out his Last Will and Testament, but he had not thought of it as *dyn*. He had been given a shot. The eternal pain had drifted away in a soft haze. He had gone to sleep.

He had drifted off wondering about the future, wondering what he would wake to. A vault into the unknown. World government? Interplanetary spacecraft? Clean fusion power? Strange clothing, body paints, nudism? New principles of architecture, floating houses, arcologies?

Or crowding, poverty, all the fuels used up, power provided by cheap labor? He'd thought of those but they didn't worry him. The world could not afford to wake him if it was that poor. The world had

dreamed of in those last moments was a rich world, able to support such luxuries as Jaybee Corbell.

~~It looked like he wasn't going to see too damn much of it.~~

Someone led him away after the testing. The guard, walked with a meaty hand wrapped around Corbell's thin upper arm. Leg irons would have been no more effective had Corbell thought of escaping. The guard took him up a narrow staircase to the roof.

The noon sun blazed in a blue sky that shaded to yellow, then brown at the horizon. Green plants grew in close-packed rows on parts of the roof. Elsewhere many sheets of something glassy were exposed to the sunlight.

Corbell caught one glimpse of the world from a bridge between two roofs. It was a cityscape of close-packed buildings, all of the same cold cubistic design.

And Corbell was impossibly high on a narrow strip of concrete with no guardrails at all. He froze. He stopped breathing.

The guard did not speak. He tugged at Corbell's arm, not hard, and watched to see what he would do. Corbell pulled himself together and went on.

The room was all bunks: two walls of bunks with a gap between. The light was cool and artificial but outside it was nearly noon. Could they be expecting him to sleep? But jet lag had never bothered Corbell...

The room was *big*, a thousand bunks big. Most of the bunks were full. A few occupants watched inquisitively as the guard showed Corbell which bunk was his. It was the bottommost in a stack of six. Corbell had to drop to his knees and roll to get into it. The bedclothes were strange: silky and very smooth, even slippery-the only touch of luxury about the place. But there was no top sheet, nothing to cover him. He lay on his side, looking out at the dormitory from near floor level.

Now, finally, he could let himself think:

*I'm alive.*

Earlier it might have been a fatal distraction. He'd been holding it back:

*I made it!*

*I'm alive!*

*And young! That wasn't even in the contract .*

But, he thought reluctantly, because it would not stay buried, *who is it that's alive? Some kind of composite? A criminal rehabilitated with the aid of some spare chemicals and an electrical brainwashing device... ? No. Jaybee Corbell is alive and well, if a trifle confused.*

Once he had had that rare ability: He could go to sleep anywhere, anytime. But sleep was very far from him now. He watched and tried to learn.

Three things were shocking about that place.

One was the smell. Apparently perfumes and deodorants had been another passing fad. Pierce had been overdue for a bath. So was the new, improved Corbell. Here the smell was rich.

The second was the loving bunks, four of them in a vertical stack, twice as wide as the singles and with thicker mattresses. The doubles were for loving, not sleeping. What shocked Corbell was that they were right out in the open, not hidden by so much as a gauze curtain.

The same was true of the toilets.

*How can they live like this?*

Corbell rubbed his nose and jumped-and cursed at himself for jumping. His own nose had been big and fleshy and somewhat shapeless. But the nose he now rubbed automatically when trying to think was small and narrow with a straight, sharp edge. He might very well get used to the smell and everything else before he got used to his own nose.

Eventually he slept.

Some time after dusk a man came for him. A broad, brawny type wearing a gray jumper and

broad expressionless face, the guard was not one to waste words. He found Corbell's bunk, pulled Corbell out by one arm and led him stumbling away. Corbell was facing Pierce before he was fully awake.

In annoyance he asked, "Doesn't anyone else speak English?"

"No," said the checker.

Pierce and the guard guided Corbell to a comfortable armchair facing a wide curved screen. They put padded earphones on him. They set a plastic bottle of clear fluid on a shelf over his head. Corbell noticed a clear plastic tube tipped with a hypodermic needle.

"Breakfast?"

Pierce missed the sarcasm. "You'll have one meal each day-after learning period and exercise." He inserted the needle into a vein in Corbell's arm. He covered the wound with a blob of what might have been Silly Putty.

Corbell watched it all without emotion. If he had ever been afraid of needles the months of pain and cancer had worked it out of him. A needle was surcease, freedom from pain for a while.

"Learn now," said Pierce. "This knob controls speed. The volume is set for your hearing. You may replay any section once. Don't worry about your arm; you can't pull the tube loose."

"There's something I wanted to ask you, only I couldn't remember the word. What's a rammer?"

"Starship pilot."

Corbell studied the checker's face, without profit. "You're kidding."

"No. Learn now." The checker turned on Corbell's screen and went away.

## II

A rammer was the pilot of a starship.

The starships were Bussard ramjets. They caught interstellar hydrogen in immaterial nets of electromagnetic force, compressed and guided it into a ring of pinched force fields, and there burned in fusion fire. Potentially there was no limit at all on the speed of a Bussard ramjet. The ships were enormously powerful, enormously complex, enormously expensive.

Corbell thought it incredible that the State would trust so much value, such devastating power and mass to one man. To a man two centuries dead! Why, Corbell was an architect, not an astronaut! It was news to him that the concept of the Bussard ramjet predated his own death. He had watched the Apollo XI and XIII flights on television, and that had been the extent of his interest in space flight until now.

Now his life depended on his "rammer" career. He never doubted it. That was what kept Corbell in front of the screen with the earphones on his head for fourteen hours that first day. He was afraid he might be tested.

He didn't understand all he was supposed to learn. But he was not tested, either.

The second day he began to get interested. By the third day he was fascinated. Things he had never understood-relativity and magnetic theory and abstract mathematics-he now grasped intuitively. It was marvelous!

And he ceased to wonder why the State had chosen Jerome Corbell. It was always done this way. It made sense, all kinds of sense.

The payload of a starship was small and its operating lifetime was more than a man's lifetime. A reasonably safe life-support system for one man occupied an unreasonably high proportion of the payload. The rest must go for biological package probes. A crew of more than one was out of the question.



A good, capable, loyal citizen was not likely to be enough of a loner. In any case, why send a citizen? The times would change drastically before a seeder ramship could return. The State itself might change beyond recognition. A returning rammer must adjust to a whole new culture. There was no way to tell in advance what it might be like.

Why not pick a man who had already chosen to adjust to a new culture? A man whose own culture was already two centuries dead when the trip started?

And a man who already owed the State his life.

The RNA was most effective. Corbell stopped wondering about Pierce's dispassionately possessive attitude. He began to think of himself as property being programmed for a purpose.

And he learned. He skimmed microtaped texts as if they were already familiar. The process was heady. He became convinced that he could rebuild a seeder ramship with his bare hands, given the parts. He had loved figures all his life, but abstract math had been beyond him until now. Field theory, monopole field equations, circuitry design. When to suspect the presence of a gravitational point source how to locate it, use it, avoid it.

The teaching chair was his life. The rest of his time-exercise, dinner, sleep-seemed vaguely uninteresting.

He exercised with about twenty others in a room too small for the purpose. Like Corbell, the others were lean and stringy, in sharp contrast to the brawny wedge-shaped men who were their guards. They followed the lead of a guard, running in place because there was no room for real running, forming precise rows for scissors jumps, push-ups, sit-ups.

After fourteen hours in a teaching chair Corbell usually enjoyed the jumping about. He followed orders. And he wondered about the stick in a holster at each guard's waist. It looked like a cop's baton. It might have been just that-except for the hole in one end. Corbell never tried to find out.

Sometimes he saw Pierce during the exercise periods. Pierce and the men who tended the teaching chairs were of a third type: well fed, in adequate condition, but just on the verge of being overweight. Corbell thought of them as Old American types.

From Pierce he learned something of the other professions open to a revived corpsicle/reprogrammed criminal. Stoop labor: intensive hand cultivation of crops. Body servant. Handicrafts. Any easily taught repetitive work. And the hours! The corpsicles were expected to work fourteen hours a day. And the crowding!

Not that his own situation was much different. Fourteen hours to study, an hour of heavy exercise, an hour to eat, and eight hours to sleep in a dorm that was two solid walls of people.

"Time to work, time to eat, time to sleep! Elbow-to-elbow every minute! The poor bastards," he said to Pierce. "What kind of a life is that?"

"It lets them repay their debt to the State as quickly as possible. Be reasonable, Corbell. What would a corpsicle do with his off hours? He has no social life. He has to learn one by observing other citizens. Many forms of felon's labor involve proximity to citizens."

"So they can look up at their betters while they work? That's no way to learn. It would take... I guess the feeling we're talking about *decades* of this kind of thing."

"Thirty years' labor generally earns a man his citizenship. That gets him a right to work, which then gets him a guaranteed base income he can use to buy education shots and tapes. And the medical benefits are impressive. We live longer than you used to, Corbell."

"Meanwhile it's slave labor. Anyway, none of this applies to me-"

"No, of course not. Corbell, you're wrong to call it slave labor. A slave can't quit. You can change jobs anytime you like. There's a clear freedom of choice."

Corbell shivered. "Any slave can commit suicide."

"Suicide, my ass," the checker said distinctly. If he had anything that could be called an accent

lay in the precision of his pronunciation. "Jerome Corbell is dead. I could have given you his intact skeleton for a souvenir."

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"I don't doubt it." Corbell saw himself tenderly polishing his own white bones. But where could he have kept such a thing? In his bunk?

"Well, then. You're a brain-wiped criminal, justly brain-wiped, I might add. Your crime has cost you your citizenship, but you still have the right to change professions. You need only ask for another urn, course of rehabilitation. What slave can change jobs at will?"

"It would *feel* like dying."

"Nonsense. You go to sleep, only that. When you wake up you've got a different set of memories."

The subject was an unpleasant one. Corbell avoided it from then on. But he could not avoid talking to the checker. Pierce was the only man in the world he could talk to. On the days Pierce failed to show up he felt angry, frustrated.

Once he asked about gravitational point sources. "My time didn't know about those."

"Yes, it did. Neutron stars and black holes. You had a number of pulsars located by 1970, and the mathematics to describe how a pulsar decays. The thing to watch for is a decayed pulsar directly in your path. Don't worry about black holes. There are none near your course."

"Okay..."

Pierce regarded him in some amusement. "You really don't know much about your own time, do you?"

"Come on, I was an *architect*. What would I know about astrophysics? We didn't have your learning techniques." Which reminded him of something. "Pierce, you said you learned English with RNA injections. Where does the RNA come from?"

Pierce smiled and walked away.

He had little time to remember. For that he was almost grateful. But very occasionally, lying wakeful in his bunk, listening to the *shshsh* of a thousand people breathing and the different sounds from the loving bunks, he would remember... someone. It didn't matter who.

At first it had been Mirabelle, always Mirabelle. Mirabelle at the tiller as they sailed out of San Pedro Harbor: tanned, square face, laughing mouth, extravagantly large dark glasses. Mirabelle, old and marked by months of strain, saying good-bye at his... funeral. Mirabelle on their honeymoon. Twenty-two years they had grown together like two touching limbs of a tree.

But now he thought of her, when he thought of her, as two hundred years dead.

And his niece was dead, though he and Mirabelle had barely made it to her confirmation; the pair had been getting bad then. And his daughter Ann. And all *three* of his grandchildren: just infants they had been! It didn't matter who it was that floated up into his mind. Everyone was dead. Everyone but him.

Corbell did not want to die. He was disgustingly healthy and twenty years younger than he had been at death. He found his rammer education continually fascinating. If only they would stop treating him like property.

Corbell had been in the army, but that was twenty years ago. Make that two hundred and forty. He had learned to take orders, but never to like it. What had galled him then was the basic assumption of his inferiority. But no army officer in Corbell's experience had believed in Corbell's inferiority as completely as did Pierce and Pierce's guards.

The checker never repeated a command, never seemed even to consider that Corbell might refuse. If Corbell refused, even once, he knew what would happen. Pierce knew that he knew. The atmosphere better fitted a death camp than an army.

*They must think I'm a zombie.*

Corbell was careful not to pursue the thought. He was a corpse brought back to life-but not all the

way. *What did they do with the skeleton? Cremate it?*

~~The life was not pleasant. His last-class citizenship was galling. There was nobody to talk to~~  
nobody but Pierce, whom he was learning to hate. He was hungry much of the time. The single daily  
meal filled his belly, but it would not stay full. No wonder he had wakened so lean.

More and more he lived in the teaching chair. In the teaching chair he was a rammer. His  
impotence was changed to omnipotence. Starman! Riding the fire that feeds the suns, scooping fuel  
from interstellar space itself, spreading electromagnetic fields like wings hundreds of miles out.

Two weeks after the State had wakened him from the dead, Corbell was given his course.

He relaxed in a chair that was not quite a contour couch. RNA solution dripped into him. He no  
longer noticed the needle. The teaching screen held a map of his course, in green lines in three-space.  
Corbell had stopped wondering how the three-dimensional effect was achieved.

The scale was shrinking as he watched.

Two tiny blobs, and a glowing ball surrounded by a faintly glowing corona. This part of the course  
he already knew. A linear accelerator would launch him from the Moon, boost him to Bussard ramjet  
speeds and hurl him at the sun. Solar gravity would increase his speed while his electromagnetic fields  
caught and burned the solar wind itself. Then out, still accelerating.

In the teaching screen the scale shrank horrendously. The distances between stars were awesome  
terrifying. Van Maanan's Star was twelve light-years away.

He would begin deceleration a bit past the midpoint. The matching would be tricky. He must slow  
enough to release the biological package probe-but not enough to drop him below ram speeds.  
In addition he must use the mass of Van Maanan's Star for a course change. There was no room for error  
here.

Then on to the next target, which was even further away. Corbell watched... and he absorbed... and  
a part of him seemed to have known everything all along even while another part was gasping at the  
distances. Ten stars, all yellow dwarfs of the Sol type, an average of fifteen light-years apart-though  
he would cross one gap of fifty-two light-years. He would almost touch lightspeed on that one. Odd  
enough, the Bussard ramjet effect would improve at such speeds. He could take advantage of the  
greater hydrogen flux to pull the fields closer to the ship, to intensify them.

Ten stars in a closed path, a badly bent and battered ring leading him back to the solar system and  
Earth. He would benefit from the time he spent near lightspeed. Though three hundred years would  
have passed on Earth, Corbell would only have lived through two hundred years of ship's time-which  
still implied some kind of suspended-animation technique.

It didn't hit him the first time through, nor the second; but repetition had been built into the  
teaching program. It didn't hit him until he was on his way to the exercise room.

Three hundred years?

Three hundred years!

### III

It wasn't night, not really. Outside it must be midafternoon. Indoors, the dorm was always cool  
lit, barely bright enough to read by if there had been books. There were no windows.

Corbell should have been asleep. He suffered every minute he spent gazing out into the dorm.  
Most of the others were asleep, but a couple made noisy love on one of the loving bunks. A few men  
lay on their backs with their eyes open. Two women talked in low voices. Corbell didn't know the  
language. He had been unable to find anyone who spoke English.

Corbell was desperately homesick.

The first few days had been the worst.

~~He had stopped noticing the smell. If he thought of it, he could sniff the traces of billions of human beings. Otherwise the odor was part of the background noise.~~

But the loving bunks bothered him. When they were in use he watched. When he forced himself not to watch he listened. He couldn't help himself. But he had turned down two sign-language invitations from a small brunette with straggly hair and a pretty, elfin face. Make love in public? He couldn't.

He could avoid using the loving bunks, but not the exposed toilets. That was embarrassing. The first time he was able to force himself only by staring rigidly at his feet. When he pulled on his jumper and looked up, a number of sleepers were watching him in obvious amusement. The reason might have been his self-consciousness or the way he dropped his jumper around his ankles, or he may have been out of line. A pecking order determined who might use the toilets before whom. He still hadn't figured out the details.

Corbell wanted to go home.

The idea was unreasonable. His home was gone and he would have gone with it if it weren't for the corpsicle crypts. But reason was of no use in this instance. He wanted to go home. Home to Mirabella. Home to anywhere: Rome, San Francisco, Kansas City, Brasilia-he had lived in all those places, and all different, but all home. Corbell had been at home anywhere-but he was not at home here and never would be.

Now they would take *here* away from him. Even this world of four rooms and two roofs, elbow-to-elbow people and utter slavery, this world which they would not even show him, would have vanished when he returned from the stars.

Corbell rolled over and buried his face in his arms. If he didn't sleep he would be groggy tomorrow. He might miss something essential. They had never tested his training. Not yet, not yet.

He dozed.

He came awake suddenly, already up on one elbow, groping for some elusive thought.

Ah.

*Why haven't I been wondering about the biological package probes ?*

A moment later he did wonder.

*What are the biological package probes?*

But the wonder was that he had never wondered.

He knew what and where they were: heavy fat cylinders arranged around the waist of the starship hull. Ten of these, each weighing almost as much as Corbell's own life-support system. He knew the mass distribution. He knew the clamp system that held them to the hull and he could operate and repair the clamps under various extremes of damage. He almost knew where the probes went when released; it was just on the tip of his tongue... which meant that he had had the RNA shot but had not yet seen the instructions.

But he didn't know what the probes were for.

It was like that with the ship, he realized. He knew everything there was to know about a seed ramship, but nothing at all about the other kinds of starships or interplanetary travel or ground-to-orbit vehicles. He knew that he would be launched by linear accelerator from the Moon. He knew the design of the accelerator-he could see it, three hundred and fifty kilometers of rings standing on end in a line across a level lunar mare. He knew what to do if anything went wrong during launch. And that was all he knew about the Moon and lunar installations and lunar conquest, barring what he had watched on television over two hundred years ago.

What was going on out there? In the two weeks since his arrival (awakening? creation?) he had seen four rooms and two rooftops, glimpsed a rectilinear cityscape from a bridge, and talked to or

man who was not interested in telling him anything. What had happened in two hundred years?

~~These men and women who slept around him. Who were they? Why were they here? He didn't~~ even know if they were corpsicle or contemporary. Contemporary, probably; not one of them was self-conscious about the facilities.

Corbell had raised buildings in all sorts of strange places, but he had never jumped blind. He had always brushed up on the language and studied the customs before he went. Here he had no handle nowhere to start. He was lost.

*Oh, for someone to talk to!*

He was learning in enormous gulps, taking in volumes of knowledge so broad that he hadn't realized how rigidly bounded they were. The State was teaching him only what he needed to know. Every bit of information was aimed straight at his profession.

Rammer.

He could see the reasoning. He would be gone for several centuries. Why should the State teach him anything at all about today's technology, customs, politics? There would be trouble enough when he came back, *if* he-come to that, who had taught him to call the government the State? How had he come to think of the State as all powerful? He knew nothing of its power and extent.

It must be the RNA training. With data came attitudes below the conscious level, where he couldn't get at them.

That made his skin crawl. They were changing him around again!

Sure, why shouldn't the State trust him with a seeder ramship? They were feeding him State-oriented patriotism through a silver needle!

He had lost his people. He had lost his world. He would lose this one. According to Pierce, he had lost himself four times already. A condemned criminal had had his personality wiped four times. Corbell's goddamned skeleton had probably been ground up for phosphates. But this was the worst: that his beliefs and motivations were being lost bit by bit to the RNA solution while the State made him over into a rammer.

There was *nothing* that was his.

He failed to see Pierce at the next exercise period. It was just as well. He was somewhat groggy. As usual he ate dinner like a starving man. He returned to the dorm, rolled into his bunk and was instantly asleep.

He looked up during study period the next day and found Pierce watching him. He blinked, fighting free of a mass of data on the attitude jet system that bled plasma from the inboard fusion plant that was also the emergency electrical power source, and asked, "Pierce, what's a biological package probe?"

"I would have thought they would teach you that. You know what to do with the probes, don't you?"

"The teaching widget gave me the procedures two days ago. Slow up for certain systems, kill the fields, turn a probe loose and speed up again."

"You don't have to aim them?"

"No. I gather they aim themselves. But I have to get them down below a certain velocity or they fall right through the system."

"Amazing. They must do all the rest of it themselves." Pierce shook his head. "I wouldn't have believed it. Well, Corbell, the probes steer for an otherwise terrestrial world with a reducing atmosphere. They outnumber oxygen-nitrogen worlds about three to one in this region of the galaxy and probably everywhere else too-as you may know, if your age got that far."

"But what do the probes do?"

"They're biological packages. A dozen different strains of algae. The idea is to turn a reducing

atmosphere into an oxygen atmosphere, just the way photosynthetic life forms did for Earth something like fifteen-hundred-thousand-to-the-eighth years ago." The checker smiled, barely. His small narrow mouth wasn't built to express any great emotion. "You're part of a big project."

"Good Lord. How long does it take?"

"We think about fifty thousand years. Obviously we've never had the chance to measure it."

"But, good Lord! Do you really think the State will last that long? Does even the State think it will last that long?"

"That's not your affair, Corbell. Still-" Pierce considered. "I don't suppose I do. Or the State does. But humanity will last. One day there will be men on those worlds. It's a Cause, Corbell. The immortality of the species. A thing bigger than one man's life. And you're part of it."

He looked at Corbell expectantly.

Corbell was deep in thought. He was running a fingertip back and forth along the straight line of his nose.

Presently he asked, "What's it like out there?"

"The stars? You're-"

"No, no, no. The city. I catch just a glimpse of it twice a day. Cubistic buildings with elaborate carvings at the street level-"

"What the bleep is this, Corbell? You don't need to know anything about Selendor. By the time you come home the whole city will be changed."

"I know, I know. That's why I hate to leave without seeing something of the world. I could be going out to die..." Corbell stopped. He had seen that considering look before, but he had never seen Pierce actually angry.

The checker's voice was flat, his mouth pinched tight. "You think of yourself as a tourist."

"So would you if you found yourself two hundred years in the future. If you didn't have that much curiosity you wouldn't be human."

"Granted that I'd want to look around. I certainly wouldn't demand it as a right. What were you thinking when you foisted yourself off on the future? Did you think the future owed you a debt? In the other way around, and time you realized it!"

Corbell was silent.

"I'll tell you something. You're a rammer because you're a born tourist. We tested you for that. You like the unfamiliar; it doesn't send you scuttling back to something safe and known. That's rare."

The checker's eyes said: And that's why I've decided not to wipe your personality yet. His mouth said, "Was there anything else?"

Corbell pushed his luck. "I'd like a chance to practice with a computer like the ship's autopilot computer."

"We don't have one. But you'll get your chance in two days. You're leaving then."

#### IV

The next day he received his instructions for entering the solar system. He had been alive for seventeen days.

The instructions were understandably vague. He was to try anything and everything to make contact with a drastically changed State, up to and including flashing his attitude jets in binary code. He was to start these procedures a good distance out. It was not impossible that the State would be at war with... something. He should be signaling: NOT A WARSHIP.

He found that he would not be utterly dependent on rescue ships. He could slow the ramship by

braking directly into the solar wind until the proton flux was too slow to help him. Then, whip around Sol and back out, slowing on attitude jets, using whatever hydrogen was left in the inboard tank. That was emergency fuel. Given no previous emergencies, a nearly full tank would actually get him to the Moon and land him there.

The State would be through with him once he dropped his last probe. It was good of the State to provide for his return, Corbell thought-and then he shook himself. The State was not altruistic. It wanted the ship back.

Now, more than ever, Corbell wanted a chance at the autopilot computer.

He found one last opportunity to talk to the checker.

"A three-hundred-year round trip-maybe two hundred, ship's time," Corbell said. "I get some advantage from relativity. But, Pierce, you don't really expect me to live two hundred years, do you? With nobody to talk to?"

"The cold-sleep treatment-"

"Even so."

Pierce frowned. "You've been briefed on the cold-sleep procedure, but you haven't studied the medicine. I'm told that cold sleep has a rejuvenating effect over long periods. You'll spend perhaps twenty years awake and the rest in cold sleep. The medical facilities are automatic; you've been instructed how to use them. Do you think we'd risk your dying out there between the stars, where it would be impossible to replace you?"

"Was there anything else you wanted to see me about?"

"Yes." He had decided not to broach the subject. Now he changed his mind. "I'd like to take a woman with me. The life-support system would hold two of us. I worked it out. We'd need another cold-sleep chamber, of course."

For two weeks this had been the only man Corbell could talk to. At first he had found Pierce unfathomable, unreadable, almost inhuman. Since then he had learned to read the checker's face to some extent.

Pierce was deciding whether to terminate Jerome Corbell and start over.

It was a close thing. But the State had spent considerable time and effort on Jerome Corbell. It was worth a try. And so Pierce said, "That would take up some space. You would have to share the rest between you. I do not think you would survive."

"But-"

"What we can do is this. We can put the mind of a woman in your computer. The computer is voice-controlled, and her voice would be that of a woman, any type of woman you choose. A subprogram enclosing the personality of a woman would leave plenty of circuitry for the computer's vital functions."

"I don't think you quite get the point of-"

"Look here, Corbell. We know you don't need a woman. If you did you would have taken one by now and we would have wiped you and started over. You've lived in the dormitory for two weeks and you have not used the mating facilities once."

"Damn it, Pierce, do you expect me to make love in public? I can't!"

"Exactly."

"But-"

"Corbell, you learned to use the toilet, didn't you? Because you had to. You know what to do with a woman but you are one of those men fortunate enough not to need one. Otherwise you could not be a programmer."

If Corbell had hit the checker then he would have done it knowing that it meant his death. And knowing that, he would have killed Pierce for forcing him to it.

Something like ten seconds elapsed. Pierce watched him in frank curiosity. When he saw Corbell relax he said, "You leave tomorrow. Your training is finished. Good-bye."

Corbell walked away clenching and unclenching his fists.

The dormitory had been a test. He knew it now. Could he cross a narrow bridge with no handrails? Then he was not pathologically afraid of falling. Could he spend two hundred years alone in the cabin of a starship? Then the silent people around him, five above his head, hundreds to either side, must make him markedly uncomfortable. Could he live twenty waking years without a woman? Surely he must be impotent.

He returned to the dorm after dinner. They had replaced the bridge with a nearly invisible slab of glass. Corbell snarled and crossed ahead of the guard. The guard had to hurry to keep up.

He stood between two walls of occupied bunks, looking around him. Then he did a stupid thing.

He had already refrained from killing the checker. He must have decided to live. What he did then, was stupid. He knew it.

He looked about him until he found the slender dark-haired girl with the elfin face watching him curiously from near the ceiling. He climbed the rungs between the bunks until his face was level with hers.

The gesture he needed was a quick, formalized one; but he didn't know it. In English he asked "Come with me?"

She nodded brightly and followed him down the ladder. By then it seemed to Corbell that the dorm was alive with barely audible voices.

*The odd one, the rammer trainee.*

Certainly a number of the wakeful turned on their sides to watch.

He felt their eyes on the back of his neck as he zipped open his gray jumpsuit and stepped out of the dormitory. The dormitory had been a series of tests. At least two of those eyes would record his doings for Pierce. But to Corbell they were just like all the others, all the eyes curiously watching to see how the speechless one would make out.

And sure enough, he was impotent. It was the eyes, and he was naked. The girl was at first concerned, then pitying. She stroked his cheek in apology or sympathy and then she went away and found someone else.

Corbell lay listening to them, gazing at the bunk above him.

He waited for eight hours. Finally a guard came to take him away. By then he didn't care what they did with him.

## V

He didn't start to care until the guard's floating jeep pulled up beneath an enormous .22 cartridge standing on end. Then he began to wonder. It was too small to be a rocket ship.

But it was. They strapped him into a contour couch, one of three in a cabin with a single window. There were the guard, and Corbell, and a man who might have been Pierce's second cousin once removed: the pilot. He had the window.

Corbell's heartbeat quickened. He wondered how it would be.

It was as if he had suddenly become very heavy. He heard no noise except right at the beginning, a sound like landing gear being raised on an airplane. Not a rocket, Corbell thought. Possibly the ferry ship's drive was electromagnetic in nature. He remembered the tricks a Bussard ramjet could play with magnetic fields.

He was heavy and he hadn't slept last night. He went to sleep.



When he woke he was in free-fall. Nobody had tried to tell him anything about free-fall. The guard and pilot were watching.

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"Screw you," said Corbell.

It was another test. He got the straps open and pushed himself over to the window. The pilot laughed, caught him and held him while he closed a protective cover over the instruments. Then he let go and Corbell drifted in front of the window.

His belly was revolving eccentrically. His inner ear was going crazy. His testicles were tight up against his groin and that didn't feel good either. He was *falling*, FALLING!

Corbell snarled within his mind and tried to concentrate on the window. But the Earth was not visible. Neither was the Moon. Just a lot of stars, bright enough-quite bright, in fact-even more brilliant than they had been above a small boat anchored off Catalina Island on many nights long ago. He watched them for some time.

Trying to keep his mind off that falling-elevator sensation.

He wasn't about to get himself disqualified now...

They ate aboard in free-fall. Corbell copied the others, picking chunks of meat and potatoes out of a plastic bag of stew, pulling them through a membrane that sealed itself behind his pick.

"Of all the things I'm going to miss," he told the broad-faced guard, "I'm going to enjoy missing you most. You and your goddamn staring eyes." The guard smiled placidly and waited to see if Corbell would get sick.

They landed a day after takeoff on a broad plain where the Earth sat nestled among sharp lunar peaks. One day instead of three: The State had expended extra power to get him here. But an Earth-Moon flight must be a small thing these days.

The plain was black with blast pits. It must have been a landing field for decades. Transparent bubbles clustered near the runway end of the linear accelerator. There were buildings and groves of trees inside the bubbles. Spacecraft of various shapes and sizes were scattered about the plain.

The biggest was Corbell's ramship: a silver skyscraper lying on its side. The probes were in place, giving the ship a thick-waisted appearance. To Corbell's trained eye it looked ready for takeoff.

He was awed, he was humbled, he was proud. He tried to sort out his own reactions from RNA-inspired emotions, and probably failed.

Corbell donned his suit first, while the pilot and guard watched to see if he would make a mistake. He took it slow. The suit came in two pieces: a skintight rubbery body stocking, and a helmet attached to a heavy backpack. On the chest was a white spiral with tapered ends: the sign of the State.

An electric cart came for them. Apparently Corbell was not expected to know how to walk on an airless world. He thought to head for one of the domes, but the guard steered straight for the ship. It was a long way off.

It had become unnervingly large when the guard stopped underneath. A fat cylinder the size of a house swelled above the jeep: the life-support section, bound to the main hull by a narrower neck. The smaller dome at the nose must be the control room.

The guard said, "Now you inspect your ship."

"You can talk?"

"Yes. Yesterday, a quick course."

"Oh."

"Three things wrong with your ship. You find all three. You tell me. I tell him."

"Him? Oh, the pilot. Then what?"

"Then you fix one of the things, we fix the others. Then we launch you."

It was another test, of course. Maybe the last. Corbell was furious. He started immediately with the field generators and gradually he forgot the guard and the pilot and the sword still hanging over his

head. He knew this ship. As it had been with the teaching chair, so it was with the ship itself. Corbell's impotence changed to omnipotence. The power of the beast, the intricacy, the potential, the— the hydrogen tank held far too much pressure. That wouldn't wait.

"I'll slurry this now," he told the guard. "Get a tanker over there to top it off." He bled hydrogen gas slowly through the valve, lowering the fuel's vapor pressure without letting fuel boil out the valve itself. When he finished the liquid hydrogen would be slushy with frozen crystals under near-vacuum pressure.

He finished the external inspection without finding anything more. It figured: The banks of diodes would hold vastly more information than a man's eyes could read through opaque titan-alloy skin.

The airlock was a triple-door type, not so much to save air as to give him an airlock even if he lost a door somehow. Corbell shut the outer door, used the others when green lights indicated he could. He looked down at the telltales under his chin as he started to unclamp his helmet.

Vacuum?

He stopped. The ship's gauges said air. The suit's said vacuum. Which was right? Come to that, he hadn't heard any hissing. Just how soundproof was his helmet?

Just like Pierce to wait and see if he would take off his helmet in a vacuum. Well, how to test?

Hah! Corbell found the head, turned on a water faucet. The water splashed oddly in lunar gravity. It did not boil.

Did a flaw in his suit constitute a flaw in the ship?

Corbell doffed his helmet and continued his inspection.

There was no way to test the ram-field generators without causing all kinds of havoc in the line accelerator. He checked out the tell-tales, then concentrated on the life-support mechanisms. The tailored plants in the air system were alive and well. But the urea absorption mechanism was plugged somehow. That would be a dirty job. He postponed it.

He decided to finish his inspection. The State might have missed something. It was *his* ship, *his* life.

The cold-sleep chamber was like a great coffin, a corpsicle coffin. Corbell shuddered remembering two hundred years spent waiting in liquid nitrogen. He wondered again if Jerome Corbell were really dead—and then he shook off the thought and went to work.

No flaws in the cold-sleep system. He went on.

The computer was acting vaguely funny.

He had a hell of a time tracing the problem. There was a minute break in one superconducting circuit, so small that some current was leaking through anyway, by inductance. Bastards. He donned his suit and went out to report.

The guard heard him out, consulted with the other man, then told Corbell, "You did good. Now finish with the topping-off procedure. We fix the other things."

"There's something wrong with my suit, too."

"New suit aboard now."

"I want some time with the computer. I want to be sure it's all right now."

"We fix it good. When you top off fuel you leave."

That suddenly, Corbell felt a vast sinking sensation. The whole Moon was dropping away under him.

They launched him hard. Corbell saw red before his eyes, felt his cheeks dragged far back toward his ears. The ship would be all right. It was built to stand electromagnetic eddy currents from any direction.

He survived. He fumbled out of his couch in time to watch the moonscape flying under him receding, a magnificent view.

There were days of free-fall. He was not yet moving at ramscoop speeds. But the State had aimed him inside the orbit of Mercury, straight into the thickening solar wind. Protons. Thick fuel for the ram fields and a boost from the sun's gravity.

Meanwhile he had most of a day to play with the computer.

At one point it occurred to him that the State might monitor his computer work. He shrugged off. Probably it was too late for the State to stop him now. In any case, he had said too much already.

He finished his work with the computer and got answers that satisfied him. At higher speeds the ram fields were self-reinforcing- they would support themselves and the ship. He could find no upper limit to the velocity of a seeder ramship.

With all the time in the world, then, he sat down at the control console and began to play with the fields.

They emerged like invisible wings. He felt the buffeting of badly controlled bursts of fusing hydrogen. He kept the fields close to the ship, fearful of losing the balance here, where the streaming of protons was so uneven. He could *feel* how he was doing. He could fly this ship by the seat of his pants, with RNA training to help him.

He felt like a giant. This enormous, phallic, germinal flying thing of metal and fire! Carrying the seeds of life for worlds that had never known life, he roared around the sun and out. The thrust dropped a bit then, because he and the solar wind were moving in the same direction. But he was catching it in his nets like wind in a sail, guiding it and burning it and throwing it behind him. The ship moved faster every second.

This feeling of power-enormous masculine power-had to be partly RNA training. At this point he didn't care. Part was him, Jerome Corbell.

Around the orbit of Mars, when he was sure that a glimpse of sunlight would not blind him, he instructed the computer to give him a full view. The walls of the spherical control room seemed to disappear; the sky blazed around him. There were no planets nearby. All he saw of the sky was myriads of brilliant pinpoints, mostly white, some showing traces of color. But there was more to see. Fusing hydrogen made a ghostly ring of light around his ship.

It would grow stronger. So far his thrust was low, somewhat more than enough to balance the thrust pull of the sun.

He started his turn around the orbit of Jupiter by adjusting the fields to channel the proton flow to the side. That helped him thrust, but it must have puzzled Pierce and the faceless State. They would assume he was playing with the fields, testing his equipment. Maybe. His curve was gradual; it would take them a while to notice.

This was not according to plan. Originally he had intended to be halfway to Van Maanan's Star before he changed course. That would have given him fifteen years' head start, in case he was wrong, in case the State could do something to stop him even now.

That would have been wise; but he couldn't do it. Pierce might die in thirty years. Pierce might never know what Corbell had done-and that thought was intolerable.

His thrust dropped to almost nothing in the outer reaches of the system. Protons were thin out here. But there were enough to push his velocity steadily higher, and that was what counted. The faster he went, the greater the proton flux. He was on his way.

He was beyond Neptune when the voice of Pierce the checker came to him, saying, "This is Peerssa for the State, Peerssa for the State. Answer, Corbell. Do you have a malfunction? Can we help? We cannot send rescue but we can advise. Peerssa for the State, Peerssa for the State-"

Corbell smiled tightly. *Peerssa*? The checker's name had changed pronunciation in two hundred years. Pierce had slipped back to an old habit, RNA lessons forgotten. He must be upset about something.

Corbell spent twenty minutes finding the moon base with his signal laser. The beam was too narrow to permit sloppy handling. When he had it adjusted he said, "~~This is Corbel for himself.~~ Corbell for himself. I'm fine. How are you?"

He spent more time at the computer. One thing had been bothering him: the return to Sol system. He planned to be away longer than the State would have expected. Suppose there was nobody on the Moon when he returned?

It was a problem, he found. If he could reach the Moon on his remaining fuel (no emergencies to remember), he could reach the Earth's atmosphere. The ship was durable; it would stand a meteoric re-entry. But his attitude jets would not land him, properly speaking.

Unless he could cut away part of the ship. The ram-field generators would no longer be needed then... Well, he would work it out somehow. Plenty of time. Plenty of time.

The answer from the Moon took nine hours. "Peerssa for the State. Corbell, we don't understand you. You are far off course. Your first target was to be Van Maanan's Star. Instead you seem to be curving around toward Sagittarius. There is no known Earthlike world in that direction. What the bleep do you think you're doing? Repeating. Peerssa for the State, Peerssa-"

Corbell tried to switch it off. The teaching chair hadn't told him about an off switch. Finally, and it should have been sooner, he told the computer to switch the receiver off.

Somewhat later, he located the lunar base with his signal laser and began transmission.

"This is Corbel for himself, Corbell for himself. I'm getting sick and tired of having to find you every damn time I want to say something. So I'll give you this all at once.

"I'm not going to any of the stars on your list.

"It's occurred to me that the relativity equations work better for me the faster I go. If I stop every fifteen light-years to launch a probe, the way you want me to, I could spend two hundred years at it and never get anywhere. Whereas if I just aim the ship in one direction and keep it going, I can build up a ferocious Tau factor.

"It works out that I can reach the galactic hub in twenty-one years, ship's time, if I hold myself down to one gravity acceleration. And, Pierce, I just can't resist the idea. You were the one who called me a born tourist, remember? Well, the stars in the galactic hub aren't like the stars in the arms. And they're packed a quarter to a half light-year apart, according to your own theories. It must be passing strange in there.

"So I'll! go exploring on my own. Maybe I'll find some of your reducing-atmosphere planets and drop the probes there. Maybe I won't. I'll see you in about seventy thousand years, your time. By then your precious State may have withered away, or you'll have colonies on the seeded planets and some of them may have broken loose from you. I'll join one of them. Or-"

Corbell thought it through, rubbing the straight, sharp line of his nose. "I'll have to check it out on the computer," he said. "But if I don't like any of your worlds when I get back, there are always the Clouds of Magellan. I'll bet they aren't more than twenty-five years away, ship's time."

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# The Alibi Machine

McAllister left the party around eight o'clock.

"Out of tobacco," he told his host apologetically. The police, if they got that far, would discover that that had been a little white lie. There were other parties in Greenwich Village on a Saturday night and he would be attending one in about, he estimated, twenty minutes.

He took the elevator down. There was a displacement booth in the lobby. He dropped a coin in the slot, smiling fleetingly at himself—he had almost forgotten to take coins—and dialed. A moment later he was outside his own penthouse door in Queens.

He had saved himself the time to let himself in, by leaving his briefcase under a potted plant earlier this evening. He tipped the pot, picked up the briefcase and stepped back into the booth. His conservative paper business suit made him look as if he had just come from work, and the briefcase completed the picture nicely.

He dialed three times. The first number took him to Kennedy International. The second to Los Angeles International. Long distance flicks required the additional equipment available only at what had once been airports: equipment to compensate for the difference in rotational velocity between different points on the Earth. The third number took him to Lucas Anderson's home in the high Sierras.

It was five o'clock here, and the summer sun was still high. McAllister found himself gasping when he left the booth. Why would Anderson want to live at eight thousand feet?

For the view, he supposed; and because Anderson, a freelance writer, did not have to leave his home as often as normal people did. But there was also his love of privacy—and distrust of people.

He rang the bell.

Anderson's look was more surprised than welcoming. "It was tomorrow. After lunch, remember?"

"I know, but—" McAllister hefted the briefcase. "Your royalty accounts arrived this afternoon. A day earlier than we expected. I got to thinking, why not have it out now? Why let you go on thinking you've been cheated a day longer than—"

"Uh huh." Anderson had an imposing scowl. He gave no indication that he was ready to change his mind—and McAllister had nothing to change it with anyway. Publishing companies had always fudged a little on their royalty statements. Sometimes they took a bit too much, and then a writer might rear back on his hind legs and demand an audit.

The difference here was that Brace Books didn't know what McAllister had been doing with Lucas Anderson's accounts.

"Let's just go over these papers," he said with a trace of impatience.

Anderson nodded without enthusiasm, and stepped back, inviting him in.

*Did he have company?* A glance into the dining nook told McAllister that he did not. A dinner setting for one, laid out with mathematical precision by one or another of Anderson's machines. Anderson's house was a display case of labor saving devices.

*How to get him into the living room?* But Anderson was leading him there. It was not a big house and a hostile publisher's assistant would not be invited into the semisacred writing room.

Anderson stopped in the middle of the room. "Spread it on the coffee table."

McAllister circled Anderson as he reached into the briefcase. His fingers brushed papers, and then the Gyrojet, and suddenly his pulse was thundering in his ears. He was afraid.

He'd spent considerable time plotting this. He'd even typed outlines, as for a mystery novel, and burned them afterward. He could produce the royalty statements; they were there in his briefcase, though they would not stand up. Or ... His hand, unseen within the briefcase, clenched into a fist.

He was between Anderson and the picture window when he produced the Gyrojet.

The Gyrojet: an ancient toy or weapon, depending. It was a rocket pistol, made during the 1960s and then discontinued. This one had been stolen from someone's house and later sold to McAllister secretly, a full twelve years ago.

A rocket pistol. How could any former Buck Rogers fan have turned down a rocket pistol? He had never shown it to anyone. He had had the thought, even then, that it would be untraceable should he ever want to kill somebody...

The true weapon was the rocket slug. The gun looked like a toy, flimsy aluminum, perforated down the barrel. Anderson might have thought it was a toy—but Anderson was bright. He got the point immediately. He turned to run.

McAllister shot him twice in the back.

He left by the front door. He grinned as he passed the displacement booth. Fifteen years ago there had been people who put their displacement booths inside, in the living room, say. But it made burglaries much too easy.

*The alibi machine*, the newspapers had called it then. They still did. The advent of the displacement booths had produced one hell of a crime wave. When a man in, say, Hawaii could commit murder in Chicago and be back in the time it would take him to visit the men's room, it did make things a bit difficult for the police. McAllister himself would be at a party in New York ten minutes from now. But first...

He walked around to the back of the house and stood a moment, looking into the picture window.

He'd thrown a paper tablecloth over Anderson's body. Glass particles on the body would be a giveaway. He'd take the tablecloth with him; and how were the police to know that it was the third bullet, rather than the first, that had shattered the picture window? But if it was the first bullet, then the killer must have been someone Anderson would not let into the house.

McAllister fired into the picture window.

Glass showered inward. There was the scream of an alarm.

McAllister stood rooted. It was a terrible sound, and in these quiet hills it would carry forever! He hadn't expected alarms. There must be a secondary system, continually in operation—Hell with it. McAllister ran into the house, picked up the tablecloth and ran out. Glass particles all over his shoes. Never mind. His shoes and everything else he was wearing were paper, and there was a change of clothing in the briefcase. He'd dump gun and all at the next number he dialed.

The altitude was getting to him. He was panting like a bloodhound when he closed the booth door and dialed. Los Angeles International, then a lakeside resort in New Mexico; the police could hardly search every lake in the country.

Nothing happened.

He dialed again. And again, while the alarm screamed to the hills, *Help! I am being robbed*. When his hand was shaking too badly to dial, he backed out of the glass door and stood looking at the booth.

This hadn't been in any of the outlines.

The booth wouldn't let him out. In all this vastness he was locked in, locked in with the body.

It was two hours before the helicopter from Fresno arrived. Even so, they made good speed. Only the police organization could get a copter in the air that fast. Who else dealt with situations in which one could not simply flick in?

The copter landed in front of the Anderson house, after some trouble picking it out of the wilderness.

landscape. Police Lieutenant Richard Donaho climbed out carefully as soon as the dust had stopped swirling. For the benefit of the pilot his face was unnaturally blank. The fear of death had taken him the instant the blades started whirling around, and it was only now leaving him.

With the motor off, the alarm from the house was an intolerable scream. Lieutenant Donaho moved around to the side of the machine, opened a hatch and switched in the portable JumpShift unit.

He stood back as men and equipment began pouring through. Uniformed men moved toward the house, spreading out. Donaho didn't interfere. He wasn't expecting anything startling. It was going to be cold burglary, the burglar vanished quite away.

It was a smallish one-story house in a wild and beautiful setting, halfway up a mountain. The sun was still bright, though it had almost touched the western peaks. The sky was dark blue, almost lavender. Houses were scarce upslope, and far scarcer downslope. There were no roads. No roads at all. This place must have been uninhabited until twenty years ago, when JumpShift Inc. had revolutionized transportation.

The shrill of the alarm stopped.

In the sudden silence a policeman walked briskly from around the side of the house. "Lieutenant Donaho," he called. "It's not burglary. It's murder. There's a dead man on the living room rug."

"All right," said Donaho. He called Homicide.

Captain Hennessey flicked in with the hot summer air of Fresno around him. It puffed out when he opened the door, and he felt the dry chill of the mountains. His ears popped. He stepped out of the belly of the copter, looking for the nearest man. "Donaho! What's happening?"

Donaho nodded at the uniformed man, whose name was Fisher. Fisher said, "It's around in back. Picture window shattered. Man inside, dead, with two holes in his back. That's as far as we've gotten. Want to come look, sir?"

"In a minute. What was wrong with the displacement booth? Never mind, I see it."

It was obvious even from here. The displacement booth was a standard model, a glass cylinder rounded at the top, with a dial system set in the side. Its curved door was blocked open by a chunk of granite.

"So that's why you needed the copter," said Hennessey, "Hmm." He hadn't expected that.

It was an old trick. Any burglar knew enough to block the displacement booth door before trying to rob a house. If he set off an alarm the police couldn't flick in, and he could generally run next door and use the displacement booth there. But *here*...

"I wonder how he got out?" said Hennessey. "He couldn't set the rock and then use the booth. Maybe he couldn't use the booth anyway. Some alarms lock the transmitter on the booth, so people can still flick in but nobody can flick out."

Donaho shifted impatiently. This was a murder investigation, and he had not yet so much as seen the body. Hennessey looked down a rocky, wooded slope, darkening with dusk. "Hikers would call this leg-breaker country," he said. "But that's how he did it. There's no other way he could get out. Whether the booth wouldn't send him anywhere, he blocked the door open and set out for... hmm."

The nearest house was half a mile away. It was bigger than Anderson's house, with a pool and a stretch of lawn and a swing and a slide, all clearly visible in miniature from this vantage point.

"To there, I think. He'd rather go down than up. He'd have to circle that stretch of chaparral..."

"Captain, do you really think so? I wouldn't try walking through that."

"You'd stay here and wait for the fuzz? It's not that bad. You'd make two miles an hour without a backpack. Hell, he might even have planned it this way. I hope he left footprints."

"We'll want to know if he wore hiking boots." Hennessey scowled. "Not that it'll do us any good. He could have reached the nearest house a good hour ago."

"That doesn't mean he could use the booth. Someone might have seen him."

~~"Hmm. Right. Or...he might have broken an ankle anyway, mightn't he? Donaho, get that copter up and start searching the area. We'll have someone in Fresno question the neighbors. With the alarm blaring like that, they might have been more than usually alert."~~

Lieutenant Donaho had not greatly enjoyed his first helicopter flight, which had ended twenty minutes ago. Now he; was in the air again, and, the slender wings were beating round and round over his head, and the ground was an uncomfortable distance below.

"You don't like this much," the pilot said perceptively. He was a stocky man of about forty.

"Not much," Donaho agreed. It would have been nice if he could close his eyes, but he had to keep watching the scenery. There were trees a man could hide in, and a brook a man might have drunk from. He watched for movement; he watched for footprints. The scenery was both too close and too far down, and it wobbled dizzily.

"You're too young," said the pilot. "You young ones don't know anything about speed."

Donaho was amused. "I can go anywhere in the world at the speed of light."

"Hell, that isn't speed. Ever been on a motorcycle?"

"No!"

"I was using a chopper when they started putting up the JumpShift booths all over the place. Man, it was wonderful. It was like all the cars just evaporated! It took years, but it, didn't seem that way. They left all those wonderful freeways for just us. You know what the most dangerous thing was about riding a chopper? It was cars."

"Yah."

"Same with flying. I don't own a plane. God knows I haven't got the money, but I've got a friend who does. It's a lot more fun now that we've got the airfields to ourselves. No more big planes. No more problem refueling either. We used to worry about running out of gas."

"Uh huh." A thought struck Donaho. "What do you know about off-the-road vehicles?"

"Not that much. They're still made. I can't think of one small enough to fit into a displacement booth, if that's what you're thinking."

"I was. Hennessey thinks the killer might have set off the alarm deliberately. If he did, he might have brought an off-the-road vehicle along. Are you sure he couldn't get one into a booth?"

"No, I'm not." The pilot looked down, considering. "It's too damn steep for a ground-effect vehicle. He'd leave tire tracks."

"What would they look like?"

"Oh, God. You mean it, don't you? Look for two parallel lines, say three to six feet apart. Most tires are corrugated and you'd see that too."

There was nothing like that in sight.

"Then, I know guys who might try to take a chopper across this. Might break their stupid necks too. That'd leave a trail like a caterpillar track, but corrugated."

"I can't believe anyone would walk across this. It looked like half a mile of bad stairs back there. And how would he get through those bushes?"

"Crawl. Not that I'd try it myself. But they don't want me for the gas chamber." The pilot laughed. "Can you see the poor bastard, standing in the booth, dialing and dialing—"

Lucas Anderson had been a big man. He had left a big corpse sprawled across a sapphire-blue rug, his arms stretched way out, big hands clutching. Anderson's arms had been dragging a dead weight. One of the holes in his back was high up, just over the spine.

And men moved about him, doing things that would not help him and probably would not catch him.



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