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HARVEY JACOBS
THE EGG OF THE GLAK

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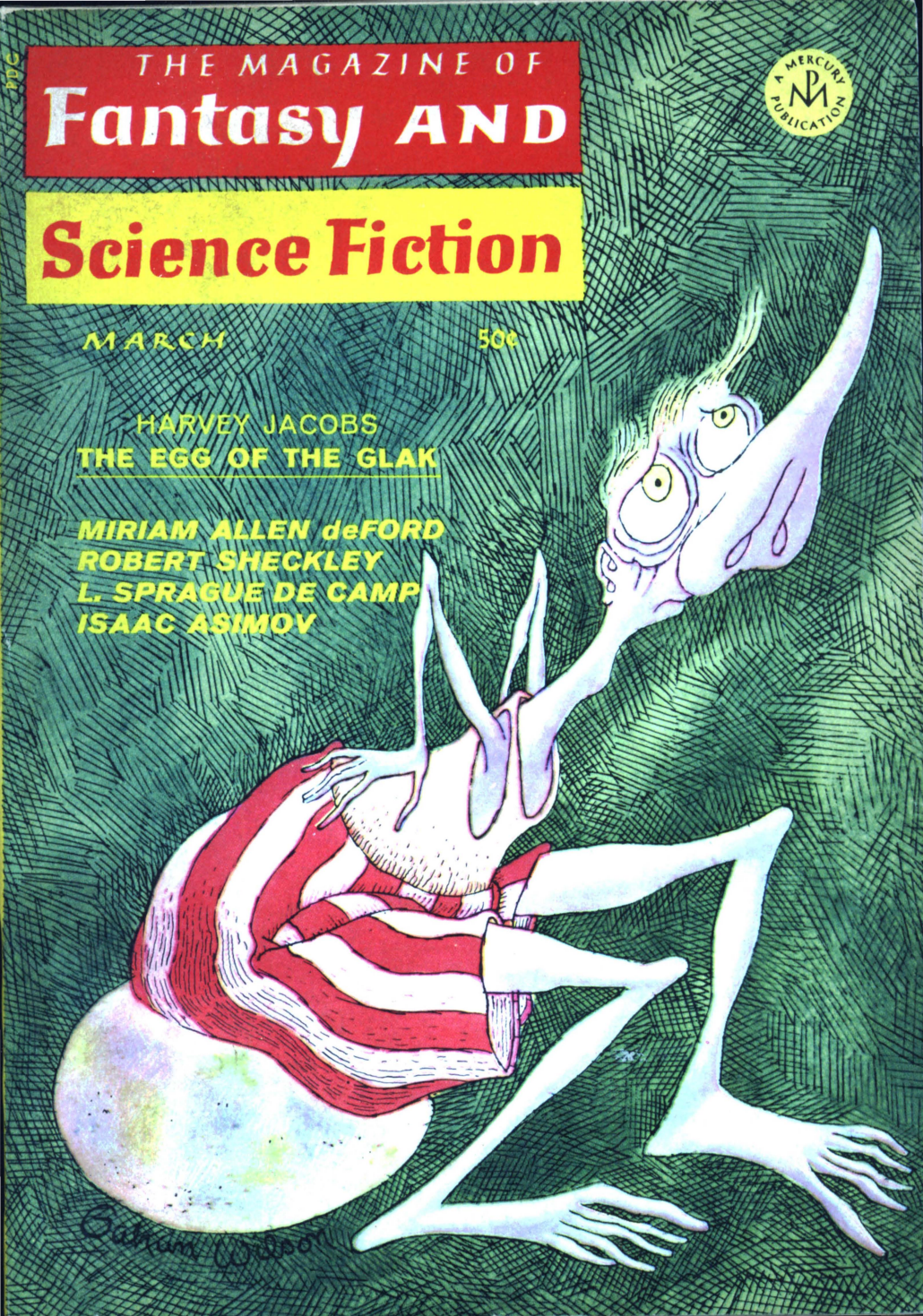

Fantasy and Science Fiction

MARCH *Including Venture Science Fiction*

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Good, happy stories about glak eggs (or anything) are so hard to find that we've scheduled this one to come out in a month with an extra day in it, so you have no excuse for missing it. Its author says that he was dropped Jan. 7, 1930 in New York City. Has had many jobs including The Village Voice *in its founding year. He taught at the writers workshop at Syracuse University and then joined ABC-TV. His stories have appeared in many publications ranging from* Midstream *to* Playboy. *Two of his stories have appeared in Judith Merril's Best SF anthologies. Mr. Jacobs also offers the information that he hates flying in airplanes (if God meant us to fly we would have big beaks) and writes long farewell stories before his airborne journeys. "The Egg of the Glak" was written before such a voyage as a gift to mankind in case a motor fell off.*

THE EGG OF THE GLAK

by Harvey Jacobs

To the memory of Dr. David Hikhoff, Ph.D.
May he rest in peace. Unless there is better.

spring night. The campus quiet. The air soft breath. I stood at my post, balanced on stiff legs. The fountain, a gift of '08, tinkled under moonlight. Then he came, trumpeting like a mammoth, stomping, tilting, staggering, nearly sitting, straightening, roaring from the back of his mouth, a troublemaker.

"My diphthongs. They monophthongized my diphthongs. The frogs. The frogs."

Echoes rattled the quaudrangle.

I ran to grab him. It was like holding a bear. He nearly carried both of us to the ground.

"Poor kid. You poor kid," he said, waving short arms. "Another victim of the great vowel shift. The Northumbrian sellout."

He cried real tears, hundred proof, and blotted his jowels with a rep tie. Oh, this was no student drunk. This was faculty, an older man.

"Let us conjugate *stone* in a time-tarnished manner. Repeat after me. Repeat or I will beat you to a mosh. *Stan, stan, stanes, stane, stanas, stanas, stana, stanum.*"

"Easy, sir," I said.

"Up the Normans," he shrieked. "They loused my language. Mercian, Kentish, West Saxon and Northumbrian sellouts. French ticklers. Tell your children, and their children's children, unto the generations. Diphthongs have been monophthongized. Help."

"I'm trying to help," I said.

"Police."

"I am police."

"Victim," he said, whispering now. "Sad slob."

How many remember what happened a thousand years ago? If it were not for Hikhoff, I would know nothing of the vowel shift, though it altered my life and fiber. For it was this rotten shift that changed our English from growl to purr.

Look it up. Read how spit flew through the teeth of Angles, Saxons, and Jutes in the good old days. Get facts on how the French came, conquered, shoved our vowels to the left of the language, coated our tongues with velvet fur.

For Hikhoff, the shift of the vowels made history's center. *Before* was a time for the hairy man, the man who ate from the bone. *After* came silk pants, phallic apology.

"From Teutonic to moronic," Hikhoff told me. "Emasculation. Drought in the tonsil garden. No wonder so many strep throats in this town of clowns."

Sounds. Hikhoff's life was sounds. The sounds that make your insides wobble. Sounds of chalk screaming, of power saws cutting wood, of forks on glass, scrapings, buzzings, the garbage disposal chewing, jet wails, dentists drilling, pumps gurgling, drains sucking, tires screeching, ambulance sirens, giants breaking wind, booms, bangs, clangings, ripping and tearing, nails scratching silk.

Softer sounds too. Music and musical boxes, bells, chimes, bottle players on Ed Sullivan, all that, all noise, but mostly noises that make you squirm. His favorite: people sounds. Body sounds, sounds of talking, squishing, words, singing, cajoling, cursing, ordering, asking, telling, excusing, insisting. That is why the great vowel shift meant so much to him.

"What those concupiscent Gauls did to me," he said. "They shriveled half my vocal cords. They denied me my voice."

Hikhoff liked to rasp and sputter. His lungs were organ bellows for rolling R's and CH's that choked to the point of dribble. He listened to himself with much pleasure. He played himself back on a tape recorder, reading from *Beowulf* or Chaucer or the *Prose Edda*, which tells of the Wind Age and Wolf Age when the Sun swallows Earth.

"Aggchrrr, don't talk from your nostrils. Nose talkers are bastards.

Diaphragm. Lungs. The deepest tunnels. Use those. Form your words slowly. Shape them in your head. Let them out of the mouth like starved animals, hot smoke rings. Speak each sentence like a string of beautiful sausages. Show me a mumbler and I show you a turd. SPEAK OUT. SAY YOUR PIECE. YOU WILL NOT ONLY MAKE OUT BETTER BUT DO A SERVICE FOR THE ENTIRE HUMAN RACE."

Hikhoff. We became friends. I don't kid myself. At first he had motives, improper designs. All right, think what you think.

"A despondent, disappointed soul." "A bitter person, a cynic." "A lump of rage," "A bad influence." I have heard all that said, and worse. To me, Hikhoff was redeemer, beloved comrade. I close my eyes and there he is in full detail.

Hikhoff.

Body like a cantaloupe. Little head, big jaw. A wet mouth gated by purple lips. Heavy in the breathing. Short arms and legs. A funny machine, an engine liberated, huffing, puffing. Like the power cabs that pull trailers and sometimes go running without their loads. The amputated heart. They move on diesel oil, Hikhoff on food. Fueling always. Always belching gas. I loved him. I miss him.

"Cousin North," he once said in a mellow, huff-puff voice when he finished panting and scratching after a chase around his coffee table. "I accept your repressive shyness. Lord, god king of fishes, you are too young to know what trouble a man's genitals can give." Then, pointing at the top of his paunch, "AND I HAVE NOT SET EYES ON MINE IN FORTY YEARS."

Ah. I knew what trouble, since I was then twenty, not ten. But Hikhoff was making jolly. We had become friends when I carried him home that spring night. Now, later in the turning year, he invited me to dinner. A feast. A groaning board. While we digested, he tried to make me.

He wooed me. First, by throwing peels to the garbage disposal which he called Mr. Universe. They were swallowed, chopped to puree. Next, he wined me with Liebfraumilch. Then he chased me, the engine with legs, roaring pre-vowel shift verses about clash and calm, stimulated by, and frustrated by, my agility.

"I am sorry, sir," I said in a moment of pause. "I do not go that way."

"Alps fall on your callow head," Hikhoff screamed so storm windows rattled. But we came to an agreement. Back to normal when his pressure dropped, we talked frankly.

"Sir, Dr. Hikhoff, even if I were interested in deviations, if that's how to put it, I could just

not with you, sir. You are a cathedral to me, full of stained light, symbolic content. The funny thing is that I love you, but not that way."

"Distinctions," Hikhoff said a little sadly. "If you have a change of heart some day, let me be the first to know. Wire me collect. For the meantime, we will continue to be friends. You have a good head. A good head is a rare and precious stone."

We continued to be friends. I, who had taken a temporary job as campus cop to audit free courses, stayed on to become captain of the force. I kept taking courses, and would still be.

Once each week I went to see Hikhoff and we dined. He did not fail to steam a little after the mandarin oranges with Cointreau, but he never attacked me again. He was well controlled.

We talked of life and poetry. I was writing then. He read my works, sometimes translating them into Old English. He criticized. He had faith in me, encouraged me.

I wrote of life, courage, identity, time and death. These subjects delighted Hikhoff. He was a grand romantic, full of Eden, pro-Adam, pro-Eve, pro-Snake, pro-God, pro-Gabriel, anti-the whole scene. His self-image wore a cape and carried a sharp sword. He believed in battle bloody and reunion soft. To sum it up, Hikhoff had a kind of kill and kiss vision.

The important thing was to keep the winds stirred, the debris flying.

"Churn the emotions, but do not turn them to butter," he said. "Not with drugs or booze or mushrooms that give a pastel mirage. Use life, Harold. Be a life addict. Generate your own chemicals, your own trance and dance. Hikhoff The Absolute has spoken."

Our evenings were fine for me and I hope for him. I was like his son, he said so. He was better than my father, I say so. I could have gone on that way a hundred years. But the carpet was pulled, as it usually is.

One night when we were sealed by winter, I got a call. I was not sleeping when it came, but on the edge of a dream. The dream was forming in swirls of snow. The telephone bell was a noisy bug, and I fought to crush it. Finally I got up, naked and shivering in the cold room. I knew there was trouble.

The first thought was of fire. Or dormitory suicide. It was not the season for panty raids, and rape was obsolete up there.

"Hello, yes, hello?"

"Harold North? Is this he?"

"He. Yes."

"This is Miss Linker at the Shepherd of the Knowing Heart Clinic. On Kipman Place."

"Yes."

"A patient, Dr. Hikhoff, is asking for. . . ."

The night was frozen. Ice gave a glitter, a gloss like the shine on photographs. I remember smoke coming from the sewers. It fogged the street. It was pleasure to hear the car skip and start, to think of spark plugs flaming.

By the car clock it was three. I keep my clock ahead by forty-five minutes, This is a silliness, having to do with sudden endings. I have a stupid idea that if destruction should come, I would have nearly an hour to go back and make ready.

They let me go right to his room. He was critical, a mound in the white bed with side bars pulled up. A nurse leaned over him, and he moved his tongue in and out, side to side, as if she were a canapé. He was delirious, saving words in clusters, words melted together like candies left in the sun. They gave him oxygen. He took gallons, emptied tanks.

I cried.

The nurse shook her head "no." She reached a verdict. There was no hope except for the pinpoint dot of light that always flares. He had suffered a massive stroke, an eruption. Lava poured into his system and slowly filled him with black dust.

The nurse gave me two letters. They were marked FIRST and FINALLY. I put the envelopes in a pocket and stayed there by the bed. I heard a train whistle which meant five o'clock. The whistle was for Hikhoff. He opened his eyes, ripped off the oxygen mask, slammed the nurse away with his fists, sat up, saw me and said, "Touch. Touch."

I took his head in my hands and held him. The round head was a basketball with frightened eyes. "I will write thick books," he said. Then the eyes went away. Hikhoff was dead.

The white room filled with his escaping soul, cape, sword, all. The window was open a crack, and out the soul went into cold air.

Hikhoff's body was cremated after a nice funeral. In his will he requested that his remains be scattered in campus ashtrays. They were not. Instead, they were sent to his family in a silver box.

They should have been used as fertilizer for a tree, an oak, something with a heavy head of leaves and thirsty plunging roots, a trunk for carving on, branches to hold tons of snow.

After the funeral I went into seclusion.

I wished for time to think of my friend and to shape him into a memory. He was easy to remember, not one of those who fades with the first season change. I could not only see him but hear him and feel the vibration of his ghost. I had him down pat.

When I was sure of keeping the memory, I read the letter marked FIRST. It was tempting to read FINALLY first and FIRST finally

because I suspected Hikhoff of throwing me a curve. But I thought no, not with death in his mind. Hikhoff would do the obvious because the corrupted obvious is purified in the face of death.

Dear Harold,

When you read this I will be dead, which seems ridiculous. Know that I look forward to meeting you again in some other world. At such time I will continue the education of your shade. If there is corporeal immortality, I will persist in your seduction.

Be that as it may. There is a favor I request of you. Naturally it is an idiotic request and very demanding. You have, of course, the option to refuse, maybe even the absolute need to refuse.

In this noble hamlet, Crap-Off-The-Hudson, there lives a lady who runs a store called Poodleville. This lady, a combination of estrogen, the profit motive, and a green thumb for animals, has come into the possession of a fantastic find.

It is the egg of a Glak.

No such egg has been seen for years. It is quite probably the last and final Glak.

The egg was brought to her by a relative who served with a radar unit in Labrador. I saw it in her shop, when I went there with the thought of buying a parrot. Thank God, the egg was sitting near a radiator.

Harold, I believe that this egg is fertile.

I have since paid this lady to heat her egg. The hatch span of the Glak is seven years and four days. I sought information from our late Dr. Nagle, of Anthropology. He set a tentative date for the Glak birth *in middle April of next year.*

Harold, the Glak is officially EXTINCT; so you can imagine the importance of all this! (That is the first exclamation point I have used since Kaiser Wilhelm died.)

I do not anticipate anything happening to me before then. I never felt worse, which is a sign of excellent health. But should I be struck down by a flying manhole cover or a falling bowling ball or the creeping crud, and should you have the agonizing duty of opening and reading this letter, please do the following:

1.) Go to the Upstate Bank and Trust. You will find an account in both our names containing five thousand dollars.

2.) Contact the lady at Poodleville, a Miss Moonish. Pay her $2,-500 for custody of the egg, per our agreement.

3.) Take the egg, suitably wrapped, and nurse it until the ides of April. Then you must transport the egg to the one place where the Glak is known to have thrived; i.e., upper Labrador.

4.) WARNING BELLS. While Dr. Nagle, of Anthropology, is

deceased, I believe he told his son, John, of my find. I also believe, from certain twitchings of Nagle's right ear, that the old man had dreams of glory, that he fantasied a lead article in *American Scholar* entitled "Nagle's Glak." The driving, vicious ambition of anthropologists is well known. What then of their sons? Beware of the young Nagle, Harold. I have a premonition.

5.) Due to this implicit Nagle threat, I urge you to act with dispatch.

Harold, ersatz son, I know this appears to be a strange request. Think carefully what you will do about an old fool's last testament. If you cannot help me, shove the whole thing.

Take my money and spend it on pleasure. Throw my letters into the garbage disposal. Sip Polly Fusee while singing "Nearer My God To Thee." Break champagne on your head and sail on. Do what you must do.

Harold, writing this and still to write FINALLY (to be opened only if by some miracle a Glak is born, and born healthy) has left me quivering. I feel as if I have swallowed a pound of lard. Thoughts of my own death fill me with sadness, nourishing sadness.

Goodbye, dear Harold. May the things that go clump in the night bless you.

Yours in affection,
David Hikhoff

I put down FIRST, repocketed FINALLY, blew out the candles and sat there in the dark.

Hikhoff died in February, a month hardly wide enough to hold him.

That February was cold as a cube. It straddled Crap-Off-The Hudson like an abominable snowman with icy armpits and a pale, waiting face. No wonder Hikhoff chose cremation, a last burst of heat. The only reminder that the world sometimes welcomes life came from struck matches, steam ghosts from pipes under our streets, the glow of cigarette tips. It was as if nobody smiled.

My decision to honor Hikhoff's request took a frigid week. In that week I purchased a tiny glazed Hikhoff from a student sculptor who made it in memorium. The little Hikhoff was a good likeness, orange and brown ceramic the size of a lemon. I carried it with me like a talisman. Morbid, I know, but it helped me make up my mind.

So, for a few hours, I owned five thousand dollars. There *was* an account at Upstate, and a vice-president there who expected my visit. If there was an account, there was probably an egg. And, very likely, a Nagle. Still, I was suspicious of Hikhoff, who had a great sense of humor, a capacity for the belly laugh, and the belly for the laugh.

There was also Harold North's choice.

Hikhoff himself, Hikhoff the far-seeing, dangled the golden carrot. I could use the money for play. I, who lived like a hermit, had no grandiose ideas of frolic. But each bill could translate into time. I could go to Majorca; I could write until my fingers were stubs without a care.

Glak. Damn the Glak. Some of the finest creatures are extinct, have gained stature through oblivion, have won museum fame. Great green things with tails the size of buildings. Hairy fellows with pounds of chin and strong eyes. Flying dragons that dripped acid. Elephants with tusks that could spear dentists. Why not the Glak? Extinction is nature's way. Did this world need a Glak? Who suffered by its disappearance? Is anyone, anywhere, Glak deprived? There was no real choice. I had to do Hikhoff's post-mortem bidding. We had consumed too much together; I had taken so much for myself of every portion. Could I point my rump at his last request?

Yes, naturally I visited the library. Even before my trip to the bank I looked up the Glak. There was not much to be learned. A tall crane-like bird with a raucous croak resembling *glak glak*. Famed for its mating dance which involved a rapid twisting of the dorsal plume in a counter-clockwise direction. Habitat the sub-arctic regions of Eastern North America. Dwindling Glak population noted in the 1850's. Classified extinct 1902.

Glak, glak. Hikhoff once said he thought maybe the vowels stayed there and we shifted. Glak, glak to tweet, tweet. Could I care less?

In the bank I looked at the five and three zeroes while patting my ceramic Hikhoff, which was stuffed in the left-hand pocket of my mackinaw. When I noticed the Upstate vice-president watching my patting hand, I took the Hikhoff and placed it on the table.

"It's a Hikhoff," I said.

"A Hikhoff?"

"The man who left me this money."

"You carry it around?"

"On special occasions."

"That's a nice sentiment. It could start a trend."

I had the money placed in a checking account.

The next thing I did was to find Poodleville in the telephone book. I called and was answered by a voice which could have been a person or an unsold beast. The voice was thin and high, air deprived.

"I am Harold North. I believe a Mr. Hikhoff suggested. . . ."

"I've been expecting your call."

"Can we meet?"

"Assuredly. The sooner the better."

Poodleville caters to a genteel clientele, even for Crap-Off-The-Hudson. The shoppe (their spelling) is located in an ancient part

of the city, a residential area, a nest of strong, well-built homes, each with some land, some trees, a gate. These are the houses of people with ancestors who settled that part of the land, and of those who came later and found luck smiling. The houses are impressive. Each is a fortress, guarding special privacy. Each has seen many bitter winters.

Through the large windows of these grandfather houses, I could see splendid toys like chandeliers of crystal, paintings in gold painted frames, pewter tankards, silver samovars, thick drapes, balconies with railings, curved staircases, wooden panels. Each house was an egg in itself with its own source of warmth, cracking out life now and then which ran for a car or a waiting cab.

Bits of movement, footprints not yet covered over by the new snow, smoke trails rising from chimneys animated the neighborhood in slow motion. Winter had the streets under siege. They had a cemetery quality. I could easily imagine Hikhoff waddling behind me, a spectre spy observing my movements, enjoying the tranquility of snowbound luxury.

Poodleville had been built out of the bottom floor of a brownstone. There was hardly a suggestion of commerce, much less of the usual cluster of dogs, birds, fishes, cats, hamsters, apes and even ants. No puppies solicited behind the glass. The window was tastefully decorated with a picture of a memorable poodle champion with the arrogant snout of one who is making his mark in stud. There was also a pink leash and a stone-covered collar.

When the door opened, a bell jingled. The animals sounded off. There was a jungle smell under airwick. But even inside, the mood was subdued.

Here was my first glimpse of Elsie Moonish. She stood near the tropical fish looking at an x-ray by bluish light from the tanks. A canary sang on a shelf above her head. Three or four dogs banged their heads against bars painted in candy stripes. A myna bird slept, and near it a single monkey swung around on its perch, squeaking like a mouse.

Miss Moonish never turned. She kept looking at the negative. I assumed it was a poodle spleen or parakeet kidney that held her.

She was not what I expected from the curdsy voice, but an attractive, plumpish, fortyish lady with her hair, black with grey rivers, in a Prince Valiant cut, a desirable lady, though her legs were on the heavy side.

I wondered if she heard me come in. She must have if she had eardrums, since the warning bell rang and the animals reacted. I waited, keeping my distance. I made no sound except for a wheeze when I breathed, since I was coming down with a cold.

One wheeze got to Miss Moonish. It was a tremendous snort that sounded like it came from Hitler's sinus. I think she was waiting for it as an excuse to register sudden surprise. Even the beasts shut up, not recognizing that mating call.

"My pancreas," she said.

"Pardon?"

"I was concerned about my pancreas. But it seems to be in fine fettle. Care for a look?"

"Not before dinner," I said.

"They say I am a hypochondriac, which is to say I fear death, which I do. I love x-rays. What a shame radioactivity is harmful."

"Always complications," I said. "I'm Harold North."

"Ah. Not the other."

"The other?"

"The Nagle person."

Her myna bird woke, blinked, and said *person person person.*

"You have spoken with the Nagle person?"

"Not too long ago. Your competitor. Poor Dr. Hikhoff. I read about his demise. What was it, a cerebral artery? Beautiful man. Such a tragedy."

I noticed why Elsie Moonish spoke thinly. It was because she hardly ever inhaled. She took air in gasps and kept it for long periods. By the end of a breath her voice nearly vanished. How hard it must have been for Hikhoff to deal with her.

"All this fuss over an egg," she said. "Remarkable."

"Speaking of the egg, may I see it?"

"At these prices I would scramble it for you, Mr. North."

First Miss Moonish locked the front door of the shop, though it did not exactly seem as if the store would be swamped with customers. Then she led me back past animal accessories, foods, a barbering table covered with curly hair, to a little door. Behind the door was a staircase leading up.

Over Poodleville, on the first floor of the brownstone, the Moonish apartment had elegance, but with the feeling of leftovers. The room had high ceilings, stained glass windows, columned archways and plush furniture, all a bit frazzled. There was a rancid dignity. I was directed to a blue tubby chair with the arms of a little club fighter. I sat and waited.

She went into another room, the bedroom as it turned out, and came back with a cardboard box. It was the kind of box you get from the grocer if you ask for a carton to pack for the painters. Written in red (by lipstick) on the top it said FRAGILE. KEEP WARM. I expected more, a glass case or ebony, but there it was, an old tomato carton.

Elsie Moonish took out a pound of old newspaper, then a ball wrapped in velvet. Carefully, but not too carefully, she unwrapped the egg and there it was. Just an egg, a few inches bigger than a

chicken's, dotted with violet splotches.

To make it sound as if I were in on this from the start, I said, "Uh-huh. There it is all right."

She gave me the egg and I examined it. It was warm and seemed to be in good condition. As soon as possible, I put it back in the velvet nest.

"Dr. Hikhoff sat where you are sitting," she said, "for hour after hour. He called the egg his family. He was quite involved."

"He was."

" 'There are chills in this room, drafts,' he would say. A very protective man."

"Definitely."

"Mr. North, perhaps it's time to talk business, a crass thing in face of the occasion. But life goes on."

"Business," I said. "Per Dr. Hikhoff's instructions, I have in my pocket a checkbook, and I am prepared to give you a draft for $2,500."

"Mr. North," she said, "that's sweet," fitting the egg back into its box.

"Think nothing of it."

"Mr. North, let me say that I feel like the queen of bitches, forgive the expression. But the Nagle person called this morning with an offer of $4,500, all his money in the world, and for the very same egg."

"But you promised Dr. Hikhoff. . . ."

"Mr. North, what is money to me? Time? Health? It's only that hypochondria is dreadfully costly. Doctors charge outrageous fees; it's a disgrace. Let me show you something."

She took the egg back to her bedroom and returned with a large book, an album.

"Browse this. My x-rays. Five years of x-rays and some of friends and family. There. My uterus. Fifty dollars. My coccyx. Fifteen or twenty, as I recall. Heart, lungs, the lower tract. Do you have any idea of the cost?"

Looking at her insides was embarrassing for some reason, on so short an acquaintance. If medical magazines had centerfolds, she would have done well. Her organs were neat and well cared for. After finishing a flip of the pages, I actually felt as if I had known her for years.

"Miss Moonish," I said, "I will level with you, cards on the table, face up. Dr. Hikhoff left me with a certain amount of cash. Enough to pay you, live a little, and get the Glak back home."

"The Nagle person was so insistent," she said. "Willing to risk *all.*"

"I'll match his offer," I said, "though it will mean hardship. *Plus* one dollar."

"Marvelous. I'm so relieved. It's thrilling when two grown men meet in conflict. Especially the moment, Mr. North, when their bids are equal, when they have exhaust-

ed material resources. Then they are thrown back on primitive reserves. Spiritual and physical qualities. The *plus*, as you said. The *plus-plus*."

"You lost me."

"Your money, Mr. North, or Mr. Nagle's money. They add up to the same thing. So the bids erase each other. Two men yearn for my egg. Each has offered gold. Now *other factors* creep into the picture. The *plus-plus*. You know, I hesitate to give up this situation. I lead a dull life, Mr. North."

"What you said about *other factors*. What other factors?"

"The city is frozen. Everything strains under tons of snow. I will tend my shop, care for my pets, cut poodle hair, and so forth. I will eat, sleep, wait out the dull months. Despite my x-rays, I feel hollow inside at this time of year. Like an empty jug. An empty jug yearning for, how shall I put it, honey. I want honey, Mr. North, the honey *plus-plus*. Memory."

"Are you suggesting, Miss Moonish, to a total stranger, anything in any way directly or indirectly involving the possibility of what the students call 'body contact'?"

"You have a quick mind, Mr. North. You have a frankness. Being around nature, I, too, am a to-the-point person."

"Miss Moonish, I work as a campus cop. I write poems. I read a lot. I hardly have a social life. I am not exactly a bulldozer. In fact I am a sexual camel. I can go for miles without. My sex is my work. I sublimate. And I don't know you well enough."

"I find you charming, Mr. North."

"And then there is the Nagle person. A terrible amoral fellow from what I gather. Suppose, for the sake of discussion, you find the Nagle's *plus-plus more* charming."

Elsie Moonish stood up and did a slow turn, stretching.

"It's my Glak. I'm in the catbird seat. The Glakbird seat. The Glak-egg seat. I'm absolutely enraptured by the entire chain of events."

"All right, five thousand, though now I am including my own small reserve, retirement money. Five thousand dollars."

"Are you offering an additional four hundred ninety-nine dollars *not* to make love to me?"

"Yes. Yes and no. It's nothing personal."

"It feels personal. Or is it just the price of your own dear insecurity. You don't want this little competition to be decided on the basis of your . . . ability?"

"It's not that."

"It is that."

"Maybe it is."

"Find courage."

"Something is chirping downstairs, Miss Moonish. Maybe a prowler. . . ."

"You are the prowler. Prowl."

Damn Hikhoff. What is my

debt to you? First a vow. Now, if you take things seriously, my most precious possession. For a Glak?

"I like involvement," I said.

"Who doesn't? Who among us doesn't? But there is a lot to be said in months with R in them for love without possession. The most painful kind of human contact. Transients welcome. Exciting, infuriating. The ultimate act, but without the owning. It teaches a lesson, Mr. North. It renews the lesson of separation. It reminds one of the magic of flesh in winter. Fusion and non-fission. It builds immunities against the terrible desires of SPRING."

All that on one exhale, and I thought she would burst from decompression.

"I'm no philosopher," I said.

"Philosophy is in the tip of the tongue," she said, "the small of the back, behind the ears, where the legs meet the trunk, inside the thighs, behind the knees, on the mountain peaks, in the valley. The demilitarized zones."

"I fear my own rust," I said. "Lust. A Freudian slip. I'm not calm."

"Come," said Miss Moonish.

Naked, Elsie Moonish was very nice, though I had a tendency to see past her skin to the insides. We stayed together for hours fusing and non-fusing, loving without possessing, beating the winter odds and strengthening the blood against spring. Our music came from the animals downstairs, and her bed could have been grass. We were in the country. Elsie was wet and ready again and again. I was a fountain of youth to my amazement. It had been so long.

"How long, Harold?"

"Two years."

"Who?"

"A coed doing a paper on police brutality."

"I hate her."

Then too soon, she said, "Now. I have reached the point where I want you to stay. So go."

"Once more."

"No."

"Plus-plus."

"Go."

We took a shower together. She soaped me and said she liked my body. I told her, soaping her, that the feeling was mutual. She said, while I dressed, that I should telephone tomorrow.

I went out into the cold shaking like gelatin, blowing steam. I would have gone back, but she locked the shoppe behind me.

Back home I saw that I had been broken and entered, ransacked.

The room was upside down. The only thing taken was the letter FIRST. Luckily, I had FINALLY with me. I called Elsie Moonish right away, but got only a buzz.

A Nagle who would rob is a desperate Nagle, I thought. How would he deal with the owner of

the egg? I worried for Elsie. Then for myself. He might deal very well. I never had seen the Nagle. Maybe he was a football type, a walking penis.

I sat worrying about the Nagle's secondary sexual characteristics, and would have stayed in that trance of doubt, had it not been for my cop brain which saved me. Here I was, following the rules, waiting to hear if I won the egg, while an unleashed Nagle of no principle was running loose. What a passive idiot I was. By the time I bolted into the snow, Elsie Moonish could already be inside a camp trunk on her way by American Express.

I caught a cab to Poodleville, and none too soon.

As we pulled up in front of the shoppe, I saw a man hurrying along down the street. He was carrying a large parcel, too small for a camp trunk but large enough. While I paid the driver, not before, it came to me that it was the Glak box.

That very moment a window flew open upstairs from Poodleville. I saw Elsie, wrapped in a wrap, lean out, look from side to side and shout, "Glak snatcher."

I flew after the fleeing Nagle, my shoes skimming on glossy pavement. The Nagle ran, holding the Glak box before him and would have gotten away but for fate. The old part of town is as hilly as Rome. From nowhere a fat child on a sled came swooshing down the street and caught the Nagle at his ankles. His legs opened like a scissor. The egg box soared through the air. The sledder went crashing; the Nagle collapsed in a lump.

I intercepted the box in midair. Then I fell, tail down, box up, on top of the skidding sled and went with it down the Poodleville hill. The sidewalk was frozen glass. The sled broke Olympic records. The world blurred. I caught a glimpse of Miss Moonish as I went by, then saw the branches of trees and grey sky. Down and down I went, and heard the twing twing of bullets around me.

The Nagle was firing and getting close. Fortunately, the sled jumped the sidewalk and hustled along in the gutter. There was no traffic, and clear sailing. I felt a hot flash. I was hit but not dead.

Down I went, about a thousand miles an hour, toward the railroad tracks. I heard a whistle and clang up ahead. The traffic blinker turned red. The zebra-striped bar that stops cars came down. I headed right for the crossing, shot under the roadblock, hit the track, saw the front of the freight, a smoky Cyclops, locked my arms on the box, left the sled, turned upside down, and came down in a snowbank with the train between me and my enemy.

Forgetting pain, I grabbed my box and climbed into an empty car.

So this is it, I thought. My body will lie here and roam the United States, a mournful cargo. I bawled. There was so much work still undone. Here I was cut at the budding.

A brakeman found me in the Utica yards. I was in the General Hospital when I woke.

"Do you have medicare?"

"Ummm."

"You are here mostly for exposure and shock. But not entirely. To state it unemotionally and simply, Mr. North, you have been perfectly circumcised by a 22 calibre bullet. Are you sure this was not some kind of muffed suicide attempt?"

"Hikhoff," I raged aloud. "If the Nagle were a more accurate shot, I would have collected your ashes, reassembled you and kicked you in the ass. I have always been intact from cuticles to appendix, and now this. What trauma you have caused."

They tranquilized me.

Soon I learned that when they brought me to the hospital, they brought my egg too. It was in a hot closet near my bed. What damage the excitement might have done to the Glak I could not know.

Poor Glak, I said in a whisper. What if you are born slightly bent? Forget it. Let the world know you have endured hard knocks. All survivors should carry scars, if only in the eyes. Be of good cheer, Glak.

Hikhoff would have enjoyed the sounds of the hospital. Pain sounds, fearsome in the deep darkness. Baby sounds full of good rage and wanting. For those sounds, my companions in the night, the vowels have not shifted. And the sounds of the loudspeaker calling Dr. this and Dr. that, and Dr. Mortimer Post when they do a dissection, and the sounds of the trays and televisions, the visitors, the wheeling carts, all these sounds would interest Hikhoff for there is the honesty of a white wall about them. Hikhoff, but not me.

Joyfully, I left the hospital an ounce or two lighter, none the worse. I carried my box with new enthusiasm. The Nagle's bullets motivated me. I had a stake in this adventure now, a small but sincere investment.

There were six weeks to endure (it was March) before the egg would pop, assuming it would pop at all, and Labrador to reach on a limited budget. And a Nagle to watch for, a fanatic Nagle who would surely pursue us. Clearly, the first order of business was to find a hideout, an obscure off-the-track place where a man and his egg would be left alone.

I searched the classifieds. Two ads caught my eye. One of them was addressed directly to it:

H.N. KNOW YOU ARE IN UTICA. ALL FORGIVEN. CAN WE TALK? AGREEMENT CAN BE REACHED PROJECT

G. RIDICULOUS TO CONTINUE HOSTILE. DANGEROUS TO WAIT.

Dangerous to wait. So the Nagle had traced the destination of the train. Smart man, and a compromiser. If there had been no shooting, no tampering with my equipment, however slight, I would have answered his P.O. box. And why not? He was his father's son, acting on correct impulses. Hikhoff was not even a blood relation.

But, with soreness when I walked, I was in no mood to negotiate.

The second ad was for a room in a nice, clean, well-heated house with a good view, kitchen privileges, housekeeping, good family on a tree-lined street near transportation and churches of all denominations. The price was right. I called the number and, yes, the room was vacant.

The house was welcoming. There was a small garden where a snowman stood and even an evergreen. I rang the doorbell, self-conscious over my package, which I held in my arms since the steps looked cold. I tried to take the attitude that this was a pregnancy and that I was blooming and entitled.

The box made no difference to Mrs. Fonkle who owned the property. Probably there was a buyers' market for rooms up there.

I told her I was a scientist, but not the kind who makes bombs. I was dependable, safe, well-mannered, a person who asked only tidbits from existence, not noisy, good-natured, involved in breeding a new kind of chicken big enough to feed multitudes. Mrs. Fonkle liked, but worried over, the idea of big chickens.

"How big?" she said, and I held out my hands three feet apart.

"Some chicken," she said, laughing herself into a red face.

The first night she invited me to dinner.

The Fonkles were a mixed grill. Mrs. Fonkle had been married once to a pencil of a man, a man who lacked pigmentation. He was dead now but left a daughter behind, a girl in her mid-twenties who was pretty, all angles, intense and full of gestures.

Mrs. Fonkle's present husband, a plumber, was a side of beef, medium well. Her daughter by him was a dark, soft affair, just nineteen, filled with inner springs that pushed out.

At dinner, there were comments about science and the mushroom cloud and how the world was better before. The daughter of Husband One, Myrna by name, said, "People are beginning to realize that war accomplishes nothing."

"So how come everybody is fighting," Cynthia said.

"Two things can stop wars," I said. "First is discovering life from

another part of the sky with a big appetite for all kinds of people, regardless. Second, is the hope implicit in the fact that nations good at sex are bad at marching."

"Tell me, are you a married man?" Mrs. Fonkle said, handing me seconds.

"No. I have no family. I am married to my work."

"She's getting personal," Mr. Fonkle said.

"In a house where doors are left open," Mrs. Fonkle said, "I'm entitled to a few questions."

Mrs. Fonkle's house was truly a house where doors are left open. Even me, a paranoid now, watching for shadows of the Nagle, took to leaving my bolt unclicked.

The first week went well. You could say an intimacy grew between me and the family. I had never lived so close to people.

I spent my days writing. At night I checked the egg and took walks. My Hikhoff sat on a dresser, on top of a doily, and he too seemed serene. But problems arose.

One evening, an ordinary evening, I came in from my dinner. As always, I examined the egg. It was trembling, shivering, moving. I thought *earthquake, catastrophe.* But nothing was shaking the egg. It was the egg itself moving around, rolling a little.

I put the box closer to the radiator, and the jumping slowed.

Then I did what I knew from the beginning I would have to do.

I sat on the egg.

I put it on a pillow, put the pillow on a chair, stripped to my underwear and gently sat on the egg, holding most of my weight with my arms.

The jumping, squiggling, shivering stopped completely. So there *was* a Glak in there. And it was chilly, protesting. It wanted its due, namely body heat, and who could blame it?

Look at me now, I said to my Hikhoff, a full-grown man warming eggs with his rear. Look what you did to me. Is it for this that you fed me and pissed and moaned about our feminized century? Finally you have put me into hatching position. Hikhoff, barrage balloon, how you must be laughing.

Falling in with the folksy quality of Mrs. Fonkle's, I had left my door half open. In thin PJ's, holding a turkish towel, her hair covered with a cloth to hide curlers, her feet bare, wearing no makeup on her dear bony face, Myrna came to check my health.

"Are you OK, Harold?"

"Fine," I said. "A little overexposed. I'm sorry. I should have closed my door."

"Oh," Myrna said. She threw me her towel. I covered my kneecaps. "I could swear you made a sound, a kind of clucking."

"Chicken thoughts," I said. "I was thinking out loud."

Her entrance and my surprise

must have dropped my pressure and temperature because the egg began again, jumping under me. It had a lot of energy. I had to hold tight to keep myself in the chair.

"You're catching cold," Myrna said, coming into the room.

"No, I'm fine."

The egg gave a bump. I flew up a little and could have squooshed it then and there except for a last-second flip.

"Give me your pulse," Myrna said. I gave her.

"A hundred fifteen beats a minute?"

"Normal for me. Normal."

"Something is bothering you, Harold." Myrna sat down on my bed. "Talk to me. I'm a good listener."

"Nothing," I said. "Besides, Myrna, if your mother walks by and sees you sitting there in your sleepies, what will she think? What?"

Myrna got up with her serious face and closed the door. She came back to the bed and stretched herself, her chin propped on elbows. She made herself at home.

"You are suffering," Myrna said. "Don't deny it."

"Better you should go," I said.

Myrna was very attractive in those PJ's. They were sad cotton PJ's with no class, covered with blue flowers, a thing little girls wear. When she moved they tightened around her breasts, small volcanos. They held her bottom nicely, too. For a slender lady she was well built. That long, lazy body was a winding road.

"Is it your stomach, Harold?" she said.

"No. Yours."

"Don't be a glib. Come sit here and talk to me."

"I can't move."

"Why?"

"Don't be alarmed. Don't shout. Myrna, I'm sitting on an egg. You might as well know. I'm sitting on a large egg."

"Harold?"

Like a fool I told her everything. Everything. Everything. The dam broke. I was amazed by my own need to confide. Always a loner, I dropped my guard with a thud. That is the danger of human contact. It breeds humanity.

When I finished the tale of the Glak, Myrna cried.

"I can't speak," she said. "In some ways, this is the most wonderful story I have heard since *Rapunzel.* Harold, dear Harold, my impulse is to cherish you, to hold you and give you back heat. I know it's wrong. I know that. I know your work is its own reward, and the thing you are doing for Dr. Hikhoff is beautiful and contained in itself. But I have the impulse to take you to me, to be naked with you, to recharge you with all the sun I stored up on Lake Winnapokie last summer. Bring the egg here. Let me give."

Am I made of aluminum? Myrna, Glak and Harold fell together and again the winter was kept outside.

Even the egg was radiant. If you have never seen a contented, happy, and secure egg, let me tell you it is a fine experience. Dear Myrna, half rib-cage, half air, generated fire like a coil. Her nerves practically left her skin. She gave like a sparkler.

Before going to her own room, Myrna promised to come regularly, on a schedule, and to help me with my egg and my own thawing. I felt marvelous. I had a friend, a lover, a bed partner interested only in nourishing.

The next morning, I woke rested, nicely sore as after a ball game, restored and ready for anything. I sat on the side of the bed and the egg came toward me. First, it thumped, then jiggled, did a half turn, then rolled right up to my thigh.

"Look," I said, "enough is enough. Hear me, Glak, I will do my part and take good care, but this rolling stuff has got to stop. I need time for my own pursuits."

I made a nest for the egg, using the pillow again, and put it under the blanket. Then I went to wash my face, shave, and brush my teeth.

Bright as a penny, tingling with menthol, on the way back to my room, I heard what sounded like the Great Sneeze.

It was Cynthia who stood, blowing into a handkerchief, in my room, at my bed, holding my blanket, *looking at my egg*. She was wearing a quilted housecoat over her nightgown, her long hair tumbled down, her dark face darker than usual.

"Harold," she said, "we have something to talk about."

"What are you doing home?" I said.

"I have a cold."

"Where's your mother? It's drafty in here."

"Harold, why is there an egg in your bed?"

"I didn't lay it, if that's what you think."

"I don't know what to think."

"Look, Cyn, your father is a plumber, he's got a plunger. I'm in science. I have an egg. There's a perfectly logical explanation."

Hearing my voice the egg began to turn circles. That's one smart, responsive Glak, I thought, but the incident shook Cynthia, she so young, and she cried like her sister, only wetter.

"Oh, don't weep," I said. "Please."

"A man shouldn't sleep with an egg."

"*There's* a quote from the Old Testament. Who are you to judge me?"

"It's perverse. When ma hears about what's going on in this house. . . ."

"Cyn, why, oh why should ma

or pa or any lady be involved. Cyn, older people get nervous about such things. They think right away suppose it hatches and is some kind of nutty meat-eater. Cyn, please, this whole episode demands silence. If you've ever kept your cool, keep it now."

"It's wrong for a man to sleep with a big egg."

Standing there, she manufactured commandments. It was informative to watch her, though. She breathed in heaves. Clouds practically formed over her head. Her toes nearly smoked. So totally involved, so passionate, she was different by more than chromosomes from Myrna. Plumber blood shot through her pipes. Her valves hissed. You could see needles rise on gauges and warning lights flash.

I had to tell her something. You owe it to your audience. Myrna had the whole truth. It seemed somehow disloyal to tell Cynthia the same story.

"Cyn, this egg is my responsibility. A lot of lives depend on what happens in this room. Because this egg is no ordinary egg. It is an egg found in the wreckage of a strange and unidentified crashed aircraft, a UFO."

"Harold, stop."

"Cyn, on my heart. Probably the whole thing is nothing, a hoax. Maybe there really is a big chicken in there. I may even be a control."

"Control?"

"There are 42 agents like myself in 42 rooms with 42 eggs like this. None of us knows if he has the space-egg. To throw off the competition, Cyn. Standard procedure. The point is, this egg may just be the one. The thing."

"The thing?"

"Cyn, you have got to keep this to yourself."

"A thing in our house?"

"A nice thing. A vegetarian. We know that much by tests. Lettuce, carrots, parsley, like that. By computer calculations, a furry, sweet kind of beast like a rabbit. A bunny. Nice."

"Beast?" Why did you use the word beast?"

"Well, a furry bunny is a *beast,* Cyn. It's still a *beast.*"

"I don't know what to say."

"Nothing. Go about your business."

"How come our house?"

"IBM selected. Strictly impersonal from a juggle of IBM cards with punched classified ads. Out of the way. Small city. Quiet. Unlikely discovery. IBM didn't figure on you, Cyn. I mean, it's obvious if this got out there could be panic."

"Harold, I do not believe you. And to me what matters is what I know, which is that you personally are sleeping with a lousy egg while youth flies."

"Where does youth come in? And what do you know about youth? You're too young to know beans about youth."

"Look at me. Do you see the bags under each eye? Do you know how sleepless I have been for a month because of you in this house?"

"Me?"

"Yes. And now you tell me about lettuce-eaters from the movies. I don't want to know anything, Harold. I hate you and I hate your thing."

The egg rolled again. Cynthia could not contain herself. She grabbed a dust pan and began to swing. I got my hand under the flat part just in time. She would have splattered my Glak all over the neighborhood.

We struggled and it was not all violence. We tangled as people do, and it came to pass that Cyn ended up with her back to me, my arms around her front, and she threw back her head so I drowned in perfumed black hair. She was a buttery girl, a pillow, who gave where squeezed but popped right back to shape. Now she stopped the battle and cried again. I turned her and comforted her. What could I do? Send her out yelling?

As we fell together onto the sturdy bed (it was maple), Cynthia tried to crunch the egg with a leg this time. I thwarted her, then put the Glak on the floor where it jumped like a madman.

Love was made that morning.

"Harold," she said near noon, at which time her mother was expected from the supermarket, "I don't care who or what you are. All I care about is that I come first and not some turkey from Mars."

"OK, Cyn, my honor. And the egg business is between us."

"Don't say between us. I'll break the bastard if you ever so much as pat it in my presence."

"I didn't mean between us, I meant between-us. Hush-a-bye. Our business."

"Hush-a-bye yourself. Make me sleepy again."

Within an hour I had swollen glands. They were heaven's gift. I would have preferred measles or mumps, but the glands would do. I needed time and Cynthia's cold, a splendid virus that made me sweat, chill and shake, gave me time.

With Myrna offering fire, with Cynthia openly hostile, competing for egg-time, and me being only one human being, I needed time, time, time.

I refused to recover. But my illness did not protect me. The sisters were stirred by helplessness. The nights were much. First Myrna would come and soon fall asleep. I pulled blankets over her. Cynthia liked the bed's far side. She blew fire in my ear. One Fonkle slept; another awoke until the weest hours. I was destroyed.

I had nothing left for the Glak. I was spent, an icicle, so cold and uncaring I could have sunk the *Titanic*. The Glak lept in depriva-

tion and threw covers on the floor.

"Harold," Mrs. Fonkle said to me one gray morning soon after, "something is going on."

"What?" I said weakly, coughing a lot.

"A woman with daughters is a woman with all eyes. And such daughters. I think they like you, Harold."

"Fine ladies," I said. "Cute as buttons." I put a thermometer in my mouth, which was not even oral, to prevent further speech.

"And my intuition tells me, Harold, you like them. But *them* is not Myrna and *them* is not Cynthia. You follow my mind? Harold, your blanket is shaking. Are you all right?"

"Mmmm." I tried to hold down the egg with my hand.

"What is life but decisions," Mrs. Fonkle said. "A time for fun and games, a time for decisions."

I was expecting this inevitable confrontation and prepared. With the thermometer still plugged in, I dived, without warning, under the pillow. I howled. There, in readiness, was a can of Foamy. I squirted the Foamy around my whole head, mouth, face, eyes, and hair. To cancel the whoosh of the lather, I yelled like an owl. Then up I came like a sub, from the depths of the Sea of Despair. Mrs. Fonkle was torpedoed.

My wet white face, waving arms, kicking feet, jumping quilt, had a fine effect. A cargo ship by nature, hit on her water line, Mrs. Fonkle slid slowly under waves without time for an SOS.

After carrying her to her room and leaving her on her bed with a wet rag on her forehead, I went back to my own room. My thermometer was on the floor, its arrow touching the silver line at normal. I quick-lit a Pall Mall and heated the mercury drop. At 104.6 I was happy and left it in a prominent place, wiped myself clean, got back in the bed and awaited commotion.

Should all the air raid sirens and dystrophy ads and cancer warnings we go through be wasted, a total loss? How much has society spent to keep you alert, Harold North, pumping adrenalin, listening for vampires? Use your training. Deal with challenge. I lay there waiting for my next idea.

Coma. A beautiful word, and my answer. Coma.

When I heard Mrs. Fonkle rise finally, I put myself into a coma. In a self-created and lovely blue funk I lay there, smiling like Mona Lisa, stroking my egg.

Naturally enough, she called the doctor.

"And the blanket was jumping during all this?"

"Like a handball. . . ."

I heard them in the hall. Mrs. Fonkle came with him to my room. I stayed in my coma while the doctor stuck pins, took blood, gave needles, checked pressure.

Later, in a miserable mood, Mrs. Fonkle stormed back alone, pulled at my blanket while I pulled back, and she said I was a cheat, a malingerer, a fraud, a leecher.

"Dr. Zipper says nothing is wrong with you. Not even athlete's foot."

I never would have given Zipper the credit. He actually found me out.

"So, Mr. North, name the game."

"Darling," I said, "darling, darling and darling." I planted a kiss on Mrs. Fonkle's thyroid. "I hope you are on the pill," I said. "I hope at least you took precautions." I looked lovingly at her while her eyes rolled, a slot machine making jackpots.

"You never did," she said.

"I didn't. *We* did."

"It never happened."

"Old speedy," I said. "When again? Tell me. Come on. Tell."

"It never happened."

"They're not kidding when they say like mama used to make," I said.

"Pig," she said. "An unconscious lady."

How I hated myself. If I could, I would lay down on spikes, I thought. Well, maybe something in her will be flattered. Maybe she will feel good that a young man was inspired to do her some mayhem. Let her think of me as a crumb, a nibble, a K ration on the road to social security.

It was Myrna who brought supper on a tray.

"Harold," she said. "I have thought you over. In your present weakened condition this egg business is too much for you. Psychologically, I mean. You have got to think of keeping for yourself, not of giving. Darling, we are all so worried. Even mama is in a state of distraction. She served daddy three portions of liver tonight. You have got to get well. Let me take the egg. I will keep it cozy while you recuperate. Let me take it to my room, at least for the nights. Harold, please say yes."

Why not? If Myrna, who had embers to waste, said she would care for the Glak, she would care for it. This was a trustworthy lady. And my blanket would no longer bounce.

"I agree," I said. "Thank you, dear one. Thank you."

Myrna beamed. Then and there she took the box, put back the angry egg, and carried it to her bedroom. Transporting the bundle she hummed a lullabye.

"Now," she said, removing my empty tray, "use *all* your energies to heal. Save everything like a miser until you are better."

"I will save," I said, nearly crying from good feeling.

To do her duty, Myrna retired early, even eagerly. I think for the first time in her life she locked her door. When the house settled down, Myrna asleep, the Fonkles

watching television, Cynthia came with dessert.

"Hello, Jello," she said.

"Hello jello to you, angel."

"Harold, I have had some second thoughts."

"At this late date?"

"Harold, that stinking egg has got to go. It's draining your strength. Government or not, I am going to bust it to pieces. I never liked it, but I lived with it. But when the time comes, that the egg hurts you and keeps you from total recovery, then it's time for a change. I want your permission to smash that egg because permission or not here I come."

"Let me think on it."

"Think fast. You know me. The first minute I catch you with your eyes closed—splat."

"I'll think fast. I must weigh personal gain against my sworn. . . ."

"I have stated my intention, Harold."

I thought fast. Not bad. Why not let Cynthia eliminate the egg, at least, *some* egg. It would remove her desperation, apprehension and combativeness. Not to mention her curiosity if she ever discovered that the Glak was already gone.

After doing with my jello what I have always done, that is, slicing around the cup and putting the saucer over it and turning the whole thing upside down so that the jello comes out like a ruby hill, Cynthia removed the dishes.

"I am going to the movies," she said. "Have your mind made up, Harold, by the time I get back. And by the way, you eat jello in the most disgusting sensual manner. I'm dying to be with you."

I kissed her nose.

What a marvelous family. Even Mr. Fonkle was roaring with laughter downstairs, so happy with the "Beverly Hillbillies."

The TV which occupied Mr. and Mrs. Fonkle with slices of flickering life was in the living room. The living room was removed by a dining room from the kitchen.

On the balls of my feet, I went down and slipped into the control center of the house. There I opened the frige and removed three eggs. Why three? Cynthia knew the egg of the Glak was big. In fact, by then it had swelled to the size of a small football. Big eggs make big splashes.

I tiptoed upstairs walking in my own footprints. In the room I took scotch tape strips from the dresser drawers where they held paper to the wood. With what glue was left I pasted two eggs together. Praise be, there was only enough tape for a pair. I cut my pinky with a blade and speckled the pasted eggs with A-positive. There was enough left, before clotting, to dot the third too.

I waited with my egg bomb under the blanket in the Glak's former place. The third egg went under my pillow on an impulse.

The arrival of the specialist surprised me. Mr. Fonkle showed him in.

"Harold," Mr. Fonkle said, "this is Doctor Bim. Doctor Zipper called him in for consultation. It seems you are a puzzling case, a phenomenon to medicine."

Dr. Bim nodded. I replied in kind. If Zipper was sure I was faking, why this? Playing safe against malpractice, I thought, and I looked to my Hikhoff for confirmation.

"Feel well, Harold," Mr. Fonkle said. "We're in the middle of a hot drama. Excuse me."

Dr. Bim went to wash his hands, then came back and closed the door. After drying, he put on white cotton gloves.

"I never saw a doctor do that," I said.

"We all have our ways," he said. "Now to work."

Dr. Bim pounded me with hands like hammers.

"Now, close your eyes and open your mouth," he said.

I closed hard and opened wide.

"When I tell you, Harold, then look. Not before. Depress the tongue. Hooey, what a coat."

"Aghh."

"Keep the eyes closed."

"Broop."

"Now bite hard."

My mouth shut on the barrel of a gun. My eyes popped open.

"No noise," he said, and kept the gun close.

"Nagle, I presume. How did you track my spoor?"

"By checking room-for-rents in the papers on the days after you left us, Harold. By asking around. From the ZIP code on a certain letter to a certain lady who sells poodles."

"You are nobody's fool. Nobody's."

"Thank you," the Nagle said, appreciating my large heart. "It's a shame we couldn't come to a more civilized agreement. I hope, Harold, that you comprehend my motivation. Take my father, a man who spent his whole life contributing bits and pieces. Imagine, fifty years of droppings, footnotes in *American Scholar*, a few *ibid's* and some *op cit's*. Nothing to make headlines, never once. Then one day in comes your fat friend Hikhoff carrying a genuine, fertile Glak egg. 'Tell me, Dr. Nagle,' he growls in that meretricious voice of his, 'what do I have here?' Harold, at that moment, in the fading evening of my father's life, the sun rose. On the brink of shadow, my father saw blinding rays. Understand?"

"Yes. It's not hard to understand."

"Do you have any concept of what a fertile Glak egg means to an aged anthropologist?"

"A small grasp."

"Immortality. For the first time, my father begged. For what? For halfies. No more. Not fifty-one per-

cent, just fifty. The Hikhoff-Nagle Discovery is how he put it. Hikhoff laughed at him."

"The egg was full of meaning for Dr. Hikhoff," I said.

"I swore at the funeral, Harold, that my father's memory would be based on more than just mummy swatches from the graves of second-string Egyptians. Now I fulfill my vow."

"Nagle," I said, "are you in this for your father or for your own need to up the ante on your ancestors?"

"How would you like a loose scalp?"

"Sorry. But I am vow fulfilling, too. You read the letter marked FIRST."

"And tonight I will read FINALLY."

"Impossible," I said, "that letter was lost. When I woke up in the hospital after you. . . ."

The Nagle scratched his ear. "It could be," he said. "Does it matter? What can FINALLY be except more of Hikhoff's Old English ravings. Virility of the vocal chords, which was the only place he had it."

"Have some taste," I said. "The man is among the dead."

"Let FINALLY blow along the Utica-Mohawk tracks. The egg is what matters."

"We could go partners," I said.

"Ha. You are a gutsy one, Harold. Too late for partners. Now give me the Nagle Discovery. Any hesitation, reluctance or even a bad breath and you join Hikhoff for choir practice."

He was a nice fellow, the Nagle, with a face like Don Ameche, not the killer type, but you never know.

"The egg is here under my pillow," I said.

My luck held. The Nagle had never seen the egg before. He lit up when I showed him that pink-splotched pullet, balancing it in his palm.

"Slow and easy," I said, with wild eyes.

"It's been a pleasure," he said, tucking the egg in a towel and putting it into his medical bag. "Maybe when this is over and done with, you and I can sit and play chess."

"I would like nothing. . . ."

Pong. I was hit so hard on the head I flew half off the bed. I saw ferris wheels turning at different speeds. I tumbled too, spinning like a bobbin. Then later, there was another crash. A gooshy sound, a wetness. I woke.

"Bye, bye. Poor thing," Cynthia was saying, lifting my blanket, observing the destruction.

"What, what, what?"

"Harold, it had to be this way. Even that specialist said all you needed was complete rest. Better the egg should never see light, even in the free world, than you should die in your prime."

Cynthia never noticed the Scotch tape in the goo. She was so self-satisfied.

The next days passed smoothly.

Myrna had my Glak. Cynthia had her pleasure unshared. The Nagle was accounted for, squatting on his chicken. Mrs. Fonkle avoided me like doom. Mr. Fonkle, served like Farouk by his wife, brought cards to my room and we played.

Out of respect for her promise and a sense of my need for quiet, Myrna came gently only to report on the Glak. It was hopping all the time now, making tiny sounds. She described the sounds as like chalk on the blackboard, and I knew how happy Hikhoff would be if he could hear, as maybe he could.

While Myrna warmed Glak, Cynthia warmed Harold. Her vision of recovery was not based on abstention.

My only discomfort came from Mrs. Fonkle, and it was mild. Out of suspicion, she fed her daughters garlic and Ox Tails and other odiferous, glutenous foods that made their lips stick or filled them with protective cramps. I kept Tums and Clorets at bedside.

March went like the best kind of lamb. The windows unfroze. A bird sang on the telephone line. I had to move again and make plans again.

How did Chaucer say it? APPPRRRILLE WITHE HER SHOWERRRS SOUGHT THE DRAUGHT UFF MARS HATH PIERCED TO THE RUCHT. Like that. Up I came like a crocus.

Now it came time for partings and farewells. Cynthia was easy to leave, so easy it hurt. When the month turned, she met a podiatrist of good family. Her prospects improved. When we had our confrontation, she brought knitting along. In the tense air she knitted like a factory. A sweater for him.

"I am called back to D.C.," I said. "And will be punished."

"Punished, heh?"

"Forget it. Nothing painful. Chastised is more the word."

The thought of my punishment made it easier for Cynthia to say goodbye. Really, she had never been the same since the breaking of the egg. I think she thought less of me for not breaking it myself. Who can fathom a woman's heart? While we talked, she compared me to her podiatrist, and found him better. The mystique of new weather.

"No reason to prolong this suffering," I said. "I will always remember you and what we had together and how you sustained me."

Cynthia dropped a stitch, but caught it. Her reflexes had gained from our acquaintanceship.

It was harder to leave lanky Myrna.

"I know you must go," she said, "I know and I won't make scenes. Do you plan to return?"

"My life is a question mark," I said honestly. "What can I say?"

"It won't be the same without you two."

"Or for me. Ever."

"Send an announcement if it hatches. Nothing too fancy. A simple card."

Mrs. Fonkle, who had taken to charitable activities, said a swift goodbye. She was full of dignity and adorable poise. Such an ego.

The air was balmy on the day I left the Fonkle home. I had a new suitcase, the pudgy executive type, and in it my Glak had room enough. The egg was practically a bowling ball now, straining to pop.

The Fonkles stood in a family group when I entered the cab. I waved and wished them well. I was full of emotion, with watering eyes. They did so well by me and mine.

We live in a time of shortening distances, except between people. How easy it is to reach the most remote corners of the imagination. A person like myself can go from Utica, New York, to Labrador for $120.35 by bus and by plane. The facts made me swoon. Utica to Labrador. We are only hours from the place where the world ends.

To reach Labrador you go first to a travel agent. You tell him you wish to visit Labrador. He does not flinch.

"Where," he says, "Goose Bay?"

"No," you say, having studied maps and folders. "Maybe the Mealy Mountains."

"We have a special on the Mealys," he says.

"Or Lake Melville," you go on, "Fish Cove Point, White Bear, Misery Point, Mary's Harbor, Chidley on Ungave Bay, Petissikapan Lake, Nipishish, Tunungayluk or perhaps Gready. I haven't made up my mind."

"Go to Goose Bay," the agent says. "From there you can go any place."

"Can I jump off to Kangalakksiorvik Fiord?"

"In the Torngat region?" he says. "Naturally."

By intuition I had already chosen Kangalakksiorvik Fiord as the place where my Glak would be born. Not that Canadian citizenship could not be gotten closer, but Kangalakksiorvik felt right.

"The scenic route," the agent said, stamping tickets. "By Greyhound from Utica to Syracuse leaves 10:50 AM, arrives Syracuse 12:05 PM. Leaves Syracuse 2:30 PM, arrives Montreal 10:20 PM. You have a bite, see a picture. At 4:00 AM, Air Canada flies out, and at 7:20 AM you are in Goose Bay for a total cost, including economy air fare, of $120.35 plus a little tax."

"Then?"

"Then in Goose Bay ask around, hire a charter, and zoom you are in Kangalakksiorvik. The Torngats are lovely this time of year."

From the agent's convenient un-

cle I bought $10,000 in travel insurance. My policies were divided between Myrna and Cynthia, deserving souls.

At long last, with my Hikhoff snug in a pocket and my Glak bag in my hand, I headed for the terminal. On the downhill slope of responsibility, time is sweet.

For me a bus ride is only slightly removed from sexual intercourse. Since a child, I am prone to vibrations, put to sleep, handed the same dream. In the dream I drift in a washtub on a silver pond. This pond is populated by stunning things, all color and light, who knock themselves out for my amusement. I look forward to this dream like a friend.

My bus dream began and expanded to include my Glak. Each time the bus bumped or took a hard curve, the pond produced a three-headed lizard who nuzzled my nose. His triple grin woke me. I reached to see if the egg was intact, then, assured, slept again.

The bus went smoothly, as did my transfer to Air Canada.

There was some worry about how my Glak would like flying, especially under someone else's power, but there was no problem. The egg did not jiggle, except for take-off. Since there were empty seats, I belted the Glak beside me and reclined my chair. The silver pond is strictly an automotive fantasy. In planes I dream of crashing.

Here in the clouds over eastern Canada, I was allowed no repose. Behind me sat a couple who were touring the world. I had seen their luggage, a mass of labels, in the terminal. Now, on the way to Labrador, I deduced from their talk that they were running out of places. After Saskatchewan, there was nothing left.

"See there, in small print," the man said, showing a guide book. "See there, a fellow named Bjarni discovered Labrador in 986. Imagine. Bjarni the son of Herjulf. See there, he sold his boat to Leif Ericson, who later used the identical craft in his explorations."

"How do they know."

"See there, it's in the guide. Helluland, land of stones."

"Where?"

"Fish and fur are the two major industries."

"Oh."

Labrador did not sound bad. There were trees, according to the guide, conifers, birch, poplars, spruce, lichens, moss, red azaleas, blue gentians, even white orchids. And they had chicadees, geese, ducks, lemmings, lynx, wolves, ermines, martins, otters, foxes, seals, bears, owls, red gulls, and Patagonian terns. There were some Eskimos, the ones not shot by fishermen, Algonkins, Nascapees, Englishmen and Scotch. Not bad for a bird. Activities, company, a little conflict. A nice subarctic community.

It was a foggy morning. Hellu-

land, land of stones, fish, furs, etc., lay like a lump. Our plane began its descent. I could see no ermines or white orchids, only patches of smoke and the lights of the Goose Bay Airport. No wonder Bjarni unloaded the ship.

"Are you sure we haven't been here?" the lady said.

"See there," said the man, "it does look familiar."

Familiar it looks, like your own subconscious laid out to dry.

Goose Bay may be a fine place. I don't know. I checked my egg in the airport men's room. There was a crack in the shell, the tiniest fissure, not the kind that swallows grandmothers in Sicilian earthquake stories, more like a hairline. But it was there. If I were a first time mother, a primagravid as they say, with a broken bag of water, I could have acted no worse.

I collared the first Lab I saw and screamed at him about renting a plane to Kangalakksiorvik.

"Matter of fact, there's a plane leaving now. Pilot is by the name of Le Granf. He currently drinks coffee in the coffee place. You will know him to see him by his enormity. Also, he has one arm."

I found Le Granf in the coffee place, and there was no missing him. In a red and black mackinaw, he looked like a science fiction checkerboard. Built in blocks, head, chest, middle, legs, he was made from squares. His one arm held a pail of coffee, black.

"Mr. Le Granf?" I said.

"Yas," he said, a Frenchman monophthongizing his diphthongs, "who are you, Quasimodo, the hunchback of Notre Dame?"

"I am Harold North," I said.

"Beeg news. Vive Quebec libre."

You basically insecure vowel shifter, I thought. You son of a bitch. It's your plane.

"I understand that you pilot a plane up to Kangalakksiorvik."

"The world's puke."

"I've got to get up there."

"Why? You have a yen to bug seals?"

"Why is my business."

"True. How come this rush on Kangalakksiorvik? I got passenger for there. OK. We fit you in for a hundred dollars."

"Done."

"I swallow this sweat, we go."

Le Granf gulped the coffee and we went. We walked to a hangar in front of which sat something which must have been an airplane.

"Meet Clarette, the old whore," said Le Granf. "My saggy express. The snatch of the wild blue. You change your mind to go?"

"No."

"Stupid. My passenger is not here yet. Get in and we wait for him."

We climbed into Clarette's belly. There were four seats, two at the controls, two just behind.

"Clarette has a terrible cough," said Le Granf. "I worry for her tubes."

He pressed a button and the propeller turned. Puffs of smoke shot from the nose. The cough began, a hack.

"Phew. Not good."

I stopped noticing because Le Granf's other passenger arrived. It was the Nagle carrying a duffle bag. We saw each other head-on, and both of us made the sound of old doors closing.

"Acquaintances," said Le Granf. "Then we have stimulating conversation of the past."

I was sitting next to Le Granf, but when the Nagle came aboard, I did the prudent thing and shifted next to him in back. He put his duffle bag in the storage space and saw my executive suitcase.

"Are you armed?" I said.

"Don't make nasty personal jokes," said Le Granf.

"I was talking to my friend," I said.

"Ah."

"No, of course not," said the Nagle. "What are you doing here, Harold?"

"Same as you. Same as you."

"But I have the egg."

"You have a chicken."

"I get it," the Nagle said. "The goal-line stand. I admire your persistence, Harold."

"You have a chicken, Nagle."

"Sure, Harold. I have a chicken."

"Where is this chicken?" said Le Granf. "Include me in the discussion."

"Go ahead, tell him," I said.

Le Granf informed the tower that we were ready for takeoff by yelling out the window. Then Clarette fought her bronchitis, and slowly we were moving.

"She will rise," Le Granf said. "We will have our jollies."

She rose, after a fashion, and the Nagle told Le Granf his story of the Glak. I must admit, he presented his case objectively, as he saw it, keeping all things in proportion.

"So, well, then one has a chicken and one a Glak?" said Le Granf, after I explained the complications. "Marvelous."

I began to feel oddly ill. I got violent cramps. I had flashes. My stomach swelled. In a flash of insight, the kind Hikhoff taught me, I knew I was feeling the symptoms of labor. This condition is not unusual in emotional kinds like myself, but still it is embarrassing.

"So," said Le Granf, "tell me. Which of your poppas is the real father, that I want to know. What kind of educated man would fornicate with a feathered friend?"

"Nobody fornicated with a feathered friend," I said.

"Love is love," Le Granf said. "But a bird."

"Fly the plane," I said, doubled over with pain.

Le Granf found a bottle of brandy and passed it around.

"I have heard tell many strange tales under the Northern Lights, you bet," said Le Granf, "but two

men infatuated with the same pigeon, oh boy!"

"Ignore him," said the Nagle.

"Tell me," I said, "What made you pick Kangalakksiorvik?"

"The *galakk,* I suppose, which sounds like Glak."

"I never noticed that."

"And you followed me all the way up here with nothing but the chicken story, Harold? I keep expecting you to play a trump card. Are you waiting until we land to hit me on the back of the neck?"

"Follow you? Why should I follow you? What you have there in the sack is a rooster, maybe a hen, but no Glak."

"Harold," said the Nagle, "I hope I find a friend someday as loyal to me as you are to Hikhoff."

Bouncing like an elevator, Clarette flew us to the dead heart of winter, over fields of blue ice.

The Nagle and I fell into bemused silence. Under my pains, I had thoughts of Hikhoff, out of place, out of time, out of focus, tossing vowels like darts at the passing parade. Was Hikhoff himself involved in a pregnancy, kindled by food? Could it be that he felt himself with child, some kind of child? Were Hikhoff's bellows labor pains too, for an invisible offspring? The Glak. Some son. Some daughter. *Some* product, at least, of Hikhoff's perpetual pregnancy.

Le Granf sang dirty songs about caribou and snowshoe rabbits. They helped pass the journey.

"There it blows," said Le Granf. "Look down. Nothing, eh?"

Clarette lost altitude, such as there was, as Le Granf searched for a landing place. He flew us off to the left of what seemed to be a settlement, circled, dipped, banked.

The Nagle and I grabbed for our luggage. We both had red faces, flamed by the moment of truth.

"Nagle," I said, "I feel sorry for you. You will soon stand chin deep in snow and discover at the moment of triumph that you have carried a fryer to practically the North Pole."

"Really, Harold. Do you plan to hit me?"

"No violence from me," I said. "The violence is done."

Le Granf found a spot, a clearing in the woods. Clarette settled into it as if it were a four poster, a remarkable landing, one-point.

The deal with Le Granf was for him to wait.

The Nagle's egg was as ready as the Glak's. Neither of us anticipated more than a few minutes. Outside in the absolute cold, the Nagle and I wrapped scarves around our faces. We lugged our burdens toward a place near trees.

"This is it," I said.

Like duelists, we stood back to back. We bent to our bags. Out came the Glak egg, hopping to my hands. It was hot as a muffin. More fissures lined the shell and more showed all the time. The egg was more like a web.

Le Granf stood near the plane out of decency. He could see how serious we were and hummed the wedding march.

The egg broke in my hands.

I was holding a blinking, stringy thing with stubs for wings and fat feet.

"Hi, Glak," I said.

"Hi, Glak," the Nagle said to his chicken.

You would think my warm hands and the furnace of my affection would have meaning to a Glak barely sixty seconds old. No. Already, it strained for escape, looking at me as if I were a Nazi.

I put it gently on the frozen turf. It did what it was supposed to. It waddled, fell, slipped, staggered, stopped, stretched and said *glak* in a raucous manner.

Cheep, said the Nagle's chicken, and he said, "Did you hear that?"

I paid him no attention. My Glak, *the* Glak I should say, was examining the world. It took a step toward the forest, but hesitated.

"Come here, Glak," I said to the wasteland.

Glak.

Cheep.

The Glak did not come back. It took a baby step toward the woods, then another.

I moved after it, but stopped. There, in the land of stones, I heard Elsie Moonish's dictum on love without possession, the act without the owning.

I without Glak, Glak without me. We were both our own men. Poor Glak. Already it speared looks here and there in a jerky search for its own kind. Were there any others? Would it find them? Did we do this frazzled thing a favor or the worst injustice?

"Goodbye, my Glak," the Nagle was saying. His chicken had taken a stroll, too. The Nagle began snapping pictures of it for the record. I had no use for the record, and Hikhoff had written nothing of Polaroids.

"Glak," said my Glak, more raucous than before. And there it was, Hikhoff's croak, pre-vowel shift as they come.

The Nagle snapped away at his impostor, a yellow tuft.

Then the newborns met. The Glak and the chicken felt each other out, shrugged, shivered, took a look at Labrador and walked off together into the primeval forest.

"A Glak and a chicken," I said to the Nagle, who rolled film. "Some team. Chickens, at least, are not extinct. Glaks do not yield their drumsticks so willingly. Maybe hope blooms here in the snow."

Off went the birds. What could I say? Could I give wisdom? Could I say, "Call Fridays?" Could I say, "Read *The Snow Goose* by Gallico and drop in to show gratitude on Christmas?" There was nothing I could say. With a bird, just-born is the equivalent of a human adolescent. There is a definite loss of communication.

"Come on, crazies," said Le Granf. "Clarette is oozing oil."

Polite at the end, the Nagle and I offered firsts at the door. We were subdued. Le Granf started his rubber band motor.

"Wait," I said, climbing out, running back to the nursery where two shells lay open like broken worlds.

"Moron. Come on," said Le Granf.

I put my Hikhoff on the ground, facing the trees.

At Goose Bay I said to Le Granf, "Monsieur, you are a reindeer's udder." Nothing.

I said, "Sir, you are an abortion." Puzzlement.

I said, "Pierre, your missing arm should goose the devil." Double take.

I said, "Laval, you are a lousy pilot with a greasy plane."

He hit me on the head. I hated to use Le Granf that way, but I needed the jolt. I felt better, much better, purged. It was the Nagle who picked me up.

"Nagle, what do you plan to do now?" I said. "Myself, I plan to go some place where a pineapple can grow. Someplace where the sun is the size of a dinner plate. I am going to get salt water in my mouth."

Still reeling, I thought, *who needs me most?*

E. MOONISH SYRACUSE, NEW YORK OFFER PLUS-PLUS IN SALUBRIOUS CLIMATE STOP ALL EXPENSES STOP PLENTY HONEY STOP PLEASE REPLY COLLECT STOP LOVE STOP HAROLD NORTH

After cabling, I went with the Nagle for a drink. While the drinks were being brewed, I excused myself, left for the john and read FINALLY under an open bulb.

Dear Harold,

Bless you and keep you. Also, thank you. Harold, enclosed is a check for $1000. Write poems. Also, here is my recipe for a grand roast Glak:

Take Glak, place in pan, cover with butter and slices of orange. Spice with garlic salt. Add paprika and pepper. Line pan with roasting potatoes and tender onions. Place in pre-heated range 450 degrees. Cook 30 minutes per pound. Serve hot. Suggest lively Gumpolskierchner '59 for a sparkle.

Best regards,
David Hikhoff

"It was delicious, delicious," I yelled to Hikhoff. "Boy, you have some weird sense of humor."

Hikhoff, roller of RRR's, chamber of guts, juggler of opposites, galloping ghost, A.E.I.O.U. now sleep well.

So it was that I entered my *puerperium,* which is gynecological for the time of recovery after delivering, the time of post-partum elation. Of life after birth. ◄

BOOKS

As most of you know, I am the editor of a (roughly) annual anthology of science fiction and various related writings, loosely lumped under the title, SF. Some of you may also remember that, in what now seems to me the remote past, I was also a writer of (science fiction? well, at least) s-f. Some of the active fans are also aware that I was briefly a fan magazine publisher myself, and for many years a compulsive convention-goer.

I mention this, in retrospective mood, because I have just read two books which, between them, shuttled me back and forth through the nearly-a-quarter century since I first became personally involved with the science fiction world. I mean—

Talk about your generation gaps!

Today, I inscribed a dedication copy of a new book to an editor with whom I had one of the mightiest battles of my professional life just ten years ago. I had written what I considered an inspired piece of prose with which to conclude the Third Annual SF, the one that covered 1957, Year of the Sputnik; he cut my copy to shreds. It happens—I can now admit—that he was a very good editor, and he *may* have been right from a literary standpoint; I will never know, because in my fury, I tore the thing up, and wrote instead a modest piece of about one-third the length and none of the glory. As I said, the man was, and is, a good editor—but a rotten prophet, and no astronaut (even of the soul) at all.

I am no astronaut (*except* of the soul) and unlikely ever to be one; nor was my first contact with the old Futurian Society early enough to participate in their adventures with backyard rocketry. But it was close enough after that time so that it took very little effort for me to identify myself with the romance of spaceflight at a time when, almost anywhere outside the science fiction magazines (and a few isolated spots like Pasadena and Peenemunde), the whole idea was regarded either as Sunday Supplement sensationalism, a particularly malignant form of phallic-symbolism-escapism, or a sad rationale for the use of V-2 rockets by Hitler Germany.

About six years before my own

First Contact, an 18-year old Columbia student and a 20-year old at London University—both avid readers of s-f—found Fandom. They did not meet each other till many years later, but they had a lot in common: both were brilliant young science students, one in chemistry, the other in physics, mathematics, and astronomy; both were unusually talented writers and persuasive talkers—vocal, extroverted, charming—but also intense, dedicated, "inner-directed" personalities.

In those days, science fiction and space flight were almost synonymous: to be a fan of one was to be an enthusiast for the other; in some senses, the whole science fiction field, during the period of the ascendency of John W. Campbell's *Astounding,* was a great volunteer propaganda machine for space flight. The thing was, *respectable* scientists simply could not, whatever their private sympathies or expectations, risk their academic and professional reputations by association with wild-eyed rocketeers. Or at least *would* not.

For those of you on the other edge of the g-gap, a reminder: this was before the days of "think tanks" and "generalists" and "futurists;" cybernetics was an infant science; there were no computer-predictions, and no *real* computers; the word "UFO" had yet to be coined; radar, the transistor, solid-state electronics, were all on the drawing board or in early experimentation; established scientists writing science fiction—in this country at least—did so only under pennames. (The only scientific advocate of space flight I can recall who took no such precaution was Willy Ley, who had come here from Germany and had no university connections to lose.)

For an ambitious young scientist to identify himself and his future career with the science fiction and spaceflight crackpots, was no easy decision. Both Isaac Asimov and Arthur C. Clarke made that decision out of inward necessity, something we used to call "having the courage of your convictions." *They* are not astronauts either: but the astronauts owe them much. There is no possible way today to measure the influence each of them exerted; no way to say what part of the job of popularizing space flight and educating the world to the realities of the space age, can be directly attributed to Clarke and Asimov—except to say that it is a very *large* part, probably more than can be attributed to any other name (except John Campbell) not directly associated with the space programs.

Clarke's book, THE COMING OF THE SPACE AGE (Meredith, $6.95), is a fat anthology of 301 pages, which amounts to a literary exhibit of the actual birth of space flight: a collection of articles, diaries, newspaper pieces, fiction, po-

etry, project reports and personal reminiscences, 36 selections in all (plus brief notes by the editor), from a widely varied assortment of authors.

There are autobiographical selections from Tsiolkovsky, Oberth, and Goddard; articles by Dornberger and Von Braun on the making of the V-2, and pieces on early experimentation in the U.S. and in Britain; there is a thoughtful, visionary speech given by Olaf Stapledon to the British Interplanetary Society shortly before his death, and a poetic page and a half transcript of John Glenn's description of "fireflies" around his capsule in space; Percival Lowell's 1896 essay on "Mars as the Abode of Life" is here, and Carl Sagan's 1963 speculation on "Direct Contact with the Stars"; C. S. Lewis and Sam Moskowitz, cheek by jowl, discuss "God in Space" and "Space, God, and Science Fiction." Add Hermann Muller on alien life forms, Krafft Ehricke on "The Anthropology of Space Flight," an amusing extrapolation by R. S. Richardson on a track meet held in low gravity, a lively reminiscence of furnished room experiments with mice on centrifuges, the birth of Space Medicine, by Constantine Generales, a poetic passage from J. B. S. Haldane—and an editorial from *The New York Times* of 1920, expressing astonishment at Professor Goddard's ignorance of high school physics—"the need to have something better than a vacuum against which to react."

This is an unusual, and unusually good, book in several respects. Clarke's unique position in relation to the development of space flight—closely involved from the very beginning, but not employed in the actual work; an Englishman resident in Ceylon, with friends and professional connections in both the U.S. and the U.S.S.R.—gives him the ideal editorial perspective. He knows where the conflicts of theory and of vested interest exist, without participating in them. He speaks, and selects, as a citizen of Earth, viewing the emergence of the race into space, rather than any political space-race. (Indeed, some readers will undoubtedly be irritated by the space and good-fellowship given to Dornberger and Von Braun.) He is, moreover, not only a distinguished writer of both science and science fiction, but also, clearly, a discriminating editor. Scientific articles are well balanced with "human interest" pieces, and even the few heavily technical pieces are exemplars of good writing in this difficult field.

Nothing I have read before has given me quite the same feeling of acquaintance with the people involved, or of comprehension of the overall pattern of development.

(Note: Arthur Clarke's 1965 collection of short articles of his own, VOICES FROM THE SKY,

which contains his famous 1945 *Wireless World* article on a communications satellite, is out in paperback from Pyramid, 60¢.)

Readers of this magazine do not need to be told about Isaac Asimov's writing. It would be enough to say there is a new book called IS ANYONE THERE? (Doubleday, $5.95), and that none of the 37 articles have appeared in *F&SF* (and only three in other science fiction magazines). So, having said it, let me add—

In structure, source, style, and subject, this is probably the most diverse Asimov collection to date. Reprints from the *New York Times Magazine, TV Guide, The Journal of Chemical Education, The Humanist, True, The Bulletin of Atomic Scientists, The American Legion Magazine, Mademoiselle, Science World, The Diners Club Magazine,* and some fifteen other assorted publications, plus three entirely new pieces, make up this volume of 320 pages, divided into three large sections. Part I, "Concerning The More or Less Known" is subdivided into "Life" and "Non-Life," and deals with memory, weight-losing, and synthetic life, as well as cosmology and time travel. Part II, "Concerning The More or Less Unknown," (divided into "Other Life" and "Future Life") includes the title article, "The Anatomy of a Martian," speculations on life in space, population control, etc. A final section, "Concerning Science Fiction," consists of six short pieces: three urgently setting forth the social and educational significance of the field; two gleefully tickling some of its tenderer spots (notably the white TV underbelly); and a final bit of nostalgia reprinted from the short-lived *PS*.

I said before that nothing needs to be said here about the Good Doctor's writing; I was wrong. It needs saying, not to you, but by me.

We grow accustomed to the quality of a familiar writer as we do to the virtues of familiar friends, but every now and then an unusual set of circumstances makes us look at everyday people and events as clearly as we see the new and different. Perhaps because it contained so many pieces I had not read before—perhaps because, written for a variety of audiences, it exhibits more facets of Asimov's interests, enthusiasms, and opinions than usual—this collection impressed me all over again, not so much with the Asimovian erudition or literacy (both on display here monthly), but with the extraordinary quality of sheer humanity that permeates his work. I don't mean sentimentality (which I regard him as being sometimes *guilty* of), but a certain combination of gentleness and thoughtfulness, a distinctively personal warmth which too seldom enhances the colder brilliance of excep-

tional intellect. Their conjunction explains much of the effectiveness of his work, as well as the high personal regard in which his readers and colleagues both regard him.

Something of the same sort of human atmosphere informs and enlivens the writing of the (Harvard & Smithsonian) astronomer and exo-biologist, Carl Sagan; it was happily evident in his collaboration with Shklovskii, INTELLIGENT LIFE IN THE UNIVERSE, reviewed here some months ago; and it even manages to penetrate the usually smooth/faceless style of a Life Science Library volume, PLANETS, co-edited by Sagan and John Norton Leonard. This is one of the best of the Library volumes I have seen: or could it be I find it so because its orientation stems from the same Big Hunger (for those of you who remember the Walter Miller prose-poem) I spoke of earlier? "The greatest prize they seek is life beyond the earth," says the introduction, and most of what follows, even the most elementary facts, is aligned with this in view.

(How different and how alike: Von Braun's retrospective on German rocketry, obsessed with achieving the vehicles for space to the exclusion of all other principles or policies, and Sagan/Leonard's view of the planets—earth included—essentially as vehicles, carriers of intelligence, bases for future communication.)

Another Life Library volume at hand, TIME, edited by Samuel A. Goudsmit and Robert Claiborne, impressed somewhat less. It is clear and adequate as far as it goes, but it seems to me with so much new inquiry going on into the nature of time, and the varieties of time experience, less space might have been devoted to the comic strip explaining relativity, and more to (at least) the concepts of subjective time, nonlinear time, etc.

With space travel and science fiction gone solidly respectable, and even talk of time travel and parapsychology eliciting very little more than a cautious neutrality from most defenders of the academic faith, the true devotee of the outre has a hard time these days scraping together enough sensationalism to raise a few incredulous eyebrows.

But the market for the bizarre is apparently unfailing, and where invention falters, research seems to serve. It can be a cold hash of the sort served up in Paperback Library's STRANGE HORIZONS, a collection of articles "compiled by the editors of *Borderline*"—whatever that may be—which contrives to reduce such familiar exotica as "I Ching—The Book of Changes," "The Great Sir William Crookes Scandal," "Aleister Crowley," "Krishna Venta and the Fountain of the World," and 21 other, similar topics, to unremitting dullness.

(The book does offer one fresh wonder: 24 articles under 24 different bylines, almost every one of which starts with a sentence like: "A fascinating book could be written about the diverse role (sic) of the prophet in history," or "In southern California many strange and unusual people come and go," or "History records that Galileo experienced tremendous hostility from his peers . . ." What's more, they go *on* the same way.)

Or there is Vincent H. Gaddis' MYSTERIOUS FIRES AND LIGHTS (McKay), which proves (at $5.50) something I would not previously have believed: namely, that Charles Fort could have been a bore if he had tried. Gaddis presents a thoroughly well organized, meticulously documented, carefully reviewed assortment of oddities, which include UFO's, freak lightning, ball lightning, firefalls and fireballs and St. Elmo's fire; firewalkers and "human salamanders," bioluminescence, cases of electrically charged humans, poltergeist and psychokinetic incendiaries, and spontaneous combustions. The net effect is a bit like reading an old-style grade school textbook on English History, so crammed with dates and names it was impossible to realize that the battles, executions, coronations and crusades actually happened to live humans.

For just 45¢ more, however, Abelard-Schuman has turned out an "illustrated bestiary," UNNATURAL HISTORY by Colin Clair, a compilation of classical and medieval writings and reports on animals, real and imagined, from the hippopotamus to the hippocriff (as well as the unicorn, centaur, phoenix, basilisk, hydra, kraken, and others). The short pieces are written with humor, sophistication, scholarship, and good English prose, and the authentic illustrations accompanying most of the essays are entirely charming, well-chosen and well-reproduced. Be warned: if you have any susceptibility to antiquarianism or esoterica, the two-page bibliography at the end could be the beginning of an expensive habit.

The companion volume, from Doubleday, is a bestiary of another color: THE SNOUTERS, by Harold Stümpke (translated by Leigh Chadwick), is subtitled "Form and Life of the Rhinograde," and liberally illustrated with drawings from the pseudo-life (by co-author Gerolf Steiner) of these extraordinary animals. You might not want to go so far as to spend $3.95 for less than a hundred pages of hysteria, but do at least bug your local librarian to get a copy.

I wish I could say Otto Binder's WHAT WE REALLY KNOW ABOUT FLYING SAUCERS (Gold Medal, 75¢) was funny, or even inventive. At least it is not dull. But the total effect does much to confirm the opening words of the in-

troduction by John A. Keel (whose own contribution is almost the only counter-agent): "For twenty years a pathetic assortment of crackpots and cultists have ruled the 'flying saucer field,' screaming to an amused world that we are being invaded by tiny green men. . ."

UFO's are only a part of the assortment of marvels presented by Ivan T. Sanderson in "THINGS" (Pyramid, 75¢). He also deals in Globsters, Whatchamacallits, lake monsters, ringing rocks, flying rocks, suspended animation, etc. And as always, with Sanderson, I can only report that he writes with originality, credibility, and style; I keep wondering why I don't hear about his discoveries anywhere else—but maybe it's just because the other people who write about them are too dull to read. At the least, a first-rate exercise in acquiring a definition of honest scepticism, and in any case, a good read.

—JUDITH MERRIL

BOOKS RECEIVED

FICTION

ASIMOV'S MYSTERIES, Isaac Asimov, Doubleday 1968, 228 pp., $4.50

THE BEST TALES OF HOFFMAN, E. T. A. Hoffman, edited with an introduction by E. F. Bleiler, Dover 1967, 419 pp., $2.00

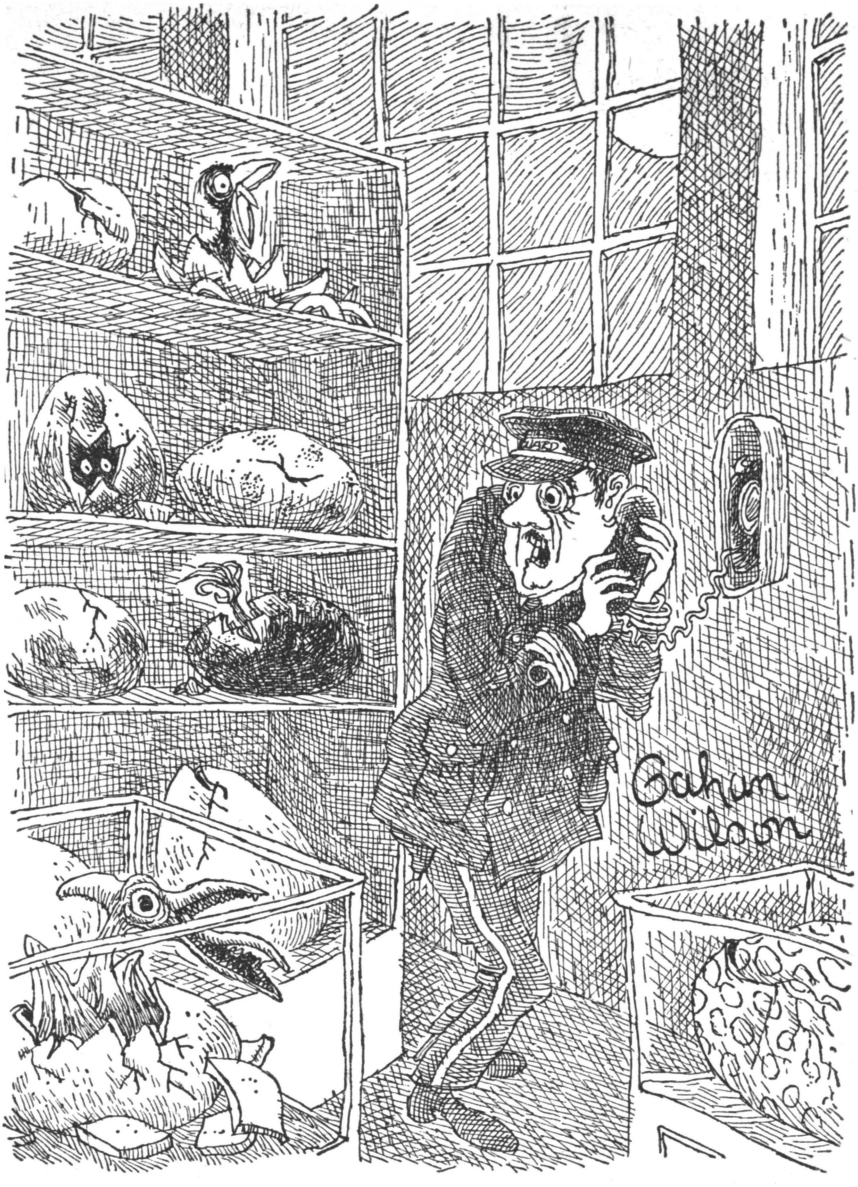
PAPERBACKS

THE ASTOUNDING SCIENCE FICTION ANTHOLOGY, John W. Campbell, ed., Berkley, 60¢

5 UNEARTHLY VISIONS, Groff Conklin, ed., Fawcett Gold Medal, 50¢

A MAN OF DOUBLE DEED, Leonard Daventry, Berkley, 60¢

ANDROMEDA BREAKTHROUGH, Fred Hoyle and John Elliot, Fawcett, 60¢



"You've got to come over at once, sir! Something terrible's happening in the hall of eggs!"

Miriam Allen deFord returns to our pages with an absorbing tale about an exosociologist's expedition to the planet Ajeri, whose inhabitants were practically human, at least in outward appearance. As we all know, appearances can sometimes be deceptive . . .

THE AJERI DIARY

by Miriam Allen deFord

May 29, 2297.

As I HAVE DONE IN ALL MY PREvious expeditions, I am starting a private diary before I leave for Algol IV. I find it supplements my official report and is of great value when I begin to tape a new book on my latest findings.

Ever since the Patterson Differential made it possible to transmit ourselves and our paraphernalia practically anywhere in the Galaxy in the same time it would once have taken to visit Mars, there are few new fields for discovery left for the exobiologist, but some still remain for the exosociologist, so I am lucky in my special area of research. To be sure, Algol IV has been visited many times by now, but only briefly and mostly by explorers and trade scouts; for my purpose it will be almost virgin territory, and I am very grateful for the Federation grant which has opened this new enterprise to me.

I am even more fortunate in that the necessary spadework has already been done: i.e., we know that the planet is livable for Terrestrials without space suits (and can one imagine field work conducted through a space helmet?), that the inhabitants of the dominant race are not so much humanoid as practically human, at least in outward appearance, and that thanks to the initiation of trade-centers, an appreciable number of the urban residents now speak some Neogalactic. I have of course

also begun to study their own language (or anyway that of their principal city, which will be my headquarters), and I already know that they call their planet Ajeri, that the city is called Bafik, that "eskon" means "man" and "org" means "woman"; and while I am in deep freeze on the two-month journey, I am confident that I can acquire through sensor-instruction enough of the tongue to be able to find my way about and settle in. As a crowning benefit, I am assured that they are a friendly and outgoing people who will not resent my investigations—though I can hardly expect that my name or my series, "With Our Galactic Neighbors," will be familiar to them, as it is throughout our own solar system.

The one wrench in this trip is that it means absence from Mara for almost a year and a half. I suppose we are what our ancestors used to call "in love" with each other, and though under the circumstances of both her work and mine we can hardly arrange to be constantly together or to remain what used to be termed "faithful" to each other so far as our physical needs are concerned, yet for both of us this is the most satisfactory partnership we have ever experienced. I shall be sorry to leave her and delighted to rejoin her on my return, and I know she feels the same way.

This, then, is my preliminary taping, and I shall take up the diary again as soon as I reach Bafik and am actually on the job.

September 8.

Everything goes swimmingly so far. Naturally, the persons concerned on Ajeri knew I was coming and were acquainted with the objects of my research. I speak of them as "the persons concerned" because (probably because of my being still unfamiliar with the finer nuances of their language) I am still rather vague as to their governmental set-up and the proper titles of its leaders. However, when after the always rather disagreeable process of being "unfrozen" the ship dropped me at Bafik's spaceport and proceeded on its way, I was pleased to find that someone apparently in authority had come to meet me. This was a man named Olven, as near as I can make it out; I was happy to discover that he did indeed look very much like any middle-aged, intelligent man on Earth, despite the rather scanty garments he wore, for Bafik is near the Ajeran equator. He spoke a fair Neogalactic, and I made what polite rejoinder I could in my elementary Ajeran. He had already made arrangements for my lodging in two very pleasant rooms in what I suppose might be called a hotel, and after my first meal I found the unfamiliar food quite digestible, though not too appetizing. (That is just

as well, since I have a tendency to overweight.)

Olven has remained my chief point of contact; the day after my arrival he took me on a tour of the city and that evening had a little gathering of his friends in his own apartment for me. They were the first nucleus of my acquaintance, which has now grown rather wide in just a few days. I plan also, of course, to roam the streets at random with my recording apparatus and to get into conversation with any strangers willing to become my informants. With this in mind, I am studying the language intensively, and I believe in a week or two more I shall be able to get the whole project definitely under way.

One thing struck me very sharply in that first evening, and that was that the company was entirely masculine—or perhaps I should say it was made up entirely of "eskons." When I realized this, two possible explanations crossed my mind: was it possible that Olven and his friends were members of some monastic religious order—or had I been unlucky enough to have my first contacts among homosexuals? (I have no idea as yet of their religious beliefs; their sexual life, of course, is of primary interest to me.) But nothing in either demeanor or speech confirmed either conjecture.

I am still considerably in the dark about this. Even in these few days I have observed that one *never* sees a man and a woman (an eskon and an org) together, indoors or out. All the staff at the hotel are men. I have frequently seen women on the street or going in and out of buildings that are apparently stores, but always in the company of other women or with little girls. As for the small boys I have noticed, if they are with adults, it is always with men. This is naturally going to be one of the chief puzzles for me to solve, but I don't feel that it would be tactful, so early in the game, to ask direct questions about what is seemingly a deep-seated social custom.

Incidentally, none of the men I have met thus far seems to be married, or whatever the equivalent is on Ajeri; in answering, fully and frankly, all my questions about their society, no one has ever made any allusion to a wife—or, for that matter, to a sister or even a mother. Yet of course they all have or had mothers—they are obviously mammals like ourselves—many of them must have sisters, and some certainly must have "wives," whatever their form of sexual partnership may be. But I have not yet met one woman socially, or spoken to one. When I tried to accost one group emerging from a store, they fled abruptly as if terrified.

No one but myself, probably,

will ever read this personal diary, but in the remote case that anyone ever does, perhaps I should repeat that all my sociological findings are given in detail in my reports to the Federation, and will undoubtedly appear in more popular form in my next book. What I tape here are my own experiences and reactions, with only enough generalization to remind myself in later years of things I might otherwise not remember clearly.

As to the political, economic, and social system in Ajeri, therefore, I shall only note briefly that it is utterly unlike any known to us in the past or present on Earth. I could call it anarchistic or socialistic, but actually it is neither. They simply do not seem to have the concept of government as we understand it. Apparently the dozen large cities of the planet, which has no separate states or nations, are surrounded by enormous tracts of agricultural land which is worked by machine under the supervision of resident engineers and economists. They have reached an industrial age but not a technological (robotic) one like our own. The first time Olven took me to visit a large factory, I asked to speak to the manager. He said to the first man he encountered, "Who is manager here this month?" The man answered, "Maluk, I think," and Maluk it was. Then I found that every month all the employees choose one of their number as manager, and he appoints his assistants; *everybody* employed in a factor or on a farm is fully qualified to fill *any* position. The same applies to schools, hospitals, courts, etc., and when I tried to explain our executive class, they were bewildered.

In the same way, they have semiannual elections, at which men are chosen for every political office for the next six months. Always men: the women I saw going in and out of the buildings were collecting food, clothing, and so forth from what they call the storage houses, but they take no part otherwise in Ajeri's political or industrial life. Moreover, no wages or salaries are paid to anyone; everything produced is stored in these warehouses, and every citizen takes from them whatever he or she wants. There is no luxury of any kind—I have not seen a single piece of jewelry on anyone—but everybody appears well fed and comfortably housed and clad. Intellectually they seem to lead a pretty full life; though their art and music make no appeal to me, and I am still unable to read their literature they have innumerable equivalents of our theaters, concert halls, museums, and libraries, and education is free and compulsory until boys come of age at 20.

Boys: girls have no education at all, and the audiences are completely male. I still have to figure

out just what the women do or how they live. I know they live apart from the men in their own section of the city, and never leave it except to "shop." Presumably they keep their own homes in order and take care of the girl children. All I can guess is that the men visit them at night; otherwise there would *be* no children!

But enough of this. I am sufficiently far ahead now in my inquiries to begin going deeper, and then some of these puzzles will be solved. So far as I myself am concerned, I am physically well taken care of, but by this time I do crave some feminine companionship, and as soon as I can do so without violating any of their taboos, I intend to direct my investigations to an area where I, too, can find an opportunity to lead a normal life!

One thing I had not expected is the natural beauty of this planet. The plants and trees are not our own, but they are luxuriant, even in the city gardens, and lovely. The animals—none I have seen higher than an invertebrate, but there must be domestic beasts on the farms, for I am served meat daily—are as colorful as butterflies. Bafik is not far from the seashore, and almost every afternoon now I drive the little ground-car I have been given the use of to the beach and enjoy a swim.

That is the one place where I *have* seen women and girls—and very attractive girls at that. They stick together at a distance from me or other men, and neither group ever approaches the other. But I think that this may provide my opening wedge into this strange separation of the sexes, and as soon as I happen to be alone at the beach (I mean without any of my male companions who are on holiday), if I see any girls, I intend to go up to them and try to establish some sort of contact with them. I know enough of their language now, and it seems better than to try any more to ask questions on the subject of my masculine acquaintances—who always evade them and obviously are politely overlooking an enormous *faux pas* on my part.

Well, I tried it yesterday and it was a complete flop.

I went to the beach with two other men, and when they proposed leaving, I said I'd stay a while longer and go in once more. (This ocean water is beautifully warm and very buoyant and a delight to swim in.) I'd noticed, far down the beach, a little knot of girls, as I can't help calling the orgs, and one among them particularly stood out—tall and lithe and fairer than most of them; the Ajerans are a bit on the swarthy side for the most part. I'd observed before that late afternoon seemed to be the favorite org bathing hour.

I had my plans all made. I was going to stroll lazily down toward them, and when I got within hailing distance, wave amiably and make some casual, friendly remark that might start an acquaintance. (Aside from my professional interest, I don't want to spend a whole year here as if I were a novice in a monastery!) Probably they are just shy because the eskons are so domineering and snooty, but they must surely, little as they participate in society, realize that an alien from another planet is among them. If they have any curiosity at all, I should think they'd welcome a chance to meet him.

. . . Only, as soon as they saw me approaching, the whole lot of them hastily packed their belongings and ran like mad to the ground-car they'd come in. Poor things, in this aggressively male set-up, they must be simply terrorized by anything masculine!

However, I'll swear that tall, fair girl looked back at me and hesitated; only, one of her pals grabbed her by the arm and hurried her off. I'm going to try again tomorrow, going there by myself, and see if I have any better luck.

October 13.

I did. It's quite a story.

I arranged to go alone to the same part of the beach where I *almost* had made my first approach to any of the ladies. Sure enough, there they were, half a dozen of them, at their own private bathing spot within sighting distance —and the tall, fair girl easily observable among them. While I meditated my tactics, I had a leisurely swim, and then lay down on a blanket I'd brought with me, to dry off and perfect my plan. I hadn't had much sleep last night, for a number of reasons, and the warm sunshine got the better of me. (Incidentally, actinic rays from Algol burn just as badly as those from Sol! I have a fine sunburn today.) I fell sound asleep.

I started awake with the sound of a giggle in my ears. I opened my eyes, and saw that the sun had set and it was full dusk. Over me stood three young orgs, my fair lady the nearest to me.

As I sat up, the other two ran like deer, but the tall girl lingered. They called to her, but she stood still. I smiled placatingly. In my halting Ajeran I said, "Don't be afraid."

Her eyebrows went up. "Afraid?" she asked. She laughed, and I discovered the charming giggle that had awakened me had come from her.

"I came here from another world than Ajeri," I went on disarmingly, quite well aware that I was probably murdering the syntax of her native tongue. "I am here to learn and to tell my own people about yours. But until now I have been able to talk to only half of you—the men. May I not

ask you too questions about the women of your world?"

Her companions had halted at a safe distance. One of them held her hands to her mouth and called: "Lemblad!"

So that was her name.

"I am coming," she called back. "One minute." She turned to me.

"What is it you want to know?" she asked crisply. Seen so close, she was more than pretty; she was a genuine beauty. I couldn't guess her age (that is true of the men also; their life-span seems to be much the same as ours, 100 years or so, but it is hard to tell how old they are once they are fully grown, until they reach extreme old age), but she was not a child, and I should think she was somewhere between 18 and 25.

"Everything," I answered. I had risen by now, and she stiffened and stood back a little, so I was careful not to frighten her by coming within reaching distance. "How you live, what you do all day, what your lives are like."

She thought a minute, then nodded decisively.

"Since you are from another world," she said, "I think it might be done. I shall speak to my friends—there are a few, I think, who would be willing to talk with you."

"But first," I said, greatly daring, "couldn't we meet alone? Then I could give you a better idea of what things I want to know, and you could tell from that whom else to ask."

"Not now," she said nervously. "What is your name?" I told her. And I told her the name of my hotel, but she shook her head.

"We do not go into the eskons' section except to collect from the storage houses."

"Lemblad!" her friend called again. She sounded desperate. Lemblad turned to go.

"Come here tomorrow," she said hastily. "But come late, after the moons are up."

It is never really dark here at night; one or both of the two moons, as large as ours, are always visible overhead.

She ran back, her white robe dancing in the breeze. Both men and women wear the same kind of garment—a sort of cross between a toga and a sari. As a matter of fact, I have adopted it myself; it is cool and comfortable. I have put away all my ordinary clothes and wear nothing but what they call a "budong." Perhaps I should add that they do not swim nude; they wear a sort of abbreviated budong, so I do too.

Well, things are prospering. Tonight I am to meet her at the beach—and perhaps that will mean the end of these hard months of celibacy. She surely wouldn't have given me an assignation like that, at night, if she didn't understand very well what our interview might lead to.

It is almost night now, and in a few minutes I shall drive out to meet her. I find my heart is beating pretty fast. Lemblad is a very attractive girl.

October 14.

Well, I've never been so puzzled in all my life.

Was it a put-on? Is there something wrong with me? Or is there something very wrong with Lemblad? She is *not* stupid. In fact, her being willing to meet me again is proof that she has more curiosity than any other of the orgs seems to have. I'll swear she is not only smart, but a natural born rebel. And there is nothing in my past—I can be frank in my own personal diary, can't I?—to make me think I am repulsive or undesirable to women. (Unless, as an alien, I am repulsive to Ajeran women?)

She was there waiting for me when I arrived. I couldn't see much point in sitting on the beach or in walking around, so I suggested that we adjourn to my groundcar. No, she said, let's go to hers, which was near by. All the better.

We drove—she drove—away from the shore and parked again in a driveway in front of one of the huge apartment houses in which all the Bafik inhabitants seem to live.

"This is my home," Lemblad said. "We can talk here and then I'll take you back to your car and come back home by myself."

I didn't expect to be invited in. I understood that there was no privacy—nobody I've met seems to understand what the word means; they live huddled together like bees in a hive. I'd much rather, of course, have been farther away from prying eyes, but we were out of hearing distance and the driveway was lined with trees and bushes that concealed us from sight; so it could have been worse.

"Now," said Lemblad with the air of a VIP being interviewed by a reporter, "what are the questions you want to ask?"

That wasn't exactly the approach I had in mind, but I remembered that the orgs are intimidated by the eskons; so I said, "You mustn't be afraid of me, Lemblad."

She opened her eyes very wide.

"That is what you said yesterday," she said in a surprised tone. "What do you mean? Why should I be afraid?"

"Well, I realize that all you orgs are shy and timid. In my world the men and women associate freely, but here I suppose the eskons forbid you to appear in public with them."

She laughed aloud. Then she drew herself up haughtily.

"The eskons," she said icily, "work for us and provide us with what we need and want. An org who would have any personal association with an eskon would have to be mentally ill."

I did a double take. So my theory was all wrong. The orgs weren't a subjugated sex; they were aristocrats who considered the eskons their inferiors! Except, of course, for the fact that without the eskons there wouldn't be any more Ajerans! Perhaps they deal with them like an empress with her favorites—or like an empress and her slaves whom she condescends to bed with and then dismisses!

A lot of things passed rapidly through my mind. So orgs weren't included in the governmental system because that was of concern only to workers, and orgs didn't work. Orgs took, they didn't give. And they weren't educated because education was merely a technical convenience to keep industry and business going, and they had no need of the arts because they made a satisfactory art out of their own way of life. They weren't curious about anything outside their own social group. What I had taken for fear was disdain.

Professionally, the revelation excited me tremendously. Personally, it was rather disconcerting, and all the more so because Lemblad asked bluntly:

"Are you an org or an eskon in your world? It is hard for us to tell."

"I'm an eskon," I said humbly. "But in my world we live and work and play together. And make love together," I added daringly.

I had had to say the word in Neogalactic. I suddenly realized that I had heard no Ajeran synonym.

"Love?" Lemblad repeated. "What is that?"

"Like," I responded awkwardly, "the way an eskon and an org feel toward each other when they want to do things like this." And I pulled her to me and kissed her soundly.

She didn't respond, but she didn't, rather to my surprise, repulse me, either. She drew away a little and said in a rather fluttery voice, "I never did that before. It feels nice. Do it again."

I did.

"Oh," she sighed, "that *was* nice. I must tell my friends about it. We must do it together."

"It is much nicer," I breathed, my arms around her again, "when you do it with an eskon."

"Oh, no!" She shuddered in disgust. (Doubtless to her I, as an alien, rated rather higher than a mere Ajeran male.)

"And there are other things—even better—" My breath was coming fast. I reached for the fastening of her robe.

With a violent strength I hadn't dreamed she possessed, she pushed me away.

"What are you doing?" she cried. "Are you crazy?"

I tried to pull myself together. I didn't want her screaming the house down on me.

"All right, all right," I managed to mutter. "I wasn't trying to rape you. I thought you liked me. I thought you'd want it too."

"Want what, you crazy eskon?" She stared at me blankly.

I got angry then. Young as she might be, she surely wasn't as innocent and ignorant as all that.

"Don't be a fool," I said harshly. "Don't pretend you don't even know where babies come from!"

"Babies? What do you mean? I have already had two babies."

"Well, then—you can't have babies without an eskon, can you?"

For the first time she seemed frightened instead of indignant.

"Now I know you must be really crazy—maybe everybody in your world is crazy. What have eskons to do with babies?"

My head was in a whirl. What do they do in this place? Do the eskons creep in at night, anesthetize them, and fertilize them while they're unconscious, or what? She wasn't putting me on; she was obviously sincere. There was the ring of honesty in her voice, I could tell that. Here, instead of being a young, virginal girl, she was a grown woman who had already been a mother twice over—and she wanted to know what a man had to do with that! I wondered again if under the surface intelligence Lemblad was really an imbecile.

Suddenly I felt very tired.

"I give up," I said hoarsely. "I can't make you understand. Drive me back to my car, Lemblad, and we'll call it a day."

She hesitated. I achieved a smile.

"Don't worry," I said. "You don't need to call for help. You'll be perfectly safe."

She looked at me as if from the summit of a high mountain. Without a word she took the wheel. We drove back in silence, and parted the same way.

I am writing this before I go to bed. I am going to make an appointment with Olven, and somehow get this whole insane thing cleared up. What kind of exosociologist am I, anyway, to have become involved in so giant a piece of confusion? If I can't get things straightened out, the Federation has wasted a lot of credits on me.

October 20.

Well.

I couldn't get hold of Olven till today. Olven's some kind of governmental executive this month, and very busy.

We met this afternoon and went to a sort of restaurant and got a booth in back where we could talk in private. I certainly wasn't going to mention anything that happened that night, but I said bluntly that the time had come when I needed explicit answers to some questions. I wanted a clear explanation of their methods of sex and reproduction.

Olven didn't seem upset or offended, just surprised that I needed any explanation of something that seemed, to an Ajeran, self-evident.

He said—I don't know what pronoun to use; I'll just keep on as I've been doing.

The eskons aren't men. The orgs are female, but there are no males. The orgs reproduce parthenogenetically.

If the child is an org, they keep and raise it. If it is an eskon—a neuter worker—as soon as it is old enough, it is handed over to the eskons to rear.

It isn't even like the bees or the ants; there the queen is fertilized by a drone and the neuters are produced by a difference in feeding. Orgs and eskons are born that way and never change. The eskons revere the orgs because the orgs keep the race alive; they accept without question the fact that they themselves have no sex life whatever, that they exist only to work and serve society. I had the greatest difficulty in trying to get Olven to understand what I was talking about. And when he (it?) finally did get a glimmering of our strange system on Earth, he responded just as Lemblad had done—with revulsion. He was polite about it, but I could see that he regarded me as some kind of monster.

Well, my job is going to be a lot harder from now on, I can see that. The word will spread, and I'll be a freak, instead of an equal to themselves though an alien. They'll be doing research on *me* more than I'll be able to do research on *them.* And if Lemblad gossips, I'll be a figure of fun.

It can't be helped, and I'll have to make the best of it—but eleven more months!

I must watch out to keep my official report purely technical, with no hint of my mortifying experience. Might as well end this diary, too—there'd be nothing in it but griping. And there won't be any book from this expedition—my books depend for their popularity on their personal revelations! Ajeri won't appear among our "Galactic Neighbors."

A whole year or more, living like some ancient monk or hermit! I haven't had that happen since I was sixteen. I hope there'll be a real human woman, an unfrozen crew member, before they put me in deep freeze on the ship that takes me back next August.

And I hope to Space, Mara will meet me when we land!

January 15, 2298.

I am reopening this diary after all, though it is less than three months since I closed it. It is the only place I have in which to confide my private worries.

I'm becoming really uneasy.

Could the strange method of reproduction here be due, in some way I don't understand, to cli-

matic or other planetary influences? Could there be some electromagnetic effect that alters not only the Ajeran genes but even and also the cells of a mature alien body?

All this speculation is because I have just begun to realize that I haven't given a thought to sex—I mean to myself and sex—for weeks. Only this morning I happened across the little triphoto of Mara that she gave me when I left, and it came to me with a shock that she hadn't been in my mind for I don't know how long.

Oh, this is nonsense! I'm working very hard and taking a lot of exercise. This is just my sensible subconscious mind telling me that what can't be cured must be ignored.

Still—

March 2.

It *isn't* nonsense. Yesterday I was at the beach as usual—a new beach, though, so I shan't run across Lemblad—and as usual a bunch of orgs were cavorting within my view. I watched them for a while as I lay half-asleep sunning myself. And then all at once I woke up with a start, as it struck me that my watching had been purely aesthetic, as if they were graceful athletes of my own sex.

Is it possible that prolonged celibacy could make one impotent?

May 18.

I might as well face it. I'm beginning to feel about things the way the eskons do. The other day I was talking to Olven and he (I keep thinking of the eskons as "he"; you can't call another human "it") said something casually about a shortage in one of the Bafik storage houses because blue budongs had suddenly become a craze among the orgs, and they would have to borrow a supply from another city until more could be made.

He spoke rather complainingly (he has some kind of storage supervisory job this month), and quite without thinking I found myself saying reproachfully, "Well, Olven, it isn't for us to question what the orgs want."

I stopped short in utter amazement at myself—and in the same moment it came to me that my feeling toward the orgs has become exactly the same as the eskons'—one of reverence and awe. As for Olven, he looked at me, not quizzically, but rather ashamed of himself and also relieved that at last I was taking a "normal" attitude.

So that's that. Psychologically I seem to be turning into an eskon! I've got to the point where my work and my social associations with my eskon friends completely satisfy me. I'd be quite content to spend the rest of my life on Ajeri.

August 1.

The ship will be along for me very soon now. What shall I do? I *must* go home. I accepted that grant, and I must report my findings. I have a reputation to sustain on Earth.

And I'm *not* an eskon. I'm a human male—or at least I was once. Anatomically, I'm just as I always was.

When I get back home, one of two things must happen. Either I'll stay permanently the way I am now, or whatever this inexplicable contagion is that seems to have turned me mentally and emotionally into an Ajeran will gradually disappear in time.

That's the rub—*in time.* How am I going to face my public for an indefinite period—or for the rest of my life? And my friends? And Mara? It took months for me to change here, and it's not likely the process could be reversed more quickly, if it ever is. Everybody who knows me will consider I'm out of my mind. Mara will think I'm rejecting her without cause. Other women will decide I've gone queer.

And I can't bear to humiliate Mara that way. I don't desire her or any other woman any more, but I do love and respect her.

And how shall I explain that there won't be a new "With Our Galactic Neighbors" about Ajeri?

It's out of the question for me to stay here. Aside from everything else, though Ajeri welcomes visitors, it has no provision for permanent immigrants.

It's no use trying to start out immediately on another expedition after I return to Earth—I'd never get a new grant right away, and I'd have no reasonable explanation. Besides, I am sure Ajeri is unique among planets, and so I'd be no better off wherever I went.

There is nobody whose advice I can ask; even Olven, who has become my greatest friend, would be entirely unable to comprehend my dilemma.

I'm afraid there is only one way out. I never expected to end up as a martyr to science, which I suppose is what I am.

I must get my report in final shape and arrange for it to be delivered to the Federation. I accepted that grant and I must carry out my obligations.

Then there is only one thing left for somebody who is unfit to live with his own kind and unable to live where he does fit in.

Before the ship is due, I must go out for my daily swim.

And not come out of the water.

August 2.

No: that is defeatist nonsense. I'm not going to die for dear old Ajeri—or for my own reputation or my own sexual problems, either. I've got to go back and face it and do the best I can and see what happens.

The ship should be here for me by the end of this month. (I have kept my own private calendar all along, of course, according to Earth time.)

Since no one will ever see this diary but myself, I might as well acknowledge that I'm scared.

August 15.

My work is finished and my notes and material are all in order. I can get ready to leave on a few hours' notice.

A funny thing happened yesterday, and I can't quite understand what it meant.

I was sunning myself (Algoling myself?) after my swim—and that's something I'm certainly going to miss when I get back to our over-urbanized planet. As usual, there was a group of orgs doing the same at the other end of the beach, and, also as usual nowadays, I noticed them only to make sure I was deferentially sparing them any undue curiosity. Suddenly one of them detached herself from the group and walked down the sand toward me.

It was Lemblad.

At first I thought of scrambling to my feet and getting out of her way. Then I decided just to lie there and pretend to be asleep so as not to embarrass her. I heard her approach me and felt she was standing beside me looking down.

"Are you awake, Stranger?" she said. "I wish to speak to you."

So naturally I had to open my eyes and stand up. If either of us was embarrassed, it wasn't Lemblad.

"I am told that you are soon to return to your own planet," she remarked.

I nodded. "In about two weeks, I think." Then I realized I had said "weeks" in my own language and that it meant nothing on Ajeri; so added, "Soon."

"Then I think it is right that I tell you I am no longer angry. I understand now that you did not mean to offend me."

I felt myself flushing. "Indeed I did not, Lemblad," I said. "I too understand now, and I have felt deeply sorry. Please believe me, my whole feeling about the way things are on Ajeri is very different from what it was then."

She laughed that unforgettable laugh of hers.

"I should expect so!" She glanced at me quizzically and smiled.

"After that night," she went on, "I told my friends what had happened. It was as outrageous to them as it was to me, and they were very angry. Some of them wanted to tell the eskons to keep you in custody until you could be removed from Ajeri. But even then I had the impression that you meant no insult, that you were merely ignorant."

"Thank you," I answered, and I meant it. "That was indeed true."

It was on the tip of my tongue to add that I had paid dearly for my ignorance, but I knew that would only confuse her farther. So I kept silent.

"So I persuaded them," she continued, "not to take such harsh measures against you, but only, for our own protection—for we did not know what you might do next—to safeguard ourselves while you were still here. I shall know when you leave."

For some reason she laughed again. Then she waved, turned, and walked rapidly back to her companions. I left then and returned home, considerably bemused. I still am. I didn't realize I was being deliberately avoided by the orgs, whom now I revere so highly.

December 29.

I am completely out of deep freeze now, and the ship is preparing to land. It will be an hour or so yet, and I have time to make a last entry in this diary.

"Safeguard." I thought she meant they had taken care to keep out of my way. But how do I know what advanced psychological techniques the Ajerans command?

All I know is that the ship arrived and I said goodbye to Olven and my other friends and got ready to join it. And in the midst of my last-minute packing, I thought of Mara and suddenly I realized that I was my old self again, just as I have always been. There was a pretty under-officer on board—

Oh, Mara, be there to meet me!

Here is a story about a hunting party that includes a couple of real hunters and one indoor type. If there's anything worse for a non-hunter than being dragged along on a hunting trip, it's surely to accompany a party that is in search of dangerous *game; after all, a guy can get* killed . . .

WHOSE SHORT HAPPY LIFE?

by Sterling Lanier

PERSONALLY SPEAKING, I DON'T kill animals for fun. I don't mind people hunting, but I get no pleasure out of it. Not even of watching it. Why not stay in civilization, a nice quiet bar say, with a friendly young thing as company? But I had no choice.

"We're going hunting," the Boss says, just like that. I like my job so I say, "Fine, lovely, what fun," and all that. I like the Boss, mind you, a really great guy, one of the best. Aside from this silly hunting and the wife situation, he's a chap I really admire. Wives? Well, this tramp was the fourth. Half his age and completely, but *utterly* no good. Just like all the rest, I might add. The Boss is rich but he'd be a lot richer if he didn't feel he had to marry them. The joke is, after he marries them, they despise him. Can't stand him, cheat on him practically in public, laugh at him until he has to get rid of them. And then go find a new one just like the others.

Well, I knew what this was all about. This latest tramp was beginning to laugh. So we were going into one of the Reserves to show how brave and virile the Boss still was. I ask you! A good lay on with a leather strap once a week and he'd have had a happy married life forever. Instead, he has to look for real danger, and include me, who wants no part of it.

"You cheer me up," he says. "Those stories of yours are going to make this the best trip yet. I don't know why I never thought of bringing you before. You're a natural around the camp fire."

I shudder. How much is the job worth? Will this go on every time he splits up? Ugh. I steel myself.

I'll try it once, anyway, before I am forced to quit and find other employment.

If you like wild country, grass and sunlight (who likes *that,* I ask you), trees and birds and all that junk, I guess you might like the Reserves. We went to the one in the north of Ssgurrland and picked up our guide and vehicles and the guns. There was even one of those for me. It made me cold to look at it. I wondered if I could avoid carrying it, maybe pretend my arm was hurt. I figured that I'd blow my foot off if I ever had to use it.

The guide was terrible, one of those hams you see in the Tridees, all whiskers and muscles, about twice as big as he had to be. I felt small and insignificant beside him. No one was watching me, however. But I could see the Boss's wife giving this bum a fast once-over. And compared to him the Boss looked kind of old and grizzled. It made me mad. I knew what he'd done in the last war as a youngster. Had a lot of medals he never talked about and one of his old servants told me, or I'd never have known. He was twice the hero this brawny oaf would ever be, but the tramp would be in this guy's sack just as inevitably as the Sun went down.

Well, we swore all the Government oaths about never allowing an Escape, even if we died to prevent it. I can tell you, it made me feel creepy. To me the whole thing belonged on a Tridee screen, not for real. People were *killed* doing what we were. All the time it makes the papers. I still don't know why I didn't quit right then.

Anyway, I signed all the releases, next of kin, all that garbage, and then we went out and climbed in the Kombat Kamper. Some car. Armor and two turrets with sealed ports yet. Just the thing to make you relax. The glass on the ports was thicker than the armor.

The gate guard opened the three gates, one at a time, and we rolled into the Reserve. I knew there were cannon and gas guns trained on us as the last gate opened, in case there was a planned rush. That had happened once or twice in the past, I knew from reading up on the history of the Reserves. It was considered the real danger point.

To be honest, as long as I'm on the subject, I don't really see why we have to have the Reserves anyway. I'm not going to pretend I think it's a good idea, and don't kid yourself. I felt *exactly* the same way before I went in, and I'm not lying. I saw a Tridee program once, something on the Ed-Yu channel, where this big whisker of a skull tapper explained the whole thing. According to him, we all have a guilt complex and that's why the Reserves. I thought it over and so did some of the other guys in the bar, and well, we decided it was all crazy. Look, it was them or us, see? A war over the whole

world, that lasted over twenty years. A war of extermination, that's the way I learned it in school. No quarter, no prisoners, no truce.

So as far as I care, you could clean out every Reserve there is and eliminate all of them, which is what they tried to do to us.

To get back to my thrilling tale of adventure, we saw nothing but a few deer and some birds that night. Nobody was packing laser blast rifles for things like that. For what the Boss was paying, you wanted only the Big Stuff.

We slept the day through behind the high voltage, portable stockade the guide and his two flunkies set up. He made out that he wouldn't have used it if it weren't the law. What a phoney! The Boss didn't say much, but the tramp ate it up with the "Oh how brave you must be" routine. Enough to make you choke. I slept as well as I could, and we woke at dusk.

We had to listen to a lot of nothing from the guide while we ate out breakfast. All about trails and patterns and how he knew their habits and would put us in a position where even dopes like us couldn't miss. The Boss finally had enough and said sharply that this was his eighth hunt. That shut the clown up, because any one who will go into a Reserve that often is a real hunter. The fact is, the Reserves get even the guides down. The danger is too real and the feeling of being watched too constant. You just can't shake five thousand years of heredity that easy, and anyone that says you can is a liar.

We packed up and moved out in the Kamper as evening began to blur the details. I felt better without the glare of the Sun, but not so much better I wouldn't have led a run for the nearest gate at the drop of a suggestion. No one made it.

After about an hour, nice and dark out, the guide tells the driver, who is one of his flunkies, to stop. Then he turns to the Boss and says, "I have been watching this area for some time. No recent hunts or sweeps here have turned up any traces. The gate people think there may be a combined movement going on here and asked me to check it. But I, ah, must warn you that it will be very risky if there is anything. If you wish, you can stay here in the vehicle, while alone I blah, blah blah." Finally, he ran down.

"Let's go," says the Boss, grabbing his gun. "You coming?" he says to me.

"Right you are," I say, grabbing *my* gun, just like in the Tridees. I get to the door before I realize what I'm doing, and by then it's too late to back out. Then I hear the tramp yacking it up. Oh no! Oh yes! She wants to come. After all she has her gun, just like we

do. She pulls out all the charm, leans all over the guide and the Boss and finally uses the ultimate argument.

"If that little poop can go, it ought to be safe enough for an infant in arms." You get one guess whom she is pointing at. When the Boss looks at me in a calculating way and says OK, I really get angry. But what can I do?

We start off in a fan formation, guide on the extreme left, Boss on the extreme right. In the middle, me and the tramp, all of us about fifty paces apart. We carry our guns at the ready, and nobody talks, not even bigmouth, the guide. I remember everything I ever read in school about Them, and I guess the others feel the same way.

Pretty soon, I see the guide stop. He hand signals us to stop too and points ahead a way. It takes me a minute, but finally I see that we are close to a boundary fence, and that's what he is pointing at.

At his signal, we move along the fence, but not next to it, I can tell you. Those fences are loaded! Get too close and you are hit by every automatic weapon ever invented, plus mines and lasers, all firing in a random set up.

We had come maybe a thousand paces along the fence and about a hundred out from it, when I see the Boss tense up and stop. We all stop, even the tramp, and he points at something ahead of us in a grove of trees. All I see is a bunch of trees with no leaf on them, but I find out later on that it's the framework for a giant catapult, which is almost complete. The Boss signals with his free hand for the guide to join him. And then the fun starts.

The guide decides he will be a hero and waves us back while he goes forward alone. As if this idiocy isn't enough, the tramp follows him! What she has in mind no one will ever know, but I'll bet it's nothing more than some scheme to humiliate the Boss.

Then all hell starts. There's a scream like you never heard from the tramp, and something vast and dark rises out of the ground in front of us. In one easy motion the guide is hammered into the earth like a tent peg. Another giant limb sweeps the tramp up and away and I hear her hit a tree with a crunch. All of this takes seconds. I am frozen stiff.

But not the Boss! He may be old and a little fat, but you can't change a real fighting veteran.

He shoots his rifle into the middle of that colossus as cool as if it were a target. And he's been thinking too, not just acting on reflex. As the red flash of the laser zeroes in on the monster, the Boss is running towards me, shouting. Even before the beast begins to scream in its giant voice, I can hear the Boss.

"It's an escape! We have to get back and warn them! Stay with me and we'll cover each other!"

Well, you know, even I got a medal. The guide and the tramp got a posthumous citation apiece. What a farce *that* was. Because the only one of the whole outfit who deserved it was the Boss.

We know now that it was the most dangerous attempt ever discovered. They had a working catapult, rigged it at night, assembled the pieces and set it up to shoot a number of Them over the fence. Crazy! And so were the enormous parachutes made of animal hide chewed fine. So half of them get killed getting over, maybe two thirds even.

Would *you* want to meet one of the ones that didn't, one of the ones that got into the mountains and couldn't be found until it, or they, dug up some old weapons stores, buried since the war two hundred years ago? Maybe atomic weapons? Makes you think doesn't it?

Who knows what the Boss saved?

Personally, I remember almost nothing. The Boss and I ran back toward the Kombat Kamper. He knew where to go, I didn't. I just did what he told me.

"Shoot left!" He'd shout, and by God there would be one of Them, rising out of the bushes, those great paws spread out to grab. And I'd shoot. The fiery streak of the laser would hit the middle and the awful stink of burnt meat would come at once. Sometimes they screamed, a terrible howl; the volume alone would split your ear drums. Mostly though, they died quiet. And that shows you. That takes training, discipline. They were willing to die that way in the hope of not alerting the others, our two drivers and roustabouts back at the Kamper.

It all seems like a nightmare still, us running and ducking, shooting and dodging. Only an old counterpuncher like the Boss could have got us through, and even he says we're lucky to be alive. If it had been just a tiny bit farther to the Kamper, our blaster charges would have run out. There was the luck, I guess. Hitting the escape attempt on target like that was luck too, of course.

The two techs finally heard something and got the perimeter lights on. When one of them spotted us and saw what we were shooting at, he got into the top turret and started the flame cannon going over our heads. By that time we needed help. Just as we made the perimeter, one of them made a last try. He had a stone-headed club twice as long as I'm tall, and he brought it down in a long, looping slice at my head. Thanks to the Boss, I'm still alive. His shot caught the brute just as it swung. As you can see, it cut right through the fur on my head, grazed the top of my right ear and

finally took off the last third of my tail.

Pain? Hell, I was in shock! I didn't feel any pain. You won't believe this, but as I stood there looking down at that naked monster lying dead there, what I felt was pity. Yes sir, pity. Those huge things had almost finished us off once, if you can believe the books. And now all they had were clubs, and we had the whole planet that they'd tamed for us. We had all the knowledge, the cities, the whole culture. All they had was the Reserves and clubs made of stone. That's why I felt pity.

Of course when I learned how close they'd come to getting out, after we'd radioed the guards and the planes had come, the copters and hover craft and all, why I lost the pity. That was just a bit *too* close for comfort. The old slogan about "even a cornered man will fight" wouldn't leave my thoughts.

That's why I want the Reserves abolished. Soft-heartedness could mean we'd be right back where we started, and you know where that was.

In a hole.

Coming soon

Next month's feature story is FLIGHT OF FANCY by **Daniel F. Galouye,** a story about a man who has dreams of flying and finds those dreams blending slowly and incredibly with reality. Also featured will be a story which will interest anyone who is seriously concerned with wars and why we have them; we like to think this includes all our readers. The title of the story is FINAL WAR, by **K. M. O'Donnell,** and it is an extraordinary piece of writing. Also along soon will be stories by **Ron Goulart, Larry Niven, Samuel R. Delany,** and **Zenna Henderson.**

DINOSAURS IN TODAY'S WORLD

ARTICLE

by L. Sprague de Camp

WHEN OUR FOREFATHERS TRIED to think up the most terrible beast they could, they imagined the dragon. One of the simpler dragons, for example, was Python, whom the god Apollo slew at Delphi. Python was just an enormous snake, and we call a family of real snakes after him today. To other dragons, imagination added lizard's legs, or bat's wings, or a sting at the end of the tail, or a fiery breath, or the power of thought and speech, or some combination of these.

Ancient legend creeps and crawls with these super-saurians: Apepi in Egypt, Tiamat in Babylonia, and the Ashi Dahaka in Iran. Heroes like Bellerophon and Beowulf, Sigurd and St. George slay a dragon as their crowning deed of dought. Warriors from Agamemnon down painted dragons on their shields; kings like Richard the Lion-Hearted embroidered them on their standards. The learned Konrad von Gesner in the sixteenth century and the equally learned Father Athanasius Kircher in the seventeenth devoted whole chapters of their books to dragon lore.

For evidence, men produced fossil bones, which they attributed not only to dragons but also to giants. The "giants" were usually remains of the extinct kin of the elephant: mammoths and mastodons. If one looks at the skull of an elephant, one sees that it does look a bit like the skull of a monstrously hideous man, five or six times natural size. The "dragons" were often based upon the skulls of the extinct woolly rhinoceros or the great cave bear. Some pictures and statues of medieval dragons, with long, slender necks and small, serpentine heads, look as if they might be based upon the well-preserved skeleton of a plesiosaur, but there is no actual evidence of such a finding.

The skeptical eighteenth century taught educated men that there were no dragons. European explorers had traveled far and wide through the Americas, Asia, and Africa. Although they heard rumors of dragon-like beasts, nobody ever caught one. To be sure, Asia, Africa, and the American tropics harbored serpents and crocodilians of formidable size. These, however, were now well-

known animals, without a trace of fiery breath or bat-like wings.

So, with a little sigh, people gave up their dragons. The dragon took refuge in fairy tales. Here he comes to such ludicrous ends as that of the Purple Dragon in L. Frank Baum's *The Magical Monarch of Mo,* who is stretched out thin and cut up into fiddle strings.

Or rather, people *thought* they had given up their dragons. No sooner had the legend been banished than the dragons popped into view again. In 1790, the skull of a huge, unknown reptile was found in a quarry near Maastricht in the Netherlands. In 1794, the skull was identified by Georges Cuvier, the pioneer Franco-German-Swiss paleontologist, as that of a giant marine lizard, which was named a mosasaur. Cuvier also identified a small, winged fossil in the collection of the Elector of Bavaria as that of a flying reptile, which he named a pterodactyl.

Then, in 1811, Mary Anning, a twelve-year old girl who ran a curio shop on the southern coast of England, discovered the remains of another marine reptile, an ichthyosaur, in the cliffs near her home town. Ten years later she found another, which became known as a plesiosaur. The next year a British physician, Gideon Mantell, found the first known dinosaur, an iguanodon, in Tilgate Forest. Throughout the century, remains of more and more amazing fossil reptiles kept coming to light. Evidently, dragons had lived once upon a time.

Naturally, all this talk about real dragons brought up the question: Did any such creatures still exist? A hundred years ago, this question was not so foolish as it sounds today. At that time, the map of the world still showed many large blanks.

Since one would expect to find dinosaurs in a hot, damp climate like that of most of the world in Mesozoic times, Central Africa seemed a hopeful place to look for such survivals from the past. In fact, several sizeable animals were first brought to light there by white men after the turn of the century. There was the okapi, which Sir Harry Johnston discovered in the Congo in 1900; the giant forest hog, collected by Lieutenant Minertzhagen in 1904; and the pygmy hippopotamus, which Hans Schomburgk found in Liberia in 1912.

Schomburgk collected live animals for Carl Hagenbeck, the wild-animal dealer of Hamburg. In Liberia, Schomburgk was told of a beast in Lake Bangweolo, which killed hippopotami. Hearing the tale, Hagenbeck sent an expedition to Lake Bangweolo, but this group could not even find the lake.

Nor was this all. In 1913, a German expedition under Captain von Stein, to the then German col-

ony of Kamerun, heard tales of a similar hippopotamus-killer called the *mokéle-mbêmbe.* The First World War ended this expedition before the searchers could run down the rumors. According to the tale, the *mokéle-mbêmbe* had a smooth skin, a long neck, and a single large tooth or horn. There have been other accounts as well, including one alleged sighting of a pair of iguanodonts.

Despite these fascinating tales, no dinosaurs or other Mesozoic reptiles materialized. The rapid opening up of Africa by road and rail has gone on apace during the last half-century, together with the dwindling of the wild life, until today most of Africa is not much wilder than Ohio. It is scarcely credible that any beast large enough to kill hippopotami could have survived undiscovered. The same must be said of the jungles of tropical South America and southeast Asia.

The African dinosaur tales, then, are but the last stage of a process that has gone on ever since Europeans began to learn about the other continents. First came the stage of wild rumors. At this time, explorers and natives did not understand each other beyond a few words, and the explorers did not believe in spoiling a good story for the sake of a few facts. Hence the wildest yarns were brought back to Europe, to arouse the awe of stay-at-homes. Sometimes the stories were made up out of whole cloth; sometimes they were an exaggeration or a misunderstanding of something real; and sometimes they turned out to be true.

Thus the classical Greeks heard that in India dwelt the *martichora,* with "a face like a man's, a skin red as cinnabar, and . . . as large as a lion. It has three rows of teeth, ears and light-blue eyes like those of a man; its tail is like that of a land scorpion." From this tail it shot stings, whose wound was fatal. Indians hunted it on elephants. Here we can recognize a fantastic account of the Indian tiger.

Besides the monster tales that have resulted from misunderstanding, credulity, exaggeration, and plain lying, many such yarns have arisen from the natives' honest beliefs in mystical monsters. Most primitive peoples harbor such beliefs; so, before the modern age of science, did everybody. Sometimes the monster was merely a small beast writ large. The Maoris, for instance, told of a dreadful dragon, the *taniwha.* This was only the harmless, two-foot tuatara, a lizard-like reptile of ancient lineage from New Zealand, envisioned the size of a whale. Or, like the Babylonian *sirrush,* the animal might be a composite of several known beasts.

Many early dragon legends are plainly based upon reports of py-

thons and crocodiles by people who had heard about them at second hand. The salt-water crocodile of southeast Asia, *Crocodilus porosus,* may exceed 40 feet in length. This is as formidable a monster as any reasonable man could want. What, however, are the possibilities of the survival into historic times of any large land reptile, other than a crocodile or a giant snake?

Of dinosaurs the chance is negligible. If dinosaurs had survived as late as the Pleistocene, the paleontologists would surely have come upon their remains among the vast masses of Cenozoic fossils they have gathered during the last century.

The true lizards, however, have reached imposing size. The largest living lizards are the monitors of the genus *Varanus.* Of these, about thirty species are scattered about the tropical parts of the Old World. They are of rather slender form, most species reaching a length of three to six feet, with forked tongues.

The champion monitor is the Komodo dragon, *Varanus komodensis,* discovered by Europeans in 1912. This mighty lizard, which dwells on three small Indonesian islands and has been doubtfully reported from New Guinea, reaches a length of ten feet and may weigh as much as a large man. Among other prey, it kills wild pigs for its dinner.

Men who have caught the Komodo dragon for zoos have found it a formidable captive. The lizard is as powerful as an alligator of similar size and even more active. When snared, it leaps furiously about, hissing like a steam engine and trying to bite and claw its captors. Moreover, it has the disagreeable habit of vomiting all over them.

Early travelers' tales of the Komodo monitor may have gone into the general stock of tales whence the dragon legends were fabricated. It would not take much exaggeration to make the Komodo monitor into a story-book dragon. In the case of the related fossil genus *Megalania,* from the Australian Pleistocene, no exaggeration would be needed; this lizard reached a length of 20 to 30 feet.

One is tempted to ask if the last survivors of *Megalania* may not have been seen by men and embroidered into dragon legends. . . . But alas, the fossils of *Megalania* all go back long before historic times, and Europeans did not certainly sight Australia until Luis Vaez de Torres glimpsed Cape York in 1606. So no connection between *Megalania* and any mythical dragon is likely.

There remains the question of the sea serpent. Whereas the hope of finding live dinosaurs has faded with the opening up of the world's last unexplored lands, interest in

sea serpents has remained lively. Sea-serpent enthusiasts come close to forming a cult, like those of believers in the Lost Ten Tribes of Israel, the occult wisdom of the Great Pyramid, or Plato's Atlantis.

Harvard's Museum of Comparative Zoology displays the 42-foot skeleton of a giant short-necked plesiosaur, *Kronosaurus,* from the Australian Cretaceous. First collected in 1931, work on this skeleton was completed in the 1950's with money furnished by a Bostonian named Godfrey L. Cabot (1861-1962). Cabot, who lived to be over 100, was a sea-serpent enthusiast—or, as the Museum more tactfully puts it, "a man with a lifelong interest in marine reptiles." Now, perhaps in memory of the durable Mr. Cabot and his hobby, a sign reading TO THE SEA SERPENT points the way to the kronosaur.

There is enough apparently sober testimony about the sea serpent to imply that some unknown monster might, after all, lurk in the vastness of the ocean. Since the sea serpent is sometimes supposed to be a plesiosaur, it qualifies as a Mesozoic reptile if not as a dinosaur.

The sea-serpent legend began with an imaginative sixteenth-century Swedish archbishop, Olaus Magnus, who spent his last decades in retirement in a monastery in Rome. Here he wrote a *History of the Northern Nations* (1555). In this book, Olaus devoted a section to the sea monsters said to haunt the coasts of Norway. He told of ship-eating whales. He told of the kraken or giant squid, whose long-doubted existence was finally admitted in the 1870's. And he told of the sea serpent; a copper engraving in his book showed such a serpent attacking a ship.

Once the sea-serpent tales of Olaus and his successors were in print, stories of encounters with marine monsters became more and more frequent. The monsters, also, became more serpentine. One of the most celebrated sea-serpent stories was the report of a British naval captain in 1848:

> Her Majesty's Ship *Daedalus*
> Homoaze, Oct. 11
>
> Sir,—In reply to your letter of this day's date, requiring information as to the truth of a statement published in *The Times* newspaper, of a sea-serpent of extraordinary dimensions having been seen from Her Majesty's ship *Daedalus* . . . I have the honour to acquaint you, for the information of my Lords Commissioners of the Admiralty, that at 5 o'clock p.m. on the 6th of August last, in latitude 24° 44′ S., and longitude 9° 22′ E. [in the South Atlantic], the weather dark and cloudy, wind fresh from the N.W., with a long ocean swell

from the S.W., the ship on the port tack heading N.E. by N., something very unusual was seen by Mr. Sartoris, midshipman, rapidly approaching the ship from before the beam. The circumstance was immediately reported by him to the officer of the watch, Lieut. Edgar Drummond, with whom and Mr. William Barrett, the Master, I was at the time walking the quarterdeck . . .

Our attention being called to the object it was discovered to be an enormous serpent, with head and shoulders kept about four feet constantly above the surface of the sea, and as nearly as we could approximate by comparing it with the length of what our main-topsail yard should show in the water, there was at the very least 60 feet of the animal *à fleur d'eau,* no portion of which was, to our perception, used in propelling it through the water, either by vertical or horizontal undulation. It passed rapidly, but so close under our lee quarter, that had it been a man of my acquaintance I should have easily recognized his features with the naked eye; and it did not, either in approaching the ship or after it had passed our wake, deviate in the slightest degree from its course to the S.W., which it held on at the pace of from 12 to 15 miles per hour, apparently on some determined purpose.

The diameter of the serpent was about 15 or 16 inches behind the head, which was, without any doubt, that of a snake, and it was never, during the 20 minutes that it continued in sight of our glasses, once below the surface of the water; its colour a dark brown, with yellowish white about the throat. It had no fins, but something like the mane of a horse, or rather a bunch of seaweed, washed about its back. It was seen by the quartermaster, the boatswain's mate, and the man at the wheel, in addition to myself and officers above mentioned . . .

I have, etc.

Peter M'Quhae, Captain

To Admiral Sir W. H. Gage, G. C. H., Davenport

After Mesozoic reptiles became well known, reports of sea serpents, which until then had tended towards the serpentine, began to describe the monster as more and more resembling a Mesozoic marine reptile like a plesiosaur or a mosasaur. These reports have continued to the present. A flock of stories took wing in the 1930's about a monster in Loch Ness, Scotland.

Some tales are certainly hoaxes or hallucinations. One must read some of the literature of hoaxes to realize how often apparently so-

ber, upright, solid citizens perpetrate them. Sometimes they do it for money, sometimes for momentary fame, sometimes to persuade people of some pet theory, and sometimes just for the fun of fooling the marks.

Other cases, such as that of the *Daedalus*, are not so easily explicable. With so many people in on the hoax, it is probable that one or another would betray the secret. Hence many cases remain where the witness probably saw something, although not necessarily a sea serpent in the usual sense.

Several marine animals can be mistaken for sea serpents. These include the finback whale and its smaller cousin, the sei whale. Both are long, slender whales of almost serpentine form. Others are the kraken, the basking shark, the whale shark, and the ribbonfish, which rarely comes to the surface and which reaches a length of 30 feet. Groups of smaller animals swimming in a single column, such as sea lions or porpoises, can give the impression of a sea serpent by simultaneously breaking the surface.

That still leaves cases like that of the *Daedalus* unaccounted for. We must bear a couple of cautions in mind. For one, we ought to keep an open mind on such doubtful questions until they are cleared up. By "cleared up" I mean until somebody catches an actual specimen or until the oceans have been so completely explored that no unknown monster could still dwell in them.

The other caution is that, in want of a specimen, mere testimony is never enough to establish the improbable, no matter how detailed the accounts or how respected the witnesses. The reason is that, if the testimony of sane and sober witnesses were enough to establish a fact, then we should have to believe not only in sea serpents but also in witches on broomsticks, ghosts, devils, angels, elves, gnomes, mermaids, dragons, gryphons, unicorns, bleeding statues, magical spells, miraculous cures, prophetic powers, talking beasts, gods appearing on earth, flying saucers, and scores of other wonders for which volumes of convincing testimony can be mustered.

Suppose that some sea-serpent witnesses have seen something that is neither whale, shark, squid, floating log, school of porpoises, nor any of the other things often used to explain sea-serpent sightings. Let us assume that a large, undescribed animal, which has caused these reports, is loose in the sea. What could it be?

Two obvious answers are a plesiosaur or a mosasaur. Then such a beast must have survived all those seventy million years since the end of the Mesozoic Era. It should, then, have left its bones in some Cenozoic marine fossil-bearing bed. Neither beast has.

The Age of Mammals, or Cenozoic Era, furnished a creature that would make an equally good sea serpent. This is the primitive whale *Basilosaurus*. The fore part of this whale looked like that of one of the smaller-toothed whales of today. The after part, however, was drawn out into a long, serpentine tail with a pair of flukes on the end, so that the animal reached a length of 60 feet. Since *Basilosaurus* swam by rippling that snaky tail up and down, it would, on the surface, look much like the conventional picture of a sea serpent.

But *Basilosaurus* encounters the same difficulty as the Mesozoic reptiles. Remains of these whales all come from the early Cenozoic Era—Eocene and Oligocene deposits—and none from a later period. The inference is, therefore, that the Basilosauridae have been extinct for thirty to forty million years.

Professor A. C. Oudemans, who three quarters of a century ago wrote a book on the sea serpent, suggested that the Great Unknown was a pinniped: a member of the order that includes the seals, walruses, and sea lions, but with a much longer neck and tail. We may picture it as a kind of fur-bearing plesiosaur.

Aside from lack of late fossil remains, the fatal flaw in theories of reptilian or mammalian sea serpents is that all these creatures would be air breathers. Hence they would have to surface to breathe. In these days, when the oceans are stitched and webbed by ship and airplane routes, and the great whales have been nearly exterminated by Norwegian, Russian, and Japanese whalers, who hunt with helicopters, the chances that any large, surface-dwelling marine animal would be overlooked are negligible. In the modern world, there is just not enough undisturbed space for air-breathing Great Unknowns to hide.

The most plausible candidate for the role of sea serpent is something else. The common eel lives most of its life in the fresh waters of western Europe and eastern North America. When the urge comes upon it, it swims downstream to the ocean and thence to the Sargasso Sea. There the eels lay their eggs and die. From the eggs hatch leaf-shaped, transparent larvae, which set out upon the landward journey at a speed of about a thousand miles a year.

These larvae reach a length of four inches and then turn into conventional eels, losing height from top to bottom, thickening from side to side, and acquiring color. About that time, they reach their ancestral rivers, which they ascend. Then they grow to their full length of 3 to 5 feet.

On 31 January, 1930, the Danish research ship *Dana,* off the Cape of God Hope, caught an eel

larva. Like others, it was flat, leaf-shaped, and transparent. But, instead of being 3 or 4 inches long, it measured 6 feet, ½ inch in length.

Now, it may be that eels of this species grow to maturity without getting any longer; they simply shrink vertically and thicken laterally until they turn into normal 6-foot eels. On the other hand, if the adult form bears the same ratio to the larva as in fresh-water eels, the adult would be 60 to 100 feet long. To me, this would make a quite satisfactory sea serpent until a better one comes along.

But does this hypothesis explain the case of H.M.S. *Daedalus*? Alas, no. For one thing, eels do not swim with their heads out of water, as the *Daedalus'* serpent was said to do. For another, eels swim by wriggling from side to side, which Captain McQuhae specifically denied in the case of his monster.

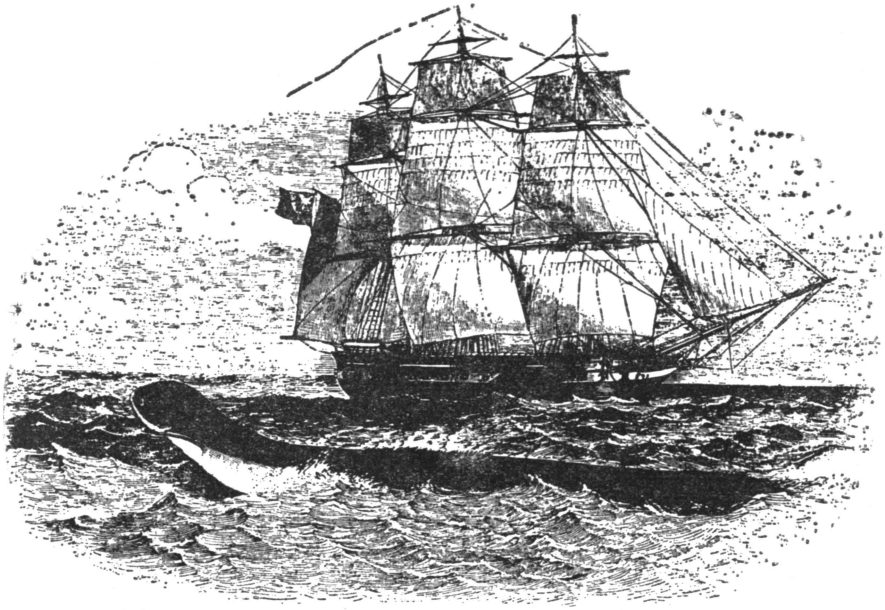
I have a theory—a guess, a tentative surmise—about this sighting. It may be right or wrong, and at this late date it cannot be proved one way or the other. But at least it seems to fit the facts more comfortably than some previous surmises.

This theory is that a couple of fishermen, out in their dugout canoe off the coast of West Africa or Brazil, rashly harpooned a whale shark, with their harpoon line belayed to the canoe. The harmless whale shark, the largest living fish, reaches a length of 45 (some say 60) feet and is fairly common in tropical waters. The harpoonee might have been some other large marine animal, but the whale shark seems the likeliest.

This particular shark, not seriously hurt but quite indignant, took off, towing the canoe like a chip behind it. Failing for some reason—possibly simple panic—to cut or untangle the line, the fishermen dove over the side and struck out for shore, leaving the shark to tow the derelict about the South Atlantic for weeks or months, until the harpoon tore out or the line rotted and broke.

If you look squint-eyed at the picture drawn under Captain McQuhae's direction for the *Illustrated London News* for October 28, 1848, you will see that the "serpent" does in fact look like such a canoe. The dark "back" of the monster is the shadowed interior of the vessel. The "head" is the flat place at the overhang of the bow, where the primitive fisherman rests one foot in casting his net or harpoon.

This theory accounts for the curious mode of progress of the serpent, in a straight line without visible wriggling. The "mane" could be either seaweed that had grown on the derelict or water splashing about inside the boat as it labored through the swells, or both. Do I hear any objections?



The *Daedalus* sea serpent, as depicted in a drawing made under the supervision of Capt. McQuhae and published in the *Illustrated London News*.

It looks, then, as if the dinosaurs and other spectacular Mesozoic reptiles were gone for good, rumors to the contrary notwithstanding. But they did not pass without influencing the modern world. For one thing, the recovery of their fossils during the nineteenth century helped the rapid spread and acceptance of the theory of evolution. They did this not so much directly (although in their own evolution they followed the same principles as other life forms) but indirectly, by arousing public interest in prehistoric life and thus drumming up support for museums and paleontological expeditions. This research piled up mountains of evidence, all favorable to Darwin's theory of evolution by natural selection.

Mesozoic reptiles also enjoyed a resurrection in the form of fiction, becoming standard plot elements in the science-fiction story. As in so many branches of imaginative fiction, Jules Verne took the first step. In *A Journey to the Centre of the Earth* (1864), his explorers of a network of underground caverns witness a fearful fight between an ichthyosaur and a plesiosaur in the waters of an underground sea. (In real life, ichthyosaurs and plesiosaurs were prob-

ably much too busy chasing fish to bother each other.)

Since then, dinosaurs and other antique reptiles have been brought on stage in scores of tales. Sometimes they have survived to the present in out-of-the-way places, as in Conan Doyle's *The Lost World* (1912). Like the lost-race story, tales of this type have become steadily less plausible with the unveiling of earth's last strongholds of mystery. Sometimes the story is laid in the Mesozoic. It may simply narrate the doings of that world's reptilian denizens; or it may bring a crew of people back to the past by time machine.

Most exasperating, to people who know anything about dinosaurs, are the many stories, comic strips, movies, and TV shows wherein our skin-clad ancestors are shown as battling dinosaurs. It is an elementary fact that all the great Mesozoic reptiles became extinct about seventy million years before man evolved from his apish ancestors. So to show early men and dinosaurs together is as glaring an anachronism as Julius Caesar in a derby hat.

Suppose we *could* go back to the Mesozoic to hunt dinosaurs. What would such a safari be like?

Transportation would be a problem. A jeep or even a tracked vehicle—even if it could enter the time machine—might prove more trouble than it was worth, since in the Mesozoic Era there were no roads and no sources of gasoline. Most of the ground would be very rough, since there was no grass between the trees and shrubs to retard erosion. Grass first appeared around the end of the Cretaceous and became really widespread only in the Cenozoic Era. So one would have to take pack asses or mules. In most places, there would be enough natural forage for these animals.

As for guns, hunters of modern thick-skinned game—elephant, rhinoceros, and hippopotamus—argue over the best kind of gun. Some like a heavy, repeating rifle of the kind used for large, thin-skinned game, like moose, grizzly bear, or lion. A typical gun of this sort is the .348 Winchester 71, a lever-action rifle. There are also magnum rifles in .300, .330, and .375 calibers. A "magnum" is a rifle designed for an oversized cartridge with an oversized powder load, to give exceptionally high velocity. These guns can be had in lever, bolt, pump, and automatic actions; bolt action seems the most popular nowadays. Such guns are larger than those used for deer and black bear but smaller than real elephant guns. They have muzzle energies of 1,000 to 2,500 foot-pounds.

Others prefer a real elephant gun for thick-skinned large game. This is a double-barreled rifle, which looks rather like a shotgun.

Elephant guns come in .465, .475, .500, and .600 calibers, firing cartridges the size of bananas. With such a gun, one need not hit an elephant in a vital spot—as with one of the smaller rifles described above—to knock it off its feet. It works the other way, too. If the hunter is a small man or is not used to heavy guns, it may knock *him* off his feet. All these guns are made in Britain, and most cost over a thousand dollars.

A rhinoceros weighs about one ton, a hippopotamus two or three, an elephant two to ten. In the Mesozoic, one would hunt animals weighing as much as several elephants. Moreover, being reptiles, they would cling more stubbornly to life than a mammal. To make things harder, it would be almost impossible to shoot one in the brain, because they have practically none—just a little lump of tissue, the size of a golf or tennis ball, on the top of their spines.

Therefore the heaviest rifles would be none too powerful. That means the daddy of all sporting arms: the Continental .600, which weighs 14.5 pounds and packs 7,600 foot-pounds of muzzle energy. Several other makes come fairly close to this gun in power, such as Holland & Holland's .500 double express with 5,700 foot-pounds. But on a dinosaur, one might as well use a slingshot as a gun with less than 4,000 foot-pounds of muzzle energy.

When we go back, the Cretaceous—the last of the Mesozoic periods—would seem rather exotic in flora, although many plants like magnolias, pines, sequoias, and willows would be familiar. There would be clumps of palmetto and giant fern, but little or no grass. Hence erosion would gouge the land into gullies, like the Western badlands. The Jurassic would seem like another world.

Of the dinosaurs, the sauropods and the armored dinosaurs (stegosaurs in the Jurassic, ankylosaurs in the Cretaceous) might as well be left alone. There would be no sport in shooting them, since they would simply stand around waiting to be attacked, relying on their size or on their spines and plates for protection. They would be almost unkillable, requiring a bazooka or an anti-tank cannon. And those small, blunt heads would be unimpressive trophies.

The duckbills and other large ornithopods would provide good trophies at little risk. They would be hard to approach, being wary.

The ceratopsians, or horned dinosaurs, from the late Cretaceous, would furnish the biggest heads. In fact, a seven-foot *Triceratops* head might weigh over a ton. Even if one could haul it back to base and get it into the time machine, one might find that, when one had mounted it in one's living room, there was no space left in the room for anything else.

Lastly there are the theropods —the bipedal carnivores. These range from lively little predators the size of a hen or a stork up to colossi like the carnosaurs *Allosaurus* and *Tyrannosaurus,* 40 to 50 feet long. These latter would be the most dangerous game of all time, requiring the heaviest gun, an iron nerve, and other hunters to back one up. The moment when one faces a big carnosaur is no time to panic, turn an ankle, catch a twig in the action of one's gun, forget to take the gun off safety, or climb a tree small enough for the animal to pluck one out of. There is not much use running away in the open. Although large carnosaurs' movements look slow and clumsy, they can cover ground faster than a man, because of the length of their ponderous strides.

People sometimes think that, because dinosaurs had small brains, they must have had dim senses. But this is not necessarily so. The ornithopods and the theropods, in particular, are believed to have had keen sight and smell and adequate hearing.

In dealing with carnosaurs, everybody lets the dinosaur have it and keeps on shooting until the creature is down for good. If brain shots are a waste of rounds, the dinosaurs have big hearts, weighing 50 or 100 pounds. A shot through the heart will at least slow one down. Several will kill it, although it sometimes takes it fatally long to realize that it is dead —fatally for the hunter, that is.

Little modern hunting is really dangerous; primitive man, facing big game with spears, needed much more nerve than a modern man with a high-powered rifle. Primitive men never hunted dinosaurs, since there were none in their time. But, if we could hunt dinosaurs with the best modern guns, we should be in a position like that of a tribesman facing a lion with a spear. That would be real sport, in which the game would have about as good a chance of getting the hunter as vice versa.

Best of all, one need not worry about depleting some rare species, because they are all extinct anyway!

This extract from Robert Sheckley's soon-to-be published novel, DIMENSION OF MIRACLES, *stands quite well and quite brilliantly alone; however it will not hurt you to know that the book concerns the travels of one Harry Carmody, who, having been spirited away from Earth and subsequently abandoned, is trying to find his way back to his home planet. Carmody has been advised to seek out a man named Maudsley, a planet-builder by trade.*

BUDGET PLANET

by Robert Sheckley

"So this is it, eh, Orin?" Maudsley said.

"Yes sir, this is it," Orin, the man on his left said, smiling proudly. "What do you think of it, sir?"

Maudsley turned around slowly and surveyed the meadow, the mountains, the sun, the river, the forest. His face betrayed no expression. He said, "What do *you* think of it, Brookside?"

Brookside said, in a tremulous voice, "Well sir, I think that Orin and I did a nice job. A *really* nice job, if you take into account that it was our first independent project."

"And do you concur in that judgment, Orin?" Maudsley asked.

"Certainly, sir," Orin said.

Maudsley bent down and plucked a blade of grass. He sniffed it and threw it away. He scuffed the dirt beneath his feet, then stared for several moments full into the blazing sun. In a measured voice, he said, "I am amazed, truly amazed. But in a most unpleasant way. I ask you two to build a world for one of my customers and you come up with *this!* Do you really consider yourselves engineers?"

The two aides did not reply. They had stiffened, like boys awaiting the birch rod.

"Engineers!" Maudsley said, getting almost fifty foot-pounds of contempt into the word. " 'Creative but practical scientists who can build the planet where and when you want it.' Do either of you recognize those words?"

"They're from the standard brochure," Orin said.

"That is correct," Maudsley replied. "Now, do you consider *this* a good example of 'creative, practical engineering'?"

Both men were silent. Then Brookside blurted out, "Well sir, yes sir, I do!

"We examined the job specs very carefully. The request was for a Type 34Bc4 planet with certain variations. And that's exactly what we built. This is only a corner of it, of course. But still—"

"But still, I can see what you did and judge accordingly," Maudsley said. "Orin! What kind of a heating unit did you use?"

"A type O5 sun, sir," Orin replied. "It fitted the thermal requirements nicely."

"I daresay it did. But this was a budget world, you will remember. If we don't keep the costs down, we don't make a profit. And the biggest single cost item is the heating unit."

"We are aware of that, sir," Brookside said. "We didn't at all like to use an O5 type sun for a single-planet system. But the heat and radiation requirements—"

"Haven't you learned anything from me?" Maudsley cried. "This type of star is entirely superfluous. You there—" He beckoned to the workmen. "Take it down."

The workmen hurried forward with a folding ladder. One man braced it and another man unfolded it, ten times, a hundred times, a million times. Two other workmen raced up the ladder as fast as it went up.

"Handle it carefully!" Maudsley called up to them. "And be sure you're wearing gloves! That thing's hot!"

The workmen at the very top of the ladder unhooked the star, folded it into itself and put it into a padded box marked STAR: HANDLE WITH CARE.

When the lid fell, everything went black.

"Hasn't anyone any sense around here?" Maudsley asked. "Damn it all, let there be light."

And just like that, there was light.

"OK," Maudsley said. "That O5 type sun goes back into storage. On a job like this we can use a G13 type star."

"But sir," Orin said nervously, "it isn't hot enough."

"I know that," Maudsley said. "That's where you have to use your creativity. If you move the star closer in, it'll be hot enough."

"Yes sir, it will," Brookside said. "But it'll be emitting PR rays without enough space to allow them to dissipate harmlessly. And that might kill off the entire race that's going to occupy this planet."

Maudsley said, very slowly and distinctly, "Are you trying to tell me that G13 type stars are dangerous?"

"Well, no, I didn't mean it ex-

actly *that* way," Orin said. "I meant to say, they *can* be dangerous, just like anything else in the universe, if proper precautions are not taken."

"That's more like it," Maudsley said.

"The proper precautions," Brookside said, "involve, in this case, the wearing of protective lead suits weighing some fifty pounds each. But this is impractical, since the average member of this race only weighs eight pounds."

"That's their lookout," Maudsley said. "It's not our business to tell them how to live their lives. Am I supposed to be responsible whenever they stub their toe on a rock I put on their planet? Besides, they don't have to wear lead suits. They can buy one of my optional extras, a Solar Screen that'll block out the PR rays."

Both men smiled nervously. But Orin said timidly, "I believe this is a somewhat underprivileged species, sir. I think perhaps they can't afford the Solar Screen."

"Well, if not right now, maybe later," Maudsley said. "And anyhow, the PR radiations aren't instantly fatal. Even with it, they'll have an average lifespan of 9.3 years, which ought to be enough for anyone."

"Yes sir," the two assistant engineers said, not happily.

"Next," Maudsley said, "what's the height of those mountains?"

"They average six thousand feet above sea level," Brookside said.

"At least three thousand feet too high," Maudsley said. "Do you think mountains grow on trees? Pare them down and put what you have left over into the warehouse."

Brookside took out a notebook and jotted down the change. Maudsley continued to pace around, looking and frowning.

"How long are those trees supposed to last?"

"Eight hundred years, sir. They're the new, improved model Apple-oak. They give fruit, shade, nuts, refreshing beverages, three useful fabrics; they make excellent building material, hold the soil in place, and—"

"Are you trying to bankrupt me?" Maudsley roared. "Two hundred years is entirely long enough for a tree! Drain off most of their elan vital and store it in the life-force accumulator!"

"They won't be able to perform all of their designed functions, then," Orin said.

"Then cut down on their functions! Shade and nuts is plenty, we don't have to make a damned treasure chest out of those trees! Now then, who put those cows out there?"

"I did, sir," Brookside said. "I thought it would make the place look—well, sort of inviting, sir."

"You oaf," Maudsley said, "the time to make a place look inviting

is before the sale, not after! This place was sold unfurnished. Put those cows into the protoplasm vat."

"Yes sir," Orin said. "Terribly sorry, sir. Is there anything else?"

"There're about ten thousand other things wrong," Maudsley said. "But you can figure out those for yourselves, I hope. What, for example, is this?" He pointed at Carmody. "A statue or something? Is he supposed to sing a song or recite a poem when the new race arrives?" Carmody said, "Sir, I am not part of this. A friend of yours named Malichrone sent me, and I'm trying to get home to my own planet—"

Maudsley clearly did not hear what Carmody was saying. For, while Carmody was trying to speak, Maudsley was saying, "Whatever he is, the job specs don't call for him. So stick him back in the protoplasm vat with the cows."

"Hey!" Carmody shouted as workmen lifted him up by his arms. "Hey, wait a minute!" he screamed. "I'm not a part of this planet! Malichrone sent me! Wait, hold on, listen to me!"

"You really ought to be ashamed of yourselves," Maudsley went on, oblivious to Carmody's shrieks. "What was that supposed to be? One of your interior decorating touches, Orin?"

"Oh no," Orin said. "I didn't put him there."

"Then it was you, Brookside."

"I never saw him before in my life, chief."

"Hmm," Maudsley said. "You're both fools, but you've never been liars. Hey!" he shouted to the workmen. "Bring him back here!"

"All right, pull yourself together," Maudsley said to Carmody, who was shaking uncontrollably. "Get a grip on yourself, I can't wait around here while you have a fit of hysterics! Better now? All right, would you mind explaining just what you're doing trespassing on my property and why I shouldn't have you converted into protoplasm?"

"I see," Maudsley said, after Carmody had finished explaining. "It's an interesting story, though I'm sure you've over-dramatized it. Still, here you are, and you're looking for a planet called—Earth?"

"That is correct, sir," Carmody said.

"Earth," Maudsley mused, scratching his head. "This is most fortunate for you; I seem to remember the place."

"Do you really, Mr. Maudsley?"

"Yes, I'm quite sure of it," Maudsley said. "It's a small green planet, and it supports a monomorphic humanoid race like yourself. Am I right?"

"Completely right!" Carmody said.

"I have rather a memory for

these things," Maudsley said. "And in this particular case, as it happens, I built Earth."

"Did you really, sir?" Carmody asked.

"Yep. I remember distinctly, because in the course of building it, I also invented science. Perhaps you will find the story amusing." He turned to his aides. "And *you* might find the tale instructive."

No one was going to deny Maudsley the right to tell a story. So Carmody and the assistant engineers assumed attentive postures, and Maudsley began.

THE STORY OF THE CREATION OF EARTH

I was still quite a small contractor then. I put up a planet here and there, and I got to do an occasional dwarf star. But jobs were always hard to come by, and the customers were invariably capricious, faultfinding, and slow in their payments. Customers were hard to please in those days; they argued about every little detail. *Change this, change that, why must water flow downhill, the gravity's too heavy, the hot air rises when it ought to fall.* And so forth.

I was quite naive in those days. I used to explain the esthetic and practical reasons for everything I did. Before long, the questions and the explanations were taking longer than the jobs. There was entirely too much talk-talk. I knew that I had to do something about it, but I couldn't figure out what.

Then, just before the Earth project, a whole new approach to customer relations began to shape itself in my mind. I found myself muttering to myself, "Form follows function." I liked the way it sounded. But then I would ask myself, "*Why* must form follow function?" And the reason I gave myself was, "Form follows function because that is an immutable law of nature and one of the fundamental axioms of applied science." I liked the sound of that, too, although it didn't make much sense.

But sense didn't matter. What mattered was that I had made a new discovery. I had unwittingly stumbled into the art of advertising and salesmanship, and I had discovered the gimmick of great possibilities: Namely, the doctrine of scientific determinism. Earth was my first test case, and that is why I will always remember it.

A tall, bearded old man with piercing eyes had come to me and ordered a planet. (That was how your planet began, Carmody.) Well, I did the job quickly, in six days I believe, and thought that would be the end of it. It was another of those budget planets, and I had cut a few corners here and there. But to hear the owner complain, you'd have thought I had stolen the eyes out of his head.

"Why are there so many tornadoes?" he asked.

"It's part of the atmosphere circulation system," I told him. Actually, I had been a little rushed at that time; I had forgotten to put in an air circulation overload valve.

"Three quarters of the place is water!" he told me. "And I clearly specified a 4 to 1 land-to-water ratio!"

"Well, we couldn't do it that way!" I said to him. I had lost his ridiculous specifications; I never can keep track of these absurd little one-planet projects.

"And you've filled what little land you gave me with deserts and swamps and jungles and mountains."

"It's scenic," I pointed out.

"I don't care from scenic!" the fellow thundered. "Oh, sure, one ocean, a dozen lakes, a couple rivers, one or two mountain ranges, that would have been fine. Dresses the place up, gives the inhabitants a good feeling. But what you gave me is *shlock!*"

"There's a reason for it," I said. In point of fact, we couldn't make the job pay except by using reconstituted mountains, a lot of rivers and oceans as filler, and a couple of deserts I had bought cheap from Ourie the planet-junker. But I wasn't going to tell *him* that.

"A reason!" he screamed. "What will I tell my people? I'm putting an entire race on that planet, maybe two or three. They'll be humans, made in my own image, and humans are notoriously picky, just as I am. What am I supposed to tell them?"

Well, I knew what he could tell them, but I didn't want to be offensive; so I pretended to give the matter some thought. And strangely enough, I *did* think. And I came up with the gimmick to end all gimmicks.

"You just tell them the plain scientific truth," I said. "You tell them that, scientifically, everything that *is* must be."

"Huh?" he said.

"It's determinism," I said, making up the name on the spur of the moment. "It's quite simple, though a bit esoteric. To start with, form follows function; therefore your planet is exactly as it should be by the simple fact of *being* at all. Next, science is invariable; so if anything isn't invariable, it isn't science. And finally, everything follows definite rules. You can't always figure out what those rules are, but you can be sure they're there. So, it stands to reason that no one ought to ask *why this instead of that?* Instead, everyone ought to ask *how does it work?*"

Well, he asked me some pretty tough questions, and he was a pretty smart old fellow. But he didn't know crap about engineering; his field was ethics and morals and religion and spook-stuff like that. So of course, he just

wasn't able to come up with any real objections. He was one of these types who loves abstractions, and he started repeating, "That which *is* is that which *must be.* Hmm, a very intriguing formula and not without its patina of stoicism. I shall incorporate some of these insights into the lessons I give to my people. . . . But tell me this: how can I reconcile this indeterminate fatality of science with the free will I plan to give to my people?"

Well, the old boy almost had me there. I smiled and coughed to give myself time to think, and then I said, "The answer is obvious!" Which is always a good answer, as far as it goes.

"I daresay it is," he said. "But I don't perceive it."

"Look," I said, "this free will you're giving your people, isn't that a kind of fatality also?"

"It could be considered as such. But the difference—"

"And besides," I said hastily, "Since when are free will and fatality incompatible?"

"They certainly seem incompatible," he said.

"That's only because you don't understand science," I said, performing the old switcheroo right under his hooked nose. "You see, my dear sir, one of the most basic laws of science is that chance plays a part in everything. Chance, I'm sure you know, is the mathematical equivalent of free will."

"But what you're saying is quite contradictory," he said.

"That's how it goes," I said. "Contradiction is one more of the fundamental rules of the universe. Contradiction generates strife, without which everything would reach a stage of entropy. So we couldn't have any planet or any universe if things didn't exist in an apparently irreconcilable state of contradiction."

"Apparently?" he said quickly.

"Right as rain," I said. "Contradiction, which we can define provisionally as the existence of reality-paired opposites, isn't the last word on the subject. For example, let's posit a single isolated tendency. What happens when you push a tendency to the limit?"

"I haven't the slightest idea," the old guy said. "The lack of specifics in this sort of discussion—"

"What happens," I said, "is that the tendency turns into its *opposite.*"

"Does it really?" he asked, considerably shook up. These religious types are something when they try to tackle science.

"It really does," I assured him. "I've got the proofs in my lab, though the demonstrations are a bit tedious—"

"No, please, I take your word," the old guy said. "After all, we did make a Covenant."

That was the word he always used for contract. It meant the same thing, but sounded better.

"Paired opposites," he mused. "Determinism. Things becoming their opposites. It's all quite intricate, I'm afraid."

"And aesthetic as well," I said. "But I didn't finish about the transformation of extremes."

"Kindly go on," he said.

"Thanks. Now then, we have entropy, which means that things persist in their motion unless there is outside influence. (Sometimes even when there is outside influence, in my experience.) But so, we got entropy driving a thing toward its opposite. If one thing is driven toward its opposite, then all things are driven toward their opposites, because science is consistent. Now you get the picture? We've got all these opposites transforming themselves like crazy and becoming their opposites. On a higher level of organization, we have groups of opposites going through the same bit. And higher and higher. So far so good?"

"I suppose so," he said.

"Fine. Now, the question naturally arises, is this all? I mean, these opposites turning themselves inside out and then outside in, is that the whole ball game? And the beauty-part is, it's not! No sir, these opposites flipping around like trained seals are only an aspect of what's really happening. Because—" And here I paused and spoke in a very deep voice. "—because there is a wisdom that sees beyond the clash and turmoil of the phenomenal world. This wisdom, sir, sees through the illusory quality of these real things and sees beyond them into the deeper workings of the universe, which are in a state of like great and magnificent harmony."

"How can a thing be both illusory and real?" he asked me, quick as a whip.

"It is not for me to know an answer like that," I told him. "Me, I am a mere humble scientific worker, and I see what I see and act accordingly. But maybe there's an ethical reason behind it."

The old boy mused on that one for a while, and I could see he was having quite a tussle with himself. He could detect a logical fallacy as fast as anyone, of course, and my reasons had been shot through with them. But like all eggheads, he was fascinated with contradictions and he had the strong urge to incorporate them into his system. And all the propositions I had proposed—well, his common sense told him that things couldn't be *that* tricky, but his intellectuality told him that maybe things did indeed seem that complicated, although maybe there was a nice simple unifying principle underneath it all. Or, if not a unifying principle, at least a good solid moral. And finally, I had hooked him all over again just because I had used the word *ethics*. Because this old gent was a perfect demon for ethics, he was su-

persaturated with ethics; you could call him Mr. Ethics, make no mistake. And so, quite accidentally, I had given him the idea that the whole bloody universe was a series of homilies and contradictions, of laws and inequities, all leading to the most exquisite and rarefied sort of ethical order.

"There is a greater depth here than I had considered," he said after a while. "I had planned to instruct my people in ethics only and to direct their attention to morally imperative questions such as how and why a man should live instead of what constitutes living matter. I wanted them to be explorers plumbing the depths of joy, fear, piety, hope, despair, rather than scientists who examine stars and raindrops and form grandiose and impractical hypotheses on the basis of their findings. I was aware of the universe, but considered it superfluous. Now you have corrected me."

"Well, look," I said, "I didn't mean to cause trouble. I just thought I should point out this stuff. . . ."

The old man smiled. "By causing me trouble," he said, "you have spared me greater trouble. I can create in my own image, but I will not create a world peopled with miniature versions of myself. Free will is important to me. My creatures will have it, to their glory and their sorrow. They will take this glittering useless toy which you call science, and they will elevate it to an undeclared Godhead. Physical contradictions and solar abstractions will fascinate them; they will pursue knowledge of these things and forget to explore the knowledge of their own heart. You have convinced me of this, and I am grateful for the forewarning."

I'll be frank, he got me a little nervous just abut then. I mean, he was a nobody, he didn't know any important people, and yet, he had the grand manner. I had the feeling that he could cause me one hell of a lot of trouble, and I felt that he could do it with a few words, a sentence like a poisoned dart lodged in my mind and never to be removed. And that scared me a little, to tell the truth.

Well sir, the old joker must have been reading my mind. For he said, "Do not be frightened. I accept without reservation the world you have built for me; it will serve very well, exactly as it is. As for the flaws and defects which you also built into my world, I accept those, not entirely without gratitude, and I pay for those, too."

"How?" I asked. "How do you pay for errors?"

"By accepting them without dispute," he said. "And by turning away from you now and going about my business and the business of my people."

And old gentleman left without another word.

Well, it left me pretty thoughtful. I'd had all the good arguments, but the old boy left somehow with the last word. I knew what he meant; he had fulfilled his contract with me and that ended it. He was leaving with no word for me personally. From his point of view, it was a kind of punishment.

But that's only the way *he* saw it. What did I need with his word? I wanted to hear it, of course—that's only natural—and for quite a while I tried to look him up. But he didn't care to see me.

So it really doesn't matter. I made a pretty nice profit on that world, and even if I bent the contract here and there, I didn't break it. That's how things are; you owe it to yourself to make a profit. You can't get too worked up over the consequences.

But I was trying to make a point out of all this, and I want you boys to listen carefully. Science is filled with a lot of rules, because I invented it that way. Why did I invent it that way? Because rules are a great assistance to a smart operator, just as a lot of laws are a great help to lawyers. The rules, doctrines, axioms, laws, and principles of science are there to help you, not to hinder you. They're there in order to provide you with reasons for what you do. Most of them are true, more or less, and that helps.

But always remember—these rules are there to help you explain to the customers what you do *after you do it,* not before. When you have a project, do it exactly as you see fit; then fit the facts around the event, not the other way around.

Remember—these rules exist as a verbal barrier against people who ask questions. But they should *not* be used as a barrier by you. If you've learned anything from me, you've learned that our work is inevitably inexplicable; we simply do it, and sometimes it comes out well and sometimes not.

But never try to explain to yourselves why some things happen and why other things don't happen. Don't ask, and don't imagine that an explanation exists. Get me?

The two assistants nodded vehemently. They looked enlightened, like men who have found a new religion. Carmody would have bet anything that those two earnest young men had memorized every one of the builder's words, and would now proceed to elevate those words into—a rule.

This is a fascinating story on several counts. Its theme is a durable one: aliens threaten mankind; scientist analyzes aliens; soldiers battle aliens. The difference here is that this is a 19th century writer's account of a battle that takes place a thousand years before the beginning of ancient civilization. With all that, it is more than a curiosity; it is a compelling and exciting story.

J.-H. Rosny aîné was a well known literary figure in the 19th and early 20th centuries, a president of the Académie Goncourt. He was born Honore Boëx (in Brussells, 1856); he and his younger brother Justin first used the name J.-H. Rosny as a collaborative pseudonym. After the collaboration ceased, they signed themselves "J.-H. Rosny aîné" and "J.-H. Rosny jeune." This story will appear in A CENTURY OF SCIENCE FICTION, *an anthology edited by Damon Knight.*

THE SHAPES

by J.-H. Rosny aîné

Translated from the French by Damon Knight

IT WAS A THOUSAND YEARS BEfore the beginning of that center of civilization from which Nineveh, Babylon and Ecbatana were later to spring.

The nomadic tribe of Pjehu, with its horses, asses and cattle, was crossing the wild forest of Kzur toward the west, through a slanting curtain of light. The edge of the setting sun swelled, hovered, dropped from its graceful perches.

Everyone being weary, they were all silent, searching for a good clearing where the tribe might kindle the sacred fire, prepare the evening meal, and sleep in safety from wild animals, behind a double line of red-hot coals.

The clouds turned opalescent; illusory countrysides trailed away to the four horizons; the gods of night breathed their cradle song, and the tribe was still on the move. A scout came galloping back with word of a clearing and water, a pure spring.

The tribe gave three long shouts; everyone moved faster.

Childish laughter rippled out; the very horses and asses, trained to recognize the nearness of a stopping-place by the return of the scouts and the nomads' cheers, raised their necks proudly.

The clearing came into view. Here, where the delightful spring had hollowed out its bed among mosses and shrubs, a phantasmagoria met the nomads' eyes.

It was, first, a great circle of translucent bluish cones, point uppermost, each nearly half the bulk of a man. A few clear streaks, a few dark convolutions were scattered across their surfaces; each one had a dazzling star near its base.

Farther distant, equally strange slabs stood on end, looking rather like birch bark, and spotted with varicolored elipses. Other Shapes, here and there, were almost cylindrical—some tall and thin, others low and squat, all of a bronzed color, tipped with green; and all, like the slabs, having the characteristic point of light.

The tribe stared in amazement. Even the bravest were frozen with superstitious fear, increasing still more when the Shapes began to sway in the twilight of the clearing. And suddenly, their stars wavering, flickering, the cones stretched higher, the cylinders and the slabs hissed like water thrown upon a flame, all of them moving toward the nomads with mounting speed.

Spellbound by the sight, the tribe did not move, but kept on watching. The Shapes fell upon them. The shock was terrible. Warriors, women and children fell in heaps, mysteriously struck down as if by lightning. Then the terrified survivors found strength to flee. And the Shapes, breaking their closed ranks, spread out around the tribe, implacably pursuing those who fled. Nevertheless, the frightful attack was not infallible: it killed some, stunned others, wounded none. A few red drops spurted from the nostrils, eyes and ears of the dying; but others, unhurt, soon arose and rejoined the fantastic rout.

Whatever might be the nature of the Shapes, they behaved like living creatures, not like elements of nature, having, like living creatures, an inconstancy and diversity of motion, evidently choosing their victims, not confounding the nomads with trees or shrubs, or even with animals.

In a short time the swiftest of the tribe noticed that no one was pursuing them any longer. Exhausted and in tatters, at last they dared retrace their steps toward the Mystery. Far away, between the tree trunks flooded with shadow, the resplendent chase went on. And the Shapes, seemingly by choice, ran down and massacred the warriors, often disdaining to attack the feeble, or the women and children.

Seen thus at a distance, in the night which had now fallen, the scene was more supernatural, more overwhelming to barbarian minds. About to take up their flight once more, the warriors made a vital discovery. It was this: whatever the fugitives did, *the Shapes abandoned the pursuit at a fixed boundary.* However weary and powerless the victim might be, even if he were unconscious, once he had crossed that invisible frontier, he was out of danger.

This reassuring discovery, soon confirmed by fifty observations, calmed the fugitives' frantic nerves. They dared to wait for their companions, their wives and their children who had escaped the butchery. One of them, indeed, their hero, who had been stunned at first, regained his spirit and lit a fire, blew on a buffalo horn to guide the fugitives.

Then one by one the pitiful survivors came. Many, crippled, dragged themselves by their hands.

The mothers, with indomitable maternal strength, had protected, gathered, and carried their children through the wild melee. And many asses, horses and cattle reappeared, less frightened than their masters.

A dismal night followed, passed in sleepless silence, while the warriors felt shivers run up and down their spines. But the dawn came, stealing pale through the heavy foliage; then the auroral fanfare of colors, of echoing bird cries, exhorted them to live, to cast off the terrors of darkness.

The hero, the natural leader, formed the crowd into groups and began counting the tribe. Half the warriors, two hundred, were missing. The loss of women was much less; of children, almost none.

When the counting was finished and the beasts of burden had been reassembled (few were missing, due to the superiority of instinct over reason during a crisis), the hero formed up the tribe as usual. Then, ordering everyone to wait for him, he walked, pale and alone, toward the clearing. No one dared follow him, even at a distance.

He went to where the trees were spaced out widely, a little inside the limit observed yesterday, and looked.

Far across the clearing, in the cool transparency of morning, flowed the pretty spring. Around the edges, reunited, the fantastic troop of Shapes shone resplendently. Their colors had changed. The Cones were more compact, their turquoise tint having turned greenish; the Cylinders were streaked with violet, and the Slabs looked like virgin copper. But each had its blazing star, dazzling even in daylight.

The outlines of these phantasmagorical Entities had also changed. The Cones tended to en-

large into Cylinders, the Cylinders to flatten and spread, while the Slabs curled slightly.

But suddenly, as on the night before, the Shapes swayed, their stars began to flicker; the hero, slowly, retreated beyond the borderline of safety.

The tribe of Pjehu halted at the doorway of the great nomad Tabernacle, where only chiefs might enter. In the starry depths, under the virile image of the Sun, sat the three high priests. Below them on the gilded steps, the dozen under-priests.

The hero stepped forward and recounted at length the fearful journey through the forest of Kzur; the priests listened very gravely, astonished, feeling their power dwindle before that inconceivable adventure.

The supreme high priest demanded that the tribe sacrifice to the Sun twelve bulls, seven onagers, three stallions. He recognized divine attributes in the Shapes, and, after the sacrifices, he resolved upon a hieratic expedition.

All the priests, all the chiefs of the Zahelal nation, were to take part. And messengers were sent out over the mountains and the plains, for a hundred leagues around the place where later would rise Ecbatana of the magi. Everywhere the dark tale made men's hair stand on end; everywhere the chiefs responded quickly to the priestly call.

One autumn morning, the Male pierced the clouds, flooded the Tabernacle, reached the altar where the bleeding heart of a bull lay smoking hot. The high priests, the under-priests, fifty tribal chiefs raised a cry of triumph. A hundred thousand nomads, standing in the dew outside, took up the clamor, turning their tanned faces toward the miraculous forest of Kzur and shivering a little. The omen was favorable.

Thus, with the priests at their head, a whole people marched through the trees. In the afternoon, at about the third hour, the hero of the Pjehu halted the throng. The great clearing lay spread out in its majesty, glowing with autumn, a torrent of dead leaves covering its mosses. On the banks of the spring, the priests saw the Shapes which they had come to worship and appease. They were pleasant to the eye, under the shade of the trees, with their trembling color changes, the pure flames of their stars, their tranquil movements at the edge of the spring.

"We must make the offering here," said the supreme high priest, "that they may know we submit to their power!"

All the graybeards nodded. One voice was raised, nevertheless. It was Yushik, of the tribe of Nim, the young star-counter, the pale

prophetic watchman, of recent fame, who boldly demanded to go nearer the Shapes.

But the old men, white haired in their wisdom, prevailed: the altar was built, the victim led forward—a dazzling white stallion. Then, in the silence of the prostrate people, the bronze knife found the animal's noble heart. A great moan went up. And the high priest intoned:

"Art thou appeased, O gods?"

Over there, among the silent trunks, the Shapes still moved in a ring, brightening themselves, preferring places where the sunbeams were thickest.

"Yea," cried the enthusiast, "they are appeased!"

And snatching up the stallion's warm heart, before the high priest could say a word, he flung himself into the clearing. Shouting, other fanatics followed him. The Shapes gently swayed, crowding together, skimming the grass, then suddenly hurled themselves on the daring ones, in a massacre that stunned the fifty tribes.

Six or seven fugitives, hotly pursued, managed to reach the boundary. The rest were dead, Yushik among them.

"These are relentless gods!" solemnly spoke the supreme high priest.

Then a council was held, the venerable council of priests, elders and chiefs. They decided to put up a row of stakes round the boundary line. In order to determine this line, they would force slaves to expose themselves to attack by the Shapes at one part of the perimeter after another.

And this was done. Under the threat of death, slaves entered the ring. So careful were the precautions taken, that few of them perished. The boundary was firmly established, made visible to all by its line of stakes.

Thus the hieratic expedition ended successfully, and the Zahelals believed themselves safe from the enemy.

But the preventive system advocated by the council was not long in showing its flaws. The following spring, the tribes of Hertoth and Nazzum, carelessly passing near the ring of stakes, suspecting nothing, were cruelly assaulted and decimated by the Shapes.

The chiefs who escaped the massacre told the great Zahelal council that the Shapes were now much more numerous than they had been the preceding autumn. Their pursuit was still limited, but the boundary had been enlarged.

This news dismayed the people; there was great mourning and many sacrifices. Then the council resolved to destroy the forest of Kzur by fire.

In spite of all their efforts, they could burn no more than the borders of the forest.

Then the priests, in despair, consecrated the forest and forebade anyone to enter it. And many summers passed.

One October night, the sleeping encampment of the tribe of Zulf, ten bowshots from the forbidden forest, was invaded by the Shapes. Three hundred more warriors lost their lives.

From this day a dark, mysterious tale went from tribe to tribe, a thing whispered by night, under the wide starry skies of Mesopotamia. *Man was going to perish.* The *others,* constantly expanding, in the forest, across the plains, indestructible, day by day would swallow up the overthrown race of man. And this dark, fearful secret haunted the brains of men, sapped their fighting strength and the confidence of their youth. The nomad, thinking such thoughts, no longer dared take pleasure in the lush pastures of his fathers. He turned his weary eyes upward, waiting for the stars to halt in their courses. It was the millennial year of this childlike people, the world's knell.

And in their distress, these thinkers turned to a bitter cult, a cult of death preached by pale prophets, the cult of Darknesses more powerful than the Stars, the Darknesses which would engulf and devour the holy Light, the resplendent fire.

Everywhere at the edge of the wilderness were seen the emaciated, immoble figures of the inspired ones, the men of silence, who, passing from time to time among the tribes, told of their terrible dreams, the Twilight of the great Night to come, of the dying Sun.

Now in those days there lived an extraordinary man called Bakhun, a member of the tribe of Ptuh and brother to the supreme high priest of the Zahelals. In his youth he had abandoned the nomadic life, had chosen a place in the wilderness, between four hills, in a narrow green valley where a spring poured out its pure song. He had built a fixed tent of stones, a cyclopean habitation. With patience and with the careful management of his horses and oxen, he had achieved the opulence of regular harvests. His four wives and thirty children lived the life of Eden there.

Bakhun professed unusual beliefs, for which he might have been stoned, save for the respect of the Zahelals for his elder brother, the supreme high priest.

First, he declared that the sedentary life was better than the life of the nomads, conserving man's strength to the profit of his spirit.

Second, he believed that the Sun, the Moon and the Stars were not gods, but luminous masses.

Third, he said that men should really believe only in those things tested by measurement.

The Zahelals credited him with magical powers, and the most daring of them sometimes risked consulting him. They never repented it. It was said that he had often helped unfortunate tribes by distributing food to them.

Now, in this dark hour, when men were faced with the melancholy choice of giving up their green lands or being destroyed by the inexorable gods, the tribes thought of Bakhun, and the priests themselves, after a struggle with their pride, sent to him a deputation made up of three of the greatest among them.

Bakhun listened with close attention to their accounts, asking them to repeat certain parts, asking many detailed questions. He asked for two days to meditate. When the time was up, he announced simply that he would dedicate his life to the study of the Shapes.

The tribes were a little disappointed, for they had hoped Bakhun might be able to deliver the land by sorcery. Nevertheless, the chiefs expressed their happiness at his decision, and hoped that great things would come of it.

Then Bakhun took up his station at the edge of the forest of Kzur, leaving it only when night fell, and all day long, mounted on the swiftest stallion in Chaldea, he watched. Soon, convinced of the splendid animal's superiority over the most agile of the Shapes, he was able to begin his bold and painstaking study of the enemies of man, that study to which we owe the great ante-cuneiform book of sixty tablets, the finest stone book bequeathed by the nomadic age to modern civilization.

In this book, admirable for its restraint and its patient observation, is the description of a form of life absolutely distinct from our animal and vegetable kingdoms, a form which Bakhun humbly admitted he had been able to analyze only in its grossest and most superficial features. It is impossible for a man to read without shuddering this monograph on the beings Bakhun called the Xipehuz; these dispassionate notes, never forced to fit into any system, of their actions, their modes of locomotion, of combat, of procreation—these notes which demonstrate that the human race was once on the brink of Nothingness, that the Earth nearly became the patrimony of a *Kingdom* every trace of which has been lost.

The book should be read in Dessault's marvelous translation, full of unlooked-for discoveries in pre-Assyrian linguistics—discoveries unfortunately more admired in foreign countries, in England, in Germany, than in the author's native land. The eminent scholar has graciously made available the salient passages of this precious work, which are given in the following pages, and it is hoped that

these passages will inspire the reader to look further into Dessault's superb translation.[1]

The Xipehuz are evidently living beings. All their motions reveal the free will, impulsiveness, cooperation and partial independence which distinguish the animal from the plant and from nonliving matter. Although their mode of progression is impossible to describe in comparative terms—being a simple gliding motion across the ground—it is plain that it is under their voluntary control. We see them stop suddenly, turn, pursue one another, stroll together by twos and threes; they display preferences which will make them leave one companion to join another at a distance. They are incapable of climbing trees, but they succeed in killing birds after *attracting them* by undiscoverable means. They are frequently seen to surround forest animals or to lie in wait for them behind a bush; these they invariably kill and consume. It may be stated as a rule that they kill *all animals without distinction,* whenever they can catch them, and this without any apparent motive, for they do not devour them, but merely reduce them to ashes.

In doing so they make use of no funeral pyre; the incandescent point which each has at its base suffices them for this purpose. They form a circle of ten or twenty around the carcass of a large animal, and cause their rays to converge upon it. For small animals, birds for example, the rays of a single Xipehuz are sufficient to cause incineration. It should be noted that the heat they produce is not instantaneous in its effect. I have often received the irradiation of a Xipehuz upon my hand, and the skin began to feel warm only after a certain time.

I do not know if it is correct to say that the Xipehuz have different forms, for any one of them can successively transform itself into a cone, a cylinder and a slab, and this in the course of a single day. Their colors vary constantly, a fact which I believe can be attributed in general to the changes in the quality of the light from morning to evening and from evening to morning. Nevertheless certain variations seem to be due to the impulses of individuals, and in particular to their *passions,* if I may be permitted this term, and thus constitute genuine expressions of physiognomy, of which, in spite of ardent study, I have been utterly unable to identify any except by hypothesis. Thus, I have never been able to distinguish between an angry tint and a calm one, which surely would be the primary discovery in this field.

[1]The Precursors of Nineveh, *by B. Dessault (Calmann-Levy). In the interests of clarity, I have converted the extract from the Book of Bakhun into modern scientific language.*

I have spoken of their *passions.* I have also remarked earlier upon their preferences, which I might term their *friendships.* They also have their *hatreds.* One Xipehuz continually keeps his distance from another, and vice versa. They seem to experience violent rages. They hurl themselves upon one another with movements identical to those observed when they attack men or large animals, and in fact it was these combats which taught me they are not immortal, as I had been at first disposed to believe, for two or three times I have seen Xipehuz succumb in these encounters, that is to say *fall, shrink,* and *petrify.* I have carefully preserved some of these bizarre cadavers,[1] and perhaps at some future time they may serve to reveal the nature of the Xipehuz. They are yellowish crystals, arranged irregularly, and streaked with blue filaments.

From the fact that the Xipehuz are not immortal, I was able to deduce that it should be possible to attack and defeat them, and at that point I began the series of martial experiments of which I shall have to speak later.

[1]*The Kensington Museum in London, and Professor Dessault himself, have in their possession certain mineral fragments, similar in every way to those described by Bakhun, which under chemical analysis have been found impossible to* decompose *or to* combine *with other substances, and which, in consequence, cannot be assigned a place in any conventional nomenclature.*

Since the Xipehuz' radiance is always sufficient to make them visible through underbrush and even behind large treetrunks—a wide halo emanates from them in all directions and warns of their approach—I was able to venture often into the forest, trusting myself to the speed of my stallion.

There, I tried to find out if they built shelters, but I confess to having failed in that research. They move neither stones nor plants, and appear to be strangers to any form of *tangible* and *visible* industry, the only sort which can be distinguished by human observation. Consequently they have no weapons, in the usual sense of that word. It is certain that they cannot kill at a distance: every animal which has been able to flee without coming into *direct* contact with a Xipehuz, has invariably escaped, and I have witnessed this many times.

As the unfortunate tribe of Pjehu has already observed, they cannot cross certain intangible barriers; thus their movements are limited. But these limits continually expand from year to year, from month to month. I had to try to discover the cause of this.

Well, this cause appears to be nothing other than a phenomenon of *collective growth,* and like most Xipehuzian things, it is incomprehensible to the human mind. In brief, the governing principle is this: the limits of Xipehu-

zian movement enlarge in proportion to the number of living individuals, that is to say that when new beings are propagated, the frontiers are extended; but so long as their number does not increase, each individual is totally incapable of leaving the habitat determined—by natural forces?—for the race as a whole. This principle suggests a closer correlation between the individual and the group than that observed among other animals and men. Later we saw the reciprocal of this principle in operation, for when the numbers of Xipehuz began to diminish, their frontiers shrank in proportion.

Concerning the phenomenon of propagation itself, I have little to say, but this little is characteristic. To begin with, this propagation takes place four times a year, a little before the equinoxes and solstices, and only on very clear nights. The Xipehuz join in groups of three, and these groups draw together little by little until there is only one, tightly amalgamated and arranged in a very long ellipse. They remain so all night long, and until the Sun reaches the zenith on the following day. When they separate, vague forms arise, vaporous and *enormous*.

These forms slowly condense, dwindle, and transform themselves at the end of ten days into amber-tinted cones, considerably larger still than adult Xipehuz. It takes them two months and several days to reach their maximum development, which is to say diminution. At the end of this time, they become similar to other members of their race, their shapes and colors variable according to the weather, the time and the mood of the individual. A few days after their development or diminution is complete, the boundaries enlarge. Needless to say, it was shortly before this redoubtable moment that I kicked the flanks of my noble Kuath, in order to establish my camp farther away.

It is impossible to say whether the Xipehuz have senses as we understand the term. They certainly have organs which serve the same purpose.

The ease with which they detect the presence of animals, men above all, over great distances, makes it evident that their organs of perception are at least as efficient as our eyes. I have never seen them mistake a plant for an animal, even under circumstances in which I might well have fallen into this error, deceived by the light filtering through leaves, the color of the object, or its position. Their use of twenty to consume a large animal, whereas one alone incinerates a bird, indicates a correct understanding of proportions, and this understanding seems even more perfect when one considers that they make use of ten, twelve, fifteen, always in keeping with the

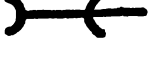
relative size of the carcass. Still a better argument, either for the existence of sense organs analogous to ours, or for their intelligence, is their manner of attacking our tribes, for they give little or no attention to women and children, while they mercilessly pursue the warriors.

Now, the most important question—do they have a language? I am able to reply without the slightest hesitation, "Yes, they have a language." And this language is composed of signs, some of which I have even been able to decipher.

Suppose, for example, that a Xipehuz wishes to speak to another. For this, it suffices for him to direct the radiation from his star toward the other, a thing which is always perceived instantly. The one who is hailed, if he is in motion, stops and waits. The speaker then traces rapidly on the very skin of the listener—and it makes no difference on which side—a series of short luminous characters made by directing the radiation from his base, and these characters remain fixed a moment, then fade away.

The listener, after a short pause, responds.

As a preliminary to any action of combat or ambuscade, I have always seen the Xipehuz employ the following characters:



When I myself am in question—and this happens frequently, for they have done everything possible to exterminate us, my noble Kuath and me—the signs

have invariably been exchanged—among others, such as the word or phrase

above. The usual calling sign is

and this makes the receiving individual hasten up. When the Xipehuz are invited to a general meeting, I have never failed to observe a signal of this form

representing the triple appearance of these beings.

In addition, the Xipehuz have more complicated signs, not relating to actions similar to ours, but to a completely extraordinary order of things, and these I have been unable to decipher. One can hardly entertain any doubt of their ability to exchange *ideas* of an abstract order, probably the equivalents of human ideas, for they are capable of standing motionless for long periods, doing nothing but conversing, which indicates real accumulations of thoughts.

In spite of their metamorphoses (whose laws differ for each, only very slightly, but characteristically enough for a determined observer), during my long sojourn among them I learned to know a number of Xipehuz rather intimately by recognizing the peculiarities among their individual differences . . . should I say among their characters? I have known taciturn ones, who almost never traced a word; voluble ones who wrote veritable discourses; attentive ones, gossips who spoke at the same time, one interrupting the other. Some were of a retiring nature and preferred a solitary life; others obviously sought company; some were fierce, constantly hunting birds and beasts, and some merciful, often sparing animals and letting them live in peace. Does not all this open an enormous avenue to the imagination? Does it not lead us to imagine diversities of aptitude, strength, intelligence, analogous to those of the human race?

They practice education. How many times have I not seen an old Xipehuz, seated in the midst of many young ones, irradiating them with signs which they then repeated one after another, and which he made them do over when their repetition was imperfect!

These lessons were indeed marvelous to my eyes, and in all that concerns the Xipehuz, there is nothing that has more often fixed my attention, nothing that has preoccupied me more during my nights of insomnia. It seemed to me that here, in the morning of the race, the veil of mystery might open, that some simple, primitive idea might spring forth and illuminate for me a corner of this profound darkness. No, nothing discouraged me; year after year I watched that education, and I tried innumerable interpretations. How many times have I thought to grasp a fugitive glimmer of the essential nature of the Xipehuz, an invisible light, a pure abstraction, which, alas! my poor flesh-burdened faculties could never follow!

I have said previously that for a long time I believed the Xipehuz to be immortal. Having abandoned this belief, after seeing the violent deaths which followed some encounters between Xipehuz, I was naturally led to seek their vulnerable points, and devoted all my days from that time forward to the search for means of destruction; for the Xipehuz were growing in numbers, to such a point that, having emerged from the forest of Kzur in the south, west and north, they were beginning to encroach upon the plains in the direction of the levant. Alas! in a few cycles they would have dispossessed man from his earthly abode.

Accordingly, I armed myself with a sling, and whenever a Xipehuz emerged from the forest with-

in my range, I took aim and hurled my stone at him. I obtained no result in this way, although I had struck my targets on every part of their surface, even including the luminous point. They appeared entirely insensible to my blows, and none ever turned aside to avoid one of my projectiles. After a month's trial I could only conclude that nothing could be done against them with the sling, and I abandoned that weapon.

I took up the bow. With the first arrows I shot, the Xipehuz betrayed an intense fear, for they turned aside, stayed out of range, and avoided me as much as possible. For a week I did not succeed in striking one. On the eighth day, a party of Xipehuz, carried away I suppose by their enthusiasm for the hunt, passed fairly close to me in pursuit of a fine gazelle. I quickly shot several arrows, *without any apparent effect,* and the party dispersed, I pursuing them and using up my ammunition. I had barely shot my last arrow when they all turned back at full speed, from different directions, surrounding me on three sides, and I would have lost my life if not for the prodigious speed of my valiant Kuath.

This adventure left me full of hope and uncertainty; for a week I did nothing, lost in the oceanic depths of my meditations, in a subtle, absorbing, sleep-dispelling problem which filled me with joy and anguish. Why did the Xipehuz fear my arrows? Why, again, among the great number of projectiles with which I had struck the hunters, had none produced any effect? My knowledge of my enemy's intelligence ruled out the hypothesis of a terror without cause. On the contrary, everything I knew compelled me to believe that the *arrow,* under the proper conditions, must be a formidable weapon against them. But what were these conditions? What was the vulnerable point of the Xipehuz? And suddenly the thought came to me that it was the *star* that I must strike. For a moment I held this as a certainty, a blind, impassioned certainty. Then I was seized by doubt.

With the sling, had I not aimed at and struck this point many times? Why should the arrow be luckier than the stone . . . ?

Now the night had come, the measureless abyss, with its marvelous lamps strewn above the earth. And I sat lost in thought, my head in my hands, my spirit darker than the night.

A lion began to roar, jackals were running across the plain, and once again a spark of hope was born. It had just come to my mind that the sling-stone was relatively large, and the Xipehuz' star so tiny! Perhaps it was necessary to penetrate deeply, to pierce with a sharp point, and then their fear of the bow was understandable!

But Vega was turning slowly around the Pole, dawn was near, and for a few hours weariness conquered my thoughts with sleep.

In the days that followed, armed with the bow, I was in constant pursuit of the Xipehuz, as deep in their territory as prudence would permit. But they all avoided my assault, keeping at a distance, out of range. Lying in ambush was not to be considered; their mode of perception enabled them to detect my presence behind obstacles.

Toward the end of the fifth day, an event occurred which in itself proved that the Xipehuz, like men, are fallible and perfectible creatures. That evening, at twilight, a Xipehuz deliberately approached me, with that constantly accelerating speed which they use in the attack. Surprised, my heart beating fast, I drew my bow. He, steadily advancing, like a column of turquoise in the growing dusk, came almost within bowshot. Then, as I made ready to loose my arrow, I was stunned to see him turn his body, hiding his star, while he continued to hurtle toward me. I had barely time to put Kuath into a gallop, and retreat out of the reach of this formidable adversary.

Now this simple maneuver, which no Xipehuz appeared to have thought of before, in addition to demonstrating once more the individuality and personal inventiveness of the enemy, suggested two ideas: the first, that it was probable that I had reasoned correctly about the vulnerability of the Xipehuz star; the second, less encouraging, that the same tactic, if adopted by all, would render my task extraordinarily difficult, perhaps impossible.

Nevertheless, having labored so long to learn the truth, I felt my courage grow in the face of this obstacle, and I dared to hope that my ingenuity would be great enough to surmount it.[1]

I returned to my wilderness. Anakhre, the third son of my wife Tepai, was a potent maker of weapons. I ordered him to carve a bow of extraordinary size. He took a branch of the tree Waham, hard as iron, and the bow he made of it was four times stronger than that of the shepherd Zankann, the mightiest archer of the thousand tribes. No man living could have bent it. But I had thought of an artifice, and Anakhre having wrought according to my plan, it came about that the immense bow could be bent and loosed by a woman.

Now I had always been skilled in casting darts and arrows, and in a few days I learned so perfectly the use of the weapon made by my

[1] *In the following chapters, of a narrative character, I have adhered closely to the literal translation of Professor Dessault, without, however, feeling bound to follow the tiresome division into verses, or the needless repetitions.*

son Anakhre that I never missed a target, be it as small as a fly or moving as swiftly as a falcon.

Having done all this, I returned to Kzur, mounted on my flame-eyed Kuath, and once more began to prowl around the enemies of man.

In order to give them confidence, I loosed many arrows with my customary bow, each time one of their parties approached the frontier, and my arrows fell far short of them. Thus they learned to know the exact range of the weapon, and from this to believe themselves absolutely out of danger at a certain distance. Nevertheless they remained mistrustful; this caused them to be mobile and agitated when they were not sheltered by the forest, and to hide their stars from my view.

By dint of patience I wore out their suspicions, and on the morning of the sixth day, a troop of them took up a position facing me, beneath a great chestnut tree, at a distance of three ordinary bow-shots.

At once I loosed a cloud of useless arrows. Then their vigilance lessened more and more, and their movements became as free as in the earliest days of my sojourn.

It was the decisive moment. My heart beat so loudly that at first I felt myself strengthless. I waited, for the future hung upon a single arrow. If it failed to strike its target, never again, perhaps, would the Xipehuz offer themselves to my experiments, and then how would it be possible to know whether they were vulnerable to the blows of men?

Nevertheless, little by little my will triumphed, quieted my heart, made my limbs supple and strong and my eye steady. Then, slowly, I raised the bow of Anakhre. There, in the distance, a great cone of emerald stood motionless in the shade of the tree; its sparkling star turned toward me. The enormous bow bent; the arrow flew whistling across space . . . and the Xipehuz *fell, shrank and petrified.*

A resounding cry of triumph burst from my lips. Stretching out my arms in ecstasy, I gave thanks to the One.

So, then, they were vulnerable to human weapons, these terrible Xipehuz! We could hope to destroy them!

Now, without fear, I let my heart murmur, I gave myself up to the beating of the music of gladness, I who had so greatly despaired of the future of my race, I who beneath the stars in their courses, beneath the blue crystal of the abyss, had so often calculated that in two centuries the vast world's limits would have burst before the Xipehuz invasion.

And yet when it came again, the well-beloved night, the pensive night, a shadow fell over my happiness, the sorrow that man and Xipehuz could not exist together,

that the annihilation of one was the grim condition of the other's survival.

The priests, the elders and the chiefs had listened marveling to my story; couriers had carried the good news into the depths of the wilderness. The great Council had ordered the warriors to gather in the sixth moon of the year 22,649, in the plain of Mehur-Asar, and the prophets had preached a holy war. More than a hundred thousand Zahelal warriors came, and many members of foreign races, Dzums, Sahrs, Khaldes, came to offer themselves to the great nation.

Kzur was surrounded by a tenfold ring of archers, but all their arrows failed against the tactics of the Xipehuz, and incautious warriors perished in great numbers.

Then for several weeks great fear prevailed among men. . . .

On the third day of the eighth moon, armed with a sharp-pointed knife, I announced to the multitudes that I would go to fight the Xipehuz alone, in the hope of laying to rest the doubts which had begun to arise concerning the truth of my story.

My sons Lum, Demja and Anakhre were violently opposed to this project, and offered to go in my place. And Lum said, "You cannot go, for once you are dead, all will believe the Xipehuz are invulnerable, and the human race will perish."

Demja, Anakhre and many of the chiefs having echoed these words, I found their reasons good, and withdrew.

Then Lum, taking my horn-handled knife, crossed the frontier. The Xipehuz hastened up. One, swifter by far than the rest, was about to rush upon him, but Lum, more agile than a leopard, sprang aside, circled the Xipehuz, then with a giant bound closed in again and stabbed with his sharp point.

The waiting throng saw his adversary *collapse, dwindle and petrify.* A hundred thousand voices rose to the blue dawn, and already Lum was returning, crossing the frontier. The glory of his name spread throughout the armies.

The year 22,649 of the world, the seventh day of the eighth moon.

At daybreak the horns sounded; hammers beat brazen bells for the great battle. A hundred black buffalo and two hundred stallions were sacrificed by the priests, and my fifteen sons and I prayed to the One.

The globe of the sun was engulfed in the red dawn, the chiefs galloped in the forefront of their armies, the clamor of the attack swelled in the headlong rush of a hundred thousand warriors.

The tribe of Nazzum was first to encounter the enemy in bitter combat. Powerless at first, mowed down by invisible lightning bolts, the warriors soon learned the art of striking the Xipehuz and de-

stroying them. Then all the nations, Zahelals, Dzums, Sahrs, Khaldes, Xisoastres, Pjarvanns, roaring like oceans, invaded the plain and the forest, everywhere surrounding the silent enemy.

For a long time the battle was in chaos; messengers came continually to tell the priests that men were dying by hundreds, but that their deaths were being avenged.

In the heat of midday my swift-footed son Surdar, sent by Lum, came to tell me that for each Xipehuz destroyed, a dozen of ours had perished. My spirit was dark and my heart weak, but my lips murmured, "Let it be as the Father wills!"

In recalling to my mind the numbers of the armies, which added together gave a sum of a hundred and forty thousand, and knowing that the numbers of Xipehuz amounted to about four thousand, I told myself that more than a third of the vast army would perish, but that the earth would belong to man.

"It is a victory, then!" I murmured sadly.

But as I pondered on these things, the clamor of the battle shook the forest more violently; then great masses of warriors reappeared, all, with cries of distress, fleeing toward the frontier.

Then I saw the Xipehuz emerge at the border, not separate from one another as they had been in the morning, but in groups of twenty formed into circles, with their stars turned inward. In this array, invulnerable, they advanced on our helpless warriors and massacred them.

It was defeat.

The boldest warriors thought of nothing but flight. Nevertheless, in spite of the sorrow that weighed down my spirit, I patiently observed the fatal encounters, in the hope of finding some remedy in the very heart of misfortune, for often the venom and the antidote are found side by side.

For this confidence in the power of thought, destiny repaid me with two discoveries. I remarked, first, that in places where our tribes were massed in multitudes and the Xipehuz were in small numbers, the slaughter, immeasurable at first, lessened by degrees, that the strength of the enemy's blows grew *less and less,* many of the victims rising again after a moment's dizziness. The strongest resisted the shock completely, continuing to flee after repeated blows. The same phenomenon being in evidence at various parts of the field of battle, I dared to conclude that the Xipehuz were growing weary, that their powers of destruction were not unlimited.

The second observation, which aptly complemented the first, was furnished to me by a group of Khaldes. These unfortunate men, surrounded on all sides by Xipehuz, and losing confidence in their

short knives, pulled up bushes and made clubs of them, with which they tried to beat their way to freedom. To my great surprise, their attempt succeeded. I saw the Xipehuz topple by the dozen under these blows, and about half the Khaldes escaped through the hole they had opened in this way; but, curiously, those who made use of bronze implements instead of bushes (as in the case of several chiefs) killed themselves in striking the enemy. I must point out further that the blows from these clubs gave no apparent hurt to the Xipehuz, for those who fell rose again promptly and took up the pursuit. Nevertheless, I considered my double discovery of the greatest importance for future battles.

Meanwhile, the rout continued. The earth resounded to the flight of the vanquished; by nightfall, only our dead remained within the Xipehuz boundaries, and a few hundred warriors who had taken refuge in trees. The fate of these latter was terrible, for the Xipehuz burned them alive, concentrating a thousand fires in the branches which sheltered them. Their frightful cries echoed for hours under the vast firmanent.

The next day, the tribes counted their survivors. The battle had cost nine thousand human lives or thereabout; a moderate estimate put the loss of Xipehuz at six hundred. Thus the death of each enemy had cost us fifteen men.

Despair settled in the hearts of the tribesmen, many crying out against the chiefs and talking of giving up the terrible enterprise. Then, under these complaints, I strode into the middle of the camp and loudly reproached the warriors for their faintheartedness. I asked them if it were better to let all men perish, or to sacrifice a part; I showed them that in ten years the Zahelal country would be invaded by the Shapes, and in twenty the country of the Khaldes, the Sahrs, the Pjarvanns and the Xisoastres; then, having reawakened their conscience in this way, I reminded them that already a sixth of the disputed territory had been reconquered, that on three sides the enemy had been driven back into the forest. Finally I told them of my observations, and made them understand that the Xipehuz were not tireless, that clubs of wood could topple them and force them to expose their vulnerable points.

Silence fell across the plain; hope returned to the hearts of the multitude who heard me. And to strengthen their confidence, I described the contrivances of wood which I had thought of, suited both for attack and defense. With renewed enthusiasm, the people applauded my words, and the chiefs laid their scepters of command at my feet.

In the days that followed, I had a great number of trees cut down,

and displayed a model of a light, portable barrier, of which a brief description follows: a framework six cubits long and two cubits wide, fastened by crossbars to an interior framework one cubit wide and five long. Six men (two porters, two warriors armed with heavy, blunt wooden spears, two others also armed with wooden spears having sharp metal points, and furnished in addition with bows and arrows) could stand within it comfortably and could roam the forest, protected from the direct attack of the Xipehuz. Once within range of the enemy, the warriors armed with blunt spears were to strike and overturn them, force them to expose themselves, and the archer-spearmen were to aim at the stars, with bow or spear according to circumstance. Since the average height of the Xipehuz was a little more than a cubit and a half, I had arranged the crossbars in such a way that the exterior framework, while being carried, would reach a height above the ground of no more than a cubit and a quarter, and for this it sufficed to incline somewhat the supports by which it was attached to the interior framework. In addition, since the Xipehuz were unable to surmount any steep obstacle, nor to move in any way except upright, the barrier thus devised was sufficient to give shelter against their direct assaults. Undoubtedly they would attempt to burn these new weapons, and in some cases they would succeed; but since their fires were almost ineffective out of bowshot, they would be forced to expose themselves in order to do so. Besides, since these fires did not take effect instantaneously, it would be possible to avoid them in many cases by rapid movement.

The year 22,649 of the world, the eleventh day of the eighth moon. On this day the second battle with the Xipehuz took place, and the chiefs gave me the supreme command. Then I divided the people into three armies. Shortly before dawn, I sent against Kzur forty thousand warriors armed with the barrier devices. This attack was less confused than that of the seventh day. The tribes entered the forest slowly, in small bands disposed in good order, and the encounter began. During the first hour the advantage was entirely ours, the Xipehuz being caught off guard by the new tactics; more than a hundred Shapes were slain, while only a dozen of our warriors perished. But, once over their surprise, the Xipehuz applied themselves to burning the barriers. In some circumstances they were able to do so. A more dangerous maneuver was the one they adopted toward the fourth hour of the day: taking advantage of their swiftness, groups of Xipehuz, tightly pressed together, hurled themselves at the barriers

and succeeded in overturning them. In this fashion great numbers of men perished; so many that, the enemy having regained the advantage, a part of our army fell into despair.

Toward the fifth hour, the Zahelal tribes of Khemar, Djoh, and part of the Xisoastres and Sahrs began to flee. Wishing to avert a catastrophe, I sent messengers protected by strong barriers to promise reinforcements. At the same time, I disposed the second army for the attack; but first I gave new orders: the barriers were to cluster in groups, as thickly as movement in the forest would permit, and to arrange themselves in compact squares whenever a large band of Xipehuz approached. This was to be done without giving up the offensive.

After this, I gave the signal, and in a short time I had the pleasure of seeing the battle turn in our favor. At length, toward the middle of the day, an approximate reckoning, which brought the number of our losses to two thousand men, and of the Xipehuz to three hundred, decisively showed the progress we had accomplished, and strengthened the hearts of all.

Nevertheless, the proportion changed somewhat to our disadvantage during the fourth hour, the tribes then having lost four thousand warriors, and the Xipehuz five hundred.

It was then that I sent in the third army. The battle reached its greatest intensity; the warriors' enthusiasm rose from minute to minute, until the hour when the sun was about to sink into the West.

At that moment, the Xipehuz took the offensive again to the north of Kzur; a retreat of the Dzums and Pjarvanns gave me uneasiness. Judging that in any case the darkness would be more favorable to the enemy than to us, I signaled the end of the battle. The troops returned calm and victorious; much of the night was passed in celebrating our successes. These were considerable: eight hundred Xipehuz had succumbed; their sphere of action was reduced to two thirds of Kzur. It is true that we had left seven thousand slain in the forest, but these losses were much smaller, in proportion to the result, than in the first battle. Thus, filled with hope, I dared to conceive the plan of a more decisive attack against the two thousand six hundred Xipehuz still living.

The year 22,649 of the world, the fifteenth day of the eighth moon.

When the red star rose over the eastern hills, the tribes were in battle array before Kzur.

With my heart full of hope, I gave my last instructions to the chiefs; the horns sounded, the bells set up their brazen clangor, and the first army marched against the forest.

Their barriers now were stronger and somewhat larger, enclosing twelve men instead of six, except for about a third which were constructed according to the old design. Thus they were more difficult either to set on fire or to overturn.

The beginning of the battle was promising; after the third hour, four hundred Xipehuz had been exterminated, and only two thousand men. Encouraged by the good news, I sent in the second army. The fury of the battle on both sides grew appalling, our warriors being flushed with triumph, their adversaries resisting with the stubbornness of a noble kingdom. From the fourth to the eighth hour, we sacrificed not less than ten thousand lives; but the Xipehuz paid with a thousand of theirs, so that only a thousand remained in the depths of Kzur.

From this moment, I knew that man would possess the world; my last misgivings faded.

Nevertheless, at the ninth hour, a great shadow fell over our victory. At this time, the Xipehuz appeared only in enormous masses in the clearings, concealing their stars, and it became almost impossible to overthrow them. In the heat of the battle, many of our warriors hurled themselves upon these masses. Then, with a rapid movement, a party of Xipehuz would detach itself, overthrowing and slaughtering these men.

A thousand perished thus, without any perceptible loss to the enemy; seeing which, the Pjarvanns cried that all was lost; a panic began which put more than ten thousand men to flight, many being so imprudent as to abandon their barriers in order to run faster. It cost them dear. A hundred Xipehuz, pursuing them, cut down more than two thousand Pjarvanns and Zahelals: terror was beginning to spread throughout our lines.

When the messengers brought me this dismal news, I knew that the day was lost unless by some swift maneuver I succeeded in retaking the abandoned positions. At once I gave the chiefs of the third army the order to attack, and I announced that I would assume command. Then I quickly brought these reserves to the place from which the others had fled. Shortly we found ourselves face to face with the pursuing Xipehuz. Carried away by the passion of their slaughter, they did not regroup quickly enough, and in a few moments we had surrounded them: few escaped; the great acclamation for our victory went far to restore the courage of our men.

From that time on, I had no trouble in re-forming the attack; our methods were limited to detaching segments of the enemy groups, then surrounding these segments and annihilating them.

Soon, realizing how greatly

these tactics worked to their disfavor, the Xipehuz once more took up the assault in small groups, and the massacre of the two kingdoms, neither of which could survive except by the annihilation of the other, redoubled dreadfully. But all doubt of the final issue had vanished from the faintest hearts. By the fourteenth hour, there remained hardly five hundred Xipehuz against more than a hundred thousand men, and this small number of the enemy was more and more hemmed in by narrow frontiers, about a sixth of the forest of Kzur, which greatly facilitated our movements.

Meanwhile, the red light of sunset streamed through the trees, and I broke off the battle.

The immensity of our victory swelled every heart; the chiefs talked of offering me the kingship of the nations. I counseled them never to confide the destinies of so many men to one poor fallible creature, and to take *Wisdom* for their earthly master.

The Earth belongs to Man. Two days of combat have annihilated the Xipehuz; the whole domain occupied by the last two hundred of them has been razed, every tree, every plant, every blade of grass has been cut down. And I, aided by my sons Lum, Azah and Simho, have finished inscribing this history upon tablets of granite for the instruction of future nations.

And now I am alone, at the edge of Kzur, in the pale night. A coppery half-moon hangs over the West. Lions are roaring at the stars. The brook wanders slowly among the willows; its eternal voice speaks of time passing, of the melancholy of perishable things. And I have buried my face in my hands, and my heart mourns. For, now that the Xipehuz are no more, my soul laments for them, and I ask the One what Fatality demanded that the splendor of Life be tarnished by the Shadow of Murder!

THE SEVENTH PLANET

by Isaac Asimov

EVERY ONCE IN A WHILE, AS MY Gentle Readers know, I pull a blooper in one of my essays. In that case, a number of Readers write Gently to say: "Doesn't five plus four come to nine? You said eight!" Then I correct myself with an embarrassed giggle.

To err is human, and to correct gently is humane.

But there also comes a time when it is necessary for me to correct an article because scientists have discovered *they* had made a mistake. Then, unaccountably, I am furious. How *dare* they make a mistake.

A case happened a couple of years ago and I've been brooding about it ever since. In my article ROUND AND ROUND AND—(F & SF, January 1964), I made the casual statement: "Both Mercury and Venus turn one face eternally to the Sun—"

That was exactly right as far as I, or anyone else in the world, knew when that article appeared, but it is no longer right. Astronomers have changed their minds, and the back of my hand to them. They not only outdated an article, but also two novels and one novelette that I had written with painstaking attention to scientific accuracy. Have they no heart?

But it is an ill wind indeed, out of which I cannot make an article, and it is time now for me to consider the new situation in some detail. As is usual for me, I will begin at the beginning and deal with the seven planets known to the ancients.

The Greeks considered any body that moved, relative to the stars, to be a planet, and therefore included the Sun and Moon among

their number. The remaining five, which are bright star-like objects, more or less easily visible to the naked eye are Mars, Jupiter, Saturn, Venus, and Mercury.

Of these five, three are farther from the Sun than the Earth is. This means that they move in great swings about Sun and Earth alike. They can each of them be so placed that the Earth is directly between them and the Sun. When this is so, the planet is at the zenith, when the Sun is at nadir on the other side of the Earth. This means that the planet is at zenith at midnight. Obviously, any bright star-like object which is high in the sky at midnight is easy to observe.

The case is quite different for Venus and Mercury, which are closer to the Sun than the Earth is. They can *never* be in such a position that the Earth is directly between them and the Sun, because the Earth would then have to be closer to the Sun than they are and that is not so. This means that Venus and Mercury can *never* be seen in the night sky at the zenith.

It can happen, on the other hand, that either Venus or Mercury is more or less directly between the Earth and the Sun. This is called "inferior conjunction," and each planet is then closer to the Earth than it ever is at other times. Venus will be as close to us as 25,000,000 miles and Mercury as close as 49,000,000. The only trouble is that in that case, in order to see either planet we must look in the direction of the Sun, and everything is lost in the glare.

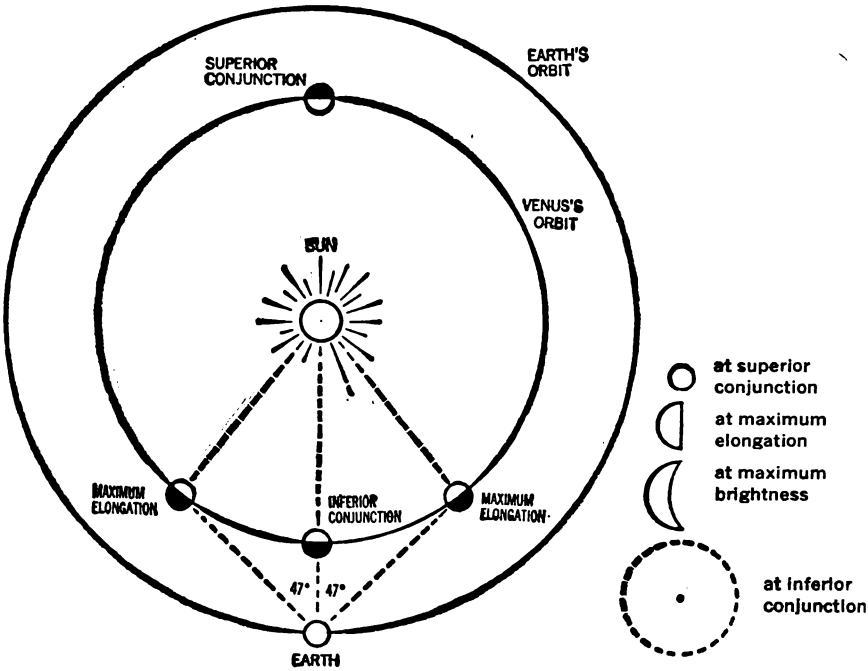
Of course, if either planet is *exactly* between ourselves and the Sun, then it shows up against the Sun's disc. Yet then it is the side away from us (and toward the Sun) that is lit by Sunlight, and all we see is the black disc of the night-side against the brightness of the Sun.

But let's concentrate on Venus to begin with and follow its travels about the Sun. We can start with it at inferior conjunction between ourselves and the Sun.

Steadily, as it moves in its orbit, Venus pulls away from the Sun. (We move also, and in the same direction, but Venus moves more quickly than Earth does, being closer to the Sun's pull.) As it moves away, we can see around the night side a trifling bit and the edge of the Sunlit-side (as seen through a telescope) looks like a thin crescent.

The further it gets away from the Sun, the more of the Sun-lit side we can see and the thicker the crescent. Finally, the imaginary line connecting Venus to the Sun comes to be at right angles to the imaginary line connecting Venus to the Earth. We then see Venus "in profile" so to speak. Half of the face we see is Sun-lit, the other half is dark. The planet is in the "half-Venus" phase (see Figure 1).

Figure 1—Orbit and Phases of Venus



Let's freeze matters at this half-Venus phase for a while. At this point in its orbit, Venus is separated from the Sun by an angular distance of 47° (as viewed from Earth). From our Earthly viewing station, this is as far as Venus can possibly get from the Sun. The planet is at "maximum elongation."

Now let's go on and allow Venus to move again. As it continues in its orbit, it begins to curve away from us and back toward the Sun.

We see more and more of the Sun-lit side as it moves along the far side of its orbit, until just before it passes behind the Sun the side toward us is fully lit up. We would then see "full-Venus" if we could see it at all, which we couldn't, for once again we would have to look directly at the Sun to see it. It is now at "superior conjunction."

But then it moves away from the Sun in the other direction, changing from full-Venus back to half-Venus as it goes. When it is at half-Venus it is at maximum elongation again, 47°, but on the other side of the

Sun. Again it moves toward the Sun, becoming a narrowing crescent until it is directly between us and the Sun again.

Let's see what a 47° maximum elongation means. The Earth makes one complete turn (360°) in 24 hours and therefore turns through 15° in 1 hour. It turns through 47° in 3 hours and 8 minutes.

Suppose, then, that Venus is 47° east of the Sun. At Sunset, Venus would still be 47° above the western horizon (half-way to zenith). In the darkening twilight it would shine out brilliantly before any but the very brightest stars makes its appearance. It is the Evening Star.

But three hours after Sunset, the turning Earth has caught up with it and it sets. Venus can never be seen, in the ordinary manner of speaking, higher than halfway to zenith, or for longer than three hours after Sunset. (Venus is bright enough to be seen on occasion when the Sun is in the sky, but only if you know where to look and only just barely. Let's not count that, nor let us count observation by specialized instruments in broad daylight.)

If Venus, as Evening Star, is anywhere but at maximum elongation, it is lower in the sky and can be seen for correspondingly shorter times after Sunset.

When Venus is at maximum elongation on the other side of the Sun; that is, to its west, the situation is different. It sets three hours before the Sun and isn't seen in the evening at all. Comes morning, however, and Venus rises in the east three hours before the Sun and reaches a point half-way to zenith by Sunrise. Before Sunrise, it is shining brightly in the dawn as the glorious Morning Star.

It took the ancients some time to see that the Evening Star and the Morning Star were not two different objects. It was eventually borne in on observers that when the Evening Star was present in the sky, the Morning Star was absent and vice versa. They also noted that when the Evening Star moved close to the Sun, there was a wait of several days and then the Morning Star appeared close to the other side of the Sun. The two were seen to be a single planet.

Next, let's consider the phases of Venus. In a way, the phase situation is frustrating. When Venus is near the full so that as much of it can be seen as possible, it is well on the other side of the Sun and is therefore some 150 million miles away. We can only see it as a comparatively tiny object.

Then, as it approaches close to us on this side of the Sun and gets to be at only ⅙ the distance it is at maximum, we see mostly the dark-side. The closer Venus gets, the less of its visible surface is Sun-lit.

(Of course, Venus is covered by a perpetual cloud layer so that we can't see anything anyway, but it's the principle of the thing that is so aggravating.)

As a result, in considering the brightness of Venus, we must take into account two opposed effects. As it moves farther from us, it gets dimmer because of increasing distance, and brighter because of increasing Sun-lit area. We have to strike some compromise and it turns out that Venus is brightest when it is in a fat crescent stage, between maximum elongation and inferior conjunction. At that moment its magnitude is —4.3, or just about ten times as bright as Sirius, the brightest star. It is, in fact, the third brightest object in the heavens, surpassed only by the Sun and the Moon, and, on a clear, Moonless night is said to be bright enough to cast a very dim shadow.

The mere fact that Venus's phases exist at all, however, played an important role in scientific history.

In 1543, Copernicus advanced the heliocentric theory of the Solar system, suggesting that the planets, including the Earth, revolved about the Sun; instead of having all the planets, including the Sun, revolve about the Earth.

It took nearly a century for the Copernican theory to be accepted by astronomers generally. Usually, this is looked upon as a measure of the bigotry and general nastiness of Big Science, but it wasn't. The Copernican theory was a convenient way of calculating planetary positions into the future. The mathematics was easier than in the case of the Ptolemaic system. Still, because it was a mathematical shortcut, did that mean it also portrayed the Solar system as it was?

To consider Copernicanism physically true as well as mathematically convenient, some observational evidence was needed, and *none existed!* In fact, since stars did not show any parallax, as they ought to have done if the Copernican theory were correct, it could be argued that there was at least one piece of observation that was *against* Copernicus. (Copernicus maintained that there were indeed parallaxes but they were too small to be measured. He was right, but the observational evidence for that was not collected until three centuries after his death.)

Without observational evidence, why should anyone believe that the firm Earth beneath his feet was flying about the Sun without his being aware of it? Had I been living in the 16th Century, I wouldn't have believed any such cock-and-bull story, either.

But then came Galileo and his telescope. In January 1610, he found that Jupiter had four satellites circling it. This was a kind of blow to the Ptolemaic view since it showed that there were at least four

objects in the heavens that were manifestly circling some body other than Earth.

It was not fatal, though, for it could easily be maintained that Jupiter and its four satellites were a single system that circled the Earth. No other point of Ptolemaic theory would be affected.

It was Venus that was the crucial planet. The only way the Ptolemaic theory could have Venus travelling about the Earth and still move in the heavens as it did (using the orbital mechanisms they insisted on using) was to arrange matters whereby Venus oscillated back and forth from one side of the Sun to the other, while always remaining *between the Sun and the Earth.* This would mean that Venus would always be at half-Venus or less; it would always be some sort of crescent, thick or thin.

On the other hand, by Copernican theory, Venus would travel completely around the Sun, and therefore, as described earlier in the article, would display all the phases from new to full, in just the manner our own Moon does.

In 1543, there were no telescopes and no one could tell whether Venus showed phases at all, let alone what kind. So when Copernican theory was born, the phases of Venus could not serve as observational evidence.

But then, in September 1610, eight months after he had discovered the satellites of Jupiter, Galileo turned his telescope on Venus and found it *more* than half-Venus.

Galileo was enough of a scientist not to want to rush into print half-cocked. It was important that he follow Venus all through its orbit and make sure that its phases followed in order, precisely according to Copernican predictions. On the other hand, he was enough of a self-centered human being not to want to lose credit for the discovery simply because he was being cautious.

He therefore published the following Latin sentence in the little newsletter he was putting out concerning his investigations:

"Haec immatura a me iam frustra leguntur, o. y."

This means "In vain were these things gathered by me today, prematurely." This is a sort of dim hint that he was on to something he was not yet ready to disclose, but the sentence was an anagram and when the letters were rearranged it gave the true nature of his discovery. (The "o.y." at the end was needed to make the anagram come out correctly.)

Rearranged, the sentence went:

"Cynthiae figuras aemulatur mater amorum."

This means "The mother of love imitates the appearance of Cynthia." This scarcely seems clearer but Galileo was being figurative in an age in which intellectual society knew their Greek myths.

To begin with, Apollo and Artemis were born on Mt. Cynthus on the island of Delos, according to the myths, and were therefore sometimes called Cynthius and Cynthia respectively. Then, Artemis was commonly considered to be a representation of the Moon. Consequently, Cynthia is a classical epithet for the Moon. As for the "mother of love," who could that be but Aphrodite (Venus), the mother of Eros ("love").

So, in effect, what Galileo was saying was: "Venus displays phases like those of the Moon," which is what the Copernican theory required and the Ptolemaic theory forbade.

That settled Ptolemy's hash and put Copernicus in business, except for the inevitable die-hards (mostly, but not entirely, non-astronomers).

Although Venus can be seen only for limited periods after Sunset or before Sunrise, those limited periods are long enough to allow Venus to be a prominent object indeed.

If a planet is considered, in Greek fashion, to be any body that moves against the background of stars, then I have no doubt that the Moon was the first planet to be discovered, for observation of the Moon on any two successive nights is enough to show that it has moved against the stars.

The Sun would be the second planet discovered. It soon becomes clear that the starry pattern of the heavens shifts from night to night, and that will be blamed on the apparent motion of the Sun against the stars. Such motion causes it to blot out a gradually shifting half of the sky.

But then the less notable planets would be detected and of these, Venus would surely head the list. It is by far the brightest, and it is particularly brilliant in the dying twilight and in the glimmering beginnings of dawn when the other stars are washing out and presenting little competition.

The shift of Venus with respect to the Sun is soon obvious and with respect to the other stars, it is only slightly less obvious. Call Venus the third planet, then, historically speaking.

Mars, Jupiter and Saturn are all visible in the night sky at all heights, up to and including zenith. Of these, Jupiter is, on the average, the brightest, and is over twice as bright as the star, Sirius.

However, for a short time every other year, Mars is as bright as Jupiter and, on rare occasions, even a bit brighter. What's more, it is

of a distinctly reddish color that is more eye-attracting than the ordinary white of Jupiter. Furthermore, Mars moves against the background of the stars some six times as rapidly as Jupiter does. It seems to me, then, that Mars must have been the fourth planet to be discovered.

Saturn is dimmer than Jupiter and moves less than half as quickly. So Jupiter is the fifth planet and Saturn the sixth in the order of discovery.

That leaves Mercury, which, I maintain, was surely the seventh and last planet to be discovered by naked eye.

Why? Well, it is the nearest planet to the Sun, nearer even than Venus, which means that it shows all the orbital peculiarities of Venus, but in more pronounced fashion.

Because it is closer to the Sun than Venus is, it doesn't ever move as far from the Sun (from our Earth-based view) as Venus does. Mercury's maximum elongation under the most favorable conditions is about 27°, or less than ⅓ of the way to the zenith. It means it can only be seen *at most* for less than two hours after Sunset or before Sunrise.

In fact, it's worse than that. All the planetary orbits are ellipses, but Venus's orbit is least elliptical while Mercury's, of those planets visible to the naked eye, is most elliptical.

The Sun is always at one focus of the planetary orbital ellipse, which means it is nearer to one side of the orbit than the other. The more eccentric the ellipse and the less nearly a circle, the closer the focus (and therefore the Sun) to one side than the other.

In the case of Venus, the eccentricity is 0.0068. (It would be exactly 0 for a perfect circle.) This means that the Sun is 66,750,000 miles from one side of the orbit and 67,650,000 miles from the other side. These distances are, respectively, the closest Venus gets to the Sun ("perihelion") and the farthest it recedes from it ("aphelion"). The difference is only 900,000 miles.

When Venus is at its maximum elongation, it may happen to be at perihelion or at aphelion or anywhere in between. Naturally, if it is at perihelion it is closer to the Sun and has a slightly smaller maximum elongation than if it were at aphelion. The difference is so small, however, that it can be neglected for ordinary purposes.

Not so in Mercury's case. Its orbital eccentricity is 0.21. When Mercury is closest to the Sun, it is at a distance of 28,500,000 miles. When it is farthest, it is 43,500,000. Aphelion distance is half again as far as perihelion.

That means there is a tremendous difference between a maximum elongation when Mercury happens to be at aphelion and one when it

happens to be at perihelion. The figure of 27°, given above, is an elongation at aphelion and represents the greatest of all possible maximum elongations.

At perihelion, the maximum elongation is just under 18°. At these times, Mercury hugs the horizon and sets just an hour and ten minutes after Sunset or rises an hour and ten minutes before Sunrise.

And mind you, these viewing times of one hour at some times and two hours at other times are only at the moment of greatest elongation, say two or three nights in every three-month period. At all other times, Mercury is closer to the Sun and is viewable for smaller periods.

We can summarize by saying that Mercury is hardly ever visible when it is truly dark. (Astronomers use special instruments to observe it in the daylight, but that is of no help to a naked-eye observer like an ancient Greek or a modern me.)

What's more, Mercury has other disadvantages as a viewable object. To be sure, it is closer to the Sun and is more brightly lit, square mile for square mile, than are other planets. *But* it is smaller than Venus and gets less total light. Where Venus has a diameter of 7,550 miles (almost that of Earth), Mercury's diameter is only 3,030 miles. Mercury is, in fact, the smallest of the planets.

Then, too, Venus has a cloud layer that reflects some ¾ of the light that falls upon it. Mercury, on the other hand, has no atmosphere and must reflect light from its bare rock surface as the Moon does. There is every reason to suppose that Mercury, like the Moon, reflects only about $\frac{1}{14}$ of the light it receives.

Finally, at the crescent stage at which Mercury and Venus are both at their brightest, Mercury is considerably farther away from us than is Venus.

Add all these things together—that Mercury is smaller than Venus, is farther away, and reflects less light—and it is not surprising that Mercury is much the dimmer of the two. Mercury, at its very brightest, has a magnitude of —1.2 and is only $\frac{1}{17}$ as bright as Venus.

It is not the least bright of the planets. Saturn has a maximum brightness of —0.4, so that when Mercury is at its best it is five times as bright as Saturn. However, Saturn can be viewed in the calm darkness of the middle of the night when it may well be high in the heavens and where it will stand out as among the two dozen brightest stars or star-like objects.

Mercury, on the other hand, will be seen only near the horizon in dawn or twilight, amid haze and Sun-glare.

There is no question in my mind, therefore, that Mercury was the

seventh planet to be discovered. I suspect, in fact, that many people today (when the horizon is generally much dirtier and the sky much hazier with the glare of artificial light than it was in centuries past) have never seen Mercury.

There is even a story that Copernicus himself never saw Mercury, though I can hardly bring myself to believe that.

There is a curiosity here that I would like to point out before some Gentle Reader points it out to me. In my discussion of the seven metals of the ancients, I pointed out that the metal, mercury, was the seventh and last metal to be discovered by the ancients (see THE SEVENTH METAL, F & SF, January 1968). And now I say that the planet, Mercury, was the seventh and last planet to be discovered and I entitle this essay THE SEVENTH PLANET.

And further, I said in the earlier article that the metal, mercury, was named for the planet, Mercury. Is it entirely a coincidence that the seventh metal was named for the seventh planet, or did the alchemists know more than is generally thought, and did they know the order of discovery of metals and planets and arrange the names to correspond?

I know there is a strong tendency on the part of mystics to believe in the "wisdom of the ancients" but I don't think they were all that wise. The correspondence between seventh metal and seventh planet is a coincidence, in my opinion. After all, there *are* such things as pure coincidence, and this is an example.

How long does it take for Mercury and Venus to go around the Sun? At first blush, it might seem that one need only count the days between one inferior conjunction and the next. The planet will then have started at the point between ourselves and the Sun, gone all around, and come back to the point between ourselves and the Sun.

It takes Mercury 116 days to do this and Venus 584 days. This is the "synodic period of revolution."

It is, however, a strictly Earth-related period. After all, the Earth is moving around the Sun, too. If Mercury starts at a certain point directly between ourselves and the Sun, then moves around the Sun back to the same point (recognized by its position relative to the stars), it will turn out that the Earth is no longer where it was. It has gone its own way and, since Mercury left, has completed about one-quarter of its own revolution.

Mercury must continue turning until it catches up with Earth and gets in between it and the Sun again. Mercury, which is so close to the Sun, moves faster than any other planet relative to it (30 miles per

second, as compared with our own 18.5 miles per second). It does not take too long to catch up with us, therefore, and does so in about a month.

If we calculate how long it takes Mercury to return to the original spot relative to the stars, regardless of our own motion in the interim, then it turns out that Mercury revolves about the Sun in 88 days. This is the "sidereal period of revolution" and is the usual period we speak of as the "length of Mercury's year."

The situation is more extreme in the case of Venus. In the first place, Venus is farther from the Sun than Mercury is and must make a longer sweep to go about it. It moves more slowly than Mercury does (only 22 miles per second) and takes a much longer time to make the greater sweep.

By the time it returns to its original point relative to the stars, Earth has had a long time to move on its orbit and has gone $\frac{3}{5}$ of a revolution.

Venus does not move much more quickly than the Earth does and it can gain on us only slowly. It must make a second full turn about the Sun and then a half-turn before it catches up.

If we count only the time it takes Venus to go around the Sun with reference to the stars and the heck with the moving Earth, then the sidereal period of revolution of Venus turns out to be 225 days.

Which brings me simultaneously to two points:

1) The matter of the rotation of these two planets about their axis, old view and new view, and

2) The end of my space allotment.

We will continue with this subject next month.

EDITOR'S NOTE

We are pleased to announce that F&SF's science editor has won another major award for science writing. It is the Westinghouse-AAAS science writing award for magazines, and it was presented to Dr. Asimov at the December 27, 1967 awards dinner of The American Association For The Advancement of Science.

—E. F.

David R. Bunch's fiction and verse have been published in a considerable number of "little" magazines. His short stories have also appeared with fair frequency in the science fiction field, most notably in the more important SF anthologies. His only other appearance in F&SF *was with a reprint* (A LITTLE GIRL'S XMAS IN MODERNIA, *January 1960*), *and we're glad to be able to reintroduce him to our readers with a story which may make you smile, which is more than likely to unsettle you a bit, and which accomplishes it all with great style and admirable economy.*

That High-up Blue Day That Saw The Black Sky-train Come Spinning

by David R. Bunch

THE ENDLESS SKY HELD HIGH-up that day; it was a high-blue time. There seemed a tremendous amount of area out there from which to expect danger, if that is the way your mind chose to track. Two old wise-men in their whiskers and phlegm and rancor, being not far from death and they knew it, having done the terrible arithmetic over and over and over to arrive at the small balance left, had concocted a rumor. I think, in many cases, those who are near death wish for some holocaust to go with their demise, that big Long Dark being too lonely alone, much too fierce to face singly, entirely too real to go alone to in only their little thin armor to battle the last Big Dragon. They wish for a general disaster, maybe the end of all things even, to make company, its being for them the end of it, certainly. Unless religious. Unless giddy. Unless unduly hopeful. Unless given to fantastic imaginings that becloud the terrible urgency of the issues. But these two old wise-men were none of these at all when not drunk, and all they could find relief in when sober was drink,

usually cheap wine, or beer which is cheap, and then they were somewhat giddy, and maybe even religious. Almost certainly they became reformers then.

YES! One day, about a week before this high-blue day of our story, in all sobriety they had hit on this terrible scheme. On a small dirty cobwebbed press in the basement of a friend long gone (from drink and unsuitable quarters, such as under frosty bridges at night without blankets) they would print in the thousands the warning. After having the idea, they repaired to a low-dive tavern to work on details and as they became more and more drunk they argued. Long and loud they did disagree over just what warning it would be best to use to scare the pants off really almost nearly everybody in that town. That almost nearly everybody needed to be scared soundly these old near-death life-warriors had no slightest doubt of at all. That they, with one appropriate warning, would be able to do it they had no doubt of either, not as they became more drunk. It all depended on the warning. "How about 'Snakes loose from zoo; they will get you!'?" one suggested, and the other laughed, winey-breathed him down and countered with "Improper factory processing brings breakfast poisoning; death soon, maybe before noon." But of course they were just warming up with such as these. What they really had in mind at first was to convince the people that something was coming in from afar to get them all, to flatten the town and everyone in it for their shortcomings. Flying saucer stories were a little too mundane for these old rumor tigers, each of whom was a minor wise-person in many areas, not including of course the area on how to live on Earth with the world as presented to them by history and beyond their blame and, in a large measure, beyond their power to alter and make amends for. In other words, these derelicts couldn't adjust, roll with the punch, make the best of it and all that. They were hung up on things like how to earn the daily and how to pay consistently for a roof that didn't leak too much to be under at night in moderate to heavy wet stormy weather. They were losers. Protesters. Disturbers. Snarlers and howlers unto the end. YES! And yet, they both, looking mysterious, talked at times of days when they were far away from this place and important enough to be sent on secret missions. And neither one knew then just how much the other might be stringing the long bow of falsehood.

"Sometimes I'd just like to take a machine gun up to 4th and Main and stand there and open up on them as they go by on a workaday Monday, perfumed, nyloned, after-shaved and Palm-Beached up," one or the other of them might say at any time, and mean it.

Finally these old complainers, after many, many bottles of beer, accentuated by a few shots of cheap wine provided by anonymous donors, and after almost an entire afternoon of argument, decided upon their leaflet. And it was a good one. They both agreed that it was the only leaflet worth doing at all and the only one that would properly shake their town and, if spread properly, the state, the country and the whole world.

The leaflet read simply this: YOUR CHILDREN ALL ARE THREATENED WITH ADULT POISONING. TOMORROW, SUNDAY, A GIANT SHINY BLACK SKY-TRAIN WILL COME TO BEAR THEM TO SAFETY. DO NOTHING TO TRY TO STOP THIS. IT IS DECIDED.

SIGNED,
THE DECIDERS

Well, naturally, many of the parents of the town, finding the leaflet on the doorstep, stuck in their flower pots, or sticking from their mailbox slots, thought it all a big joke and a harmless enough hoax, although one a little bit in poor taste and altogether unnecessary. Actually they were not shaken much, because this, remember, was a leaflet-spreading time with all kinds of protests being aired in slogans, and high jinks galore being performed for any and all occasions. Who could take time out to take even one more warning seriously? And if the children were threatened with adult poisoning—well, fine. Most parents, reading into it what they wanted to, took this to be merely a poor choice of words, and they translated it to mean certainly that the children would grow up to be fine healthy adults, like their parents, with a lot of wealth, cars, good jobs, competitive drive, and maybe even church on Sunday, but nothing serious, and certainly not any amount of deep thinking.

The old bitter derelicts chuckled in their pad in the basement under a small grocery store where rats were wont to scamper at night and where cockroaches did a thousand quadrilles at the merest hint of a crumb. "Smug and safe," they said. "And here their children are threatened with a terrible thing. Any half-day on the street in observation will tell you just what a terrible thing. Oh, if we could just save our children." Which last was a strange outcry, since neither of these old hard-tops had a child or even a wife to show for a career spent in opposition and drinking.

That high-up day of the endless blue, when the distances for threat and the spaces to be filled with danger seemed illimitable, if you had such a turn of mind (though of course you could have seen such distances as great spaces from whence relief and help could come sailing); that day the plans of the

old time-ruined wise-men worked better than almost anyone could have expected. It was a speck at first and then a spot, and then a string, a snake, a rope! and then a long, long chain of little sausages, linked in black and spinning out in the high-up blue. The sky-train came on in, light on the air, long and spinning black, held by something miraculous, or absurd, hovering in above the buildings and coming down when it chose in a cleared place, HUGE—but landing lightly as a cloud would kiss at a mountain top on a sunshiny day.

Since it was vacation weekend times, the children, all with hours on their hands, no school and curiosity to throw at the birds, ran out as fast as they could scamper to the cleared place at the edge of town. The parents who bothered to notice and who were not too busy at TV or stocks and bonds or a monthly report with a sales chart, sprinted after awhile after their children, suddenly of course remembering the leaflets and the sky-train predictions that might just be a grimmer joke than they could ever ever have imagined.

But they got there too slow by a lot of too late. Too fat for wind sprints, too old for the distances, their children beat them by a wide country mile of time and entered a black coach of the sky-train, where a big place shaped like a candy bar was set up like a sweet shop for sure. And a popcorn popper was merrily announcing fluffy white explosions alongside ice-cream cones, soda-pop dispensers and a dozen flavors in popsicles, not to mention snow cones and candy mountains galore.

When all of the children had some sweet or another clutched in their greedy little hands and that certain childhood look of enchantment glistening from their eyes, the sky-train lifted; lightly as it had come, it went. And wind-sprint-losing parents far back in the streets, having flunked out both in the dashes and the distances, shook their heads and did not know just then anything to say. Silent, head-bowed, burdened, crushed and defeated, they returned to their cool, expensive, gadget-encumbered, labor-saving houses where comfort in good style was most worshiped. Then, in dramatic burst, the silence, stunned and heavy, lifted, and the sounds of waily weeping were heard in almost all those houses. After awhile the mayor, childless and wifeless himself, took to the air and made a long and eloquent speech about the strange appearance and disappearance of the sky-train. Being a religious pretender and a fill-in preacher on Sunday, naturally he told the town to stop this unseemly weeping, put its trust in the Lord, come to church more often and pray for a happy ending.

The two old wise-men, pulling at their wine bottles in the base-

ment place under the grocery store, chuckled and chuckled and could hardly stop chuckling. Then one said what they both must have been thinking ever since the miraculous advent of the long link-sausage black sky-train: "You would almost have thought, huh, we know something, huh, ahead of time, huh?" Then, for some reason, at their beer before that night was over they began to look, each at the other, with a great deal of suspicion. Much as foreign agents look at one another they looked, when both are caught in a far lost place and both long to shout demandingly at the other, the sudden stranger, "WILL THE REAL SPY ALIEN PLEASE . . . ?"

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