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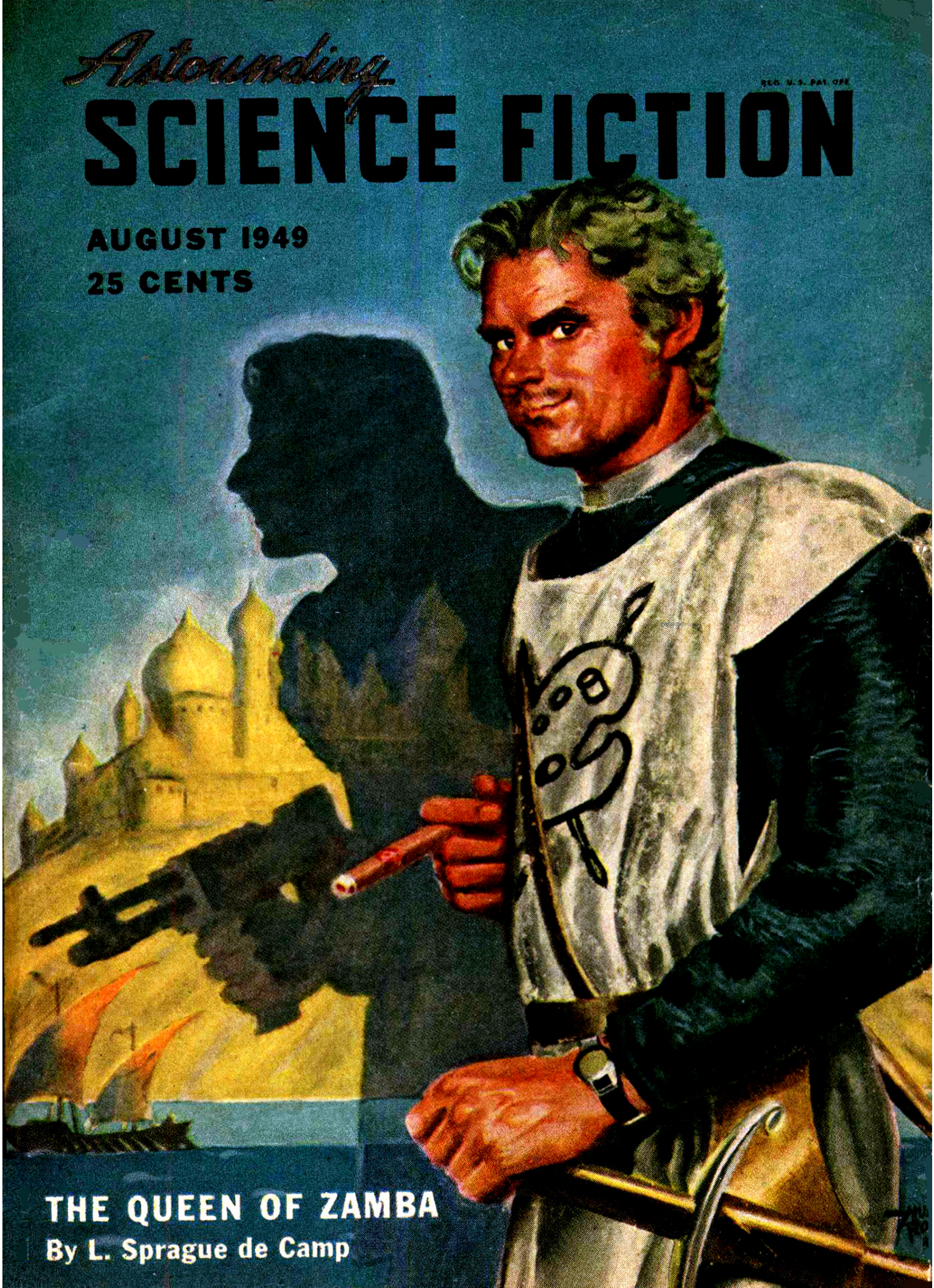

THE QUEEN OF ZAMBA

By L. Sprague de Camp

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PARBOILED PILOTS

The expression "hot-rod" means a fast, souped-up car. A "hot" plane has meant a fast ship. But the modern plane designer, when he says he's working on a hot plane, may very well meant it all too literally. The modern fighter plane is not fit for human occupancy, and a human being is not able to pilot it without extensive, and still only half-developed corrective measures.

On the matter of heat, it may seem strange that a plane flying in the traditionally cold substratosphere would parboil its pilot, but the process is easily explained. First, the transparent canopy over the fighter-pilot's head is conventionally called the "greenhouse"—and so it is. Like a greenhouse, it lets in the sun's visible-light energy, and won't pass outward the subvisible heat radiations generated when the light is absorbed. The interior of the greenhouse gets hot. That bothered pilots even in the slow—350 to 450 m.p.h.—ships of the last war.

Modern planes are pushing 650 m.p.h., and at those speeds air friction is not a negligible factor; when air rubs over a metal surface at 650 m.p.h., the friction produces heat, and lots of it. The greenhouse gets hotter.

But worse, ventilation can *not* carry that heat away. Suppose the plane is flying on a hot summer day, in air at a temperature of 90°, and at a speed of 600 m.p.h. Now while 90° is warm, it's not unbearable—but that air is standing still. Heat being random motion of the molecules, if that air is suddenly picked up by an air scoop and fed into the plane's cockpit, something violent happens to it. On the average, the molecules have been accelerated some 600 miles per hour; the result is measured as heat. With a 90° starting temperature, the mere process of picking it up raises the temperature to 144°—which is more than uncomfortable; it's unbearable. Add the further heat of solar radiation plus friction heating,

and the resultant temperature in a standard fighter cockpit at 600 m.p.h. would be about 155°. Evidently, the plane is unfit for human occupancy.

The cooling problem has been handled, however, in a fairly satisfactory way for the jet fighter planes, and all the 600 m.p.h. planes are jet driven jobs. Standard air-conditioning systems using ordinary compressors, cooling coils and evaporators, as in ground-based equipment is out. It weighs too much, and is unnecessary anyway. The process actually used depends on these factors:

The jet engine is picking up great masses of air. The air is heated to 144°, as explained, by that process, then it's compressed by the jet engine's compressor, to about 60 pounds per square inch—further heating it to about 350°—and fed into the combustion chamber(s), the hot, compressed combustion product gases emerging via the jet turbine to propel the plane.

Now if you let *cooled* compressed gas expand, it gets decidedly cold. Any filling station's compressed air hose will demonstrate that. If you make compressed gas do work, driving an engine, the work is done at the expense of the energy stored in the gas—both heat-energy and pressure-energy. *Any* means of expanding compressed air cools it; expanding it through a compressed-air motor, however, produces even more cooling because the engine extracts energy from the gas.

So: to cool jet fighters, the hot, compressed output of the compressor stage—350° and 60 psi—is bled for a few pounds of air per minute. The air is first passed through a cooler-radiator, where outside air cools it from 350° to something nearer the 144° available. Now the cool(!) compressed air is made to drive a small air turbine, which powers the small fan which circulates outside air over the cooler-radiator. The cooler-radiator removes about 90° of the heat originally present in the output from the jet-engine compressor; the turbine's energy is obtained at the expense of the remaining heat-energy. The exhaust air from the little turbine has a temperature about −20°F. And it takes only about 10 pounds of air per minute through such a system to comfortably air-condition one of the modern Navy subsonic planes under the worst conditions—maximum speed, at minimum (dense-air) altitude on a hot, cloudless summer day.

So that problem's fairly well solved. But—those 600-mile planes are production models; the research boys are working with 1,200 m.p.h. jobs, they don't have jet engines, but rockets. So—what do we do next? And what do you do when air-friction heat starts melting the transparent plastic canopy? Of course, stainless steel replaces dural at those speeds—and frictional temperatures. But plastic melts, and glass shatters, and metal's opaque. . . .

The Editor.

THE QUEEN OF ZAMBA

BY L. SPRAGUE DE CAMP

First of Two Parts. DeCamp's first postwar novel—a tale of a detective on a really long-range mission —to bring home the self-made Queen of Zamba!

Illustrated by Rogers

Victor Hasselborg shook the reins and spoke to his aya: "*Hao,* Faroun!" The animal swung its head and blinked reproachfully at him from under its horns, then started to move. The carriage wheels crunched on the gravel of the Novorecife drive.

Beside him on the seat, Ruis said: "Give him a looser rein, Senhor Victor. And you must learn not to speak to him in so harsh a tone. You hurt his feelings."

"*Tamates,* are they as sensitive as all that?"

"So—yes. The Krishnans carefully grade the tones in which they speak to their beasts—"

The drumming of the aya's six hoofs mingled with Ruis' chatter to put Hasselborg into a slight trance. He smiled a little as he thought: No comic-book hero he, with ballet-suit, ray gun, and one-man rocket. Instead he was about to invade the planet Krishna in this silly native outfit with its divided kilt, wearing a sword, and driving a buggy!

It had been some weeks before by subjective time that Hasselborg had drawn on his client's expensive cigar and asked: "What makes you think your daughter has gone off Earth?"

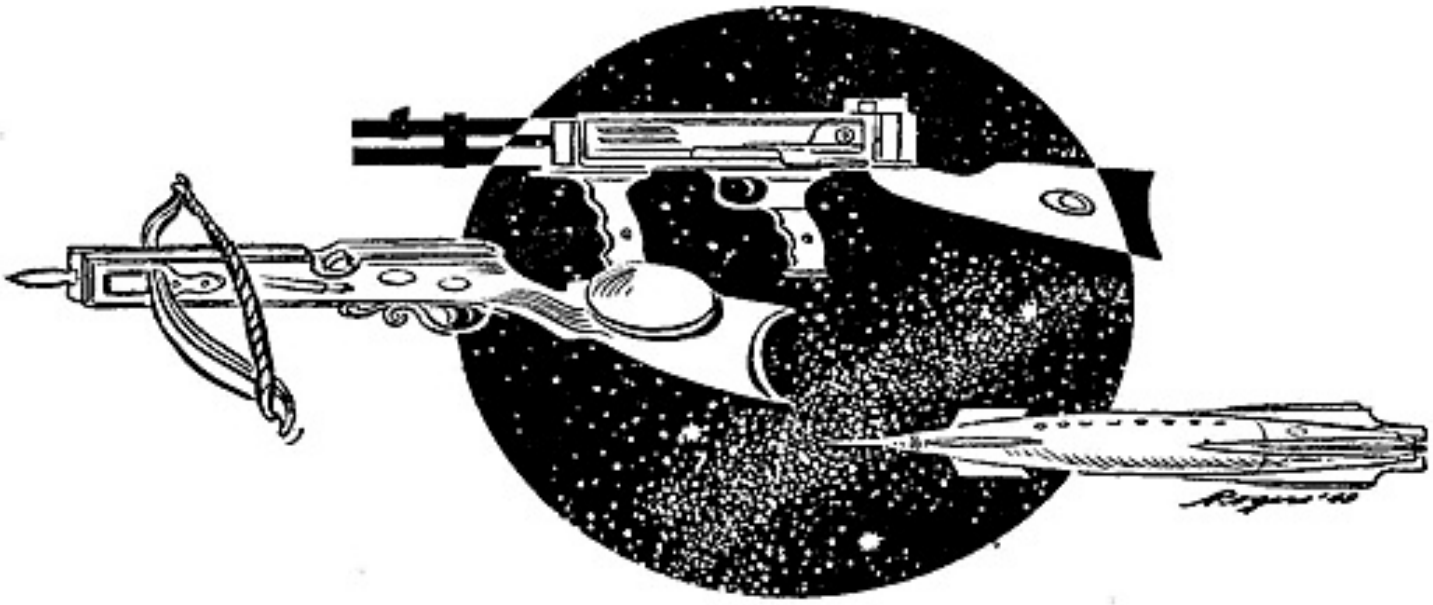
He watched Batruni narrowly. Although at first he had been ready to dislike the man, he was now beginning to think the textile manufacturer a friendly, generous, well-intentioned sort, if inclined to be lachrymose.

Yussuf Batruni shifted his paunch and blew his nose. Hasselborg, visualizing hordes of germs flying out of Batruni's nostrils, shrank back a little.

Batruni said: "She talked about it for months before she disappeared, and she read books. You know, 'The Planet of Romance', 'The Martian's Vengeance', and trash like that."

Hasselborg nodded. "Go on."

"She had enough money for the trip. I fear I gave her more than



was good for a young girl alone in London. But she was all the family I had, so nothing was too good—" His voice caught and he shrugged sadly.

"I'll go over her belongings," said Hasselborg. "Meanwhile, do you think she went with somebody?"

"What do you mean?"

"I said, d'you think she went with somebody? And I don't mean your Aunt Susie, either."

"I—" Batruni stiffened, then checked himself. "Excuse me. Where I come from, we take care of our daughters' virtue, so I cannot help— But, now that you bring it up, I am afraid the answer is yes."

Hasselborg smiled cynically. "The Levant ought to advertise its virgins the way Egypt does its pyramids. Who's the man?"

"I do not know."

"Then how d'you know there is one?"

"There are only—little things. Nothing you can put a finger on. On my last trip to London, when I asked her about her young men, she evaded. Talked about other things. That was a big change from the times before, when I would learn every detail of the young man's appearance and habits whether I was interested or not."

"Don't you suspect anybody in particular?"

"No, just a vague general suspicion. You are the detective; you draw the inferences."

"I will," promised Hasselborg. "As soon as I've looked over her apartment I'll wire Barcelona for the passenger lists of all the spaceships that have left in the last month. She couldn't get away under an assumed name, you know, because her prints would be checked against the European Central File as a matter of routine."

"That will be good," said Batruni, looking out of the window into a fog that had so far defied the efforts of the fog-sweepers. His great Levan-

tine nose showed in profile. "Do not spare the expense, and when you find where she has gone, follow her on the very next ship."

"Wait a minute!" said Hasselborg. "To chase somebody on another planet takes preparation: special equipment, training—"

"The very next!" said Batruni, beginning to wave his hands. "Do you think I like sitting around? Speed is of the utmost importance. I will pay you a bonus for speed. Have you never heard of the early bird, Mr. Hasselborg?"

"Yeah, and I've also heard of the early worm," said Hasselborg. "Nobody gives him a thought."

"Well, this is no joke. If you cannot hurry, I will go to—" He broke off in a fit of sneezing.

Hasselborg held his breath to let the germs settle, then said: "Now, now, I assure you I won't waste a minute. Not a microsecond."

"You had better not," said Batruni. "And if you can return my Julnar . . . ah . . . unharmed, I will add fifty percent to the fee."

Hasselborg cocked an eyebrow, thinking that if you could only strap a howdah to Batruni's back he'd fit perfectly into a circus parade. "I get your point. However, Mr. Batruni, while I can trail runaways, I can't bring back the infirm glory of the positive hour, nor can I put Humpty Dumpty together again."

"Then you don't think there is any chance—?"

"About as much chance as there is of having an Irishman turn down a drink when you offer it to him. However, I'll do my best."

"Fine," said Batruni. "By the way, Mr. Hasselborg, you do not talk like a Londoner. Are you Swedish?"

Hasselborg pushed back the brown hair that drooped untidily over his broad forehead. "By descent only. I'm a North American; born in Vancouver."

"How did you happen to settle in London?"

"Why—" Hasselborg became wary, not wishing to go into the sordid details of his fall and partial resurrection. "After I left the Division of Investigation to go into private work, I specialized in insurance frauds. And Europe offers a good opportunity for that kind of work now." He laughed apologetically. "Investigating them, I mean. Follow me?"

"Yes." Batruni looked at his watch. "My plane leaves in an hour, so you must excuse me. You have the photographs, the key to her apartment, the list of addresses, and the letter of credit. I do not doubt that you will live up to your recommendations." However, he said this with a rising inflection that did imply a doubt.

Hasselborg, as he stood up, worked the little trick that he sometimes used on dubious clients: he pushed back his hair, straightened his scarf, took off his glasses, pulled back his shoulders, and stuck out his big square jaw. By these acts he

changed in a couple of seconds from a nondescript mild-looking person with an air of utter unimportance to a large well-built character whom an evildoer would think twice about meddling with.

Batruni smiled with renewed confidence as he shook hands.

Hasselborg warned him: "I'm no miracle-working yogi, you know. If she's gone outside the Solar System, it'll take years to bring her back. There's no extradition from most planets, and once I get her aboard the *Viagens Interplanetarias* she'll be under Earth law and I can't drag her by main force. It would cost me my license at least."

Batruni waved a hand. "Never mind that. I will take care of your future if you get me my darling. But to wait all those years—" He seemed ready to blubber again.

"You could put yourself in a trance, couldn't you?"

"And wake up to find those bad Socialists had stolen all my factories? No thank you. It is not the time—the doctors tell me I have another seventy-five years at least—but the suspense. It will not be so long for you."

"The Fitzgerald effect," said Hasselborg. "If you're not back from Aleppo when I shove off from London, I'll leave a report for you. *Mah salâmi!*"

Viagens Interplanetarias wired back a list of names from Barcelona, and the name of Julnar Batruni turned up on the list for the *Juruá*, bound for Pluto with four other Londoners in addition to other passengers. Of the Londoners, one was a well-known spinster sociologist, two a minor World Federation official and his wife, and the remaining one a radio announcer named Anthony Fallon.

Hasselborg trotted around to the BBC offices, where he unearthed the Personnel Director and asked about Fallon. He learned that Fallon was in his early thirties—a little younger than Hasselborg himself—a native of London, married, with a varied background as a World Police trooper, a cameraman on a scientific expedition to Greenland, a hippopotamus-farmer, an actor, a professional cricket player, and other jobs. No, BBC had no notion where he was now. The blighter had simply called Personnel one fine day, told him he was resigning, and walked out. (That was two days before the *Juruá* left Barcelona.) And really you know, this is England, where a chap can go where he pleases without some copper checking up on him.

Finding the Director of Personnel stuffy, Hasselborg inquired among the staff, adding details to his picture of Fallon. The man, it transpired, had cut something of a swath among the female help; he'd apparently led not a double but a quadruple or quintuple life. The men liked his tall tales without altogether believing them; on the other hand they thought him a bit of a cad and a trouble maker. Good thing he'd gone. (These unin-

hibited guys have all the fun, thought Hasselborg sourly.)

Hasselborg wrote up his visit on his shorthand pad and went to Fallon's address, which turned out to be an ordinary Kensington flat. A pretty blond girl opened the door. "Yes?"

Hasselborg got a jolt—the girl looked like his lost Marion. "Are you Mrs. Fallon?"

"Why yes. What can I—"

"My name's Hasselborg," he said, forcing what was meant for a disarming grin. "May I ask you a few questions about Mr. Fallon?"

"I suppose—but who are you really?"

Hasselborg, thinking that the direct approach would work here as well as any, identified himself. The strong Briticism of her speech made him almost forget her resemblance to his ex-wife. The girl was of medium height, sturdily built, with substantial ankles, wide cheekbones, rather flat features, and a vivid pink-blue-and-gold coloring.

After some hesitation she asked him in. Most people did, since they were more thrilled than resentful over being investigated by one of those fabulous creatures, a real sleuth. The only trouble was to keep them on the subject; they wanted to know about your romantic adventures, and wouldn't believe you when you assured them that investigation was a dull and sordid trade that brought you into contact with a singularly unlikable lot of people.

She said: "No, I've no idea where Tony went. He just told me he was going on a trip. Since he'd done that before, I didn't worry for the first week or two, and then I learned he'd quit his job."

"Did you ever suspect him of . . . uh . . . playing around?"

She smiled wryly. "I'm sure he did. You know, tales of how he had to stay late for spot broadcasts, which later turned out never to have taken place."

"Do anything about it?"

"I asked him, but he only flew into a temper. Tony's a very peculiar man."

"He must be, to leave a girl like you—"

"Oh," she smiled deprecatingly. "I'm afraid I bored him. I wanted the usual things, you know—a real home and lots of children."

"What did you intend to do when he went this time?"

"I hadn't decided. I can't help liking him in a way, and he was wonderful when we first—"

"I understand. Did he ever mention a Syrian girl, Julnar Batruni?"

"No; he was cagey. You think he went with her?"

Hasselborg nodded.

"Where to? America?"

"Farther than that, Mrs. Fallon. Off Earth."

"You mean millions and millions—Oh. Then I suppose I shan't see him again. I don't know whether to be relieved—"

Hasselborg said: "I'm trying to find Miss Batruni and, if possible, bring her back. Want me to try to

fetch your man, too?" (He found himself, he couldn't imagine why, hoping she'd say "no".)

"Why . . . this is all so unexpected. I'd have to think—" Her voice trailed off again.

"Mind if I take down some data?" The shorthand pad appeared. "What was your maiden name?"

"Alexandra Garshin. Born in Petrograd, 2103. I've lived in London most of my life, though."

Hasselborg grinned. "Tony's the only Cockney in the case." After a few more questions he said: "While I don't usually mix business with pleasure, it's nearly dinner time, and I think we could pursue the subject better over a couple of reindeer steaks. What say?"

"Oh! Thanks, but I couldn't impose on you—"

"Come on! Old man Batruni'll be paying for it." Hasselborg looked studiedly friendly and harmless, hoping that his expression would not seem to the unprejudiced observer like that of a hungry wolf. Or at least a coyote.

She thought, then said: "I'll come, but if you ever meet my parents, Mr. Hess . . . Hass—"

"Vic."

"Mr. Hasselborg, don't say I went out with you on such short acquaintance."

"Cocktail?" he said.

"Thank you, a blackjack."

"One blackjack and a glass of soda water," he told the waiter.

She raised eyebrows. "Teetotaler?"

He smiled regretfully. "No. Narasimachar treatment."

"You poor man! You mean you're really conditioned so a good drink makes you gag?"

He nodded. "Sad, too, because I used to like the stuff. Too well, that was the trouble, if you follow me." He wouldn't go into the story of his moral collapse after Marion—"When I get a case where I've got to drink with the boys for professional reasons, boy, then the going is rugged. But let's talk about you. Are you fixed for support while I chase your errant spouse beyond the cranky comets and behind the mystic moons?" He washed down a couple of pills with his soda water.

"Don't worry. I've got a promise of a job, and if the worst came to the worst I could go back to my parents—if I could stand hearing them say 'I told you so.'"

The physician laid down his last hypodermic and said: "Really, that's all I can think of." He counted them off on his fingers. "Tetanus, typhus, typhoid, smallpox, yellow fever, bubonic, pneumonic, malaria, Martian jaundice, Venusian leprosy— It's a wonder you're not dead from all the shots you've had lately. Maybe you'd like to be shot for whooping cough?"

Hasselborg met the doctor's gaze squarely, though he guessed that the word in the doctor's mind was "hypochondriac". "Thanks, I've had it.

Got those prescriptions? Wish I could take time to have my appendix jerked."

"Is something wrong with your appendix?"

"No, but I don't like wandering around some strange planet with one inside me that *might* go wrong. For all I know, I'm going some place where when you get sick they chop off a finger to let out the evil spirits. And I hope my teeth hold out; just had 'em checked."

The doctor sighed. "Some chaps with everything wrong can't be bothered with elementary medical care, while the healthiest individual I've seen in years— But I suppose I shouldn't discourage you."

Hasselborg went out to Woolwich for an hour's pistol practice at the range; then back to arrange with a colleague to take over his two pending fraud cases. Then home to his apartment to hang on the telephone until he got through to Yussuf Batruni, who waxed emotional all the way from Aleppo: "My boy, my boy, it is noble of you—"

Then he took Alexandra Garshin Fallon out to dinner again, saying: "Last date, chum."

"So soon?"

"Yep; I'd rather wait till a later ship, but I'm only the third engineer of my soul; Joe Batruni's the captain. I drop you right after we sheathe our fangs and go home to pack."

"Let me come around to help you."

"No. Sorry." He smiled to counteract her hurt look. "I can't, you know; might give away trade secrets."

"Oh," she said.

He knew that wasn't the real reason. The reason was that he was falling in love with her, and he was not sure he could keep his mind on packing if—

Just as well he was going, he thought. The idea wormed into his mind that it would be so easy to fail to find Fallon and his light-o'-love, and then come back and have Alexandra to himself— No! While he didn't consider himself a Galahad of purity, he still had his code. And although he had witnessed most of the delinquencies of mankind in the course of his career, and had partaken of some of them, he was still a bit of a fanatic on the subject of wife-stealing. With reason.

He laid out on his bed one Webley & Scott six-millimeter twenty-shot automatic pistol, one blackjack, one set of brass knuckles, one pair of handcuffs, one pocket camera, one WF standard police fingerprint recording apparatus, one pencil flashlight, one two-way pocket radio set, one portable wire-recorder set, one armor vest, one infrared scanning and receiving apparatus—pocket size—one set of capsules containing various gases and explosives which would accomplish anything from putting an audience to sleep to blowing a safe, one box of knockout drops, a pick-lock, a supply of cigars, a notebook, and pills: vitamin, mineral, longevity, headache, constipation,

cold— And ammunition for all this equipment: HV cartridges, camera-film, notebook-fillers, and so on. The most valuable of the equipment he stowed in his pockets until his suit began to look lumpy. The rest he packed.

Alexandra came out to Waddon to see him off, saying: "I wish I were going with you."

He supposed she didn't know she was turning the knife in the wound, so he smiled amiably. "Almost wish you were, too. Wouldn't do, of course. But I'll think of you. If you get tired of waiting around for Tony and me, you can always go in trance, or—" He meant—ditch Fallon and go her way, but thought better of saying so.

"Speck in my eye." She dabbed at the optic with a handkerchief a little larger than a postage stamp. "Gone now."

"Look here, could I have that handkerchief?"

"What for?"

"Why . . . uh . . . just to take along." He grinned to hide his embarrassment. "In spring, when woods are getting green, I'll try and tell you what I mean. In summer, when the days are long, perhaps you'll understand the song."

"Why Victor, you're *sentimental!*"

"Uh-huh, but speak it not in Gath. It would ruin my professional reputation." They shook hands formally, Hasselborg finding it hard to keep up his pose of guileless geniality. "Good-by, Alexandra."

The Barcelona plane whizzed down the catapult-strip and off the field in a cloud of smoke.

II.

While Hasselborg pondered the case on his way to Barcelona, it occurred to him that the fugitive pair might have resorted to some human version of the old shell-game, like arranging with another pair of passengers to switch identities after they got to Pluto, and then returning to Earth or one of the other inner planets under their assumed names. They might get away with such a dodge because their prints would not be checked once they had left Barcelona. Having no wish to spend years chasing them through the Galaxy as if they were a pair of rather unholy grails, he looked up the investigating firm of Montejo and Durruti in Barcelona and arranged for them to cover all incoming spaceships until further notice.

Then he sent a last-minute post card to Alexandra—not exactly a professional thing to do, he told himself, but he might be dead before he returned—and boarded the *Coronado* for Pluto.

There were nine passengers besides Victor Hasselborg, who found himself bunking with one Chuen Liao-dz. They were all squeezed into the little honeycomb of passenger-compartments in the nose, below the control compartments and above the cargo and the vast mass of fuel and machinery that occupied nine-tenths of the craft.

After an ineffective effort to unpack his belongings at the same time that Chuen unpacked his—without disclosing the professional equipment—Hasselborg said: "Look here, chum, suppose I lie on the bunk while you unpack; then we trade off?"

"Thank you," said Chuen, a short thick dish-faced man with coarse black hair turning gray. "You turn crank on the end of your bunk, and the end comes up like hospital bed. What's your line, Mr. Hasselborg?"

"Insurance investigator. What's yours?"

"Ah . . . I'm economic official to the Chinese government. A very dull person, I assure you. First trip?"

"Uh-huh."

"Then . . . ah . . . I suppose you know your instructions for take-off?"

"Sure. Lie down when I hear the warning bell, et cetera."

"That's right. You'll find exercise compartment down the passageway to the right. Better sign up for one hour out of every twenty-four, subjective time. It'll keep you from going mad from boredom."

That proved no overstatement. With every cubic centimeter accounted for, there were no ports to look out of and no deck space for strolling. Even the minute passenger list ate in two shifts in the tiny compartment that served as lounge the rest of the time for whichever half of the passengers had been lucky enough to pre-empt the available seats.

When the ship had risen above the plane of the ecliptic and had cut its acceleration back to 1.25 G, Hasselborg played cards, pulled on weights in the exercise room—just big enough to let him do so without barking his knuckles—and pried into the lives of his fellow passengers. Some proved garrulous and transparent; others opaque and taciturn. He found his roommate, oddly enough, to be loquacious and opaque at the same time. When Chuen was asked what official business he was on, he'd reply vaguely: "Ah . . . just looking into possibilities of high-grade imports and exports. No, nothing definite; I shall have to decide on the ground. Only goods of highest quality for a given mass can be handled, you know—"

Hasselborg decided, more in fun than in earnest, that Chuen was really a plain-clothes agent either of China or of the W. F. If such were the case, however, it would do no good to say: "See here, old man, aren't you a cop?" One of the more dismal facts about the profession was that you had to spend so much time playing dumb.

This monotonous half-life, bounded by bare bulkheads and punctuated by bells that reminded the sluggish appetite that the time had come for another meal, continued for days until the warning bell told him they were nearing Pluto. Hours later the pressure of deceleration let up

and the loud-speaker in the wall said: *"Passageiros sai, por favor!"*

Suitcase in hand, Hasselborg followed Chuen down the inclosed ramp that had been attached to the ship's side. As usual there was nothing to see; space travel was no game for a claustrophobe. The ramp moved slightly with the weight of the people walking down it.

An air lock shut behind him, and a young man sat at a desk checking off names on a register. Hasselborg handed over his passport, saying: *"Tenha a bondade, senhor,* to let me speak to the head passenger *fiscal."*

Then, while the inspector went through his bag, Hasselborg identified himself to the head passenger agent, a Brazzy like most of the Viagens people. Hasselborg reflected that, public and internationally-owned corporation though the Viagens was supposed to be, with all jobs strictly civil service, somehow the citizens of the world's leading power always got a disproportionate share of them.

The agent politely insisted on speaking English to Hasselborg, who, not to be outdone, insisted on speaking the Brazilo-Portuguese of the spaceways to the agent. Hasselborg, giving up the contest first, asked:

"I believe two passengers named Fallon and Batruni came in on the *Juruá,* didn't they?"

"Let me think—I can check the register. Was not the Batruni that beautiful gorl with the dark hair?"

Hasselborg showed a photograph to the agent, who said: "Ah, yes, that is her. *O Glória-Pátri,* such a woman! What did you weesh with her?"

Hasselborg grinned. "Not what you're thinking, Senhor Jorge. Is she still here?"

"No."

"Thought not. Where'd she go?"

The agent looked wary. "Perhaps if you could tell me of the circumstances—"

Hasselborg cleared his throat. "Well, Miss Batruni has a father who's anxious to get her back, and Mr. Fallon has a wife who's perhaps less anxious but who is still interested in knowing where he went. And obviously they didn't come all the way out here just to admire the view of the Solar System. Follow me?"

"But . . . but Miss Batruni is of age; she can go where she likes."

"That's not the point. If she can go where she likes, I can also follow her. Where'd she go?"

"I prefer not to tell you."

"You'll have to, chum. It's public information, and I can raise a stink—"

The agent sighed. "I suppose you can. But it goes against all the traditions of romance. Will you promise me that when you find them you will not spoil this so-beautiful intrigue?"

"I won't promise anything of the sort. I won't put gyves on the girl's wrists and drag her back to Earth

at gun point, if that's what you mean. Now, where—"

"They went to Krishna," said the agent.

Hasselborg whistled. As he remembered it, of all the hundreds of known inhabited planets, Krishna had natives the most like human beings. That was to Hasselborg's disadvantage, since the elopers could take off from the landing station without oxygen masks or other special equipment and lose themselves among the natives.

Aloud he said: "*Obrigado.* When does the next ship leave for Krishna?"

The agent glanced at the compound clock on the bulkhead. "In two hours fourteen minutes."

"And when's the next after that?"

Senhor Jorge glanced at the blackboard. "Forty-six days."

"And when does it arrive at Krishna?"

"You mean the ship-time or the Solar-System time?"

Hasselborg shook his head. "I always get confused on that one. Both, let's say."

"Ship-time—that is, subjective time—you arrive in twenty-nine days. Solar-System or objective time, one thousand four hundred ninety-seven days."

"Then Fallon and Miss Batruni will have arrived—how many days ahead of me?"

"Krishna time, about a hundred days."

"Yipe! You mean they take off sixteen days ahead of me; I take twenty-nine days following them; and I arrive a hundred days after they do? But you can't do that!"

"I am sorry, but with the Fitzgerald effect you can. You see they went in the *Marankão,* one of the new mail-ships with tub acceleration."

Hasselborg shuddered. "Some day somebody's going to make a round trip on one of your ships and arrive back home before he left."

Meanwhile he thought: to invade an unfamiliar planet required more preparation than he could manage in a couple of hours. On the other hand he could imagine Batruni's reaction if he arrived back on Earth to spend a month boning up. The magnate would resemble not merely an elephant but a bull elephant in *must.* Still, for such a fee a chance was worth taking. He asked:

"Is there a bunk available on the one that's leaving now?"

"I will see." The agent buzzed the clerk in the next compartment and held a brief nasal conversation with him. "Yes," he said, "there are two."

"If you'll visa me, I'll take one of them. Have you got a library with information on Krishna?"

Senhor Jorge shrugged. "Not a very good one. We have the *Astronaut's Guide* and an encyclopedia on microfilm. Some of the men have their own books, but it would take time to round them up. You weesh to see what we have?"

"Lead on. I'd also like a look at the register of the *Marankão,* to

compare signatures." The real reason was that he wouldn't put it past this superannuated Cupid to give him a bum steer in order to protect the so-beautiful intrigue.

However, the register checked with the agent's statements. Moreover the library was not very informative. Hasselborg learned that the surface-gravity on Krishna was 0.92 G, the atmospheric pressure 1.34 A, the partial pressure of O_2 1.10 times that of Earth—with a high partial pressure of helium. The people were endoskeletal, bisexual, oviparous, bipedal organisms enough like human beings so that one could pass himself off as the other with a little skillful disguise; in fact there had even been marriages between persons of the two species, though without issue. They had a pre-mechanical culture characterized by such archaisms as war, national sovereignty, epidemics, hereditary status, and private ownership of natural resources. The planet itself was a little larger than Earth but with a lower density, and a higher proportion of land to water, so that the total Krishnan land area was nearly three times that of the Earth.

Senhor Jorge opened the door. "You had better come, Mr. Hasselborg; you have only twenty minutes. Here is your passport."

"Just a minute," said Hasselborg, looking up from the viewer and reaching for his pen. He dashed off three short letters to be photographed down and go back to Earth by the next ship: one to Montejo and Durruti calling them off their job, and one each to Yussuf Batruni and Alexandra Fallon stating briefly whither he was going and why.

When he boarded the ship he found that space was even more lim-

ited than on the first lap of the trip. He had as roommates not only Chuen Liao-dz but also a middle-aged lady from Boston who found the idea most repugnant. He thought, if I were Fallon, now, she'd really have something to worry about.

They arrived.

In contrast to Pluto, the ramp was open to the mild moist air of Krishna. Great masses of clouds swept in stately procession across the greenish sky, often cutting off the big yellow sun. Even the vegetation was mostly green. Walking down the ramp, Hasselborg could see, stretching like a gray string across the rolling plain, the high wall that marked the boundary of Novorecife.

The next contrast to Pluto was less pleasant. An official person in a fancy uniform said: *"Faça o favor,* passengers going on to Indra and Vishnu, into this room. Those stopping off at Krishna in here, please. Now, line up, please. Place your baggage on the floor, open, please."

Hasselborg noticed what looked like a full-length X-ray fluoroscope at one side of the room. More uniforms appeared and began going through the baggage and clothes with microscopic care, while others herded the passengers one by one into the space between the X-ray machine and the fluoroscope to look at their insides. Some of the passengers made heavy weather, especially the lady from Boston, who was plainly unused to Viagens ways.

However, the guard assigned to Hasselborg's pile had barely begun his job when he jumped up as if he had been jabbed from behind with a sharp instrument. *"Alô!* What is this?" He had turned over the top layer of clothes and come upon the professional equipment.

Two guards rushed Hasselborg down the hall, while two others followed, one carrying his baggage. They ushered him into an office in which a fat man sat at a desk, and all four talked so fast that Hasselborg, despite a fair command of the language, could hardly follow. One of the guards went through Hasselborg's pockets, making excited noises as he came upon the pistol, the camera, and other items.

The fat man, whose name according to the sign on his desk was Cristôvão Abreu, Security Officer, leaned back in his swivel chair and said: "What are you trying to get away with, senhor?"

Hasselborg said loudly: "Not a thing, Senhor Cristôvão. What am I supposed to do, click my heels together and salute? What are *you* trying to get away with? Why are your men hauling me around in this undignified condition? Why do you treat incoming passengers like a bunch of steers arriving at the abatoir? What—"

"Quiet yourself, my friend. Don't bluster at me; it will not excuse your crime."

"What crime?"

"You should know."

"Sorry, chum, but I don't. My

papers are in order, and I'm on legitimate—"

"It is not that, but this!" The fat man indicated the wire-recorder and other apparatus as if they had been the parts of a dismembered corpse.

"What's wrong with them?"

"Don't you know they're contraband?"

"Mão do Deus! Of course I didn't know. Why are they?"

"Don't you know that the Interplanetary Council has forbidden bringing machinery or inventions into Krishna? Don't tell me anybody can be so ignorant!"

"I can be." Hasselborg gave a short account of the hurried departure that had brought him to Krishna without proper briefing. "And why are these gadgets forbidden?"

Abreu shrugged. "I merely enforce the regulations; I don't make them. I believe there is some social reason for this policy—to keep the Krishnans from killing each other off too fast before their culture is more advanced in law and government. And here you come with enough inventions to revolutionize their whole existence! I must say—Well, I know my duty. Mauriceu, have you searched this one thoroughly? Then take him to the office of Góis for further examination." And Abreu went back to his papers with the air of having swatted one more noxious insect.

Julio Góis, assistant security officer, turned out to be a good-looking young man with a beaming smile. "I'm sorry you have had this trouble, Mr. Hasselborg, but you gave the Old Man a terrible turn with your apparatus. He was on duty here ten years ago when some visitor introduced the custom of kissing to Krishna, and the excitement from that hasn't died down yet. So he's sensitive on the subject. Now, if you will answer some questions—"

After an hour's interrogation, Góis said: "Your papers are as you say in order, and I'm inclined to agree that if you hadn't been honestly ignorant you wouldn't have tried to bring your devices in openly. So I'll release you. However, first we'll sequester the things in that pile. You may keep the little club, the knuckle-duster, the notebook, the pen, the knife— No, not the pencil, which is a complicated mechanical device. Take an ordinary wooden pencil instead. No, the breastplate is one of those wonderful new alloys. That's all I can allow you." He switched to English: " 'Tis not so deep as a well, nor so wide as a church door; but 'tis enough, 'twill serve."

"Huh," said Hasselborg, "how do I catch these people without the tools of my trade?"

Góis shrugged. "You'll have to use the brain, I think."

Hasselborg rubbed his forehead as if to arouse that organ. "That puts me in a spot. Do you know where Fallon and Miss Batruni took off for when they left Novorecife?"

"They were headed for Rosíd, in

the principality of Rúz, which is a dependency of the Kingdom of Gozashtand. Here's a map—" Góis ran a fingernail north from the green spot that symbolized Novorecife, the Viagens outpost.

"Were they traveling under aliases?"

"I don't know. They didn't confide in me."

"What does one need to travel around Krishna?"

"Some native clothes, weapons, and means of transportation. Our barber can give you the antennae and dye your hair. What will you go as?"

"How do you mean?" asked Hasselborg.

"You can't run around without means of support, you can't say you're an Earth spy for fear they'd kill you, and you have to use the disguise. Most nearby rulers are friendly to us, but the common people are ignorant and excitable, and there's no extraterritoriality. Once you leave Novorecife we wash our hands of you, unless you disobey the regulation about inventions."

"What do you suggest for a cover? I can be an insurance salesman, or a telelog repairman, or—"

"*Os santos,* no! There's no insurance or radio here. You'd have to go as something that exists, like a palmer—"

"A what?"

"A religious pilgrim. However, that might get you into religious arguments. What's your church?"

"Reformed Atheist."

"Just so. Some of the Earthly cults are established here, you know; missionaries got in before the ban went into effect. How about a troubadour?"

"That's out. When I sing, strong men pale, women faint, and children run screaming."

"I have it, a portrait painter!"

"Huh?" Hasselborg sat up with a jerk. He was about to say that he hated all painters, but that would involve explanations to the effect that his former wife had run off with one to live in a shack on the California coast. Instead he said: "I haven't painted anything but roofs for years." (He had been trained in sketching when he was entering the Division of Investigation, but chose not to admit it.)

"Oh, you needn't be good. Krishnan art is mostly geometric, and their portraits are so bad by our standards that you'll be a sensation."

"Wouldn't they recognize my technique as exotic?"

"That's all right too; the Earth technique is a fad in Gozashtand. The Council hasn't tried to keep Earth's fine arts out of Krishna. Take a few days to practice your painting and learn Gozashtandou while you have your new equipment made. I see by your letter of credit that you can afford the best. I'll give you an introduction to the Dasht of Rúz—"

"The who of what?"

"I suppose you'd say a baron. He's Djám bad-Koné, a feudal underling of the Dour of Gozashtand."

"Look," said Hasselborg, "at least let me take my pills. I have to keep my health, and nobody'll know what's in them. Do you follow me?"

Góis smiled. "Perhaps we can allow the pills."

When Hasselborg reached the barber shop he found his shipmate Chuen in the chair ahead of him. The barber had already dyed the man's hair a poisonous green, and was affixing a pair of artificial antennae to his forehead by means of little sponge-rubber disks that merged with the skin so that it was almost impossible to tell where one left off and the other began. The barber said:

"Those should stay for at least a month, but I'll sell you a kit to glue them back on if they should work loose. Remember to let your hair grow longer in back—"

Hasselborg also noted that the barber had glued artificial points to Chuen's ears, so that altogether the man now looked something like an overfed leprechaun. "Hello, Chuen; going out among the aborigines, too?"

"Indeed so. Which direction you taking?"

"They tell me my subjects have gone north. How about you?"

"I don't know yet. You know, I am afraid green hair doesn't become me."

"Better be glad they don't wear those haystack wigs they wore on Earth back in the time of James the Second. Aroint thee, scurvy knave!" Hasselborg made fencing motions.

Gozashtandou proved an easy language for a man who already spoke a dozen. Mornings Hasselborg spent posting solemnly around the bridle path on the back of an aya, while a member of the Viagens staff trotted with him and told him over and over to keep his elbows in, heels down, et cetera. These beasts had an unpleasantly jarring trot, especially since the saddle was right over the middle pair of legs. When he learned that his particular aya had also been trained to draw a carriage he eagerly bought a light four-wheeled vehicle with a single seat for two. Two or three hundred years before on Earth, he recalled, men had driven a variety of these contraptions and called them by a multitute of special names: buggy, brougham, gig, surrey— Something only an antiquarian would know about now. At least, one aya and a carriage should in the long run be as cheap and convenient as, and more comfortable than, an aya to ride and a second to carry his gear.

Afternoons he put in an hour or two with another staffer who flourished a dummy sword and yelled: "No, no, always you wave the blade too wide!"

"That's how they do it in the movies."

"Do they try to kill people in the movies? No, they try to give the audience a thrill, which is different —"

With Chuen he practiced Krishnan conversation and table manners. The main tools were a pair of little

spears to be held like chopsticks. Chuen, of course, had a great advantage here. Góis, watching Hasselborg's fumbles, turned beet-red containing his mirth.

"Go ahead and laugh," said Hasselborg. "I should think the Council would at least let us show 'em knives and forks."

Góis shrugged. "The Council has been very strict since the tobacco-habit invaded the planet, *amigo meu*. Some consider the Council unreasonable for saying that by letting these people have knives and forks we'd be inviting an interplanetary war, but—"

"Are the Krishnans as dangerous as that?"

"Not so much dangerous as backward. The Council reasons that it will be time enough letting them have an industrial revolution when they have more civilized ideas about politics and the like. I don't think they know what they want; the policy changes from year to year. And some say the stupid Council will always find reasons to stop progress on Krishna. Progress—Ah, my friends, I must get back to Earth before I'm too old to see its wonders."

At this outburst Hasselborg exchanged a quick glance with Chuen, who said: "What's your opinion of the regulation, Senhor Julio?"

"Me?" said Góis in English. "I am but a poor, infirm, weak, and despised young man. I have no opinions." And he changed the subject in a marked manner.

Hasselborg stayed on a week after Chuen left, working on his orientation. Since the authorities wouldn't let him take along the photographs of Julnar and Fallon, he practiced copying them with pencil and brush until he achieved recognizable likenesses. He balked at Góis' suggestion that he load himself down with a complete suit of armor, but finally compromised on a shirt of fine chain mail. He also bought a sword, a dagger with a fancy guard, a big leather wallet like an Earth woman's handbag with a shoulder-strap and many compartments, and a native dictionary of Gozashtandou-Portuguese and Portuguese-Gozashtandou, like all Krishnan books printed on a long strip of paper folded zigzag between a pair of wooden covers.

Then one morning before sunrise, while two of Krishna's three moons still bathed the landscape, he set out from the north gate. He felt a little foolish in plumed hat and monkey jacket, but philosophically told himself he'd lived through worse things. Góis had been adamant about letting him take his rubbers, and Hasselborg, much as he dreaded wet feet, had to admit that rubbers over the soft-leather high Krishnan boots would have looked a little bizarre.

That young man was there to see him off. Hasselborg said: "Have you got that letter of introduction?" He half expected a negative, since Góis had been putting off writing the thing on one excuse or another.

"*Sim*, here . . . here it is."

Hasselborg frowned. "What's the

matter? Sit up all night writing it?" For Góis had a nervous, distracted look."

"Not quite. I had to choose the right wording. Be sure not to break the seals, or the Dasht will get suspicious. And whatever happens, remember that Julio Góis esteems you.'"

A funny sort of farewell, thought Hasselborg, but he simply said: *"Até à vista!"* and tickled his aya's rump with his whip until it went into a brisk trot on the road to Rosíd.

III.

Victor Hasselborg rode for several Earth hours alone, mumbling sentences of Gozashtandou to himself. A couple of Earth hours after sunrise the sun finally broke through the tumbled clouds. Hasselborg pulled up alongside an enormous two-wheeled cart drawn by a bishtar, an elephantine draft-animal with a couple of short trunks, and asked the driver how far it was to Avord.

The driver leaned over, then jerked a thumb towards the rear of the cart. "Twenty-five hoda, master."

Hasselborg knew it was over thirty, but these fellows always deducted a little to make the hearer feel good. The fellow looked like a thinner version of Chuen in his Krishnan disguise, with the same slant-eyed, flattened face, more like that of a Mongoloid like Chuen than a Caucasoid like Hasselborg. Maybe, he thought, that was why Chuen had been sent on his mysterious errand. Fortunately the bishtar-driver seemed to find nothing odd about Hasselborg; merely asked whether it was likely to rain.

Hasselborg said: "If the gods so decide. Thanks for the information." He waved and trotted off, pleased with having passed his first inspection.

He passed other travelers from time to time—riding, driving, or on foot. This was evidently a major highway; Góis had told him that the Dasht had it patrolled to keep the danger of robbers and wild beasts to a minimum. Even so, towards the end of the day, a deep animal roar came over the plain, making his aya skitter.

He put on speed and soon sighted the cultivated strips that meant he was nearing Avord. The sun had disappeared into the towering clouds for good, and Hasselborg had felt a sprinkle of rain. Now the clouds were getting black and the wind was bothersome. Perhaps he should put up the collapsible top. He stopped the vehicle and struggled with the contraption for a while; it was evidently one of those one-man tops that could easily be erected by one man, four boys, and a team of horses. Finally the thing yielded and Hasselborg whipped his animal to a gallop as he drew close to the village.

The houses of Avord were of plaster or concrete, with outside windows few, small, and high. Hasselborg found the inn where Góis had said it would be, and identified it by the animal skull over the door. He

hitched his beast and went inside, where he found a big room with benches and a stout wrinkled fellow with ragged antennae whom Hasselborg took to be mine host. He rattled off:

"May the stars favor you; I am Kavir bad-Ma'lum. I wish a meal, a bed, and care for my aya."

"That will be five karda, sir," said the innkeeper.

"Four," said Hasselborg.

"Four and a half."

"Four and a quarter."

"Done." Hamsé, see that the gentleman's baggage is stowed and his animal stabled and fed. Now, Master Kavir, will you sit with two of my regular customers? On the left is Master Farrá, who owns one of the outlying farms. The other is Master Qám, on his way from Rosíd to Novorecife. What would you? We have roast unha, ásh stew, or I can boil you up a fine young ambar. Eh?"

"I'll take the last," said Hasselborg, not knowing one from the other and wishing he could inspect the kitchen to see if it measured up to his standards of sanitation. "And something to drink."

"Naturally."

Master Farrá, a tall weather-beaten Krishnan who scratched a lot, asked: "Whence come ye, Master Kavir? From Malayer in the far South? Both your accent and your face suggest it—no offense, of course. I can see ye're a man of quality, so we're delighted to have ye sit with us. Well?"

"My parents came from there," said Hasselborg cautiously.

Qám, a small dried-up man with his hair faded to jade, said: "And whither now? To Rosíd for the game?"

"I'm headed for Rosíd," said Hasselborg, "but as to this game—"

"What's news from Novorecife?" said Qám.

"What are the Ertsuma up to now?" said Farrá. (He meant Earthmen.)

"Is it true they're all of one sex?"

"Be ye married?"

"Has the Dasht had any more woman-trouble?"

"What's this about Hasté's niece at Rosíd?"

"What do you for a living?"

"Like ye to hunt?"

"Are ye related to any of the folk of Rúz?"

"What think ye the weather'll be tomorrow?"

Hasselborg parried or evaded the questions as best he could, until the sight of the landlord with a wooden platter afforded him relief. The relief proved short, however, for the ambar turned out to be some sort of arthropod, something like a gigantic cockroach the size of a lobster, half buried under other ambiguous objects and an oily sauce that had been poured over all. His appetite, ravenous a minute before, collapsed like a punctured balloon.

Evidently the local people ate the thing without qualms, and with these

jayhawkers staring at him he'd have to do likewise. He gingerly broke off one of the creature's legs and attacked it with one of the little eating spears. He finally gouged out a pale gob of muscle, braced himself, and inserted the meat into his mouth. Not quite nasty; neither was it good. In fact it had little taste, so the general effect was like chewing on a piece of old inner tube. He sighed and settled down to a dismal meal. Though he'd had to eat strange things in the course of his career, Victor Hasselborg remained in his tastes a conservative North American with a preference for steaks and pies.

The innkeeper had meanwhile set down a dish of what looked like spaghetti and a mug of colorless liquid. The liquid proved both hot and alcoholic. Hasselborg's conditioned revulsion almost brought up his gorge, but he steeled himself and gulped.

The "spaghetti" was the worst trial, proving to be a mass of white worms which wriggled when poked. Nobody at Novorecife had asked him to eat a dish of live worms with chopsticks. Cursing Yussuf Batruni and his addlepated daughter under his breath, he wound up half a dozen of the creatures in a bunch on the sticks. However, when he raised them toward his mouth, they sloomped back into the dish.

Luckily Qám and Farrá were arguing some point of astrology and failed to notice. The former, Hasselborg observed, also had a dish of worms, now reduced to a few survivors who twitched pathetically from time to time. Hasselborg concentrated on the insect and its accessories, gloomily thinking of the billions of bacteria he was forcing into his system, until Qám picked up his dish and shoveled the rest of the worms from the edge with his spears into his mouth. Hasselborg followed suit, only mildly comforted by the knowledge that the germs of one planet seldom found an organism from another a congenial host. Outside, the rain hissed on the flat roofs.

When the main course was over, the innkeeper set a big yellow fruit before him. Not bad, he thought.

He wiped his mouth and asked: "Did either of you see a man who went through here toward Rosíd about ten ten-nights ago?"

"No," said Qám. "I wasn't here. What sort of man?"

"About my height, but less heavy, with a dark-skinned girl. They looked like this." Hasselborg brought the pencil drawings out of his wallet.

"No, nor I either," said Farrá. "Asteratum, have ye seen such people?"

"Not I," said the innkeeper. "Somebody run off with your girl, Master Kavir? Eh?"

"My money," corrected Hasselborg. "I paint for a living, and this rascal took a portrait I'd made of him and went away without paying. If I catch him—" Hasselborg slapped the hilt of his rapier in what he

hoped was the correct swashbuckling manner.

The others giggled. Qám said: "And you're for Rosíd to paint more pictures in hope you'll be paid this time?"

"That's the general idea. I have introductions."

Farrá, scratching his midriff, said: "I hope ye've better luck than that troubadour fellow last year."

"What was that?"

"Oh, the Dasht became convinced the man was a spy from Mikardand. No reason, y' understand; only that our good Djám mortally fears spies and assassins. So, ye see, the poor lute-plucker ended up by being eaten at the games."

Hasselborg gulped, mind racing. There had been something in his indoctrination about the public spectacles of certain Krishnan nations on the Roman model.

He drank the rest of the liquor, which was making his head buzz. He'd better locate a good lawyer in Rosíd before he began snooping. Of course he was a lawyer too, but not in Krishnan law. And a lawyer might not be of much avail in a land where a feudal lord had what in European medieval law was called the high justice, and could have you killed on his say-so.

"Excuse me," he said, pushing his stool back. "After a day's ride—"

"Certainly, certainly, good sir," said Qám. "Will you be back for supper?"

"I think not."

"Then I hope you leave not too

early in the morning, for I should like to ask you more questions of far places."

"We'll see," said Hasselborg. "The stars give you a good night."

"Oh, Master Kavir," said Farrá, "Asteratun gives us the second bed to the right at the head of the stairs. Take the middle, and Qám and I will creep in on the sides later. We'll try not to rouse ye."

Hasselborg almost jumped out of his skin as he digested this information. Whatever was making Farrá scratch, the thought of spending a night in the same bed with it filled the investigator with horror. He took Asteratun aside, saying:

"Look here, chum, I paid for a bed, not a third of a bed."

The innkeeper began to protest, but by a lengthy argument, a claim of insomnia, and an extra quarter-kard Hasselborg got a bed to himself.

Next morning Hasselborg was up long before his fellow-guests, not yet being used to the slower rotation of this world. Breakfast consisted of flat doughy cakes and bits of something that appeared to be meat; organs from an organism, no doubt, but that was all you could say for them. He washed down a handful of pills, wrapped himself in his cloak, and sallied forth into the drizzle. Faroun looked hurt at being hitched up and driven forth into the rain; kept peering back at Hasselborg with an indignant expression, balked, and had to be stung with the buggy-whip to make him go.

In thinking over the evening's conversation, it struck Hasselborg that Qám's questions had been unnecessarily pointed, as if designed to unmask one who was not what he seemed. Hasselborg wondered if the lamented troubadour, too, had had a letter of introduction.

That reflection started another train of thought: How about those quotations from Shakespeare with which Gois liked to show off his culture? Wasn't there a place in "Hamlet" where somebody gave somebody else a letter of introduction that actually contained instructions to kill the bearer forthwith?

Hasselborg suddenly wanted earnestly to know what was in that carefully sealed letter to the Dasht of Rúz. When he reached Rosîd—

The drizzle stopped and the sun threw a yellow beam down from time to time between great bulks of cloud. Hasselborg rolled a grimly appreciative eye at them. Whatever fate awaited him, at least he might this time avoid catching his death of cold.

He drove hard to make his destination in plenty of time to find himself a safe roost. About noon Krishnan time he pulled up, dismounted, hitched his animal to a bush, and sat on a convenient boulder. As he ate the lunch Asteratun's cook had put up for him he swept his eye over the gently rolling terrain with its shrubby vegetation. Small flying things buzzed around him, and a creeping thing something like a land-crab scuttled past his feet. A group

of six-legged animals fed on the crown of a distant rise.

He was seeing Alexandra's face in the clouds when the faint drumming of animal feet brought his attention back to earth. A pair of riders on four-legged camellike beasts were approaching. There was a jingle of armor, and he could see slender lances held upright like radio antennae.

With a flash of alarm he hitched his sword and his dagger around to where he could get at them quickly, though he feared that against two armored men a tyro like himself would have no chance to buckle a swash. True, the look of the men suggested soldiers rather than bandits, but in a country like this the line might be hard to draw.

Hasselborg saw with displeasure that they were going to rein up. Their armor was a composite of plate and chain with a slightly Moorish effect: chain-mail over the joints connecting squares and cylinders of plate. As one of them stopped and signaled his mount to kneel, Hasselborg said:

"Good day to you, sirs; may the stars protect you. I'm Kavir bad-Ma'lum."

The man who had dismounted exchanged a brief glance with his companion and advanced towards Hasselborg, saying: "Is that so? What's your rank?"

"I'm an artist."

The man turned his head back over his shoulder and said: "He says he's an artist." He turned back to Hasselborg. "A commoner, eh?"

"Yes." Hasselborg regretted the word as soon as he spoke it. If these birds were going to turn nasty, he should have claimed the rank of *garm*—knight—or better.

"A commoner," said the man afoot to his companion. "A fair aya you have."

"Glad you like him."

Although the man smiled, as nearly as Hasselborg could interpret Krishnan expressions the smile was predatory rather than friendly. Sure enough the man's next words were: "We do indeed. Give him to us."

"What?" Hasselborg instinctively reached for his shoulder holster before remembering that his beloved weapon was not with him.

"Surely," continued the man. "Also your sword and those rings and any money you have. You're well-starred that we let you keep your garments."

"Forget not the carriage," said the mounted man. "He looks strong; he can pull it himself, ha-ha!"

"I'll do nothing of the sort," said Hasselborg. "Who are you two, anyway?"

"Troopers of the Dasht's highway patrol. Come now, make us no trouble, or we'll arrest you as a spy."

The mounted man said: "Or kill you for resisting arrest."

Hasselborg thought that even if he gave up his goods, they might kill him anyway to prevent complaints. A firm line might be equally risky, but he had no alternative. "I

wouldn't if I were you. I have an introduction to the Dasht from an important *Ertsu*, and if I disappeared there'd be a terrible howl."

"Let's see it," said the dismounted soldier.

Hasselborg drew the letter out of his wallet and held it up for the soldier's inspection. The latter put out a hand to take it, but Hasselborg jerked it back, saying: "The address is enough. What do you want the letter for?"

"To open, fool!"

Hasselborg shook his head as he put the letter away. "The Dasht likes his letters untampered with, chum."

"Slay him," said the mounted trooper. "He does but try to fool us with talk."

"A good thought," said the man afoot. "Spear him if he tries to run, Kaikovarr." And the trooper drew sword and dagger and hurled himself upon Hasselborg.

Tumbling backward to get out of range of the wicked blades, Hasselborg got his own sword out just in time to parry a slash. *Clang! Clang!* So far so good, though the trooper addressed as Kaikovarr was guiding his shomal off the road and around toward Hasselborg's rear.

The dismounted man, finding that Hasselborg could stop his crude swings, changed tactics. He stalked forward, blade out horizontally; then suddenly caught Hasselborg's sword in a *prise* and whipped it out of his grasp. Out shot the blade again; the soldier's legs worked like steel springs as he hopped forward and threw himself into a lunge. The point struck Hasselborg full in the chest, just over the heart.

IV.

Hasselborg thought he was a dead man, until he realized that his hidden mail shirt had stopped the point, and that his foe's blade was bent up into an arc. Then his highly educated reflexes came to his rescue. He braced himself and pushed back against the push of the sword, wrapped his left arm around the blade, and heaved upward. The soldier's sword flew out of his hand, to turn over and over in the air as it fell.

The soldier's mounted companion shouted: *"Ao!"* but Hasselborg had no time to devote to him. His right hand had been seeking a pocket. As he stepped forward, the dagger in his opponent's left shot out to meet him, and even faster Hasselborg's own left seized the fellow's wrist and jerked it forward and to the side, so that the soldier took a step that brought him almost body to body.

Then Hasselborg's right hand came out of his jacket pocket with the knuckle-duster. A right hook to the jaw landed with a meaty sound, and the soldier's knees buckled. After another punch Hasselborg dropped the brass knucks and snatched his own dagger, forgotten till now.

A blow from behind knocked him to his knees over the body of the

soldier. That lance! He rolled over, dragging the feebly struggling soldier on top of him, and found the man's neck with the point of the dagger.

The shomal was mincing around as its rider tried to get into position for another lance-thrust, which he found difficult now that Hasselborg was using his companion for a shield. Hasselborg yelled:

"Lay off, or I'll slit your pal's throat!"

"Gluck," said the soldier. "He's killing me!"

The mounted man pulled back a pace. Hasselborg got to his knees again, still holding the dagger ready.

"Now what'll I do with you?" he said.

The soldier replied: "Slay me, I suppose, since you dare not let me go."

"I can't." He was thinking of a scheme which, though corny, might work on the naïve Krishnans.

"Why not?" The soldier's lugubrious expression and tone brightened at once.

"Because you're the man."

"What mean you?"

"My astrologer told me I'd get into a fight with a guy like you, whose death-horoscope was the same as mine. When were you born?"

"Fourth day, eleventh month of the fifty-sixth year of the reign of King Ghojasvant."

"You're it, all right. I can't kill you because that'd mean my own death on the same day, and conversely."

"Mean you that if I slay you I doom myself to death on the same day?" asked the man gravely.

"Exactly. So we'd better call it off; follow me?"

"Right you are, Master Kavir. Let me up."

Hasselborg released him and quickly recovered his own weapons lest the soldiers start more trouble. However, his victim pulled himself up with effort, tenderly rubbing the places where he had been struck.

"You all but broke my jaw with that brass thing," he grumbled. "Let me look at it. Ah, a useful little device. See, Kaikovarr?"

"I see," said the other soldier. "Had we known you wore mail under that coat, Master Kavir, we'd have not wasted our thrusts upon it. 'Twas hardly fair of you."

Hasselborg said: "It's just as well, though, isn't it? Looks as though we'd have to be friends whether we want to or not, because of that horoscope."

The dismounted soldier said: "That I'll concede, as the unha said to the yeki in the fable." He sheathed his weapons and walked unsteadily to his kneeling shomal. "If we let you go with your goods, you'll make no mention of our little now-difference?"

"Of course not. And likewise if I hear you're in trouble I'll have to try to help you out—what's your name, by the way?"

"Garmsel bad-Manyao. Hear this: It was reported that you were asking questions at Asteratun's Inn last

night—a rash deed in Rúz, though with that letter I suppose you're in order." He turned to his companion. "Let's be off; this place is ill-starred for us."

"The gods give you a good journey!" said Hasselborg cheerfully. They growled something hardly audible and trotted away.

No doubt Qám had reported him to these birds, Hasselborg thought as he watched them grow small in the distance. This local spy-mania would complicate matters. If questions were dangerous *ipso facto,* he couldn't walk in on the local shamus for a cozy chat as to the whereabouts of Fallon and his paramour.

He finished his lunch, the excitement of his recent encounter subsiding as he pondered his next move. Then he resumed his ride, still thinking. To do a good job, he reflected, he should have a tum-tum tree, but Krishna seemed to lack them.

Hours later, as he approached Rosíd, men could be seen working in the cultivated strips. He also passed side roads and more traffic, people walking or riding and driving the remarkable assortment of saddle and draft animals domesticated on Krishna. Some of these beasts pulled carriages of ingenious or even fantastic design.

The sun was nearing the horizon in one of the marvelous Krishnan sunsets when the cheerful sight of a row of gallows trees, complete with corpses, told Hasselborg he was entering the outskirts of the city, reminding him of the verse:

> "The only tree that grows in Scotland
> Is the bonnie gallows tree—"

In the distance the sun touched the onion-shaped domes of the city proper with orange and red.

Hasselborg spotted another house, bigger than the suburban bungalows, with an animal skull over the door.

This time the innkeeper proved a silent fellow who made no effort to introduce Hasselborg to his other guests. These guests huddled in small groups and talked in low tones, leading Hasselborg to suspect that he'd stumbled upon a place frequented by questionable characters. That bulky fellow in the corner with the horn-rimmed glasses, for instance, might be another innocent passerby; or again he might be a plainclothes cop keeping an eye on Rosíd's underworld.

Hasselborg got a wall seat. He ate a palatable if still mysterious meal alone until a young man who had been idling at the bar came over and said pleasantly: "Sarhad am I; the stars give you luck. You're new here, I think?"

"Yes," said Hasselborg.

"Mind you?" The youth seated himself beside Hasselborg before the latter could reply. "Some of our old-timers wax tiresome when they drink. Now me, I know when I've had enough; too much spoils your hand in my trade. Foul weather we've had, is't not? Hast seen old

sourpuss' daughter? Some hot piece, and they do say she's—"

He rattled on like that until the hot piece herself brought his dinner. Since she was the first Krishnan female he'd had a chance to scrutinize from close range, Hasselborg took a good look. The girl was pretty in a wide-cheeked, snub-nosed, pointed-eared way. Her costume, what there was of it, showed the exaggerated physical proportions that Earth artists depicted on girl-calendars. Hasselborg wondered idly whether the artists had first got the idea from photographs of Krishnan women. The Krishnans were obviously mammals even if they did lay eggs.

Sarhad dropped a chopstick. "A thousand apologies, master," he said, squirming around and bending to pick it up.

Something aroused Hasselborg's ever-lively suspicions, and he slid his right hand towards his dagger. A glance showed that Sarhad, while fumbling for his eating-spear with one hand, was busily exploring Hasselborg's wallet with the other.

Hasselborg grabbed Sarhad's right arm with his left hand, whipped out his dagger with his right hand, and dug the point into the young man's lower ribs, below the edge of the table.

"Bring your hand out empty," he said softly. "Let me see it."

Sarhad straightened up and looked at him, his mouth opening and closing like that of a goldfish whose water needs changing, as if thinking that he ought to say something but not knowing quite what. Then his left hand moved like a striking snake and drove the point of a small knife into Hasselborg's side, where the mail-shirt stopped it.

Hasselborg pushed his own dagger until Sarhad said: *"Ohé!* I bleed!"

"Then drop your knife."

Hasselborg heard it fall, felt for it with his foot, and kicked it away. All this had happened so quietly and quickly that nobody else appeared to have noticed.

"Now, young master," said Hasselborg quietly, "we're going to have a little talk."

"Oh, no we're not! If I yell, they'll be all over you."

Hasselborg made the head-motion meaning "no", and said: "I think not. Dips operate alone, so you have no gang; and you'd be dead before they could interfere and so would get no satisfaction from my demise. Finally, the brotherhood of criminals considers it an unfair business practice to commit a crime in a hideout like this for fear of bringing danger upon all. Do you follow me?"

The youth's naturally greenish complexion became even more so. "How know you so much? You look not like one of the fellowship."

"I've been places. Keep you voice down and keep smiling." (Hasselborg emphasized the point with a dig of the dagger.) "This inn caters to the brotherhood, doesn't it?"

"Surely, all men know that."

"Are there others in Rosíd?"

"It's true. The big robbers frequent the Blue Bishtar, the spies collect at Douletai's, and the perverts at the Bampusht. While if you'd have an orgy of the *rramandú* drug, or crave to feast on the flesh of men, try the Ye'mazd."

"Thanks, but I'm not that hungry yet. Now, I want to know about local police methods—"

"*Iyá!* So the haughty stranger has a game—"

"Never mind that; I'm asking the questions! Who's the chief of police?"

"I know not your meaning . . . *ao!* Prick me not; I'll answer. I suppose you'd wish the commandant of the city guard—"

"Is that part of the army?"

"But of course; what think you? Or else the captain of the night watch. They've but now elected a new one, Master Makaran the goldsmith."

"Hm-m-m. Is there any central office where they keep records of your colleagues and other matters having to do with the law?"

"I suppose the archives of the city court—"

"No, not records of trials. I mean a file of records of individuals—with a picture and description of each one, a list of his arrests, and the like."

"I've never heard of aught like that!" cried Sarhad. "Do they thus at the place whence you come? A terrible place it must be, in all truth; not even Maibud god of thieves could make an honest living, let alone a poor mortal cutpurse. How manage they?"

"They get along. Now, where can I buy some artist's supplies?"

The youth pondered. "Oho, so you're one of those who falsify copies of old pictures? I've heard of such; fascinating work it must be. You'd not like an assistant, would you?"

"No. Where—"

"Well, let me see, keep you along Novorecife Pike until you pass through the city wall, then continue for two blocks to the public comfort station, then turn right for one block, then left for half a block, and you'll see the place on the left. The street's called Lejdeú Lane. I remember not the name of the shop, but you can tell it by the—you know, one of those things painters hold in one hand while they mix their hues on it—over the door."

Hasselborg said: "I suppose you could enjoy your meal better without my dagger pricking your skin. If I put it away, will you be a good boy?"

"But surely, master. I'll do aught that you command. Are you absolutely sure you crave no partner? I can show you your way about here, as Sivandi showed Lord Zerré through the maze in the story—"

"Not yet," said Hasselborg, who thought he could trust Sarhad about as far as he could knock him with a feather. He ate with his left hand, keeping his right ready for trouble.

When he finished, he hitched his wallet around and said: "Has any-

body around here heard of another stranger from Novorecife coming this way about ten ten-days ago? A man about my height—" He went into his description and produced the sketches.

"No," said Sarhad, "I've seen none like that. I could ask around, though I doubt 'twill help, because I keep close track of new arrivals myself. I make the rounds of the inns, and watch by the city gates, and keep myself generally informed. Little goes on in this city that Master Sarhad knows not of, I can tell you."

Hasselborg let him chatter until he finished. Then, rising, he said: "Better get that prick taken care of, chum, or you'll get infected."

"Infected? *Ao!*" Sarhad for the first time noticed the darkened stain on his jacket. "The cut's nought, but how about paying me for my coat? Brand-new; only the second wearing; just got it from Rosíd's finest tailor—"

"Stow it; that's only a fair return The stars give you pleasant dreams!"

Next morning Hasselborg, not trusting these great clumsy locks checked his belongings to make sure nothing had been stolen. Then he set out afoot. The city gate was decorated with heads stuck on spikes in what Hasselborg considered questionable taste. A couple of spearmen halted him, and let him through after he had waved the letter to the dasht and signed a big register.

He strolled through the city, taking in the sights, sounds, and smells —though the last could not very well be avoided, and caused him to worry about picking up an infection. He was almost run down by a boy-Krishnan on a scooter, and then had to jump to avoid a collision with a portly man in the robe, chain, and nose-mask of a physician, whizzing along on the same kind of vehicle.

At the artists' shop he asked for some quick-drying plaster—he meant plaster of Paris, but he didn't know the Gozashtandou for it—and some sealing wax. With these purchases he returned to his hotel, signing out again at the gate. The calendar-girl, having let herself in with a passkey, was doing his room. She gave him a good-morning and a smile that implied she'd be amenable to further suggestions. Hasselborg, having other fish to fry, merely gave her the cold eye until she departed.

When alone, he put on his glasses, lit his candle, and got out his bachelor sewing kit and his little Gozashtandou-Portuguese dictionary. With the plaster he made molds of the three big waxen seals on his letter to the dasht. Then he broke open the seals, carefully so as not to tear the stiff glossy paper, and detached the fragments of the seals from the ribbon that enwrapped the letter by heating the needle from his kit in the candle flame and prying the wax loose from the silk.

He held the letter towards the light from the little window and frowned in concentration. When he

had puzzled out the Pitmanlike fishhooks of the writing, he saw that it read:

Julio Góis to the Lord Djám, Dasht of Rúz:

I trust that my lord's stars are propitious. The bearer is a spy from Mikardand who means you nought but ill. Treat him even as he deserves. Accept, lord, assurances of my faithful respect.

V.

Hasselborg, reading the letter through again, did a slow burn and suppressed an impulse to crumple the letter and throw it across the room. That dirty little— Then his sense of humor came to his rescue. The fishes answered with a grin, "Why, what a temper you are in!" And hadn't he been up against this sort of thing often enough not to let it get his goat, or whatever they had in lieu of goats on Krishna?

So, Góis *had* been getting ideas from "Hamlet!" Hasselborg shuddered to think of what might have happened if he'd handed the letter to the dasht without reading it first.

What now? Gallop back to Novorecife to denounce Góis? No, wait. What had possessed Góis to do such a thing? The man had seemed to like him, and he didn't think Góis was off his wavelength. It must be that Hasselborg's presence on Krishna threatener Góis' interests; just how would transpire in due course. If so, if Góis were involved in some racket or conspiracy, his superiors like the pompous Abreu might be

also involved. In any case these Brazzies, while good fellows for the most part, would stick together against a mere *Americano do Norte*.

Could he forge a new letter? It would take a bit of doing, especially since he was not sure that his written Gozashtandou would fool a bright native. By consulting his dictionary, however, and experimenting with a pencil eraser, he found that he could erase the words for "spy" and "ill" and substitute "artist" and "good" for them. He did so, folded the letter, and tied it up. Then with the candle he melted gobs of sealing wax onto the ribbon where it crossed itself, and used the plaster molds of the original seals to stamp new impressions on the wax just like the old.

However, before he mounted his noble aya and galloped off in all directions, a little reflection was in order. He went to work with needle and thread on the cuts in his coat left by the affrays of the previous day while he pondered. Since Góis had tried this treacherous trick, he'd probably also lied about the direction in which Fallon had gone. As Hasselborg could neither be sure of the direction nor return to Novorecife for more instructions, he'd have to do it the hard way. He'd have to make a complete circuit of the Earth outpost: rivers, mountains, bandit-infested swamps, and all, investigating all the routes radiating out from Novorecife until he picked up the trail of the fugitives. Of course if his circuit failed to find the trail, he'd have a good excuse to—stop it! he sternly told himself. This is a job.

Meanwhile he'd better try the dasht, as originally intended, on the chance that he might be able to pick up a lead at the court. Then a quick getaway with an introduction to some bigwig in Hershíd . . .

A brisk, cool wind flapped the pennons on the spires of the onion-domes of the palace and drove great fleets of little white clouds banked deep across the greenish sky. This green-and-white pattern was reflected in puddles around the palace gate. The wind also whipped Hasselborg's cloak as he stood talking to the sentry at the gate. The guard said:

"His high-and-mightiness will take your letter within, and in an hour he'll come back to tell ye to come round tomorrow to learn when the dasht'll give ye an audience. Tomorrow he'll tell ye the schedule's not made up for the next ten-night, and to return next day. After more delays he'll tell ye to be here twenty days from now. So ye'll just sit and drink until your money's gone, and when the day arrives ye'll be told that at the last minute they gave your time to some more worshipful visitor, and ye'll have to begin over, like Qabuz in the story who was trying to climb the tree for the fruit and always slipped back just afore he reached it. I envy ye not."

Hasselborg jerked the strap of his wallet so that the coins inside jingled, saying: "D'you suppose a little of this might help, if you follow me?"

The sentry grinned. "Mayhap, so that ye know how to go about it. Otherwise ye'll lose your coin to no advantage—"

The guard shut his mouth as the black-clad major-domo waddled back to the gate, wheezing: "Come at once, good Master Kavir. The dasht will see you forthwith."

Hasselborg grinned in his turn at the sight of the guard's drooping jaw and followed his guide across the courtyard and through the vast entrance. They passed Krishnans of both sexes in bright clothes of extreme cut, the women for instance in gowns like those of ancient Crete on Earth, and walked through a long series of halls dimly lit by lanterns held in wall-brackets in the form of scaly dragonlike arms. Occasionally a page whizzed by on a scooter.

Hasselborg was beginning to wish for a bicycle when they halted at the entrance to a big official-looking room. At the far end he saw a man talking to another who sat on a raised seat—the dasht, no doubt. The major-domo whispered to another functionary. Other Rúzuma sat at desks along the walls or stood around as if for want of anything better to do.

The standing man bowed, put on his hat, and went over to one of the desks to talk to a man there. Then a drum rolled briefly, a horn went *blat,* and the functionary at the door cried: "Master Kavir bad-Ma'lum, the distinguished artist!"

Who ever said he was distinguished? thought Hasselborg. Maybe they were trained to do that to impress the yokels. During the long walk the figure of the dasht grew larger and larger. Hasselborg realized that he was a big fellow indeed, in all directions, with plump ruddy features and bulging green eyes behind thick-lensed spectacles; except for the glasses, altogether like the Krishnan version of a jolly medieval baron.

When Hasselborg reached the end of the line down the middle he doffed his hat, knelt, and cried: "I abase myself before Your Altitude!"

Evidently he'd done it right, for Djám bad-Koné said: "Rise, Master Kavir, and advance to kiss my hand. With this recommendation from my good friend Master Julio, all doors shall be open to you. What's your business in Rosíd?"

Djám's hand was noticeably dirty, so that the thought of kissing the germ-infested object almost made Hasselborg squirm. Still, he managed the ceremony without a visible tremor, saying:

"I have some small skill at portrait-painting, may it please Your Altitude, and thought you or some of your court might like their pictures painted."

"Hm-m-m. Have you mastered the new *ertsu* style?"

"I'm tolerably familiar with the methods of the Ertsuma, Your Altitude."

"Good. I may have a commission for you. Meanwhile feel free to frequent the court. By the way, how's your hunting?"

"I . . . I've had but small experience—"

"Excellent! My gentlemen pine for amusement, and you shall attend my hunt on the morrow. If you're truly not good at it, so much the better; 'twill afford the rest of us some honest laughter. Be at the lodge an hour before sunrise. It's been a pleasure meeting you."

Hasselborg gave the formula and backed along the line until he came to the crossline that indicated that he could turn and walk out forwards. As he did so, the drummer gave five ruffles and the bugler a toot after each. The doorman shouted:

"A message from His Supreme Awesomeness, the Dour of Gozashtand!"

Hasselborg stood aside to let the messenger by, then went in search of the Charon who had brought him in. He walked slowly, partly to appear at ease, and partly to watch the others to observe how they behaved. There was even a remote chance of stumbling upon Fallon and Julnar; at least one should keep one's eyes open—

He got lost for a while, wandering from room to room. In one room a pair of women were playing Krishnan checkers while other people kibitzed; in another, a group of Krishnans seemed to be rehearsing for a play. Finally Hasselborg entered a room where Krishnans were snaffling food from a buffet table. He tried some of the stuff cautiously, though the heavy perfume used by the Krishnans kept his appetite down.

"Try some of this," said his neighbor, a man in white satin. "You're the portrait painter, aren't you?"

"Why yes, sir, how did you know?"

"Gossip, gossip. My good sir, with neither war nor jury duty at the moment, how else can one occupy one's time?" Presently they were in friendly chit-chat about superficialities.

"I'm Ye'man," the Krishnan explained, as if everybody should know the patronymic and titles that went with his given name. "This ugly wight on my right is Sir Archman bad-Gavveq the glider champion. Paint him not; 'twill curdle your pigments, as the salt-demons curdled the Maraghé Sea in the myth. You should hear Saqqiz read his poem on the theme; a masterpiece in the old epic style—"

When he could get a word in, Hasselborg asked: "Who's the lady in the transparent blue outfit with hair to match?"

"That? Why, that would be Fouri bab-Vazid, of course. You know, old Hasté's niece. Could you not tell by the Western hue of her hair? There are various stories of the whys and wherefores of her staying here; whether that she's enamored of our good dasht, or promoting her uncle's cult, or spying for the dour— But you'll hear all that in due course. You'll be in on the hunt? We should have a good fall, not like last time, when the field crossed the

reach and the drum led porridge up the chimney—"

Since his companion's speech seemed to have become suddenly unintelligible, and since mention of hunting reminded him that he had preparations to make, Hasselborg excused himself and sought the exit. He found the major-domo in a kind of sentry box just inside the main entrance to the palace, whence he could keep an eye on the gate.

He said: "Thank you for your courtesy," and dropped a couple of silver karda into the man's hand. As the latter's expression implied that he'd guessed the size of the tip about right, he continued:

"I'd like to ask you some questions. The dasht just invited me to go hunting tomorrow, and being new here and no hunter anyway I don't know how to go about it. What do I need, and where's this lodge, and what's he going to hunt?"

"You'll need a hunting suit, sir, which you can get any good tailor to make you, though he'll have to hasten. His Altitude will probably hunt yekis, since the pair he kept for games died but lately. As for the lodge—"

Hasselborg copied down the directions, thinking that to one who had hunted the most dangerous game, man, riding out and spearing some poor animal would seem pretty stupid. However, orders were orders.

At the appointed hour Hasselborg presented himself at the dasht's hunting lodge, ten hoda outside the city. The rest of the previous day he had spent buying himself a hunting outfit and a saddle and bridle for Faroun, and moving his gear to another and he hoped a more reputable inn within the walls.

The hunting suit he had obtained ready-made from the Rosído. This swank establishment had also tried to sell him a wagonload of other equipment: a short hunting sword, a canteen, and so on, all of which he had refused. The suit was bad enough—an affair of shrieking yellow satiny material with indecently tight breeches that made Hasselborg feel as if he were made up to play the toreador in "Carmen."

Hasselborg heard the racket in front of the lodge long before he reached the spot. The gentlemen were sitting on their ayas in the half-light drinking mugs of kvad and all talking at once. It did Hasselborg little good to listen to them, because he found that hunting enthusiasts used a vocabulary of their own incomprehensible to outsiders.

Other characters ran about afoot in red suits, some struggling with a pack of six-legged *eshuna* the size of large dogs but much uglier. Somebody pressed a mug of kvad upon Hasselborg, who downed half of it before he had to stop to keep from gagging. The dasht, trotting past, shouted:

"I'll watch you, Master Painter! If you play not the man, I can always feed you to the yeki, ha ha ha!"

Hasselborg smiled dutifully. A group of servitors were wrestling with a great net and a set of poles that went with it; another pair was lugging out a rack in which were stuck a couple of dozen long lances. (They must import timber for their bows and spears, thought Hasselborg; this country seems to have few decent trees.) As the workmen set up the rack in front of the lodge, the hunters began guiding their mounts past it to pick out lances. As Hasselborg snatched his, he heard the dasht shouting behind him:

". . . and if I find some knave's slain our quarry without absolute necessity, I'll do to him what I did to Sir Daviran—"

Somebody blew a horn that sounded full of spit. The mess of men and animals pulled itself into formation and streamed out onto the road—eshuna and their handlers first, then hunters with their lances, then more servants with the net and other equipment like gongs and unlit torches.

The parade stretched itself out over a longer and longer piece of road as the eshuna pulled away from the hunters and they from the slower assistants in the rear. Hasselborg rode silently at a trot, his sword banging against his left leg, for it seemed an hour, though the sun had not yet risen.

"A good rally," said a vaguely familiar voice, and Ye'man, his smörgasbord acquaintance of the day before, pulled up alongside. "Let's hope the ball scrambles not in the beard."

"Yes, let's," said Hasselborg, not having the faintest notion of what the man meant. The loud voices died away leaving only the drumming of hoofs, the rattle of equipment, and the occasional mewing of the eshuna up front. Hasselborg, whose riding muscles had never got properly hardened at Novorecife, found the whole thing very tiresome.

As the sun came up in the egregious glory of a Krishnan sunrise, the hunt left the road and headed up a shallow valley. Hasselborg, in his first taste of cross-country riding, found that he had to pay full attention to simply staying in his seat. As the bigger animals of his fellow-hunters were pulling ahead, he spurred his aya to an occasional canter to keep pace.

On they went, up one gentle slope and down another, over cultivated fields—which wouldn't be of much use to their owners thereafter—and through brush. The hunt came to a low stone wall. Eshuna and aya flowed over it in graceful leaps—except Hasselborg's aya, which, having been trained for road work only, refused the jump, almost spilling its rider. As the rest of the party began to leave it behind, the animal galloped in a wide curve around the end of the wall and scurried to catch up. Hasselborg swore under his breath.

Next time he had to detour around a fence which the rest jumped. This was getting more tiresome every minute, though no doubt

his aya showed better sense than those that let themselves be forced to jump.

A horn blew raucous notes up front, and the eshuna gave a weird howl. Hasselborg could have sworn they howled in parts. Everybody broke into a run. Now Hasselborg found himself really falling behind. Another detour around a wall put him back among the servants.

At the next obstacle, he spurred his mount right at a fence, holding the reins tightly to keep it from turning, and letting go at the last minute as he'd been taught. The aya hesitated, then jumped. While Hasselborg went up with it all right, he kept on rising after the beast had started down, with disastrous results. In his fall he caromed off its rump into the moss.

For an instant he saw stars. The stars gave place to the bellies of the servants' aya leaping the wall after him. They looked as though they were coming right down on top of him with all six hoofs. However, somehow they all missed him.

Then as the universe stopped whirling he climbed to his feet. A sharp stone had bruised his fundament; he had bitten his tongue; his pants were burst open at the right knee; his sword belt had somehow got wound around his neck; and altogether he was not feeling his best.

The servants were disappearing over the next rise, and the notes of the horn and the weird howl of the eshuna died in the distance.

"Give me an automobile," he muttered, picking up his lance and limping toward his aya. Faroun, however, wanted a rest and a quiet graze. It stopped eating as he neared it, rolled an indignant eye, and trotted off.

"Come here, Faroun!" he said sternly. Faroun walked a little farther away.

"Come here!" he yelled, thinking: *I said it very loud and clear; I went and shouted in his ear . . . but no heed did the beast pay.* He was tempted to throw a stone at the perverse creature, but refrained for fear of driving it farther away.

He tried stalking. That did no good either, for the aya looked up between mouthfuls of moss and kept a safe distance between itself and its owner. Perhaps he'd just have to walk the animal until it tired. He plodded toward it grimly.

A Krishnan hour later he was still at this forlorn pursuit, when something erupted out of a little bushy hollow with a frightful roar and charged. Hasselborg had just time to swing the point of his lance toward this menace before it swerved and leaped upon the truant Faroun. There was a crunch of neck bones, and the aya was down with the newcomer standing over it. Hasselborg recognized the animal from descriptions as a yeki, the very beast they were after—a brown furry carnivore about the size of a tiger, but resembling an overgrown mink with an extra pair of legs to hold up its middle.

For a few seconds it stood watching Hasselborg and making guttural noises, as if wondering whether to drag off the dead aya or to try to dispose of this other prey, too. Then it slithered forward towards the man.

Hasselborg resisted the impulse to run, knowing that such a move would bring it on his back in a matter of seconds. He wished harder than ever for a gun. Since wishing failed to produce one, he gripped his lance in both hands and stepped towards the beast, shouting: "Get out of here!"

The yeki advanced another step, growling more loudly. Presently Hasselborg, still shouting, had the lance-point in the creature's face. As he thought of trying for an eye, the yeki reared up on its four hind legs and batted at the point with its forepaws. Hasselborg sent a jab into one paw, whereat the beast jumped back a step roaring furiously.

Hasselborg followed it, keeping his spear ready. How long could he keep this up? There was little chance of his killing it singlehanded—

Then the howl of the eshuna came across the downs. The hunt was flowing past behind a nearby rise. Hasselborg shouted: "Hey! I've got him!"

This was perhaps a debatable point, and in any case he did not seem to have been heard. He screamed: "Over here! Yoicks, tally-ho, and all that sort of thing!"

Somebody swerved over the crest of the rise, and then in no time they were all pounding towards him. The yeki began to slink off, snarling right and left. The eshuna swarmed around the yeki, howling like banshees but not closing, while their quarry roared and foamed and made little dashes at them.

Then the servants unfolded the net and four of them, still mounted, hoisted it by the corners on poles as if it were a canopy. They dashed forward and dropped the net over the yeki, who in another second was rolled up in it, chewing and clawing at the meshes in a frenzy of rage.

"Good work!" roared the dasht, clapping Hasselborg on the back so hard as almost to knock him down. "We'll have our game now after all. Your mount dead? Take mine. *Ao*, you!" he shouted at a servitor. "Give Master Kavir your aya. You, Kavir, keep the beast with my compliments, for the manful part you've played."

Hasselborg was too conscious of his bruises to worry about how the servitor should get back to Rosid. He salvaged his saddle, mounted, and rode home with the rest, acknowledging their praises with smiles but saying little. When they got back to the road they passed a big bishtar wagon driven by men in Djám's livery; evidently to bring home the captive.

The dasht told him: "We're having an intimate supper this night; third hour after sunset. But a few friends—you know, people like Namaksari the actress and Chinishk the astrologist. Come and we'll talk of that portrait, will you?"

"I thank Your Altitude," said Hasselborg.

Back in Rosíd he spent some time window-shopping. Although he knew better than to load himself down with more chattels than he absolutely needed, the temptations of Batruni's unlimited expense account proved too great. He arrived back at his hotel bearing an umbrella with a curiously wrought handle, a small telescope, a map of the Gozashtando Empire, and an ugly little ivory god from some backward part of the planet. When he got home—after wasting another hour by getting lost in the crooked streets—he felt sticky and suspected himself of being stinky as well, not having had a bath since leaving Novorecife.

When he asked the landlord about baths, the latter referred him to a public bathhouse down the street. He went down to have a look at the place, identified by a sea shell big enough for a bathtub over the door. He paid his way in, then found to his dismay that the bath customs of Rúz were much like those of Japan. While as an ex-married man he had no strong inhibitions along that line, a look at the male Krishnans convinced him that he'd never pass as one under those circumstances. For one thing, Krishnans had no navels.

He returned to his inn and told the landlord: "Sorry, chum, but I just remembered—I'm under a religious penance not to bathe in public. Could you furnish me with a tub and some hot water in my room?"

The landlord scratched the roots of his antennae and reckoned he could.

Hasselborg added: "Also I'd like some . . . uh—" What was the word for "soap"? "Never mind; I'll tell you later." He climbed the stairs on aching feet to consult his dictionary in private, learning that there was no such word in Gozashtandou. Evidently the stuff hadn't yet been invented. No wonder the Krishnans used perfume!

The scullery maids who arrived in a few minutes with tub, brush, and buckets of hot water showed an embarrassing interest in their guest's eccentricity; wanted to scrub his back and had to be curtly dismissed. He'd have to depend upon a prolonged soak and a vigorous scrub to dislodge dirt and deadly germs. No more soapless expeditions to strange planets for him, even if he had to smuggle the stuff past the Viagens' vigilance!

As soon as the water had cooled to a bearable temperature he lowered himself into it as far as he could go and settled the back of his head against one of the handles with a sigh of relief. Boy, that felt good on his poor beat-up feet! With a glance at the door to make sure the bolt was home, he burst into song. He had just gotten to:

> "He knew the world was round-o,
> He knew it could be found-o—"

when a loud knock interrupted him.

"Who's there?" he said.

"The Law! Open up!"

"Just a minute," he grumbled, getting out of his tub and trying to dry himself all over at once. What was he getting into now, in the name of Ahuramazda?

"Open right away or we'll break the door!"

Hasselborg groaned internally, wrapped the towel around himself, and slid back the bolt. A man in black entered, followed by two others in official-looking armor.

The first said: "You're arrested. Come."

VI.

"What for?" said Victor Hasselborg, looking as innocent as a plush teddy bear.

"You shall learn. Here, drop that sword! You think not that we let prisoners go armed, do you?"

"But somebody might steal—"

"Fear not; we'll set the seal of the dasht upon your door, so that if acquitted you'll find your gear intact. Not that you will be. Hasten, now."

The dasht, thought Hasselborg, must somehow have found out about his alteration of that letter from Góis. He was given little time for reflection, though, for they bundled him out of the hotel and onto a led aya. Then they set off at breakneck speed through the city, yelling *"Byant-hao!"* to clear their way.

The jail, about a block from the ducal palace, looked like—a jail. The jailer proved a wrinkled individual with one antenna missing.

"How now?" cried this one. "The gentleman from Novorecife, I'll be bound! Ye'll wish one of our better chambers, won't ye? A fine view of Master Raú's countinghouse, and the rates no higher than in some of

the more genteel inns, *heh heh*. What say ye, my fine lad?"

Hasselborg understood that he was being offered a cell to himself if he could pay for it, instead of being tossed in the general tank. He took the jailer up on his offer with only a slight haggle. While the jailer and the black-clad one fussed with papers, an assistant jailer led Hasselborg to his cell. This contained a chair, which was something, and being on the second story had fair lighting despite the smallness of the barred window. More importantly from Hasselborg's viewpoint, it seemed fairly clean, though he would still have given a lot to know whether the previous tenant had anything contagious.

He asked: "What's the head jailer's name?"

"Yeshram bad-Yeshram," replied the assistant jailer.

"Will you please tell him I'd like to see him at his convenience?"

The jailer arrived with disconcerting promptness, saying: "Look ye, Master Kavir, I'm no monster joying in the sufferings of my wards, like the giant Damghan in the legend, nor yet a saintly philanthropist putting their welfare ahead of my own. If they can pay for extras to lighten their last hours, why, say I, why not let 'em have 'em? I had Lord Hardiqásp in my personal charge for thirty ten-nights ere they headed him, and before they took him away he said: 'Yeshram, ye've made my captivity almost a pleasure!' Think of it! So fear not that if ye treat Yeshram right, obey the rules, not try to escape, not form seditions with the other prisoners, and pay your way, ye'll have little to complain of, *heh heh*."

"I understand," said Hasselborg. "Right now I most want information. Why am I here at all?"

"That I know not precisely, save that your indictment reads 'treason'."

"When am I to have a hearing? Do they let you have lawyers?"

"Why, as for your hearing, know ye not that ye're to be tried this afternoon?"

"When? Where?"

"The trial will take place in the chambers of justice, as of always. As to the precise time I can't tell ye; perchance the trial's beginning even now."

"You mean one doesn't attend one's own trial in Rúz?"

"Of course not, for what good would that do? Anything the prisoner said in his defense would be a lie, so why ask him?"

"Well then, when the trial's over, can you find out what happened?"

"For a consideration I can."

Left alone, Hasselborg wondered whether to unmask himself as an Earthman. They'd be at least a little more careful how they treated him. Or would they? At Novorecife they had specifically warned him not to count on any interplanetary prestige. Since the Interplanetary Council had ordered a policy of strict nonimperialism and noninterference

in Krishnan affairs, the native states did pretty much as they pleased to the Ertsuma in their midst. Sometimes they pleased to treat them with honor, and at other times they looked upon them as legitimate prey. When people protested some particularly atrocious outrage upon a visiting Earthman, the I. C. blandly replied that nobody compelled Earthmen to go there, did they?

Moreover such a revelation might jeopardize the success of Hasselborg's mission. Altogether he decided to stick to his rôle of Krishnan artist for the time being, at least until all its possibilities had been exhausted.

The jailer reported back: "It seems ye came hither with some letter from an Ertsu at Novorecife, saying ye be an artist or something. Well, now, that would have been all right, only this morning, while ye were out hunting with the dasht, who comes in but a messenger from this same Ertsu, with another letter. This letter would be about some other matter, some different thing entirely, ye see, but at the end of't the Ertsu puts in one little sentence, something like: 'Has that Mikardando spy I sent on to ye with a letter of introduction arrived yet, and if so what have ye done with him?' That makes the dasht suspicious, the gods blind me if it don't, and he takes the original letter—the one ye brought—and looks it over carefully, and sees where it looks like some knave's rubbed out part of the writing and put in some new words over the old. *Tsk, tsk,* ye spies must think our dasht a true simpleton."

"What happened at the trial?" asked Hasselborg.

"Oh, now, the dasht presented his evidence, and the lawyer for the defense said he could find nought to be said in your favor, no indeed he couldn't, so the court sentenced ye to be eaten in the game, day after tomorrow."

"You mean they're going to stick me in an arena with that yeki I helped catch?"

"Surely, surely, and great joke the dasht thought it, *heh, heh.* Not that I have aught against ye, Master Kavir, but it do seem like the gods taking a hand to blow up a man with his own firework, now don't it? But take it not too hard, lad, all must go when their candle's burnt down. Truly sorry am I to lose so fine a guest so soon, however; truly sorry."

I weep for you, the Walrus said; I deeply sympathize, thought Hasselborg. He said: "Never mind that. What happens at this game?"

"A parade, and fireworks, and a show at the stadium—races afoot and mounted, boxing and wrestling, you being eaten, and finally a battle between some tailed Koloftuma and some of our own condemned criminals with real weapons. That'll be an event worth waiting for; too bad ye'll not be there to see it!"

Though not a vain man, Hasselborg felt a slight pique at not being deemed good enough for the main attraction. "What's this game in celebration of?"

"Oh, now, some astrological conjunction; I misremember which. They come along every few tennights, that is the well-omened ones do, if ye believe in that star-gazing foolishness, and the apprentices quit work to riot in the streets and the dasht stages a big party for his court with a circus for the common folk."

"Do I fight this critter with weapons?"

"Oh, my honor, no! Ye might hurt the beast or even slay it. Time was when the victim was given a wooden pretend sword for the amusement of the people, but one of them—an Ertsu 'twas, too—hurt the eye of the favorite yeki of the dasht, so he ordered that thereafter they should be sent in with nought in their hands, *heh heh.* 'Tis quite a sight; blood all over the place."

Hasselborg leaned forward intently. "Did you say an Ertsu was eaten at one of these celebrations?"

"Aye, to be sure he was. What's so singular about that? 'Tis true it's been said in Rúz that the dasht ought to give special consideration to the Ertsuma, because, forsooth, 'tis rumored that they have weapons of such might that one of their fireworks would blot Rosíd off the face of the planet. But the dasht will have nought of't, saying, so long as he's Dasht of Rúz he'll see that justice is administered in the good old Rúzo way—nobles to have precedence over commoners, commoners over foreigners, and all over slaves. That way every wight knows where he stands and what he faces; start making exceptions, and where's justice? For isn't consistency the essence of justice? Though I be no doctor of laws, me seems he has the right of it, now don't he?"

Hasselborg looked at the ceiling in thought. Evidently the fact of his being an Earthman, if made known, might prove more a liability than an asset. "Yeshram, what would you do if you had . . . let's say a half-million karda?"

"Ohé! Think ye to befool me, Master Kavir? Ye've no such sum on your person, for we looked into that when ye came hither. That's a dasht's ransom. Let's talk sense, lad, in the little time ye have left."

"I'm serious. What would you do?"

"Truly I know not. Quit this dirty post, surely. Buy up some estates and have a try at being a gentleman. Perhaps even get my eldest male-chick knighted in time. I know not. There's hardly a limit to what one could do with so vast a sum. But tantalize me not or I'll take it ill."

"Even if I don't have that much on me, I might be able to get hold of it."

"So? Tell me not that besides being a spy and a picture painter, ye're a spinner of fine tales of fire-breathing dragons and invisible castles to boot?"

"No, this is no romance. I've got a letter of credit on deposit at Novorecife that's worth that amount, and if somebody could get me out of

here I'd naturally be willing to pay liberally."

Now the jailer was thoughtful. "But how could I get this money? How can I be sure 'tis there to be had?"

"You'd have to send somebody to fetch it. Let me see—I know who'd be glad to go—a trooper of the highway patrol named Garmsel bad-Manyao. If you can get word to him he'll ride day and night to Novorecife with a draft from me on that letter."

The jailer made the negative head-motion. "I see difficulties, lad. We'd have to fake a delivery, ye see, and that means letting more people into the scheme and paying them off. Then, too, no matter how fast this soldier friend of yours rode, he couldn't make Novorecife and back by the time you were down the yeki's gullet. Moreover, if ye didn't appear for the games the dasht would have my head for it, or at least my post. No, I couldn't chance it, especially I couldn't chance it before I had the money in hand. Once I had it in hand, of course, I'd defy any wight but the dasht himself."

After they had brooded in silence a while, the jailer resumed: "Perhaps I can get ye through the games alive, despite all. Yeshram has a scheme. If ye'll give me the draft now, I'll do my best, and if I fail, ye'll have no use for gold anyway, will ye now?"

Hasselborg, disinclined to trust the jailer so far, countered: "Tell you what. I'll write you a draft for a quarter-million karda now, and another quarter-million when I get out."

"But how know I ye'll pay me the second half, once ye're free and fleeing with the eshuna baying on your track?"

"How do I know you'll get me out once you get your hands on the first instalment? Wouldn't you be happier with me inside the yeki and so unable to expose our little deal? Not that I distrust you, Master Yeshram, but you see how it is. You trust me, I trust you. Whereas if we fail to agree and I get eaten, you'll have nothing but what I've got on me, which won't set you up in any baronial splendor."

They haggled for an hour before Hasselborg won his points. Yeshram, for instance, wanted a half-million net, while Hasselborg insisted on a half-million gross, out of which Yeshram would have to pay such other bribes as proved necessary.

Finally Hasselborg wrote his draft, saying: "What's this scheme of yours?"

"I mislike to tell ye, since a secret known to many is no secret at all, as it says in the Proverbs of Néhavend. Howsomever, do but face the beast boldly and ye'll find him perchance less inclined to devour ye than is his wont."

Then Hasselborg had the excruciating experience of waiting for two Krishnan days and nights until the time neared for his execution. He tried to read a textbook on Gozash-

tando law which Yeshram furnished him, but found it tough going—the law here was mostly precedent, and Hasselborg was not fluent enough in the written language yet to read it with any ease. He paced, smoked, ate little, and spent half-hours gazing sentimentally at Alexandra's tiny handkerchief.

He also kept sending the assistant jailer out to ask if there were any news from Trooper Garmsel yet. He knew there wouldn't be, but couldn't help hoping for a miracle. He got some small comfort out of the fact that he had exercised enough self-control to strike this bargain with Yeshram for less than half the total amount his letter of credit had been good for; there had been a time, when Yeshram was hesitating, when he'd been strongly tempted to throw the entire amount at the jailer, though he knew that would be money wasted.

The second afternoon after his arrival, Yeshram came in, saying: "Be ye ready? Courage, my master. No, no, for the hundredth time, no news. Garmsel would need a glider towed by trained aqebats, like Prince Bourudjird in the legend, to have got back by now. Why shake ye so? I run a risk like yours, don't I?"

They loaded Hasselborg into a kind of cage on wheels, and drove it across the city to the stadium. Armed men let him out and led him to a room under the tiers of seats, where they watched him silently while noises of the entertainments filtered in from outside. One said to the other:

"The crowd's in a bad mood today."

"A dull performance," said the other man. "They do say the dasht has been too much wrapped up in his love-life to put the care he should upon the events."

Then silence again. Hasselborg lit a Krishnan cigar and offered one to each of his guards, who took them with a grunt of thanks.

More waiting.

At last a man stuck his head in the door and said: "Time!"

The guards nodded to Hasselborg, one saying: "Leave your jacket here. Stand up and let us search you." After a last-minute frisk they led him into one of the tunnels connecting the dressing rooms with the arena.

At the end of the tunnel was a heavy gate of criss-crossed iron bars. A man swung it open with a creak. Hasselborg looked back. The guards had a tight grip on their halberds in case he should get any funny ideas about bolting.

Hasselborg, seeing no alternative, stuck his thumbs into his belt and strolled out into the arena with elaborate unconcern.

The place reminded him of some of the bowls he'd played football in years before as a college undergraduate; he'd played fullback. However, this arena was a bit too small for football, more like a bull ring than a North American athletic theater. The seats pitched down at a steep

angle. The floor was sunk a good twenty feet below the lowest tier of seats so that there would be no question of a mighty leap into the audience. In front of the first row of seats, guards paced a catwalk. Could he somehow get one of those halberds and do a pole vault up to the catwalk? Not likely, especially for one who, while something of an athlete in his day, had never practiced pole-vaulting.

The sky was overcast, and a dank wind whipped the pennons on the flagpoles around the upper edge of the stadium. The dasht sat in his box, wrapped in his cloak, and too high up for his expression to be seen.

As the gate clanged shut behind Hasselborg, he saw a gate on the far side of the arena open and his friend the yeki issue from another tunnel.

The people in the stands gave a subdued roar. Hasselborg, facing this particular jabberwock without any vorpal sword, stood perfectly still. If Yeshram had had a bright idea, let it work now!

The yeki padded slowly forward, then stopped and looked about it. It looked at Hassselborg; it looked at the people above it in the audience. It grumbled, walked a few paces in a circle, flopped down on the sand, yawned, and closed its eyes.

Hasselborg stood still.

The audience began to make crowd-noises, louder and louder. Hasselborg could catch occasional phrases, the rough Gozashtandou equivalent of "Kill dose bums!" Objects began to whizz down into the arena—a jug, a seat cushion.

Here a couple of Gozashtanduma were punching each other; there another was throwing vegetables in the direction of the dasht's box; there some more were pushing one of the guards off the catwalk. The guard landed in the sand with a jangle, got up with an agility astonishing for one burdened with full armor, and ran for the nearest exit, though the yeki merely rolled an eye at him before shutting it again. Another guard was beating a group of enraged citizens over the head with the shaft of his halberd. Other members of the audience were prying up the wooden benches and making a fire.

"Master Kavir," cried a voice over the uproar, "this way!"

Hasselborg turned, saw that the barred gate was open a crack, and walked quickly out without waiting to see how the riot developed. One of the assistant jailers shut the gate behind him.

"Come quickly, sir." He followed the man out of the warren of passages into the street, where they put him back into the cage on wheels. Thunder rumbled overhead as the conveyance rattled on its springless wheels over the cobbles back toward the jail. They were nearly there when the rain began. The driver lashed his ayas and yelled *"Byant-hao!"* Hasselborg could only huddle in the cage and take it.

"We did it, *heh heh,*" said Yeshram afterward.

"How?" asked Hasselborg, who was rigging a string across his cell to hang his wet clothes on.

"Well, now, then, I suppose 'twill do no great harm to tell ye, since the deed's done and if one's betrayed all are lost. 'Twas simple enough; I bribed Rrafun the beast-keeper into keeping the yeki awake all night by squirting water into its cage. Then I prevailed upon him to let it eat an entire boar unha just before the game. So, to make a long story short, 'twas far more interested in sleep, sweet sleep, than in forcing one Mikardando spy into an already overstuffed paunch. Be ye adequately equipped for blankets? I'd not have ye perish of the rheum owing me half my reward. Let's hope Garmsel makes a speedy return, ere the dasht things to look into his pet's curious lack of appetite."

However, the rest of that day passed, and the night that followed it, without word from either the soldier or the dasht. Hasselborg tried to console himself with the thought that another of these games wouldn't be along for some days at least, until the next conjunction— Though no doubt if sufficiently annoyed Djám could have Hasselborg executed out of hand.

After dinner there were sounds of voices and movement in the jail. Presently Yeshram came in with Garmsel, the latter wet and worn-looking.

"You still live, Master Kavir?" said the latter. "Thank the stars! I believed it not when this knave, my friend Yeshram, said so, for 'tis notorious that of all slippery liars he's the chief and slipperiest. At least now I'll not have to worry about my death horoscope for a time."

"What's this?" asked Yeshram. "What death horoscope?"

"Just a private understanding between Garmsel and myself," said Hasselborg, who didn't want the soldier's faith in the pseudo-science undermined by the jailer's skepticism. "How'd you make out?"

"I got it," said Garmsel. "The ride to Novorecife I made in record time on my good shomal, but coming back I was slowed by having to lead three great stout pack-ayas behind me with the bags of gold. 'Tis in the foyer below, and I trust there'll be no unseemly forgetting my just recompense for this deed."

"When has Yeshram forgotten a faithful friend?" said Yeshram.

"Never, the reason being you've never had one. But come; pay me my due and I'll back to barracks to dry. *Fointsaq,* what weather!"

When Yeshram returned to Hasselborg's cell, the prisoner said: "Since it's still raining, wouldn't this be a good night to get me out of here?"

The jailer hesitated. Hasselborg read into the hesitation a feeling that now that he had the money it might be safer to hold Hasselborg after all rather than risk his present gain in trying to double it. Careful, Hasselborg told himself; whatever you do, don't show despair or fly into a rage.

Hasselborg said: "Think, my

friend. As you've said, the dasht may do some investigating sooner or later. Something seems to have interfered with it so far, and rumor tells me he's having love-life trouble. Now, when he does come around, wouldn't you rather have me far away from here, making arrangements to send you another quarter-million, than here where the dasht can lay his red-hot pincers on me and perhaps wring the truth from me?"

"Certainly, such was my idea, too," said Yeshram readily—a little too readily, Hasselborg thought. "I but pondered how to effect this desired end of ours. Ye'll want your gear, won't ye? 'Twere not prudent to leave bits of it lying about Rosíd for the agents of His Altitude to find and perhaps trace ye by. What stuff have ye, and where's it stowed?"

Hasselborg gave him the information.

Yeshram said: "Clothe yourself for a speedy departure, lad, and try to snatch some sleep, for the arrangements will take some hours to perfect. By which road would ye wish to flee?"

"The road to Hershíd, I think."

"Then leave all to Yeshram. We'll have ye out as neat as the Gavéhon thief spirited away King Sabzavarr's daughter. And if ye get clean away, when ye're feeling that wonderful relief that'll be yours, think whether Yeshram mayhap deserves not a mite extra for his trouble, *heh heh.* May the stars guide ye."

Next to Earthmen, perhaps the most mercenary race in the galaxy, thought Hasselborg. He found that his physical organism perversely refused to sleep, however. He tossed on his bunk, paced the floor, and tossed some more. His sleeping pills were still in his room at the inn and so out of reach. Over half this interminable night must have gone past when to his delight he at last found himself getting sleepy. He threw himself down on the bed, closed his eyes, and instantly was aroused by the opening of the door of his cell.

"Come," said a figure holding a candle.

Hasselborg jumped up, whipped his cloak around him, and strode out the door. As he got closer to the figure, he saw that it was masked and that it held a cocked crossbow in one hand. As he brushed past he was sure that he recognized the eyes of one of the assistant jailers. The size and voice were right, too. However, no time for that now.

Below, he found another masked man standing guard with a crossbow over the jailer and his remaining assistant, both thoroughly bound and gagged. Yeshram caught Hasselborg's eye and wiggled his antennae in the Krishnan equivalent of a wink. Then out they went into the rain, where a man held three saddled ayas.

Hasselborg's companions stopped to uncock their bows and remove their masks. They were two of the assistant jailers, sure enough. All three, without a word, mounted and

set off at a canter for the east gate.

Hasselborg, practically blind in the rain and darkness, hung onto his saddle, expecting every minute to be thrown out or to have his mount skid and fall on the wet stones. He concentrated so hard on keeping his seat that he did not see his companions pull up at the gate. When his own mount stopped too he almost did take a header.

One of his deliverers was shouting at a spearman: "Fool, where is he? Who? Why, the prisoner who escaped from the jail! He came through here! If ye caught him not, that means he's out of Rosíd and away! Stand aside, idiots!"

The gate swung open. Hasselborg's escort spurred their animals to a furious run, though how they could see where they were going mystified the investigator. He bounced along behind them as best he could, barely able to make them out in the murk. A glob of soft mud thrown up by one of their hoofs smote him in the face, spreading over his features and for a few minutes cutting him off entirely from the world. By the time he could see again, they were just visible ahead, and the lanterns of the city gate could no longer be seen behind.

After a few minutes more of this torture, one of them held up an arm and they slowed. Before he knew it, Hasselborg came upon his buggy, parked on the edge of the road. A man was holding the head of his new aya, which was already hitched up.

"Here ye are, Master Kavir," said a voice in the dark. "Ye'll find your gear in the back of the carriage; we packed it as best we could. Waste no time on the way, and show no lights, for a pursuit might be sent after ye. May the stars watch over ye!"

"Good night, chums," said Hasselborg, handing over the reins of the aya he had ridden to the man who was holding the carriage. The man swung into the saddle and all three splashed off into the dark.

Hasselborg got into the buggy, gathered up reins and whip, released the brake, and started off at the fastest pace he could manage without blundering off the road—a slow walk.

VII.

When the sky began to lighten, Hasselborg had been alternately dozing and then waking up just in time to stop himself from falling out of the vehicle. He had discovered one of the very few advantages that an animal-drawn vehicle has over an automobile—that the animal can be trusted not to run off the road the second the driver takes his mind off his business.

The rain had stopped, though the sky was still overcast. Hasselborg yawned, stretched, and felt monstrously hungry. No, his friends of the Rosíd jail, who had thought of so much else, hadn't thought to provision the buggy with food; moreover no villages were in sight. Thank the pantheon they'd packed his pills and disinfectants, without which he felt himself but half a man!

He whipped his new aya, Avvaú by name, to a brisk trot and for some hours rolled steadily over the flat plain. Finally a ranchhouse provided him with a meal. He bought some extra food to take with him, drove on a few miles, and pulled up where the road dipped down to a ford across a shallow stream. He forced the aya to draw the buggy downstream around the first bend, where the walls of the gully hid him and his vehicle from the view of the road. There he caught an uneasy nap in the carriage before going on.

Just before sunset the clouds began to break. The road was now bending and weaving around the end of a range of rugged hills: the Kodum Hills if he remembered his map. Here were trees—real trees, even if they did look like overgrown asparagus-ferns with green trunks and rust-red fronds.

The sunset grew more gorgeous by the minute, the undersides of the clouds displaying every hue from purple to gold, and emerald sky showing between. Hasselborg thought: If I'm supposed to be an artist, maybe I should learn to act like one. What would an artist do in a case like this? Why, stop the buggy on the top of a rise and make a color-sketch of the sunset, to be turned into a complete painting at leisure.

The aya was trotting toward just such a rise—a long spur that projected out from the dark Kodum Hills into the flat plain. The animal

slowed to a walk as it breasted the slope, while Hasselborg fussed with his gear to extract his painting equipment. Just short of the crest he pulled on the reins and set the brake. The aya began munching moss as Hasselborg got out and dragged his easel up to the top of the rise. As his head came above the crest, so that he could see over the spur into the plain beyond, he stopped short, all thoughts of surpassing Claude Monet driven from his head.

There on the plain ahead a dozen men on ayas and shomals were attacking a group of vehicles. The attackers were riding up one side and down the other shooting arrows, while several men in the convoy shot back. The first vehicle had been a great bishtar cart, but the bishtar, perhaps stung by an arrow, had demolished the cart with kicks and gone trumpeting off across the plain.

Hasselborg dropped his easel and snatched out the little telescope he had bought in Rosíd. With that he could make out details—one of the defenders lying on the ground beside one of the wagons; another lighting a Krishnan firework resembling a Roman candle. (Hasselborg knew that the Krishnan pyrotechnic was, not gunpowder, but the collected spores of some plant, which, while it did not explode, made a fine sizzle and flare when ignited.) The firework spat several balls of flame, whereupon the movement of the attackers became irregular. One shomal, perhaps singed by a fireball, broke away and ran across the plain towards Hasselborg, who could see its rider kicking and hauling in a vain effort to turn it back.

Shifting his telescope back to the convoy, Hasselborg saw a female Krishnan in the last carriage. Though she was too far to recognize in the fading light, he could see that she wore clothes of good cut and quality. She was also of an attractive size and shape, and seemed to be shouting something to somebody up forward.

Although Victor Hasselborg was a seasoned and self-controlled man who seldom let himself be carried away by emotion, this time his adrenal glands took the bit in their teeth and ran away with him. Even as he told himself sternly that he ought to hide until the fracas was over and then continue quietly to Hershíd, he ran back to the carriage, unhitched the aya—he was getting fairly expert with harness—got his saddle out of the buggy, took off the animal's harness, saddled and bridled the beast, buckled on his sword, mounted, spurred the aya, and headed for the fray as fast as the animal's six legs would carry him, as if he were the legendary Krishnan hero Qarar out to slay a slither of dragons.

The robber whose shomal had run away with him had finally got his animal under control and turned it back toward the convoy. Therefore he did not see Hasselborg until the latter was almost upon him, when

the sound of hoofs behind him made him turn. He was just reaching for an arrow when Hasselborg took him in the ribs with his sword from behind. Not quite sporting, thought Hasselborg, but this is no time for chivalry. The blade went in clear to the hilt. Unfortunately the aya carried Hasselborg past so fast that the handle was wrenched out of his hand before he had time to withdraw the blade from his victim's body.

And there he was, riding full-tilt and weaponless towards the convoy. Resistance had died down. One man was tearing off across the plain with a couple of robbers after him, while another fenced with three more from aya-back. The other robbers were busy with the remaining people of the convoy, binding those who had fallen to their knees and subduing those who had not. The woman was still standing in the rearmost vehicle, as if waiting for the first robber who felt so-minded to ride by and scoop her up.

Hasselborg headed for her, calling: "I'll try to get you away!" As he came nearer he saw that she was young and beautiful, with the light-blue hair of the western races.

She hesitated as he held out an arm, then let herself be lifted down onto the back of the aya behind Hasselborg. He spun his mount and headed back the way he had come as a chorus of shouts told him that the robbers did not intend to let this act go unnoticed.

While Hasselborg wondered how to get out of the predicament into which his impulse had plunged him, his aya carried him past the robber he had run through. This Krishnan had fallen off his shomal and was crawling on all fours with the hilt of the sword sticking out of his back. Hasselborg, feeling that he was likely to need a whole arsenal of weapons in the next few minutes, reached down and retrieved his sword. I ought to have a movie film of that stunt, he thought; anybody'd think I planned it that way.

"Here comes one," said the woman. Hasselborg looked around to see another robber riding hard at him.

He said: "Hold on!" and put his mount into a sharp curve, leaning inward as he did so. These six-legged creatures could certainly turn on a dime, he thought. The robber pulled up a little, as if surprised to see a supposedly unarmed man suddenly whirl and charge him with a sword.

As Hasselborg went by, too excited to remember to thrust, he aimed an overhead cut at the robber's head. Too late he realized that he'd probably break his blade on the man's iron hat. But Da'vi, the Krishnan goddess of luck, was still with him, for the blow missed by just enough to shear off an ear and come down between neck and shoulder. The man dropped his mace with a howl.

"You'd better hurry," said the girl. A glance showed that at least three other bandits were riding toward them.

Hasselborg turned again and resumed his flight, wishing he had

some shrewd plan of escape all figured out, instead of being in a kind of exalted confusion and anxiety. Still, if he could make the hills before they caught him, he'd have an advantage on rough ground over those on the long-legged shomals, and might give them the slip in the darkness.

Hasselborg's aya loped up the slope of the rise. A glance back showed that the pursuers were gaining, since Hasselborg's beast was slowed by its double load even though it was one of the dasht's big hunting breed. Something went past with a faint whistling screech. Some flying creature of the night? No; as the sound was repeated, Hasselborg realized that they were shooting arrows at him. He pulled Avvaú off the road and headed cross-country up into the wooded crest of the ridge; no use leading them right to his carriage. Another arrow clattered among the branches.

"Are they gaining?" he said.

"I . . . I think not."

"Hold on tight."

Hasselborg's own heart was in his mouth as the animal leaped fallen logs, dropped out from under him as it took a dip, and swerved to avoid trees. He clamped the beast's barrel with his knees, leaned right and left, and ducked branches that were upon him almost before he could see them. He thanked Providence that the hunt and the flight from Rosíd had given him at least a little practice at rough riding. The aya stumbled a couple of times, and Hasselborg blessed its six legs as it recovered each time without dropping its riders.

A crash from behind and a volley of shrill curses. "One of the shomals fell," said the girl.

"Good. Hope the rider broke his fertilizing neck. If it gets dark enough—"

They must have reached the base of the spur, where the land rose and fell irregularly in all directions. Hasselborg pulled to the right down a shallow draw. The animal crashed through a thicket that tore at its riders' legs; then up—down—left—right— The aya almost spilled them as it ran head-on into a sapling in the darkness. To his horror Hasselborg felt his saddle, put on in such haste, beginning to slip out of place.

"I think we've escaped them," said the girl.

Hasselborg halted the aya and listened for sounds of pursuit over the heavy breathing of the animal. A distant crashing and the sound of voices came faintly, but after several minutes the noise seemed to be dying away altogether.

Hasselborg dismounted stiffly and helped the girl down, saying: "Haven't I met you somewhere?"

"How know I? Who are you, that goes about rescuing damsels in distress?"

"I'm Kavir bad-Ma'lum, the painter," he said, adjusting the girths. He seemed to have got half the straps buckled together wrong.

"So? I heard of you at the court of the dasht."

"I know where I saw you! Somebody pointed you out to me at the court as Fouri bab-Something."

"I'm Vazid's daughter."

"That's right, bab-Vazid. And you're somebody's niece, aren't you?"

"You must mean my uncle Hasté. Hasté bad-Labbadé. You know, the high priest."

"Sure." He wasn't, but no matter. Trot out the courtly manner. "I'm glad I was of service to Your Ladyship, though I'd rather we'd met under less strenuous circumstances. Were you on your way home from Rosíd?"

"Yes; I but came thither to visit my friend the Lady Qéi, and since the dasht made himself unpleasant, I thought it time to go home to uncle. Charrasp the merchant had collected a group to take the new tabid crop to Hershíd before the price dropped, and some people of quality had elected to go with him for safety. So, thought I, why not go at once? I hope no ill came to my man and my maid, who were with me. What do we now?"

"Try to find our way back to the road, I suppose."

"What then?"

"If my buggy's still there we'll hitch it up and ride into Hershíd in it. Otherwise we'll have to ride pillion all the way."

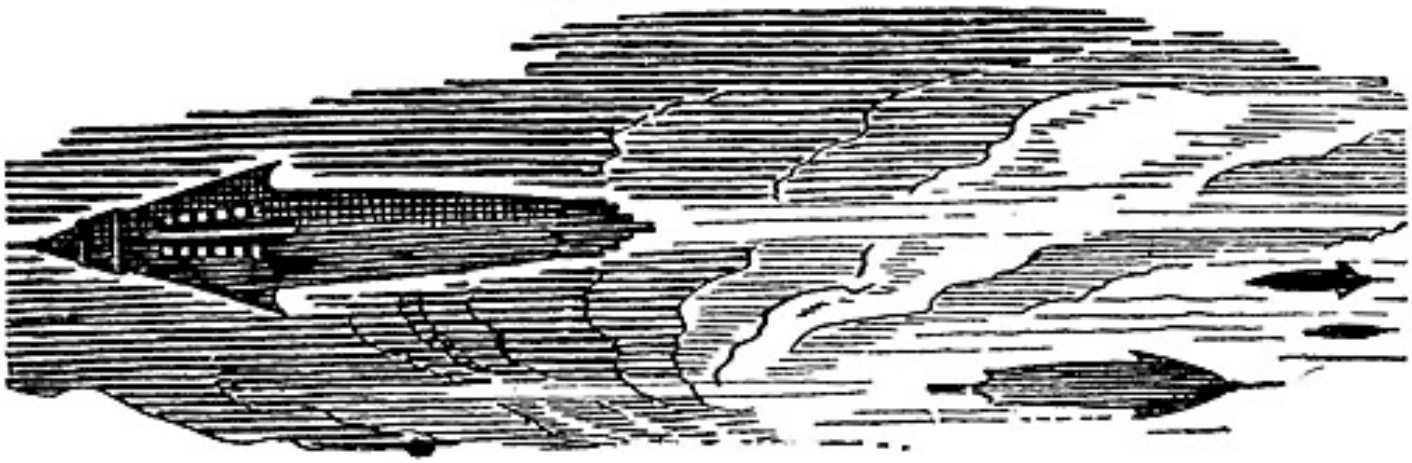
"Whither lies the road?"

"Maybe the stars know, but I don't." He listened, hearing nothing but the breathing of three pairs of lungs. While one of the three moons was up, the sky was still partly cloudy, so that the moonlight came through in fitful beams only.

"Seems to me," he mused, "that we came down this little valley after running along that ridge to the left—"

He started up the draw, leading Fouri with one hand and the aya with the other. He proceeded cautiously, watching for obstacles and listening for robbers. He led them along the ridge he thought they had come by, then along another branching off from it—and realized that the terrain was quite unfamiliar.

TO BE CONCLUDED



A MATTER OF MATTER

BY L. RON HUBBARD

There have been small-time real-estate swindlers, but in a galactic economy, the man who sells planets wholesale will do it up brown. Like, for instance, selling the sucker a planet he can't even sit down on!

Illustrated by Cartier

You have seen the gaudy little shops along Broadway. Well, this is a warning not to patronize them.

Planets can be bought perfectly legally from the Interior Department of the Outer Galactic Control and you don't have to follow up the ads you read and hear over the radio, for no matter what they say, there is many a man who would be in much better health today if he had not succumbed to:

IT'S A POOR MAN
WHO ISN'T KING
IN SOME CORNER.
EMPIRES FOR A PITTANCE
THRONES FOR A MITE.
Easy Payments, Nothing Down
Honest Mike

It sounds so simple, it is so simple. Who would not be an Earthman in this vital day? But who would be a fool?

Chuck Lambert was not exactly a fool. He was top-heavy. He let his imagination sweep away all such things as petty logic, shaped up the facts into something which satisfied his dreams and went merrily along, auto-blinded to anything which shadowed what he wanted to believe. Lady Luck, that mischievous character, is sometimes patient with a fool—and sometimes she loads with buckshot and lets him have it.

When he was eighteen Chuck Lambert, having precociously finished college, got a job moving packing cases and found, after six months of it, that his boss, a septigenarian named Coley, received exactly three dollars a day more than Chuck and had had to wait forty years for his advancement. This was a blow. Chuck had visions of being president of the company at the age of twenty-four until he discovered this. The president was taking some glandular

series or other and was already ninety and would live another hundred years.

Discouragement lasted just long enough to call Chuck's attention to Madman Murphy, the King of Planetary Realtors whose magnificent display, smooth conversation, personal pounciness and assumption that Chuck had decided before he had closed a deal, opened wide the gates to glory.

Chuck was to work hard and invest every dime he could scrape into Project 19453X. This included, when it was at last paid for, a full and clear deed of title, properly recorded and inviolate to the end of time to heirs and assigns forever, to the Planet 19453X. Murphy threw in as the clincher, free rental of a Star-Jumper IV and all supplies for the initial trip.

When he was out on the sidewalk, Chuck suddenly realized that it was going to take him eleven years of very hard work to pay for that planet, providing he starved himself the while and had no dates, and he went back in to reason with Madman Murphy.

"Look, Mr. Murphy, it listens to reasons that all these minerals and things are worth a lot more than the price. I'm more valuable *on* that planet than I am here working as a clerk. Now what I propose—"

"Young-man, I congratulate you!" said Murphy. "I envy your youth and prospects! God speed and bless you!" And he answered the phone.

An aide took Chuck back to the walk and let him reel home on his own steam. He couldn't afford now, an airlift. He had eleven long years before him when he couldn't afford one. He was perfectly free to walk unless his shoes wore out—no provision having been made to replace them in this budget of eighty percent of pay. He was particularly cheered when the aide said, "Just to stiffen your resolution, and for no other reason because Madman Murphy really likes you, you understand that this is no provisional contract. If you don't pay, we garnishee your pay for the period and keep the planet, too. That's the law and we're sorry for it. Now, God bless you and good-by."

Chuck didn't need blessings as much as he needed help. It was going to be a very long and gruesome servitude.

As the months drifted off the calendar and became years, Chuck Lambert still had his literature to console him but nothing else. It is no wonder that he became a little lopsided about Planet 19453X.

He had a brochure which had one photograph in it and a mimeographed sheet full of adjectives and if the photograph was not definitely of his planet and if the adjectives did not add into anything specific, they cheered him in his drudgery.

Earth, at this time, had a million or more planets at its disposal, several hundred thousand of them habitable and only a hundred and fifty colonized. The total revenue


CARTIER

derived by Earth from these odds and ends of astronomy was not from the colonies but from the sale of land to colonists. The normal price of land, being about one and one half cents an acre, on New World was a fair average price for all properly colonized planets. Unsurveyed orbs, nebulously labeled, "Believed habitable" were scattered over the star charts like wheat in a granary.

On the normal, colonized planet, Earth's various companies maintained "stations" where supplies, a doctor and a government of sorts were available. On Planet 19453X there would be no doctor, no supplies, and no government except Chuck Lambert.

He realized this in his interminable evenings when he sat, dateless, surrounded by technical books, atlases and dirty tea cups. The more he read of the difficulties overcome by the early colonizers on warrantedly habitable planets, the thinner his own project began to seem.

He would cheer himself at these times by the thought that the whole thing was only costing him twenty-five thousand dollars and blind himself to the fact that better known bargains often went for two hundred fifty dollars on the government auction block. Chuck was top-heavy with imagination. He let it be his entire compass.

At the end of three years he had made a great deal of progress. The librarian had come to know him. She was a pleasant young thing who had her own share of imagination —and troubles—and it gave her pleasure to dredge up new books for Chuck to imbibe. Her guidance —her name was Isabel—and his voracity put him through medicine by the time four years had passed, electronics by five and a half, geology by six, minerology by seven, government theory by seven and a quarter, space navigation by eight, surveying by nine and all the rest of the odds and ends by eleven.

She was rather good looking, and when she had finally lost her first, elementary desire to marry a millionaire, she began to understand that she was in love with Chuck. After all, when you spend eleven years helping an ambitious young man to plow through a dream, you are likely to be interested in him.

She would have gone with him without another thought if he had asked her. But his last visit to the library was a very formal one. He was carrying a bouquet and he said a little speech.

"Isabel, I hope some day to prove a worthy investment of your time. I hope to be able to bring you a three-headed butler or maybe a dog in a match box to show my appreciation of your interest. Tomorrow I am faring forth. Good-by."

This was all with some embarrassment. He wanted to ask her but he was afraid of her a little, libraries having that air.

She took the bouquet and suddenly realized she was liable to cry. She wanted to say something close and intimate, something to cheer him

in his great adventure, something he could hold in his heart when the days and nights were lonely. But all she managed was a thank you because a child with a runny nose was clamoring to be heard on the subject of having lost his last book.

Chuck went away. When he reached the steps and the moldy dignity of dead men's immortality no longer gripped him, he suddenly expanded. He was almost off on his great adventure. He would come back and lay a planet at her feet—or at least would invite her to one. He would catch her out of the library and propose to her and they would found a race of kings quite unlike the youngster with the runny nose.

He expanded and his dreams got bigger as he walked. He went down to the company and, with something of a grand air—spoiled a little because everyone was so busy—said that he was off tomorrow for Planet 19453X and glory. The girl gave him his time and asked him, after he had told her about his voyage, what his forwarding address would be. He started to explain that he was off for beyond beyond and would have gone far when he saw by her fixed, polite smile that she hadn't heard a word he said.

But there was still Murphy. In the morning when he came down to the office he expected his hand to be pumped, a bottle of champagne to be broken across his space helmet and ribbons to be cut. Instead he found a sallow-faced, bored clerk reading a racing form and the clerk had never heard of him. Madman Murphy never came in on Saturdays.

Chuck went into a passionate explanation and the clerk finally consented to look in the files. He did this with such a superior air that Chuck almost murdered him.

The contract was found, the payments were checked, the clerk was finally satisfied—if somewhat surprised, for the number of such that were finally paid out were quite few—and called a man named Joe to tell him that a Star-Jumper IV was to be placed at the disposal of one Chuck Lambert.

Chuck took his deed, checked the notary's commission, checked the description, checked the location and in short wore the clerk's patience entirely out. Finally Chuck took it and went to the registry office, which was closed.

The janitor, however, proved of aid and informed him that he could send it in by registered mail, retaining a photostat. Chuck thanked him and was not further balked, for a lithographer was near at hand and eager for business.

At the port, Chuck landed with his light luggage, left it under cover from the light drizzle which had begun, and went to find Joe. It took six searched hangars and a coffee shop to locate the greaseball and then it seemed that Joe had thought the ship was to be ready for Tuesday. However, much pressing got consent for today.

The next six hours were worse than the past eleven years. Chuck was here, so very near his goal, that seconds stretched out into light-years for him. What constituted his grand gesture was all muddled up and tangled with a number of details like Joe needing another cup of coffee and the starboard magnetrons being worn out on the Star-Jumper and having to be replaced and the hydraulic jack which wouldn't function and after an hour's repair had to be abandoned for another one which had stood right there all the time.

If Chuck had not got out of that port that afternoon he would have died of apoplexy, youth or no youth.

He was almost ready, the ship was finished, the port clearance secured and Joe given a final cup of coffee when he found out that the food supplies he had had shipped to the port could not be found.

It was dark, a rainy, wet dark, when he finally rose from the port, entered the acceleration height, put down his throttle and was gone. Chuck Lambert had never tasted such sweetness. The 4G sag was nothing to him. The age and obsolescence of the ship was nothing to him, his empty stomach was entirely forgotten. Here was sweetness. After eleven years he was on his way.

Now, inasmuch as the Sunday feature sections you see do such a fine job of telling how space travel looks and feels and as you may have done some of it yourself and so don't need to be told, a light-year by light-year description of Chuck Lambert's voyage to Planet 19453X is not necessary.

He saw the strange phenomena of light changes, size changes, star displacements and elongations and he felt all the bodily discomforts and euphorias and he saw the dark stars and luminous masses and, in short, he gloried in it. He wrote a log which sounds like a piece of poetry done by at least Julius Caesar. Space and the Universe were his onion. He ran out of dimensions like a spilled wineglass.

If he left anything out and if he missed anything, it was because after three or four days of it he had to get a little sleep.

He spent the following month filling his log, checking his course and building up a paper empire which stopped only because most of his supplies were not paper wrapped and he ran out of writing materials.

Probably few men have ever owned as much conquered Universe and purchased Earth as Chuck Lambert in those long weeks of his voyage. But all things must come to an end and all dreams must break. Chuck Lambert landed at last on Planet 19453X.

Now it happened that he had paid very little attention to his ship. The Star-Jumper was old and cranky and full of missing rivets. Her type had been developed for courier service in the first Colonial Revolt and about fifty thousand like her had been sold at a hundred dollars apiece

to a man named Fleigal in Brooklyn. Her sole virtue was her near approach to perpetual motion but of her drawbacks there is not enough paper here to adequately condemn them. Like any military job she had neither grace nor charm, safety nor comfort. And she managed in this landing in a way calculated to drive any veteran of the spaceways entirely off his usual imbalance. She would not sit down.

Had Chuck been a more experienced navigator he would not have understood why. And he was very far from that. When he reached the star, he had to brake to a full stop in the middle of the system and take five hours worth of painful navigation to make sure the star was the right one. Then he used up two days examining orbits and the planets which ran in them to find 19453X, a thing which any professional would have finished up before he had the star itself within a light-year.

But the hunt and poke system at last gave results and Chuck, without observing at least one very strange fact about this area, tried to get down.

19453X had an atmosphere and a great many clouds. It was about seven times the size of Earth. It had no seas but seemed to possess a remarkable number of marshy areas which left the dry land at about one-fifth. It had numerous ranges of mountains and great, stretching plains. Chuck had all this down and noted with some enthusiasm, for it was his world, all his.

And then the Star-Jumper drifted somewhere between ground and sky, no power, no lifts, nothing.

Chuck became aware of this situation after a moment or two. The leaded ports were not such to permit a very good view below. He put a trifle of power to the magnetrons because he was anxious to get there.

He had his kingdom all organized and his palace half built when he touched and his head was full of such a confusion of thoughts that he was not instantly aware of anything wrong.

Then he unbuckled himself from the pilot's seat and started to get up. Two things happened. He hit his head on the overhead and the ship came off the ground.

He was not aware of the second fact until he opened the door to the rear compartment. He thought he must have left a throttle open and hastened back to the seat. His feet got no traction. No throttle was open. The Star-Jumper was going skyward at an amazing rate.

Chuck buckled himself in again and with patience, put the ship down once more. He stayed there at the controls and watched, just in case. He was in a grottolike valley, honeycombed, colorful hills before him and beside him. These promptly began to recede once he shut the power off. He was rising!

Chuck was no electronic genius. He had read the books. And they didn't have any answers for this.

He assumed a high wind and poured on power. Back went the ship, bump, bump against the ground.

He didn't want to bother about this any more. He was too anxious to see his planet, stand on it, feel it and taste it. If his ship wouldn't stay landed, then there were ways to do it.

He coaxed the controls until the Star-Jumper skittered over the ground. A big cave opened up in the hill ahead and he resolutely put his ship's-bulk into it. It was a tight squeeze and it didn't help the paint, but the Star-Jumper's eccentricity was foiled. Whether it would or no, now, it had to stay down.

Chuck got up. He put on his helmet, took down some extra oxygen cartridges, buckled on his flying belt and was prepared to explore. That he was having difficulty in here getting traction and bumping into things he did not heed. He was space dizzy already. He had been knocking around in this interior for so many weeks he couldn't register any difficulty. He didn't.

He opened his air lock, closed it behind him with commendable caution, opened the outer port and started to jump down.

But he didn't jump *down*. He went up and hit the cave roof with a clang, to cling there like a bat upside down and completely bewildered. He was walking wrong end to and getting traction like a fly and, personally, it didn't feel good.

He stood there, head down, thinking about it. Nothing in the numerous books Isabel had dug out for him had contained any such data as this. Carefully he walked toward the light and came close to the opening. There he slipped and "fell" straight up over the lip and would have kept on going to the absolute zero of space if his flying belt hadn't been in working order. It was. About a thousand feet up, Chuck got it going and with considerable gratification, power-dived back to his planet and by dint of some adjusting, made a soft landing in a clay bank, straight up.

The clay was very sticky and mired his boots considerably and, belt still going, he managed to clamber out of this strange bog to dry land. He tried here to turn his jets off and, much to his surprise, when he turned them off, he stayed right side up just as he thought he should.

Chuck heaved a very deep sigh of relief in that moment. For a while there he thought he had run into something which was way beyond his engineering depths; with some confidence now he struck out afoot for the first ridge which would let him over and into the broad valley he had spotted coming in.

Spaceports, being insulated the way they are, have a nasty knack of obscuring the view and he did not realize until he reached the crest that he had, indeed, a lovely, lovely planet.

It was green and purple and gold and the docks and rivers shined below him. Trees waved in a gentle

wind, grass rippled, brooks laughed. It was charming.

He went down the slope, careful because he didn't seem to be able to restrain a bounding tendency he had never before noticed in his walk, and knelt reverently beside the first brook. It was his, all his.

Incautiously he started to remove his helmet, being all unguarded before this greenery, and promptly began to suffocate. It was not the pressure. As far as pressure went, that was about equal. It was the quality of the air. As soon as he started to breathe it he started to suffocate. He had enough promptitude to clamp his helmet back on and give himself oxygen and only that saved his life.

Was it because the air was poison? But no, he didn't seem to be poisoned, only unsatisfied. He stood there and blinked in the bright daylight at the lovely trees.

He looked at the brook. The water was laughing but was it laughing at him? He scooped some up in his fingers, half expecting it to turn into vitriol, but it was cool and moist and pleasant. He opened his helmet air lock and inserted a cup of it and when he got it through and got the swallow down he was instantly sorry. It came right back up.

It wasn't that it tasted bad; that would be a relief. It just wasn't the sort of thing his stomach wanted and his stomach didn't know why.

This made Chuck a trifle bitter.

A pretty brook, lovely clouds, obvious air. He made a hurried recheck of his oxygen supply and decided he had enough for a couple of months if he was careful of it. But what of his lovely kingdom?

He did not see that he had real live subjects until he had gone nearly a kilometer and then he saw the cluster of huts, neatly blended into a river bend's trees.

The village probably contained a couple of hundred people or things and Chuck instantly loosened up his gun in its holster and went forward quietly. But if he had just now seen them, they had long since seen him and there wasn't so much as a pet in that village.

He looked it over. Comical huts, fitted with round thatch roofs, floored with river reeds. There were metal cooking pots and metal weapons. And a real, live fire smoldered in the middle of the main hut. It was common. It was almost uninteresting except that these beings were sentient and skilled in a certain culture.

Perhaps he would not have had any intercourse with them at all if he had not, just as he was leaving, found the old woman.

She was too old to be spry and she was too scared to hide all of her in the hay pile and so Chuck tapped her gently and coaxed her out.

"Oof! Oof!" she screamed, meaning, "Don't kill me!"

Chuck looked her over. The features were not quite right but this creature was a biped, looked remark-

ably like Earth women and certainly didn't offer him any menace.

Chuck made her understand, amid many "oofs" that nothing untoward was intended. His efforts to communicate the facts by signs, that he was the owner of this planet and that these people were his subjects were received round-eyed and interpreted in some outlandish fashion he was never to know.

After a while she finally took him to the village center where a bucket of water stood beside a big stone square and Chuck sat down. He knew he couldn't drink the water but he wanted to appear mild and tractable, the way a true planet owner should.

She went off and yelled around in the reeds and after some time a number of men, hairy fellows, mostly forehead and biceps, came back, carefully extending their spears to be ready to repel boarders and finally saw that Chuck sat there mildly enough.

This was all very satisfying to Chuck. This was the way it should be. They considered him a superior being and he began with many oofs to convince them how very safe and mild he was and how they would benefit from his rule. They got rather near and finally relaxed enough to ground their spear butts. Chuck grew expansive. He was talking through his electronic speaker, which was turned up rather high, and his voice must have reached a good long ways for more and more people came curiously to see what was happening.

Finally a young maiden whom Chuck found not at all ugly crept forward and touched his foot. This excited some wonder. She looked bravely up at him and he felt elevated. She took a stick and began to clean the clay off his boots with short pries and Chuck, in middle sentence, found himself getting lighter and lighter. He was a foot off the ground before the end of his uncomprehended paragraph and was beginning to accelerate when his audience took off with one long scream of alarm.

The girl crouched where she had been, looking up. Chuck rose to a hundred feet, going faster, got his jets going at last and came down.

The girl cringed, head bowed, shivering. Chuck touched her hair and then a jet spluttered and he went up once more. Altogether he considered the interview at an entire end. Humiliated, he navigated himself over the center of the village, looked sadly down at the frightened eyes peering from the reeds and then changed his course back to the ship. Enough was enough for one day.

He sat for a long time on his cabin ceiling, thinking about fate that night. He wrote a letter to Isabel in which he confessed himself entirely confounded and disheartened. Before he finished it he was beginning to get mad at Madman Murphy.

Eleven years. Eleven hard, toil-

some years for a planet he couldn't even walk upon!

He crept out about midnight and looked at the stars, holding on hard to the cave lip to keep from flying away into space, and then it occurred to him that he had a legal course.

He went back to it and worked it out. It was true. He was on the extreme perimeter of the galaxy. The star in whose system his planet lay was not, contrary to ordinary behavior, traveling outwards from the hub but was traveling inwards at a fast rate. Elementary calculation showed that it was making some thousand miles a second into the galaxy. If he could claim that this was not, as the contract stated, a system belonging to the Earth Galaxy, then he could have Madman up before the courts and have his money back. With that he could buy another place, a few thousand acres on some proven colonial orb and he and Isabel could settle down and raise kids. And then he got to thinking about the vagaries of law and the money lawyers cost and realized that Madman Murphy would never have to refund a penny.

This almost crushed him.

He had a planet on which he could not possibly live, whose air he could not breathe, whose water he could not drink, and the owning of it had taken the best of his life. He was almost ready to end it all when he heard a rustling outside.

There was a *clink, clink.*

Visions of a combat, blaster against spears, drove all thought of

suicide away and he helmeted himself promptly and passed through his air lock to find, not warriors, but the girl who had cleaned his boots.

It was hard standing on the ceiling shining a light down upon her. She was very humble. She had a bowl of white liquid which was probably milk and a little piece of bread and she made shivery motions at them.

Instantly Chuck knew he was a god.

Now there have been many men in the human race who have found themselves gods and never once has it failed to bolster their drooping spirits nor spur their lagging wits. She had come like a brave little

thing to leave food for the goblin and if she died in the consequence, she had done it all for her village. It was plain.

Chuck hand-holded down his ship side and came near her. He knew better than to try to eat that food and it wasn't food he was interested in. It was the fact that she walked on the ground and he couldn't. She had some beads around her neck, metal spheres of some brilliance. He held his hand for them and she took them off and gave them to him. He gave her a fountain pen which had ceased to work and when she accidentally let it go, he brought it down from the ceiling and returned it to her. She tied it with a dress string and there it bobbed, trying to rise.

"Oof, oof," she said, meaning "Thank you."

"Thank you," Chuck said, meaning, "Oof, oof."

He remembered, as he looked at these beads, the clay on his boots and he swiftly put several handfuls of rocks in his pockets. They kept him down. This was nerving. He went for a walk with her in the starlight.

It is certain they did not talk about much. It is also certain that Chuck, did a terrible lot of thinking. He did a lot of calculating in an elementary way and then, suddenly, things came right to him.

Madman Murphy had skunked him. There was no récourse. But it had been an adventure.

He was taking her back to the ridge so that she could descend to her valley and tell people it wasn't so tough talking with gods after all and that they did not always go spinning off into space on you. But just before they reached the place he would leave her she stopped and pointed into a hole in the hill.

There were lots of holes in the hill but she was insistent about this one as one of the local sights and he obliged her and startled her into a screech by turning on a flashlight and shining it down.

He almost screeched himself.

The whole hole was glittering yellow.

Chuck went wonderingly forward and put out a gingerish hand. The entire place was studded with pure metal. Pure yellow metal. Where ore came in veins on Earth it came in solid elements up here. As far as he could estimate he was looking, down this tunnel centuries old, at about a thousand million tons of metal.

This was what they made into spears and vessels and he had missed the quality of these items only because spears and vessels get dirty. He was afraid to examine it closer. He could see from where he was that if there was this much in one hole—

Chuck took a piece and tested it. But it was very hard. He pounded at it a bit. It was still too hard. He looked at it and let it fall. He put a knife into a crack and tried to pry out a bigger piece and the knife slipped and went up and lay against the roof of the drift.

Chuck stood there and thought about it. Then he raced back to the ship, leaving the girl where she was, and returned carrying whatever was of weight he had been able to grab. He went to work.

Two months later, Chuck Lambert sat behind a big desk in the Universe Building in New York City.

The newspaper reporters even were awed by the proportions of this office and the scientists and business men present were very polite.

Chuck had his feet up and sat mostly on the back of his neck.

"Boys," he said, "you've got all the story there. How I made the trip, what I found, what I intend to do. I think that's about it."

"Mr. Lambert," said a *Ledger* reporter politely, "as a matter of human interest, could you let me have some personal details. Some little thing— You mentioned a girl named Isabel—"

"Married," said Chuck. "Married yesterday up at the City Hall. That's why," he added with a big grin, "I don't want to drag on here."

"But this girl on 19453X—" said another reporter.

"Rich. She'll be richer. They'll all be rich even if I don't ever see my subjects again. Now if you don't mind—"

"Mr. Lambert," said the business manager of International Flyways, "you are sure you can deliver enough of this material—"

"Enough," chimed Ross of Ross Construction, "to make skyscrapers—'

"And bridges—" added the bridge builder.

"And spaceships," said Intercolonial's man.

"Gentlemen," said Chuck, "I towed down a piece of that metal as big as the village men could hack out and melt up for me. That was with crude stuff. Just a sample. I've got billions, billions of cubic yards of it and no cost to transport. It's cheap and since I filed on the rest of the planets in that system, I'm afraid this is a monopoly. But just the same, the price is the same as steel to you. Now if you don't mind—"

They were satisfied and they filed out, all but one thick-lensed little man.

"Mr. Lambert, I know you are in a hurry, being new married and all, but I was so far in the back—"

Chuck beamed on him. The little man took heart.

"I'm from *Daily Topics,* you know," said the little man. "Our readers . . . well, they like to get a pretty lucid account—"

"Sure," said Chuck. "Sure." He waved a hand at the glittering nodules of metal on his desk which were incased in lead holders. He took one out and it promptly lifted and went up to the ceiling where it stuck. Chuck, after a few jumps, got it down again.

"That's Lambert metal for you," said Chuck. "Floats. Rises. Negative weight. Point nine tenths the

tensile strength of steel. Can be forged—"

"But I don't understand what makes it rise," pleaded the little man.

"Planet 19453X—which I have rechristened Isabel—is part of a renegade system which moved in from another galaxy after some interminable crossing of space. It is traveling toward our hub but it won't get there for another three or four billion years. Its matter is made of another kind of energy from ours, which, making up in usual atomic and molecular forms, has no affinity or repulsion for our own matter. It is very simple. It just isn't made of the same kind of energy."

"But what makes it rise?"

"Planets revolve and things on their surface have centrifugal force. This material still has mass, and so it seeks to rise. Therefore it will make bridges which need no abutments, ships which have to be cargoed to be kept in the atmosphere, skyscrapers which will have to be anchored, not founded—but I am sure you understand."

The little man blinked. He released one of the balls of Lambert metal and it went up to the ceiling. He fled.

Chuck Lambert went home to Isabel to plan out a ninety room house on Long Island and five kids.

Madman Murphy has a big picture of Chuck in his window and a fine argument about wildcat planets. But don't trust him. There was only one 19453X.

THE END

IN TIMES TO COME

Next month's cover—by Orban—is taken from Poul Anderson's novelette, "The Double Dyed Villains". It's a yarn that suggests that there may be other ways of keeping peace in the Galaxy than by being honest, upright, truthful, and living cleanly. It's really a fascinating sort of idea—and a darned good yarn. I'll be interested in your reactions on Anderson's proposals—your second-thought reactions, for at first thought the suggestions, you'll find, are unpleasant.

Of course, Hasselborg, Jalna, and Co. will be back. De Camp is well started in this issue; next month he really has fun with the cockeyed situations of his backward world, inhabited by oversize Leprechauns with happily murderous notions.

We are beginning to get inquiries—and I was interrupted at that moment by such a telephoned query!—on Latham's "Aphrodite Project". It was an *article* about Venus—and a *story* about an attempt to send a rocket there. The blurb said *"Perhaps not fact . . . but could be."* In view of this, I herewith state, and give due forewarning, that next month's issue carries "Progress Report", by John Pomeroy. It isn't fact. It's fun, with gags at all levels, including some for the chemotherapist!

THE EDITOR.

TROJAN HORSE LAUGH

BY JOHN D. MACDONALD

They say laughter's infectious, and psychologists recently have found evidence of rhythm patterns in human emotions. But MacDonald's proposing a nasty combination—

Illustrated by Quackenbush

DIVERT YOUR PSYCHE
ADJUST YOUR ID
JOIN THE CROWD AND
GROOVE YOURSELF, KID.

"Like honey on a slow fire," Joe Morgan said in a mildly nauseated tone. "Where'n earth they get babes with those voices?"

Sadie Barnum, beside him on the front seat of Joe's vast and asthmatic monster of an automobile, grinned in the darkness, crooned low in a throat, singing an almost perfect imitation of the radio commercial. ". . . and groove yourself, kid."

"Oh, no!" said Joe. "No!"

The car was in the park above the

city, nuzzling the stone wall, cheek and jowl with the newer and shinier models on either side. The commercial had originally come from the radio in the car on their left.

Below them, the lights of the city of Daylon made it a very nice looking night indeed.

"You could turn my overpowering love to hate, Barnum," Joe said. "Let us get back to what we came for." He reached for her.

Sadie, her jaw set, fended him off deftly. She had turned so that the dim light touched her face. It was a small, alert, vital face, some of the force of it stolen by eyes that were big and sea-gray and an invitation to drown quietly.

"Now that the subject has been brought up, Joseph," she said firmly, "we will dwell on it apace."

Joe slumped grimly behind the wheel. He was a longheaded citizen, a crisp black crew-cut peppered with premature gray, a limp and lazy body which he threw into chairs in the manner of someone tossing a wet towel, which body, during war years, he had tossed out of various and sundry aircraft.

"Go dwell," he said.

She held up a small hand, counting firmly on her fingers. "One—Daylon is a test city for Happiness, Incorporated. Thus the price is reasonable. Two—it doesn't hurt a bit. Marg told me that. Three—you are a moody cuss and I expect to marry you the next time you ask me and you're going to be rugged to live with unless we get adjusted." Her voice began to quaver. "Besides, I think you're just being . . . oh, stuffy and narrow-minded about the whole thing."

Joe sighed. He had heard it before. And always before he had managed to change the subject before he was pinned down. But something in Sadie's tone made him realize that this time it wasn't going to be quite as simple.

He collected his forces, turned in the seat, took her small hands in his and said: "Honey, maybe you have the idea that Joseph Morgan, reporter for the *News,* likes to think of himself as a rugged individualist. Maybe you think it's a pose with me. Look, Barnum, I'm Joe Morgan and I'm the guy you happen to love. At least I think you do. I'm not a conformist and it isn't a pose. I don't run around in the same mad little circles as other people because I'm not sold on the idea that what they're after is a good thing."

In a small voice she said: "But they're after happiness, and security, and a home, and kids. Is that bad?"

"By itself, no. But what happens to their heads? Nobody talks any more. Nobody thinks. All those things are fine if you can get them without losing intellectual self-respect. Why do you think I drive this crate instead of a new one? Just because I won't play patty-cake with the people I'm supposed to play patty-cake with. When I want to be amused, I don't have to go to the movies or turn on the TV or go see a floor show. I'm the unmechanized

man, baby. Maybe I'm wrong, but it's no pose."

"But Joe, darlin', what's that got to do with going and taking the shots?"

"Everything. I don't want any needles stuck in me to make me joyous. I don't want my emotional cycle analyzed and adjusted to match everybody else's cycle. I want to be my own man, all the way."

"You don't let that attitude creep into the feature stories you've been writing about Happiness, Incorporated."

"Becaues I'm a conscientious hack, baby. I make the little words do what I want them to do."

"But, Joe—"

His tone softened. He said: "Sadie, if we both went and got adjusted, we'd never know how much of our happiness together was due to a gent with a needle and a mess of charts, and how much was due to Sadie and Joe. Let's make our own music, without outside help."

She came into his arms, her lips close to his ear. "That's the first argument that's made any sense, Joseph," she said.

In a very few moments all thoughts of Happiness, Incorporated fled from the minds of Joe and Sadie. But, even as they were fleeing, Joe thought, a trifle darkly, of Dr. August Lewsto and the field crew he had brought to Daylon. There was something odd about Lewsto, vaguely unsavory, vaguely disquieting.

There was a great deal of money behind Happiness, Incorporated. They had arrived three months before and it was a newsworthy item that Daylon had been selected as the test city.

Joe Morgan had been assigned the task of gathering the data for the first story. Lewsto had received him in the hotel suite with all courtesy. Lewsto was a gaunt man in his early fifties with hollow eyes, thin, nervous hands and a habit of smiling broadly at nothing at all.

"Of course, of course. Do sit down, Mr.—"

"Morgan. Of the *News*. Maybe you can give me the dope on this happiness you expect to peddle. It sounds like a tough thing to do."

Lewsto smiled broadly. "Not at all, Mr. Morgan. Our procedure has been tested and approved by the foremost medical associations. It is a bit difficult to explain it to the layman."

"You can try me, Doc."

"Everyone, Mr. Morgan, has an emotional cycle. The period between the peaks varies with the individual, as does the degree of inclination and declination. Call this cycle the emotional rhythm of the individual. This chart shows you the emotional cycles of each individual in a family of four. Note how the mother's cycle is of ten days' duration, a very short cycle, and also note how the peak in each case is so high as to be almost psychotic. In the depths of depression she is often

close to suicidal. A very difficult home life for the family."

"I imagine."

"This basic life rhythm is the product, Mr. Morgan, of the secretions of the glands and variations in the intensity of the electrical impulses within the brain itself. Now look at this chart. This shows the same family after adjustment. We have not eliminated the cycle. We have flattened the woman's cycle, made the man's a bit more intense, and adjusted the cycles of the two children. Now this family can plan ahead. They know that during each thirty-day period they will feel increasingly better for twenty days. Then there will be five days of warm joy, and a five day decline, not too abrupt, to the starting point. They will feel good together, mildly depressed at the same time. They can plan holidays accordingly and they can always judge the mood of the other members of the family by their own mood."

"I suppose you have to get the glands and the electricity in line, eh?"

"Quite right. We chart the cycle of each person by a method which, I am afraid, must be kept secret. Then, for each individual, we prepare an injection designed to stimulate certain endocrinological manifestations, and suppress others. After thirty days a booster shot is necessary."

"How big a staff do you have?"

"I brought forty persons with me. More will be employed locally. Certain equipment is being shipped to me and I am negotiating to rent a building on Caroline Street."

"You are going to advertise?"

"Oh, certainly! Radio, sky writing, posters, newspaper ads, direct mail and a team of industrial salesmen."

"What do you mean by industrial salesmen?"

"Take Company X. It employs three hundred men. A round dozen are chronic complainers and troublemakers. Others have bad days when their work is poor. Morale is spotty. If one hundred percent of the employees are adjusted, the personnel director will know what the plant morale will be at any time. It will thus be possible to plan ahead and set production schedules accordingly. Labor difficulties are minimized and profit goes up."

"Sounds like Nirvana," Joe Morgan said dryly. "What does paradise cost?"

"Ten dollars for the individual. Eight dollars per person for industrial contracts. Frankly, Mr. Morgan, that is less than our costs, though I do not wish you to print that information."

At that moment there was a knock at the door. Dr. Lewsto went to the door, brought in a very tall, very grave young woman who, in spite of her severe dress, her air of dignity, seemed to walk to the haunting beat of a half-heard chant.

"Mr. Morgan, this is Miss Pardette, our statistician."

Her handshake was surprisingly firm. Dr. Lewsto continued, "Miss

Pardette has been in Daylon for the past month with her assistants, compiling statistics on industrial production, retail sales and similar matters. She will compile new figures as our work progresses." Lewsto's voice deepened and he took on a lecture platform manner. "It is our aim to show, with Daylon as our test city, that the American city can, through Happiness, Incorporated, be made a healthier, happier and more profitable place in which to live."

Joe Morgan gravely clapped his hands. Both Miss Pardette and Dr. Lewsto stared at him without friendliness.

Dr. Lewsto said: "I'm afraid, Mr Morgan, that I detect a rather childish sort of skepticism in your manner. You should not be blind to progress."

"How could you say such a thing, Doc?" Joe asked blandly. "I'm impressed. Really impressed. Every red-blooded American wants happiness. And you're the man to see that he gets it."

Lewsto said, visibly melting, "Ah . . . yes. Yes, of course. Forgive me, Mr. Morgan."

But Joe felt the cold eye of Miss Pardette on him.

He said quickly, "Am I to assume, Dr. Lewsto, that you will give every one of your patients the same basic emotional cycle?"

"Yes. That is the key to the whole picture. Instead of a tangled maze of cycles, everyone we treat will have exactly the same cycle, co-ordinated with everyone else."

II.

WHERE'D YOU GET THAT EMOTIONAL BINGE? IT'S AS OUT OF STYLE AS A RUSTY HINGE. WIPE THAT FROWN OFF YOUR SULKY BROW— WITH A TEN DOLLAR BILL GET ADJUSTED *NOW!*

Main Street. It just happens to be Daylon. It could be anybody's main street. Warm May sun, sweating cops implementing the street lights at the busiest corners. A rash of panel delivery trucks, housewives cruising looking for a place wide enough in which to park, music blaring from a radio store.

Three blocks from the very center of the city another cop has been detailed to keep the line orderly in front of number thirty-four, Caroline Street. It is a small building, and across the front of it is a huge sign—"HAPPINESS, INCORPORATED".

The line moves slowly toward the doorway. Inside, it is rapidly and efficiently split into the appropriate groups. Those who are arriving for the first time pay at the desk on the right, receive their number. There are a hundred thousand people in Daylon. The new numbers being issued are in the eleven thousand series.

Those whose cycles have been charted, are shunted up the stairs to where a small vial awaits, bearing their number. A smaller group files

toward the back of the building for the essential booster shots.

A plump little man sulks in line, herded along by his wife who looks oddly like a clipper ship under a full head of sail.

She says, "And you listen to me, Henry. After nineteen years of putting up with your childish moods this is one time when you are going to—"

Her voice goes on and on. Henry pouts and moves slowly with the crowd. He tells himself that no shot in the arm is going to make his life any more enjoyable. Not with the free-wheeling virago he has endured for these many years.

The policeman on the beat is sweating but he smiles fondly at the line. Fastened to the lapel of his uniform is a tiny bronze button with an interlocked H and I. Happiness, Incorporated. The bronze button is issued with the booster shot.

Back to the main drag. A diaper delivery truck tangles fenders with a bread truck. Both drivers are at fault. They climb out, and, through force of habit, walk stiff-legged toward each other, one eye on the damage. They both wear the little bronze button. They smile at each other.

"No harm done, I guess. Anyway, not much."

"Same here. Hey, you're one of the happiness boys, too."

"Yeah, I got herded into it by the wife."

"Me too, and I'm not sorry. Gives everything a glow, sort of."

They stand and measure each other. The cycle is on the upswing. Each day is better than the last. The peak is approaching. It is but three days away.

"Look, let's roll these heaps around the corner and grab a quick beer."

Main Street in May. A small, ruffian child, pressed too closely in a department store, unleashes a boot that bounces smartly off the shin of an elderly matron.

The matron winces, smiles placidly at the child's mother, limps away.

The mother grabs the infant by the ear. "You're lucky she was one of the adjusted ones, Homer. I'm going to take you home and belt you a few, and then I'm going to take you and your father down and get both of you adjusted."

Main Street with a small difference. People smile warmly at strangers. There is a hint of laughter in the air, a hint of expectancy. The little bronze buttons catch the sun. The unadjusted stare bleakly at the smiles, at the little buttons, and wonder what has happened to everybody. They begin to feel as though they were left out of something.

Joe Morgan walks dourly along the street, rigidly suppressing an urge to glare at every smile.

A man hurrying out of a doorway runs solidly into him. Joe, caught off balance, sits down smartly. He is hauled to his feet, brushed off. His hand is pumped up and down by the stranger.

"Whyn't yah look where you're running?" Joe asks.

"Fella, I'm sorry. I was just plain clumsy. Say, can I buy you a drink? Or can I take you anywhere? My car's right around the corner."

Joe squints at the little bronze button, says, "Skip it," walks down the street.

Joe is unhappy. The managing editor, proudly sporting a little bronze button, has set up a permanent department called, "The Progress of Happiness," and he has assigned Joe Morgan to run it. Joe is out tracking down progress.

He stands across the street and glares at the long line waiting to be processed. He is torn by doubts, wonders vaguely whether he ought to join the line and be adjusted. But he cannot permit such a violation of his right of privacy.

He goes into the offices assigned to Miss Pardette.

Miss Pardette was busy. Joe Morgan sat near her desk, cocked his head to one side and listened carefully to the music she seemed to carry around with her. He couldn't help thinking of Alice Pardette as wasted talent. All she would have to do in any floor show would be to walk across the floor. In the proper costume she would make strong men clutch the tablecloth and signal for another drink. The vitality of her seemed to press against the dark suit she wore like a torrential river held taut by a new dam.

At last she looked up. Joe said: "What's new on delirium today, kitten?"

"I find your attitude offensive," she said. The words were prim and proper. The tone was husky gold, a warm wrapping for hidden caress.

Joe smiled brightly. "I find happiness offensive. So we're even. What can I put in the paper, Mona Lisa?"

She shuffled the papers on her desk. "I have just compiled a report on the first month of operation of the Quinby Candy Company since the last of their employees received the booster shot. You will have to clear this report with Mr. Quinby before publishing it. He reports a six point three percent drop in absenteeism, a two percent drop in pilferage, an eleven percent drop in tardiness. Total production was up eight point eight percent over the preceding month, with a drop in rejections and spoilage and consequent increase in estimated net profit from the yearly average of four point six percent to five point three percent. The fee to adjust his workers was two thousand three hundred four dollars. It is Mr. Quinby's estimate that he recovered this initial cost in the first two weeks of operation."

"How nice for him," Joe said, glancing at the figures he had scribbled in his notebook. He said: "How did a dish like you get into this racket?"

"Dr. Lewsto employed me."

"I mean in the statistics game."

She gave him a long, steady look. "Mr. Morgan, I have found that fig-

ures are one of the few things in life you can depend upon."

"I thought you could depend on the kind of happiness that you people sell." He looked at the bronze button she wore.

She followed the direction of his glance, looked down at the button. She said: "I'm afraid I'm not entitled to wear this. Dr. Lewsto insisted that it would be better for morale for me to wear it. But a statistician must maintain a rigidly objective attitude. To become adjusted might prejudice that attitude."

"How about Lewsto? He wears one."

"It is the same thing with him. The backers felt that, as administrator, he should refrain from becoming adjusted."

"Just like the restaurant owner who goes out to lunch?"

He saw her first smile. It rang like hidden silver bells. "Something like that, Mr. Morgan."

He sighed. "Well, how far are we as of today?"

"New patients are in the eleven thousand series. Fifty-nine hundred totally adjusted."

"Where are those fifty-nine hundred on the chart?"

She stood up, took a pointer and touched it to the big chart on the wall behind her. "Right here. In three days they will be at the peak. They will remain at the peak for five days, then five days of regression before they begin the climb back up again."

Joe said softly: "It gives me a funny feeling in the pit of my stomach. All those people being pushed through an emotional cycle like cattle being herded down the runways in Chicago."

"You'd change your attitude if you would submit to adjustment."

Joe stood up and stretched. "Exactly what I'm afraid of, friend. Morgan, the Unadjusted. That's me."

At the door he turned and waved at her. But she was studying reports and she did not look up.

III.

FROM GIMMY RIKER'S COLUMN IN THE NEW YORK *STANDARD TRIBUNE:* "The boys with the beards couldn't find anything wrong with one Doc Lewsto and his gland band, so, financed by mysterious backers, Doc Lewsto is turning the tanktown of Daylon into a carnival of joy. They say that things are so gay over there lately that the Federal Narcotics people are watching it. If the national debt is getting you down, maybe you ought to run over and let the good doctor give you the needle."

FROM AN EDITORIAL IN THE HOTEL-KEEPERS' GUIDE FOR JUNE: "If this sale of Happiness is extended on a country-wide basis, it is evident from reports we have received from our Daylon members, that managers of bars, clubs and hotels will have to make alterations in basic policy. The money coming into the till closely follows the emotional cycle set up by Dr. August Lewsto to such a degree that during the peak of the curve our members were unable to meet the demand, whereas, at the bottom of the curve, business fell off to nothing. However, the overall picture on a monthly basis showed a fifteen to eighteen percent improvement."

FROM THE MINUTES OF A SECRET MEETING IN THE PENTAGON BUILDING, EXCERPT FROM THE SUMMARY BY LIEUTENANT GENERAL GRADERSBY: "Thus, gentlemen, we can conclude that this sociological experiment in Daylon constitutes no threat to our essential defense production at the X plant four miles distant. In fact, production has improved as has the quality of the end product. It is agreed that it is only coincidence that this experiment by Happiness, Incorporated was set up in the nearest city to X plant, the only current manufacturer of that item so essential to our military strength. However, it is recommended that a committee be formed to consider the question of setting up an alternate facility and that all necessary steps be taken to implement and facilitate the formation of such a committee and that the workings of this committee be facilitated by a further implementation of—"

DECODED EXCERPT FROM AN INNOCENT-APPEARING PERSONAL LETTER SENT TO DR. AUGUST LEWSTO: "Units B, C, D and E have arrived at the key cities originally indicated. Your reports excellent, providing basis for immediate industrial contracts, one of which already signed involving five thousand workers in basic industry with subcontract for propulsion units. Forward subsequent reports of progress directly to men in charge of indicated units, detailing to each of them five trained technicians from your staff. Report in usual way when booster shot record reaches fifty percent total population Daylon."

Joe Morgan, before going up to the news room, went into the room off the lobby of the *News* Building where Sadie Barnum and two other girls handled many details including the taking of classified advertising.

He didn't see Sadie. Julie, the redhead, winked over the shoulder of a man laboriously writing out an ad.. Joe leaned against the wall until the man had paid and gone.

"Where's my gal?" Joe asked.

"Which one. I'm here, Joey."

"You're for Thursdays. I want today's gal, the ineffable, Miss Barnum."

"She hit Clance for an extra hour tacked onto her lunch hour. Love must wait."

Joe turned toward the door. "Tell her to buzz me when she gets in."

He went up winked at the city editor, walked down to his desk, rolled a sheet of paper into the machine and stared glumly at it. Small warning bells seemed to be ringing in the back of his mind. He was all set to write the story of the second big period of depression, of what happened to Daylon when twenty-two thousand of the adjusted had a simultaneous slump, but he couldn't get his mind off Sadie. She had been a bit difficult about his refusal to be adjusted the night before.

On a hunch he hurried out, climbed into his asthmatic car and roared to Caroline Street. He parked in the bus stop, went down the line looking for Sadie. When he did not see her, he began to breathe more slowly. He had a hunch that it would somehow turn out to be a very bad thing if Sadie were inoculated.

He was glad that he had been wrong. He glanced back at his car, saw the cop writing out a ticket. As he turned to hurry back, he saw

Sadie come out the exit door of Happiness, Incorporated.

Muttering, he ran to her, took hold of her arm, spinning her around.

"Hey, my vaccination!" she said, looking up at him with a wide smile.

"You little dope!" he said. "You feather-headed little female cretin! What on earth possessed you to join this rat race."

She didn't seem disturbed. "Somebody had to take the first step, Joseph, and it didn't look as though you would. So I had to. Now you'll do it too, won't you, darlin'?"

He saw that her smile was brave, but that there were tears behind it. "No," he said flatly. "I stay like I am. I suppose you sneaked off and had your cycle charted last week?"

She nodded. "But, Joe, there isn't any harm in it! It's been so wonderful for everybody. Please, Joe."

He took her by the shoulders and shook her. "Oh, wonderful! It's been ducky! You should know that —" He stopped suddenly as some of the information in the back of his mind assumed new meaning, new ominous meaning. He turned on his heel and walked away from her. She called out to him but he didn't stop. He climbed into his car, drove through the grim streets of unsmiling people.

Score for Daylon. May—5,900. June—14,100. July—22,000. August—31,000. September—50,200.

Over half the population of the city.

The period of intense joy in September has been a time of dancing in the street, of song, of an incredible gaiety almost too frantic to be endured.

And the slump touched the bitter depths of despair.

Slowly the city climbs back up into the sunlight. The slumped shoulders begin to straighten and the expressions of bleak apathy lighten once more. The road leads up into the sunlight.

And then the building is as it was before. The big sign, "HAPPINESS, INCORPORATED" has been taken down. People gather in the street and stare moodily at it. They are the ones who were going to be adjusted "tomorrow".

They have read the article in the paper by Dr. Lewsto. "I wish to thank the citizens of Daylon who have co-operated so splendidly in helping us advance the frontiers of human knowledge in the realm of the emotions. It is with more than a trace of sadness that I and my staff leave Daylon to set up a similar project in another great American city. But we leave, armed with the statistics we have acquired here, confident in the knowledge that, through our efforts, more than half of you have at last attained that ultimate shining goal of mankind—HAPPINESS!"

Yes, the building is empty and the line has ceased to worm slowly toward the open doors. Two technicians remain in a hotel suite to administer the booster shots yet remaining to be given.

Joe Morgan spends five days with Sadie, watching her sink lower and lower into despondency, trying vainly to cheer her, infected himself by her apathy, learning to think of her as a stranger.

He walks into the office where she works. She gives him a tremulous smile. She has a fragile look, a convalescent look.

"Honey," he said, "it's nice to see that you can smile."

"But it's worth it, Joe. Believe me. Look what I have ahead of me. Twenty-five days without a blue moment, without a sad thought, without a bit of worry."

"Sure, sure," he said, his voice rough. "It's lovely."

She said: "Joe, I've been thinking.

There's no point to our going on together. I want somebody I can laugh with, be gay with for the days ahead."

He was amazed at the deep sense of relief inside of him. He pretended hurt. He said: "If that's the way you feel about it—"

"I'm awfully sorry, Joe. But I don't want the slightest cloud on my happiness now that I've got it. Not the tiniest cloud. You do see, don't you?"

"It hasn't been the same since this whole thing came to town, this grin circus, has it?"

"Not really, Joe. Before I was . . . well, I was just walking in the shadows. Now I'm out in the sun, Joe. Now I know how to be happy."

Her hand was small and warm in his. "Be good, kid," he said softly.

He went up to his desk. The city editor had blue-penciled a huge X across the copy Joe had turned in. Joe snatched the sheet, went up to him, "Look, Johnson, this is news. Understand? En ee doubleyou ess. What cooks?"

Johnson touched his fingertips lightly to the bronze button in his lapel, smiled faintly. "I don't think it would be good for the city. Nice job and all that, Morgan. But it's against policy."

"Whose policy?"

"The managing editor's. I showed it to him."

Joe said firmly and slowly, with emphasis on each word: "Either it goes in the paper or Morgan goes out the door."

"There's the door, Morgan."

Joe went back to his room, rage in his heart. He uncovered his own typewriter, rewrote his copy in dispatch style, made five carbons, addressed the envelope and sent them out special delivery.

And when that was done, in the late afternoon, he found a small bar with bar stools, took a corner seat, his shoulder against the wall, began treating himself to respectable jolts of rye.

No girl, no job—and a fear in the back of his mind so vast and so shadowy as to make his skin crawl whenever he skirted the edge of it.

Business was poor in the bar. He remembered happier, more normal times, when every day at five there was a respectable gathering of the quick-one-and-home-to-dinner group.

A sleepy bartender wearing a myopic smile lazily polished the glasses and sighed ponderously from time to time. He moved only when Joe raised his finger as a signal for another.

The bar had achieved an aching surrealistic quality and Joe's lips were numb when she slid up onto the stool beside him.

He focused on her gravely. "I thought you left town with the rest of the happy boys," he said.

Alice Pardette said: "I was walking by." She stared at his shotglass. "Would those help me?"

"What've you got?"

"The horrors, Mr. Morgan."

"The name is Joe and if a few of

these won't help, nothing will. Why are you still in town?"

As the bartender poured the two shots she said: "When I finished the statistical job, Dr. Lewsto said I could go along with them in an administrative capacity."

"And why didn't you?"

The professional look had begun to wear off Alice Pardette. Joe noticed that her dark eyebrows inscribed two very lovely arcs. He noticed a hollowness at her temples and wondered why this particular and illusive little element of allure had thus far escaped him. He wanted to plant a very gentle kiss on the nearest temple.

"Joe, they wanted to adjust me."

"I hear it's very nice. Makes you happy, you know."

"Joe, maybe I'm afraid of that kind of happiness." She finished her shot, gasped, coughed, looked at him with dark brimming eyes. "Hey," she said, "you didn't go and get—"

"Not Morgan. No ma'am. Uh uh. All that happened to me is that my girl got herself adjusted and gave me up for the duration. And today I was fired because I had an article they wouldn't print. Oh, I've been adjusted, but not with a needle."

She giggled. "Hey, these little things are warm when you get them down. Gimme another. What was the article about, Joe?"

"Suicides," he said solemnly. "People gunning holes in their heads and leaping out windows and hanging themselves to the high hook in the closet wearing their neckties the wrong way."

"Don't they always do that?"

"In the five days of depression, baby, fourteen of them joined their ancestors. That is more in five days than this old town has seen in the last seventeen months."

He watched the statistical mind take over. "Hm-m-m," she said.

"And 'hm-m-m' again," Joe said. "As far as ethical responsibility is concerned, who knocked 'em off? Answer me that."

"Ole Doc Lewsto, natch."

"Please don't use that expression, Pard. And who helped ole Doc by compiling all those pretty figures? Who but our girl, Alice? Wanna stand trial, kitten?"

She looked at him for long seconds. "Joe Morgan, you better buy me another drink."

He said: "I mailed out releases to a batch of syndicates. Maybe somebody'll print the stuff I dug up."

IV.

FROM DELANCEY BOOKER'S COLUMN IN THE WASHINGTON MORNING *SENTINEL:* Happiness, Incorporated, is expanding their operations at an amazing speed. It is only a week since their Washington Agency was established and already it is reported that over seven thousand of our fellow citizens have reported to have profiles made of their emotional cycles. As usual with every move intended to approve the lot of the common man, several Congressmen who represent the worst elements of isolationism and conservatism are attempting

to jam through a bill designed to hamstring Happiness, Incorporated. These gentlemen who look at life through a perpetual peashooter are trying to stir up public alarm on the basis that the procedures used by Happiness, Incorporated, have not been properly tested. They will find the going difficult, however, because, though they do not know it, some of their enemies in Congress have already received the initial inoculation. Your columnist saw them there while having his own cycle plotted.

EXCERPT FROM THE INFORMAL TALK GIVEN TO ALL EXECUTIVES OF THE HEATON STEEL COMPANY BY THE CHAIRMAN OF THE BOARD: "Using our Daylon Plant as a test, it has been conclusively proven that Happiness, Incorporated, is the answer to industrial unrest, high taxes and dwindling profit. Consequently you will be glad to know that, starting tomorrow morning, we have made special arrangements with Happiness, Incorporated, to set up an inoculation center in every one of our fourteen plants. Within forty days the entire hundred and sixteen thousand employees of Heaton Steel will be happy and adjusted. This procedure will be optional for executives. Any man who refuses to be so treated will please rise."

NOTE ON BULLETIN BOARD AT PAKINSON FIELD, HEADQUARTERS OF THE 28th BOMBARDMENT GROUP: "All personnel is advised that, beginning tomorrow, 18 Sept., Bldg. 83 will be set aside for civilian employees of Happiness, Incorporated. Any military personnel desirous of undergoing adjustment can obtain, for a special price of five dollars, a card entitling him or her to receive a complete emotional adjustment styled to fit the optimum curve. In this matter you will notice that the Air Corps has once again moved with greater rapidity than either the Army or the Navy—2nd Lt. Albert Anderson Daley, Post Exchange Officer."

MEMO TO ALL MEMBER STATIONS, INTERCOAST BROADCASTING COMPANY: In the spot commercials previously contracted for, kindly revise lyric to read as follows, utilizing local talent until new disks can be cut:

Divert your psyche
Repair your Id
Join the crowd and
Adjust yourself, kid.

Remainder to be, "Go to your nearest adjustment station set up in your community by Happiness, Incorporated. See those happy smiles? Do not wait . . . et cetera . . . et cetera . . . et cetera.

FROM THE SCRIPT OF THE CAROLAX PROGRAM, FEATURING BUNNY JUKES AND HIS GANG:
Bunny: . . . yeah, and fellas, I went in and they fastened those gimmicks on my head and they started plotting my cycle.
Others: And what happened, Bunny?
Bunny: While they were working this dolly walked through the office and boy, do I mean dolly! My tired old eyes glazed when she gave me that Carolax smile, what I mean.
Stooge: And what then? (eagerly)
Bunny: The doc looks down at the drum where the pen is drawing my cycle and he says, 'Mr. Jukes, you are the first patient in the history of Happiness, Incorporated, whose cycle forms the word—WOW!
Audience: Laughter.

Daylon in transition. For twenty days the spiral has been upward. Tomorrow it will reach a peak. There is laughter in the streets and people sing.

The city has a new motto. The Original Home of Happiness. The city is proud of being the first one selected.

Everyone walks about with a look of secret glee, as though barely able

to contain themselves with the thought of the epic joy that the morrow will bring.

And those that have not been adjusted find that they, too, are caught up in the holiday spirit, in the air of impending revel. Strangers grin at each other and whole buses, homeward bound from work, ring with song as everyone joins in. Old songs. "Let a Smile be Your Umbrella", "Singing in the Rain", "Smiles", "Smile the While".

Joe Morgan and Alice Pardette have grown very close in the past twenty days. To him it is a new relationship—a woman who can think as frankly and honestly as any man, who has about her none of the usual feminine deviousness, though physically she is so completely feminine as to make his pulse pound.

And Alice, too, finds something in Joe she has never before experienced. A man willing to take her at face value, a man who does not try to force their relationship into channels of undesired intimacies, a man who listens to what she says and who will argue, person to person, rather than man to woman.

Dusk is over the city and the buzzing neon lights up the overcast in hue of pink-orange. The old car is parked where often he parked with Sadie Barnum. He wonders what Sadie is doing. They look out over the city and they are not at ease.

"Joe," she said suddenly, "don't you feel it when you're down there with them?"

"You mean feel as though I want to go around grinning like an idiot, too? Yes, and it scares me, somehow. I knew a few other guys who didn't want to have anything to do with being adjusted. Now they're as bad as the ones who had the shots. That good cheer is like a big fuzzy cloud hanging over the city."

"And it's worse than last time, isn't it, Joe?" she asked softly.

He nodded. "Worse in a funny way. It's sort of like the city was a big machine and now the governor is broken and it's moving too fast. It's creaking its way up and up and up to where maybe it'll spin apart."

She said: "Or like a boat that was going over gentle regular waves and now the waves are getting bigger and bigger."

He turned and grinned at her. "You know, we can scare each other into a tizzy."

Alice didn't respond to his grin. She said in a remote voice: "Tomorrow is going to be . . . odd. I feel it. Joe, let's stay together tomorrow. Please."

She rested her hand on his wrist.

Suddenly she was in his arms. For the first time.

Thirty seconds later Joe said unsteadily, "For a statistician you—"

"I guess you'd better make a joke of it, Joe. I guess maybe it's the only thing you can do, Joe. I guess . . . it wasn't ever this way before."

Like a slow rocket rising for twenty days, bursting into a bright

banner of flame on the twenty-first day.

Joe walked out of his apartment into the street, turned and stared incredulously at an elderly man who, laughing so hard that he wept, held himself up by clinging to a lamp-post. The impossible laughter was contagious, even as it frightened. Joe felt laughter stretching his lips, painting itself across his mouth.

At that moment he dodged aside, barely in time. A heavy convertible, a woman with tears of laughter streaming down her cheeks behind the wheel, bounced up over the curb. The old gentleman, still laughing, was cradled neatly on the bumper, was carried over and crushed against the gray stone front of the apartment building.

Blood ran in a heavy slow current down the slope of the sidewalk toward the gutter. The crowd gathered quickly. For just a fleeting second they were solemn and then someone giggled and they were off. They howled with laughter and pounded each other's shoulders and staggered in their laughter so that the blood was tracked in wavered lines back and forth.

Joe fought free of them, and, even with the horror in his mind, he walked rapidly down the street, his lips pulled back in a wide grin. Behind him he could hear the woman, between great shouts of laughter explaining, "I . . . I got laughing and the car . . . it came over here . . . and he was standing there and he . . . and he—" She couldn't go on and her voice was drowned by the singing and laughing around her.

They were singing, "For He's a Jolly Good Fellow."

The counterman where Joe usually had breakfast had just finished printing a large crude sign. "Everything on the house. What will you have?"

The girl next to Joe yelped and grabbed his arm, laughed into his face and said: "Tell'm I want gin."

The man beyond the girl, holding his belly, wavered to the door, whooping with laughter. He kicked the front window out of the nearby liquor store, came back with the gin.

The girl ripped the top off, lifted the bottle and drank heavily. More bottles were passed around. The liquor store man came in with an armful.

As Joe tried vainly to order his eggs, the girl, gin heavy on her breath, ran warm fingers up the back of Joe's neck and, breathing rapidly, said: "Honeylamb, I don't know who you are, but you're cute as a bug. Who can work on a happy day like this? Come on along with me, huh?"

Joe, still feeling that infuriating smile on his lips, stared at her. She had a very respectable look about her, and she was well-dressed.

Joe meant to say, "No thanks." He heard himself saying eagerly, "Sure. That sounds fine."

They went arm in arm along the street and she stopped every ten paces to take another swig out of the bottle. Two blocks further she

gave a little sigh, slipped down onto the sidewalk, rolled over onto her back and passed out. She had a warm smile on her lips.

Joe stood over her, laughing emptily, until a whole crowd of people, arm in arm, swept down on him, pushing him along with them. He saw a heavy heel tear open the mouth of the girl on the sidewalk, but Joe couldn't stop laughing.

He went down Main Street and it was a delirium of laughter and song and the crash and tinkle of plate glass, the crunch of automobile accidents.

There was an enormous scream of laughter, getting closer every moment, and a large woman fell from a great height onto the sidewalk, bursting like a ripe fruit. Joe grew dizzy with laughter. The crowd who had caught him up passed by and Joe Morgan leaned against a building, tears running down his face, his belly cramped and sore from the laughter, but still horror held tightly to his mind with cold fingers.

Through brimming eyes he saw the street turn into a scene of wild, bacchanalian revel where people without fear, without shame, without modesty, with nothing left but lust and laughter, cavorted, more than half mad with the excesses of their glee.

Slowly he made his way to the *News* Building. In the lobby he saw Sadie Barnum with a stranger. He saw how eager her lips were and she turned glazed eyes toward Joe and laughed and turned back to the man.

And then he stumbled out, bumping into an old man he had seen in the bank. The old man, with an endless dry chuckle, walked slowly wearing a postman's mailbag. The bag was crammed full of bills of all denominations. He cackled into Joe's face, stuffed a handful of bills into Joe's side pocket, went on down the street, throwing handfuls into the air. The wind whipped them about and they landed on the sidewalk where they were trampled by people who had no inclination to pick them up.

A fat grinning man sat in the window of the jewelry store, cross-legged, throwing rings out onto the sidewalk through the shattered window.

"Happy New Year!" he yelled as Joe went by.

And then a woman had come from somewhere and she clung to Joe's neck with moist hands and her eyes were wide and glassy.

Her weight knocked Joe down. He got to his feet and she lay there and laughed up at him. Joe looked across the street to where a burly man strode along dragging another woman by the wrist. A small cold portion of Joe's mind told him, "There is Alice. That is Alice. You have to do something."

He ran between the spasms of helpless laughter and at last he spun the big man around. He wanted to hit him, but instead he collapsed

against him and they both howled with insane glee.

Alice sat on the sidewalk, the tears dripping off her chin, her mouth spread in a fantastic smile. He picked her up, held her tightly, staggered off with her. She kept trying to kiss him.

He knew that he had to get her out of there, and soon.

Twice she was taken away from him by men who roared with joy and twice he staggered back, got hold of her again.

A crowd of men were going down the street, tipping over every car, having the time of their lives. A grinning cop watched them. One of the men took out a gun, pointed it at the cop and emptied it. The cop sat down on the street and laughed and hugged his perforated belly until he died.

Two men stood playing Russian Roulette. They passed the gun back and forth and each man spun the chamber before sucking on the barrel, pulling the trigger.

As Joe staggered by, clutching Alice, the gun went off, spattering them both with tiny flecks of brain tissue from the exploded skull. The man lurched into them, yelled, "Wanna play? Come-on, play with me!"

"Play his game, Joe," Alice squealed.

But Joe, spurred by his hidden store of horror, pulled her along, got her to the car. He shoved her in, climbed behind the wheel, got the motor started.

In the first block a woman tried to ram him. He slammed on the brakes. She went across his bows, smashed two people on the sidewalk and crashed through the main window of a supermarket.

Joe, with Alice gasping helplessly beside him, went three blocks north, turned onto Wilson Avenue and headed out of town. His eyes streamed so that he could barely see.

Ten miles from Daylon he turned up a dirt road, parked in a wide shallow ditch, pulled Alice out of the car, hauled her up across a sloping field to where a wide grassy bank caught the morning sunshine.

They lay side by side and the gasps of laughter came with less and less frequency. Alice, her eyes tortured, pulled herself to her feet, went over behind the shelter of a line of brush and he could hear that she was being very ill. In a few moments the reaction hit him. He was ill, too.

They found a brook at the foot of the field and cleaned up. Their clothes were smeared with dots of blood from the city.

Back on the grassy bank she rolled onto her stomach, cradled her head in her arms and cried monotonously while he gently stroked her dark hair.

Finally she got control of herself. She sat up and he gave her a lighted cigarette.

She said: "I'll never be without the memory of those hours, Joe. Never."

He thought of the scenes, still vivid in his mind. "Do you think you're different?"

"Thank God, Joe, that you found me when you did. Thank God that you kept hold of a little bit of sanity! There was a cold objective place down in me and I could see everything around me and I knew the horror of it, but I couldn't stop joining in."

"Me, too. My mouth's sore from laughing. And my sides."

Because it had to be talked out, because it couldn't be permitted to stay inside to fester, they told of what they had seen, leaving much unsaid, but nothing misunderstood.

He told her about Sadie Barnum and her eyes were soft with pity.

After a long silence he said: "What can we do?"

"That's the question, isn't it? I won't let you go back, Joe."

"What could I do if I went back? Pick the money off the streets?"

He remembered the old man with the mailbag. He took the crumpled bills out of his pocket. Seven hundreds, three fifties and four ones.

Her fingers were tight on his arm. "Joe, we've got to let the rest of the country know what happens."

He shrugged. "They wouldn't even print my dispatches. Why should they listen to me now?"

"But we can't just sit here! Think of the children back in the city, Joe. Can't we . . . save any of them?"

"Let me think," he said. "Let me think of some way we could keep

from getting infected by that . . . that insanity back there."

She said softly: "Suppose you couldn't hear all that . . . that laughing around you?"

He jumped up and snapped his fingers. "I'll bet that's part of it. Not all of it, because deaf men join lynch mobs. But some of it. If you couldn't see and couldn't hear, you'd still sense the excitement around you and some of it would still get to you. You need something to take your mind off it, like in the old days when they bit on bullets, you know, for operations."

"Like a toothache," she said.

"I'm going to try it, kitten," Joe Morgan said. "With my ears stuffed up with cloth and with my pet filling removed and a pebble in the socket where I can bite down on it. I have to see what's going on down there."

"And I go with you, Joe. I won't stay here alone and I can help and if it should start to get you, darling, I'll be there to . . . to help you."

V.

Joe Morgan, his crooked grin loosely in place, and Alice Pardette, pale and shaking with the white horror of what they had seen in the streets, stood in the almost deserted telephone building.

"You sure you can run one of those long distance switchboards?"

"I did that work for over a year. Come on."

Her fingers were quick with the plugs. He said: "Get the state capitol. See if you can land the governor himself."

She talked into the mouthpiece, her tone flat and insistent. At last she motioned to him. He picked up the phone off the nearby desk.

A warm, hearty voice said: "Gudlou speaking. Who did you say this is?"

"Governor, this is Joseph Morgan speaking from Daylon. I want to make an immediate appeal for help. Call out the National Guard. Get men here. Men and ambulances and tear gas. The town has gone crazy."

"Is this some sort of a joke?"

"Check with the phone company and the telegraph people. Try to get our local station on your radio, sir. Believe me, this is a terrible mess here."

"But I don't understand! What has happened there?"

"This Happiness, Incorporated, thing, sir."

The govenror laughed heartily. "Very clever publicity stunt, Morgan, or whatever your name is. Sorry, my boy, but we can't use the National Guard to promote your product, even if I do have an appointment for my first shot."

"Look, sir, send over a plane. Get pictures—"

But the line was dead. Joe sighed heavily. "Didn't work, angel. See if you can get me the President."

But after two hours of fighting their way up through the ranks of incredulous underlings, they were forced to give up. The world would know soon enough. With the trains

halted, buses and trucks stalled in the city, all communications cut, the world will begin to wake up and wonder what had happened to Daylon.

One day of madness, and another, and another, and another. The streets resound with hoots of hoarse laughter. Bodies lie untended. It is discovered that detachments sent in to help fall under the general spell. News planes circle overhead by day and all roads leading to town are jammed with the cars of the curious, those who come to watch. Many of them get too close, stay to revel and to die.

The power plants have failed and at night the city is lighted by fires that burn whole blocks.

The laughter and the madness go on.

Throughout the nation the various clinics set up by Happiness, Incorporated, cut the fees and go on twenty-four hour operation. The spokesmen for Happiness, Incorporated, say that the riots in Daylon are due to an organized group attempting to discredit the entire program.

And at the end of the fifth day the laughter stops as though cut with a vast knife.

Joe Morgan, unshaven and pale with fatigue, drove the last busload of screaming children out of Daylon. With the money he and Alice had taken on that first day, nearly two million dollars of cash, they had set up emergency headquarters in Lawper, a fair-sized village seventeen miles from Daylon. Renting space, hiring a large corps of assistants, they had managed to evacuate nearly thirty-six hundred children, tend their wounds, feed them and house them.

Organized agencies were beginning to take some of the administrative burden off their hands.

Alice, looking pounds thinner, stood by him as the attendants took the children off for medical processing.

"What was it like, Joe?" she asked.

"The whole city has a stink of death. And the laughter has stopped. It's quiet now. I saw some of them sitting on the curb, their faces in their hands. I think it's going to get worse."

VI.

NEWS BULLETIN, 6 P.M., OCT. 3rd: "First in the news tonight is, as usual, the city of Daylon. The stupendous wave of suicides is now over and the city is licking its wounds. Those wounds, by the way, are impressive. Twenty-one hundred known dead. Four thousand seriously injured. Fifteen hundred missing, believed dead. Property damage is estimated at sixty millions, one third of the city's total assessed valuation. Today the Congressional Investigating Committee arrived at Daylon, accompanied by some of the nation's outstanding reporters of the news. The courage with which the good people of Daylon are going about the repair of their city is heartwarming. Psychologists call this a perfect example of mass hysteria, and the cause is not yet explained."

FROM THE DETROIT *CITIZEN BANNER*, OCT. 7th: "Judge Fawlkon today refused to allow an injunction against the three local clinics of Happiness, Incorporated, brought by the Detroit Medical Association who state that the Daylon disaster may have its roots in the inoculations given in that city, used as a test locale by Happiness, Incorporated. Judge Fawlkon stated that, in his considered judgment, there was no logical reason to link these two suppositions. Court was adjourned early so that the judge could keep his appointment at the nearest clinic of Happiness, Incorporated."

FROM THE BUNNY JUKES PROGRAM:
Stooge: Hey, Bunny, I understand that you've got the lowdown on what happened over there in Daylon.
Bunny: Don't tell anybody, but Daylon was the first place where the new income tax blanks were distributed.
Audience: Laughter.

EDITORIAL IN THE DAYLON *NEWS:* "The attitude of the courts in making no effort to prosecute citizens of Daylon who unknowingly committed crimes during the recent Death Week is an intelligent facing of the facts. However, this paper feels that no such special dispensation should be made in the case of the codefendants Joseph Morgan, one-time reporter on this newspaper, and Alice Pardette, one-time employee of Happiness, Incorporated. It has been proven and admitted that the codefendants were able to resist the inexplicable hysteria and did knowingly enter the city and make away with close to two million dollars in cash. The fact that a portion of this money was used to evacuate children is mildly extenuating, but, since the codefendants were captured by police before they had fulfilled their expressed 'intent' to return the balance of the funds, their position is feeble indeed. Other organizations were prepared to aid the children of this city. It is hoped that Joseph Morgan and Alice Pardette, when their case comes to trial, will be punished to the full extent of the law, as their crime is indeed despicable."

EXCERPT FROM TOP SECRET MEETING IN THE PENTAGON, GENERAL OF THE ARMIES LOEFSTEDTER PRESIDING: "To summarize, a key utility, the X Plant, has been almost totally destroyed in the Daylon hysteria. We believe that the riot was fomented by enemies of this nation for the express purpose of destroying the plant. The report of the Committee on the Establishment of Alternate Facilities will be ready at next month's meeting at which time decisions can be made and contracting officers appointed. As the finished products in storage at the X Plant were also destroyed by fire, our situation is grave. Head of Field Service will immediately suspend all tests at the Proving Ground and assembled items in the hands of troops will be strictly rationed."

The fat guard said: "I shouldn't do this, you know."

Joe said: "Sure, I know. But we just happened to keep your kid from being burned to death and you want to make it up to us."

"Yeah," the guard said. "You wait in here. I'll go get her."

Joe waited five minutes before Alice was brought into the small room. She was wan and colorless, dressed in a gray cotton prison dress. She gave Joe one incredulous look and then ran to him. He felt her thin shoulders shake as he held her tightly.

"Hey, they can't put you in here!" he said softly, was rewarded by her weak smile. He winked over her shoulder at the guard. "Wait in the hall, junior."

The guard shrugged, left them alone in the room.

Alice said: "Why are they doing this to us?"

"They've got to be sore at somebody, you know. They've got to take a smack at something. Only they aren't taking it at the right people, that's all. Besides, we've got nothing to fret about."

She regained her old fire. "Just what do you mean, Joe Morgan?"

He grinned. "When does our case come up for trial?"

"November 10th they said," Alice said, her head cocked on one side.

"And before that we walk out of here during the next little attack of 'hysteria'."

"Oh, Joe!" she said. "It isn't going to happen again! Not again!"

"The way I see it, baby, it's going to keep right on happening. So get the earmuffs ready."

"Keys, Joe!" she said in a half whisper.

"Leave that to me."

Once again the spring is wound taut in Daylon. Once again the joy comes bubbling up, the joy and the anticipation. There is no more mourning for the dead. The streets are festive. The October days are crisp and cool. Many have sudden little twinges of fear, but the fear is forgotten in the heady flood of anticipation of delights to come.

Two dozen cities have passed the fifty percent mark. Among them are Detroit, Chicago, New Orleans, San Francisco, Philadelphia, Pittsburgh, Boston, Buffalo, Los Angeles, Houston, Portland, Seattle, Cleveland, Cincinnati, Atlanta—and ten other big cities. A round three dozen smaller cities are above forty percent.

And then all of the clinics are suddenly closed. Millions are infuriated at missing their chance.

But the clinic personnel all show up in New York City. Mobile units are established and the price of inoculation is cut to fifty cents. New methods speed up the work. The clinics work day and night.

All over the country happiness grows constantly more intense. It can be felt everywhere. Man, for a time, is good to his neighbor and to his wife.

All over the country the vast spring is wound tighter and tighter. At the eleventh hour the original personnel of all the clinics, and they are a surprisingly small number, board a steamship at a Brooklyn dock. Reservations have been made weeks in advance.

On the morning of explosion, the ship is two hundred miles at sea.

And fifty-one percent of the population of Greater New York have been inoculated.

A famed public document speaks of "the pursuit of happiness."

It has been pursued and it has been at last captured, a silver shining grail, throughout the ages always a misty distance ahead, but now at last, in hand. It is a grail of silver,

but it is filled with a surprising bitterness.

On the morning of explosion, every channel of communication, every form of public conveyance, all lines of supply are severed so cleanly that they might never have existed.

An air lines pilot, his plane loaded with a jumbled heap of gasping and spasmed humanity, makes pass after pass at the very tip of the Empire State Building until at last the radio tower rakes off one wing and the plane goes twisting down to the chasm of the street.

On a hollywood sound stage a hysterical cameraman, aiming his lens at the vista of script girls and sound men and actresses and agents takes reel after reel of film which could not have been duplicated had he been transported back to some of the revels of ancient Rome.

In New Mexico screaming technicians shove a convulsed and world-famous scientist into the instrument compartment of a V-2 rocket and project him into a quick death ninety miles above the clouds.

In Houston a technician, bottle firmly clutched in his left hand, opens the valves of tank after tank of gasoline.

He is smiling as the blue-white explosion of flame melts the bottle in a fraction of a second.

When he opened the door to her cell, Alice had a taut, mechanical smile on her lips. He slapped her sharply until she stopped smiling. He carried two guns taken from the helpless guards who rolled on the floor in the extremity of their glee at this ludicrous picture of two prisoners escaping.

He found a big new car with a full tank of gas a block from the jail. Together they loaded it with provisions, with rifles and cartridges, with camping equipment. And, five miles from the city he was forced to stop the car.

It was twenty minutes before he could stop trembling sufficiently to drive. He told her of his plans, and of what he expected and about their destination.

At dusk he drove down to the lake shore, the tall grasses scraping the bottom of the car. There were kerosene lamps in the small camp, a drum of kerosene in the shed back of the kitchen.

The last of the sunset glow was gone from the lake. The birds made a sleepy noise in the pines. The air was sweet and fresh.

While Alice worked in the kitchen, he went out and tried the car radio. He heard nothing but an empty hum. His heart thudded as he found one station. He listened. He heard the dim jungle-sound of laughter, of the sort of laughter that floods the eyes and cramps the stomach and rasps the throat. With a shudder of disgust, Joe turned off the radio.

They finished the meal in odd silence. He pushed his plate away and lit two cigarettes, passed one to her

"Not exactly cheery, are we?" she said.

"Not with our world laughing itself to death."

She hunched her shoulders. "To death?"

He nodded. "Lewsto was a phony. He knew what would happen, you know. He had a plan. He was under orders."

"Whose?"

"How should I know? The country is laughing itself to death. They'll wait, whoever they are. They'll wait for the full five days of hysteria and the first few days of mass suicide—and then they'll move in. Maybe there'll be enough of us left to make an honest little scrap of it."

"But why, Joe? Why does it work that way?"

"You ever hear of resonance?"

"Like a sound?"

"The word covers more than that, Alice. It covers coffee sloshing out of a cup when you walk with it, or soldiers breaking step crossing a bridge. Daylon and the other cities were fine when everybody had their own pattern. But now all the patterns are on the same groove. Everybody is in step. Everybody adds to everybody else's gaiety and it builds up and up to a peak that breaks men apart, in their heads. Pure resonance. The same with the depression. Ever hear one of those records with nothing but laughter on them. Why'd you laugh? You couldn't help it. The laughter picked you up and carried you along. Or did you ever see people crying and you didn't know the reason and you felt your eyes sting? Same deal."

"What's the answer, Joe?"

"Is there any? Is there any answer at all? We had the best ships and the best planes and the best bombs and the biggest guns. But we're laughing ourselves out of them."

He stood up abruptly, grabbed his jacket off the hook and went out onto the long porch of the camp overlooking the dark lake. Porch and lake that were a part of his childhood, and now a part of his defeat.

There was only a faint trace of irony left in him. He grieved for his nation and he felt the helpless stir of anger at this thing which had been so skillfully done, so carefully done, so adequately done.

She came out and stood beside him and he put his arm around her waist.

"Don't leave me, Joe," she whispered. "Not for a minute."

His voice hoarse, he took the massive seal ring off his finger, slipped it over hers, saying, "With this ring I thee wed. Fugitives get cheated out of the pageantry, angel."

She shivered against the night, said: "Dandy proposal. I'm wearing the ring before I can open my mouth to say no."

"Then give it back."

"A valuable ring like this! Don't be silly."

He laughed softly. She moved away from him. Her face was pale against the darkness. "Please don't

laugh, Joe. Ever. I never want to hear laughter again."

Her hands were like ice and her lips were tender flame.

VII.

FOURTH BULLETIN OF THE PROVISIONAL GOVERNMENT, NOV. 12: "Remnants of the 11th and 14th Army Corps, fighting without air cover, today bent the left prong of the pincer movement of the two enemy columns converging on the provisional capital at Herkimer, Idaho. In spite of determined resistance, eventual capture of the provisional capital seems imminent. All troops and irregulars isolated by enemy columns will endeavor to make their way through enemy lines to bolster our position. Live off the land. Conserve ammunition. Make each shot mean the death of an invader. All troops and irregulars who did not undergo adjustment under the auspices of the invader's Trojan Horse, miscalled Happiness, Incorporated, will be careful to stay away from the cities. All commanders will discover which men under their command have been 'adjusted' and will mark these men unfit for further duty."

PAMPHLET AIR-DROPPED BY BOMBERS OF THE INVADER EXPEDITIONARY FORCES: "Americans! Lay down your arms. Further resistance is useless. Your active army is outnumbered five to one and virtually without equipment. You have lost the war. Help to make the peace as easy on you as possible. For each day of continued resistance your eventual food ration will be cut a certain percentage. Lay down your arms!"

"Drop it!" Joe Morgan snapped. He held the rifle leveled. The two men in ragged field uniform, swaying with weariness dropped their weapons, a carbine and a submachine gun. They were dirty and unshaven and one of them had a bandage, dark-stained with blood across his left hand.

"Move over to the side!" he ordered. The men obeyed meekly. Alice went down the steps and picked up the weapons, staying well out of the line of fire.

"Who are you?" Joe demanded.

The older of the two said, deep weariness in his voice: "Baker Company, Five oh eight battalion, Eighty-third." Then he added, with a note of ironic humor, "I think maybe Harry and me are the whole company."

"You've given up, eh? You're looking for a hole to hide in."

The younger one took two heavy steps toward the porch. He said: "Put down that pop-gun, junior, and we'll talk this over. I don't like what you said."

"Shut up, Harry,' the older one said. "Mister, yesterday we picked us a nice spot and kept our heads down until they come along with a high-speed motor convoy. They were too close together. We killed the driver in the lead truck and piled up the convoy. We sprayed 'em real nice and got away up the hill. As long as we got a few rounds we're not through."

Joe grinned. "Then welcome to the Morgan Irregulars. Come on in. We've got food and hot water and some bandages for that hand. How close do you guess they are?"

"Fifteen miles, maybe. But

they're not headed this way. They're using the main road as a supply line, I think."

The men came up on the porch. Joe stood his rifle beside the door. The older man said: "What makes you think we won't bust you one and take your food and take over your nest, mister?"

"Because," Joe said, "you have a hunch that maybe I can help you be a little more effective. You don't know what I got up my sleeve. And besides, you're not the first guys to get here, you know. If you'd made a move toward that rifle, you would have caught a surprise from the brush out there." He turned and said, "O.K., guys. These two will do."

By twos and threes about fifteen well-armed men sauntered out of the brush.

America in turmoil. Not a man but who, at some time in his life, had speculated on how the country would behave under the iron heel of an invader. Had the softness of life in this big lush country destroyed the hidden focus of resistance? Where was the heart of the country?

Gaunt and bearded men, with nothing left but fury, rushed the armored columns with home-made bombs of rags and gasoline. The

jacketed bullets smashed them down but always a few got close enough to throw the bomb and die. And black greasy smoke wound up into the fall sky and the blackened hull of a vehicle was towed off onto the shoulder, sentinel of death, monument to valor.

In the night an absurdly young man wormed on his belly behind the hangars, killed the guard with a knife, crawled into the cockpit of the jet fighter, ripped off into the pink dawn. They climbed after him. He went around in a screaming arc, leveled out twenty feet above the ground, and smashed himself and the alien ship into whining fragments—but he took with him six of the enormous bombers.

A destroyer, the last of the fuel almost gone, cut all lights, drifted like a wraith through the night, drifted with the tide into a vast harbor where the enormous supplies of invasion were being unloaded under the floodlights.

Erupting with all weapons, with the boiling wake of torpedoes, the can fought and smashed its way down the line of freighters, drifting at last, a flaming ruin into one last supply ship, blanketing it in the suicide flame.

In the Sangre de Cristo Mountaintains three full divisions hide, and at night the patrols in strength smash invader communications, blow up ammunition dumps. When the bombers sail out at dawn to punish such insolence, nothing can be seen but the raw red rock of the mountains.

The Invader, taunted and stung from every side, lashes in fury, destroying without cause, forsaking all plans of gentle administration to rule by flame and by the firing squad and with machine guns aimed down the deserted streets of the silent towns.

The common denominator is fury, and the pain of loss. But thirty-five millions, the city dwellers, are yet hostage to the new weapon of emotional resonance, and as the long days go by, the empty and hopeless days, once again within them builds up the cretin joy, the mechanical gaiety, the vacuous death-dance, threatening to explode once more into crazy violence.

Thirty-five millions, tied, one to another, by a life-rhythm so carefully adjusted as to be the final indignity meted out to the human spirit.

They have not left their cities and neither the attacks of the Invader nor the destructive joy of the adjusted has served to destroy those cities.

The Invader, wise in the ways of his own weapon, evacuates his troops from the afflicted cities during the week before the emotional peak is reached.

Joe Morgan, grown to new stature during this time of trial, has carefully husbanded his strength, has made no move so flagrant as to cause a punitive column to be sent to the small lake. He has sent his men on recruiting missions and his force has grown to over two hundred.

Seventy miles away is a small city where, before the invasion, there was a splendid medical center. A spy returns and reports to Joseph Morgan that the doctors from the medical center have been impressed into the medical service of the Invader, that they work in the original medical center, now filled with Invader troops.

Joe Morgan remembers a feature story he once wrote—on a certain Dr. Horace Montclair.

Five days before the adjusted were to reach their emotional peak, their five-day orgy, Joe Morgan, leading a picked group of ten men, crouched in the back of a big truck while another of his men, dressed in a captured uniform, drove the truck up to the gate of the medical center.

The gate guard sauntered over to the cab window, reached a hand up for the transportation pass. The entrenching tool smashed the guard's throat and he dropped without a sound. The truck rolled up to the main building and Joe led the ten men inside.

In the stone corridor the weapons made a sound like a massive hammering on thick metal.

But four men backed with Joe out the door to the waiting truck. One of them was Dr. Montclair.

The dead guard had been found. Whistles shrilled near the gate. Joe, at the wheel, raced the truck motor, smashed the slowly closing gates, rode down the men who stood in his path.

He took the road west out of town, as planned, pursuit in swifter vehicles shrilling behind them.

At the appointed place he stopped the truck. The five of them ran awkwardly across the field, dropped into a shallow ditch. The pursuit screamed to a stop by the abandoned truck. A patrol spread out, advanced slowly across the field.

At the proper moment Joe shouted. The rest of his command, the full two hundred, opened up with a curtain of fire. Two men of the patrol turned, tried to race back, and they, too, were smashed down by the aimed fire.

In the black night they circled the town, headed back across country to the quiet lake. The return trip took three days.

The windows of the cabin were carefully sealed. Joe Morgan sat at the table facing Dr. Montclair. They were alone, except for Alice who sat back in the shadows. She, like Joe Morgan, had acquired a new strength, a new resolution, born both of anger and despair and the shared weight of command.

"It was daring, my friend," the doctor said. He was a small man with too large a head, too frail a body, looking oddly like an aging, clever child.

"It was something we had to do," Joe said, "or go nuts sitting here waiting for company."

"I didn't care for you, Mr. Morgan, when you interviewed me. I thought you lacked integrity of any sort."

Joe grinned, "And now I've got some?"

"Maybe that wryness which is an essential part of you is what all men need in these times. But we are getting too philosophical, my friend. What can I do for you?"

"Doc, you've studied this Trojan Horse of theirs, where the people defeat themselves. What's the answer?"

"Just like that? The answer?" Dr. Montclair snapped his fingers. "Out of the air? Answers have to be tested. I have suppositions only."

"There isn't much time to set up a lab to do the testing. Just pick your best supposition and we'll work on it."

Dr. Montclair rubbed his sharp chin, stared at the table top. "Obviously one of the basic qualities of the disease, and we will call it that, is the progressive infectiousness of it. The peaks are intensified by the proximity of the other victims. Thus one possible answer is isolation. But the infected must be thinned out to such an extent that they do not, in turn, infect their neighbors, eh?"

"Oh, sure. Thirty-something million people, so we isolate them."

"Do not be sarcastic, Mr. Morgan. Another thought is whether, if a man were drugged heavily enough, it would delay his cycle so that his peak would come at a different time, thus destroying the synchronization which appears to be the cause of resonance."

"Look, Doc, those suppositions are interesting, but we have a little war on our hands. I've been wondering how we can turn their Trojan Horse against them. A horse on them, you might say."

"They have withdrawn from the focal points of infection, my boy. They are unwilling to risk infection of their troops."

"How many men would you say they have inside our borders?"

"I can make a guess through having seen consolidated medical reports. Forty divisions, I believe. With service troops you could estimate the total strength at one and a quarter millions."

Joe Morgan whistled softly.

He said: "In two days the peak of hysteria hits again. The cities will be like . . . like something never seen before on earth. How does the Invader plan to handle it after all resistance has stopped?"

Montclair spread his hands, shrugged his shoulders. "Do they care? Left alone the thirty-something millions will at least tear themselves apart. The human mind cannot stand that constant pattern. Suicide, laughing murder. They will cease to be a problem and then the empty cities can be occupied safely."

"There's nothing we can do in time for the next big binge?"

"Nothing," Montclair said sadly.

"Then we've got roughly thirty-two days to dream up a plan and put it in operation. What've we got? A few hundred men, ample supplies, a hidden base and some expert technical knowledge. We're not too bad off, Doc. Not too bad off at all."

VIII.

STATUS SUMMARY, RADIO REPORT BY COMMANDING GENERAL, EXPEDITIONARY FORCES: Resistance continued to stiffen up until ten days ago. Then, when the peak of hysteria was reached, the cities ceased to operate as supply bases for guerrilla forces. Death in the cities was high, our forces having withdrawn to safe positions to avoid contagion. The breathing space was used to track down and eliminate hundreds of irregular groups engaging in punishing ambushing tactics. Our lines were consolidated. Resistance by organized and uninfected detachments of the enemy army continues high, but their position is, of course, hopeless. With amazing ingenuity they have constructed certain airfields which our bombers have, as yet, been unable to locate. But it is merely a question of time. It is regretted that so many of the naval vessels of the enemy were permitted to escape the surprise attacks, as they are definitely hampering supply.

REPORT BY COMMANDING GENERAL, ARMIES OF DENFENSE, TO THE PROVISIONAL PRESIDENT: Supply and manpower is no longer adequate to permit the utilization of standard military tactics. All our forces are now concentrated in mountainous regions in positions which cannot be overrun except by Invader infantry. All labor battalions are now engaged in the construction of defensive points. All future offensive action will be limited to patrols. It is thus recommended that the production facilities now housed in the natural caves be utilized entirely for small arms ammunition, mortar projectiles, pack howitzer ammunition. Strategy will be to make any penetration of our lines too expensive to be undertaken. The critical factor is, as previously stated, food supply.

EXCERPT FROM STENOGRAPHIC RECORD, MEETING OF PROVISIONAL CABINET CALLED BY PRESIDENT TO HEAR PROPOSAL OF GUERRILLA LEADER:

President: I wish to explain, gentlemen, that Joseph Morgan, with four of his men parachuted behind our lines from an aircraft stolen, at great cost to his organization, from the Invader airfield twenty miles west of Daylon. Two of his men were shot by our troops as they landed.

Morgan: We had no way to identify ourselves.

War: Do you have any way to identify yourself now? Some of our people have been willing to turn traitor for the sake of their future safety.

Morgan: Don't you think I could have picked an easier way?

President: Gentlemen, please! Joseph Morgan has been thoroughly interrogated by our experts and they are satisfied. Mr. Morgan has been in conference at his base with a Dr. Montclair, an endocrinologist of international reputation. He brings us a proposal which I, at first, refused to countenance. Its cost is enormous. But it may end this stalemate. I ask you to listen to him. I could not make this decision by myself. I have not the courage.

Finance: This is not a stalemate. This is slow defeat. I will favor any plan, no matter how costly, which will give us a shred of hope.

Morgan: I'll outline the plan and then give you Montclair's reasoning.

Winter war. December has blanketed the east with a thin wet curtain of snow. Winter is hard on the irregulars, but works no hardship on the troops of the Invader. The vast food stocks of the nation are his, as

are the warm barracks, the heated vehicles, the splendid medical care.

A guerrilla with a shattered ankle dies miserably in the cold brush, near the blasted fragments of the house in which he took shelter.

The cities are thinned of people. For the first time it is noticeable. The last emotional debauch took five millions. Now there are thirty millions left. They have a breathing spell.

Invader troops are given leave in the cities. They go armed. They sample the wines, flirt with the women and sing their barbaric songs and gawp at the huge trenches which were dug to bury the dead of the cities.

Once again there is light and heat in the cities. The winter is cruel, but there is heat. And there is foodstuffs in the markets, though not enough. Not nearly enough.

Were it warm summer, possibly the adjusted would leave their cities, would go into the countryside to be away from the places of horror. In the south and in California they try to leave, are roughly herded back by the Invader who seems to say, "Stay in the traps I have prepared for you and die there."

This is a policy decreed by a man named Lewsto who, high in the councils of the Invader, walks with pigeon tread and squared shoulders, the new and highest medal of his country shining on the left breast of the drab uniform.

Cyclical nightmare. The slow upward climb toward crescendo has begun once again, and no man looks squarely into the face of his neighbor, knowing that he will see there some of the fear and horror that has coldly touched his heart. And yet, each man and woman has a secret place which revels in the thought of the nightmare to come. It is like an addiction to a strange drug. Nightmare there must be, and death there must be, but with guttural shouts of animal joy, with a wild, unheeding passion of insane laughter, when consequences are not considered, nor are the customary mores and folkways.

Each adjusted person in the city feels shame in his heart because, though he knows that pure nightmare lies ahead, nightmare which he may not survive, he yet anticipates it with a certain warm and soiled sense of expectancy.

This, then, is the conquered country, the proud race, the men who know defeat, and yet cling to the manner of their defeat, an overripe fruit, plucked once each month.

In a silent cabin Alice sits at the rude table and the glow of the lantern highlights the strong cheekbones, the limpid mouth, and she is beautiful indeed.

Dr. Montclair sits opposite her. Quickly he touches her hand. "He will make it, Alice. I know he made it."

"He's gone. That's all I know. Somebody else could have gone. But he had to go."

In the brush there is the quick and angry spat of a rifle, the answering

sound of an automatic weapon, like some vast fabric being torn, the fabric of the night.

As Montclair takes the weapon propped against his chair, she quickly blows out the lantern and, together in the darkness, they listen.

Hoarse shouts from the brush, the authoritative crump of a mortar, alarmingly close, a scarlet blossom against which each bare twig stands out with the bland clarity of death.

"They're coming in from both sides," she whispers.

The rifle fire fades and slugs grind against the cabin walls, throwing splinters that whine.

Montclair is on his belly on the porch, Alice behind him in the doorway. As they come running across the slope toward the porch, running with the heavy thump of men in full equipment, Montclair sprays a line of fire across them. Many fall, but the others rush the porch. She fires again and again, seeing Montclair die suddenly, firing until the hand slaps the rifle away.

She is thrust into a corner and there are six of them in the room, seeming to fill the cabin. The lantern is lit and they look at her and talk among themselves and she knows that she should have saved one of the rifle bullets.

Two of them advance toward her, slowly. They spin and snap to attention as the officer enters. He looks at her, snaps something at the men. Then, with surprising gentleness he lifts her to her feet. He leads her up through the brush to the waiting vehicle. She turns and whimpers in her throat as she sees through the black lacework of trees, the flower of flame that grows from the cabin.

Every remaining plane is committed to the venture. Every last one.

Brave men have managed, somehow, to set up the short wave radios behind the Invader lines.

The teams are carefully instructed. And there are several teams for each portion of the venture, as losses will be high.

At last the word comes. The great emotional springs are once again winding taut. The word comes. "Today the Invader moved all personnel out of the cities."

Joe Morgan, burdened with sixty pounds of equipment, climbed laboriously into the belly of the transport. The interior of the aircraft was dark. Cigarette ends glowed and the men laughed with the calculated steadiness of men who are gambling life itself.

The officer stood in the doorway and said: "Team Eighty-two?"

Joe answered, "Eighty-two, Morgan commanding. All present and accounted for."

The officer jumped down and the big door slammed. The huge cavern in the side of the mountain reverberated to the roar of many motors. The very air shook and quivered with the vibration. Outside the doz-

ers were dragging the rocks off the runway.

At last the cave doors were rolled back. The first transports rumbled awkwardly to the doorway, gaining speed, gaining agility, moving out, roaring along the runway, lifting off into the night.

Team Eighty-two was airborne and Joe, squinting through the side window saw the streaked jets of the fighter cover.

The scene was duplicated at other hidden fields.

Ten minutes before interception on the basis of radar watch over the mountains.

Interception came. Invader pursuit ships were dark lances in the night. Distant flames, like weak candles, blossomed briefly and were gone in a red line of fire toward the sleeping earth.

The lumbering transport weaved heavily through the night, and Joe Morgan sat in a cold agony of fear.

From time to time he glanced at the illuminated dial of his watch. At last he said loudly, over the motor roar: "Fasten static lines."

He reached up and snapped his own, tugged on it to test it.

Ten minutes, twelve, fifteen. The wing lifted and the transport slipped down, down, to where the city lights glimmered through the overcast. Spiraling down.

The plane seemed to brake in the air as the flaps caught hold, seemed to waver on the very edge of instability.

The wind was a shrill blast through the open door. "What are you doing here, Morgan?" Joe asked himself softly.

He braced his hands against the sides of the door, saw the target area below. The man behind him had a hand on Joe's shoulder.

Joe stepped out into the night, into the cold, tumbling night, and the flatness of the city spun around him like a vast wheel. The sharp jolt caught him and he swung pendulum-wise toward the darkened earth, swinging under the pale flower of silk.

Then he was tumbling on the

frozen ground of the park of the big city, grasping the shroud lines, bracing his feet, fumbling with the buckles. The chute collapsed and he stepped clear of the harness.

"Over here," he yelled. "Over here."

Roll call. "Peterson, Barnik, Stuyvessant, Simlon, Garrit, Reed, Walke, Purch, Norris, Humboldt, Crues, Riley, Renelli, Post, Charnevak."

All but one. One was imbedded to half his thickness in the frozen earth.

They were in a silent circle around him.

He said: "You all know this town like the palm of your hand. You each have your sectors and your instructions. You know the plan and you know that it has to work."

He was silent for a moment. Then he said: "After it goes off, it's every man for himself. We meet back here. Good luck."

At base headquarters of the Invader, the commanding general listened gravely to the report of his Air Intelligence.

After listening, he made his decision. "Apparently they desire to set up, within the cities, focal points of resistance. You believe that men were airdropped into every one of the major cities and most of the smaller cities which are infected. It is obvious to me that they underestimate the extent of hysteria which will hit the cities within four days. We will wait until after the hysteria, until after the suicide period, and then we will go in and eliminate the men who were airdropped."

The reporting officer saluted, turned smartly and left the office.

Joe Morgan stood in the cold gray morning and looked at Daylon. He had found and taken over one of the many empty rooms in the city. The city had suffered greatly.

He carried a heavy suitcase. As he walked down the morning street he looked carefully at the houses. Whenever he saw an empty one he broke in quickly, opened the suitcase, took out a small package the size of a cigarette package.

In each house he left the package in a different place. But the favorite spot was in the cellar, wired to the rafters overhead.

He saw a few people that he knew. They looked blankly at him, smiled and went vaguely about their business.

The people of Daylon were lean and ragged and their eyes were hollow. But they smiled constantly.

In mid-morning, a smiling policeman in a dirty torn uniform asked him what he was doing. Joe said: "Come in here and I'll show you." The policeman followed Joe through the door Joe had forced.

Joe pivoted, hit the man on the chin with all his strength, walked back out of the house carrying the suitcase.

Carefully he covered the sector he

had allotted to himself. Public buildings, houses, garages, stores. In many places he had to be extremely cautious. In stores he hid the packages among slow-moving merchandise. The city went through the motions of existence, but on every face was the look of expectancy.

Four days before the explosion of emotions, before the laughing orgy of death. Three days. Two days. The last of the packages has been placed. But there are four much larger packages to be delivered.

And these are delivered at night.

At night he found a stout iron bar, used it to pry up the manhole covers. The large packages nestled comfortably against the welter of cables and pipes.

This is the day before the tight spring will snap. Already there is empty laughter in the streets of the city, in the streets of all the vast cities.

The armies of the Invader, well removed from the focal points of contagious hysteria, clamp severe restrictions on all areas to prevent the curious from sneaking off to the cities.

At eleven o'clock on the morning of the day before pandemonium will reign, the streets of the cities vibrate to the massive thump of subterranean explosions. Steel manhole covers sail up into the air, turning lazily, smashing pedestrians as they fall. The underground caverns roar with burning gas and then the roaring is gone as the severed water pipes spill the contents underground.

All electricity ceases to flow.

One hundred and seventy-one teams won through. Sixteen men to a team. Four bombs and one thousand of the deadly half-ounce packages to each man. Ten thousand nine hundred and forty-four explosions in the bowels of the great cities. Two million, seven hundred and thirty-seven thousand of the deadly packages distributed.

For this is a kind of suicide, on a vast and generous scale.

The packages are closely co-ordinated. A few sputter prematurely, but within a few minutes after the explosions, the acid has eaten through the lead shields within more than half of them. They flame into life, burning with a white dazzling flame that has an intensity of twenty-four hundred degrees Fahrenheit and a duration of twenty minutes. All of the fading resources of an almost-conquered nation has gone into the preparation of these packages of death.

With the water supply crippled, there is no possibility of fighting the fires.

Whole streets erupt into flame and the melted glass of the windows runs across the pavement.

It is almost too successful. The densely populated eastern seaboard is one vast pall of smoke drifting in the crisp December air.

Too many die in the flames. Far too many.

But from the roaring furnaces of the cities nearly thirty millions wind like sluggish worms into the countryside.

They have fear of the flames, fear of death, fear of pain—but it is not until tomorrow that they will be unable to feel fear.

And so, with empty idle smiles, with vacuous eyes, they move toward the vast camps of the Invader.

The Invader is outnumbered by the victims of his satanic adjustment —twenty-five to one.

Too late, the danger is seen.

The camps of the Invader are near the cities. They straddle the main roads. Machine guns are manned and white-lipped men fire prolonged bursts into the crowds that move so slowly. And at last they are revolted by the slaughter of these who smile, even in death, and they refuse to obey orders.

The day darkens and in the night the cities are vast pyres that redden the sky. The cities of America burn with a brave flame and the sound of the roaring can be heard for many miles. The fire is behind them and the guns, unmanned by now, are ahead of them.

At dawn the Invader orders the armies to retreat away from these mad ones, to retreat to the fastness of the hills.

But already the infection is at work. Already the spirit of spontaneous hysteria has begun to infect the troops of the Invader.

Massive tanks sit empty while men shout hoarsely and dance in the street. The planes are idle, the guns unmanned, the officers joining their men in a frenzied rapport with the victims of disaster.

Suddenly the spirit grows among them that they are celebrating victory. Victor and vanquished revel until they fall exhausted, sleep, rise to bellow with laughter, to stare with glazed eyes at the winter sky, howl with the voices of wolves.

It is a party of death, lasting for day after day, with all thought of food forgotten, and the cities burn brightly every night and the winter sun by day is shrouded with the drifting black smoke of utter destruction.

STATUS REPORT, HQ, ARMIES OF DEFENSE: At dawn today all columns were within striking distance of all corps headquarters of the Invader forces. Scouts report utter exhaustion in enemy ranks, black depression among individuals, a constant sound of small-arms fire indicating a high incidence of suicide among the Invader troops. All personnel has strict instructions about the destruction of equipment. The attack will begin at dusk.

INTERCEPTED RADIO FROM CONVOY COMMANDER: Convoy taking reinforcements to our armies attacked at dawn by strong naval force of enemy. Some of our ships, manned by enemy, were among attacking vessels. Numerous troop ships bombed by our own planes, apparently manned by enemy forces. Loss incidence so high that we were forced to turn back at ten hundred hours. Request immediate air cover if convoy is to proceed.

Joe Morgan held tightly to the

trunk of a small tree halfway up the slope six miles from Daylon. Even at this distance he could feel the intermittent waves of heat against his face.

But five men were left of his group. They were scorched, blackened, drugged with weariness.

"Listen!" he said.

The six men stood, listening intently. They heard the rising sound of battle, the hammer blows of artillery, the distant thin crackling of small-arms fire.

The crescendo of battle rose sharply, faded, subsided, until they could hear nothing.

"Five bucks says we took them," Joe said.

IX.

FIRST NATIONAL PROCLAMATION: The determined attack to land another force on our shores has been beaten back with heavy losses to the enemy. At the moment our continental limits are intact once more. Hourly we grow stronger as we manufacture weapons to supplement those taken from the Invader armies after the burning of the cities. The Invader has been weakened by the loss of the cream of his troops, the most modern of his equipment. Three of our naval teams are pursuing the shattered remnants of the Invader convoys. This morning the Invader capital was subjected to intensive bombing and his principle port was rendered untenable by an underwater explosion of an atomic bomb in the main ship basin.

Joe Morgan stood in the barren hallway of the temporary building which housed the hospital and said, uneasily, to the young doctor: "Is there anything I shouldn't bring up? I mean, she had such a rough time that maybe—"

The young doctor smiled. "A week ago I would have restricted the conversation. But that was the day she found out that you were safe. A powerful medicine, Mr. Morgan."

"Can I—"

"Go right in. She's expecting you."

Alice was pale against the pillow, and, as she stretched her hands toward him her eyes filled with tears.

Joe held her close for long minutes, then said: "Tell me about it if it'll help. If it won't help, I'm not going to insist."

"You know about the camp?"

"Yes. Montclair's body was still on the charred porch."

"A young officer took me in a staff car to their central headquarters. They had taken one of your men, one that was wounded when you took the plane from the field near Daylon. They . . . they made him talk, but he didn't know enough. They thought I would know more."

Joe's fists tightened.

"Lewsto was there. When they were taking me down a long hall I met him face to face. He went to someone in authority and got permission to interview me. I didn't want to be . . . hurt. So I told him a few things. Almost right, but not quite right. He believed me.

"The day the fires started he came

to the room where I was held. He knew I had tricked him. He sent the matron out of the room. I had stolen the matron's scissors. I . . . I stabbed him in the side of the throat with them. It didn't kill him quickly enough. He shot me as I left the room."

He stroked her hair back from her forehead. She smiled, "Don't look so grim, darling. It's all right now. Honestly. I was in their hospital when the people came from the city. It was madness. Worse . . . much worse than the time when you saved me in Daylon. That seems a thousand years ago."

"It was a thousand years ago."

"We . . . we're winning now, aren't we?"

Joe smiled. "We've won. That is, if it's possible to win a war."

"What will we do now, Joe? They'll let me up in a few days."

There was a window in the hospital room. From it he could see the distant blackened skyscrapers of what had once been a city.

He said slowly: "They've isolated all the 'adjusted' ones. There's a pitifully small number left, you know. The medics are making progress on undoing the adjustment, on fitting the people back into their original, individual pattern. Isolated, the peaks aren't as high or the depths as low. So that work is going well, and now all we have to look out for are the fools."

"Fools?" she asked.

He gave her a tired smile. "A lot of people want to rebuild the cities. They're stuck in the past. The city is an extinct beast, like the dodo. We burned beautiful and irreplacable things, but we also burned mile after mile of squalid streets and dirty slums.

"No man should live crammed into a dark room near his neighbors. We have room to expand, and to grow. This has to be a nation of small towns and villages. In no other way could we have got rid of those vast, ugly, nerve-jangling cities of ours. To regain our strength we will have to live closer to the land. Our transportation is efficient. Factories can be placed among wooded hills."

He turned back and looked quickly at her as he heard her warm laugh.

"What cooks, angel?"

"Oh, Joe," she said, "and I asked you what we would do. There's a lot to be done, isn't there?"

"An awful- lot."

"Would it be all right to have just one thing rebuilt? Just one place?"

He walked back to her and took her hand. "Angel, if you mean that miserable little cabin, you might be interested to know that reconstruction starts next week. It'll be finished when you're ready to leave this outfit."

THE END

P-PLUS

BY PETER PHILLIPS

You know those "Rabbits, take our Pep Pills and kick the wolf in the teeth!" ads? Well now if one of those pills really worked, what would it do to the world's economy . . . ?

Illustrated by Orban

Like that other world-disrupter, the atom bomb, P-Plus had small, apparently insignificant, theoretical beginnings. P. A. Summercot presupposed a certain type of charge, affected a reflex arc electrically, worked up to superimposing a new engraphic grouping of the neurones electronically.

Then, with prudent foresight or lack of consideration—depending on the viewpoint—he died after giving birth to the idea, and left the baby to grow into a ravening monster in foster-hands.

His mild old face was still faintly surprised at the result of his first completely successful experiment as he lay on a bench in his laboratory, hands crossed piously on breast.

In the next room, the inheritors of the monster debated the results and the implications of a crowded ninety minutes, which had begun with a full-page advertisement in the Long Island *Courier,* one of the few remaining newsprint sheets in an age of televised photostats. Simply:

DO YOU WANT A NEW PERSONALITY?
CONTACT P. A. SUMMERCOT, IDRIL SOUND.

Bill Wain, ideas man for Teleglobe, pointed it out to editor Brae Mason.

"Only a genius or a nut would try a Barnum and Bailey ad like that these days," he said.

Mason, brash, confident, youngest telepaper editor in the city, said: "I'll settle for the nut. Who is he?"

Wain told him. Philip Anstruther Summercot, age seventy-some, finest neurologist theoretician in the hemisphere, fired from Vancouver faculty five months back for disagreeing with accepted methods of tuition.

"And now apparently in the patent medicine racket. It is," said Mason decisively, "a sob-story for the

Saturday Supplement. Tongue-in-cheek write-up of the quack clinic for turning mice into Napoleons—contrast with the doddery old boy himself—dig up sorrowing family, loving and faithful granddaughter—shot of her with arm round his bowed shoulders, caption quote 'I believe in granpaw'—sighing head-shakes from former colleagues—"

"He's unmarried," Wain interrupted, tapping pipe dottle on the editorial carpet. "And he may be sane."

"Yak-yak. You been reading old magazines?" Mason drew a yellow-leaved pulp from a drawer, began to read advertisements. "Be a man, not a mouse . . . . let me give you a dynamic personality . . . do people look around when you come into a room? . . . are you Little-Johnny-Sit-In-Corner? . . . learn the secrets of Yoga, become a Master of Men . . . Personal Magnetism can be yours, clip the coupon, no obligation . . . why not ask HER to dance? What holds you back—"

Wain stuck to his point. It was worth looking into from the news angle. It might only be Supplement stuff, but if it was news and Tee-veepress beat them to it, Martin

would bite hunks out of his nice new desk.

"If you'd been raised on printer's ink, like me, instead of photographic emulsion—" he began. It was an old argument. Mason cut it short. He had one of his fine, bright ideas.

"Right. Beat it down there yourself. The editor of the *Courier* might let you take a smell at his print shop. Strap a two-way on. And take that vacuous, unco-ordinated, helpless, hopeless, beanpole, Clement Makeham with you. He's rated our 'science adviser.' Let him interview Summercot. Crank meets nut. You stay on the side lines and beam the laughs back here. If I laugh enough, it'll make the next transmission."

"You mean—pillory both of them? You're such a smart boy," said gray-haired Wain with a kind of fond bitterness.

"That's why I'm behind this desk, old-timer," Mason said.

Wain grimaced, shrugged wide, stooped shoulders, and left.

Split seconds count on telepapers.

Mason waited half-an-hour for Wain to contact him. Five minutes at most from the Teleglobe roof station to Idril Sound—Wain should have been on the air within twenty minutes after leaving with Makeham.

Mason grinned, as always, at the thought of Makeham. Six-foot-two when he got his nose off the sidewalk, white-faced, stumble-tongued, hopelessly out of place in a telepaper organization. He had been pitchforked into the business by a share-owning uncle, who ignored his dreams of a return to the peace of research. But Makeham was so burdened with gratitude for a job he didn't want and hadn't asked for that he couldn't quit.

Thirty-five minutes. Transmission due in twenty-five, with automatic meters ready to register the customers' choice of a paper for firming and issuing after free two-second glimpses of front pages.

Precious seconds to photoset a story to catch their eyes and draw their nickels.

And Wain was off the air, out of contact—a breech of the rules.

Mason buzzed the pilot of Wain's copter, waiting outside the Summercot mansion at Idril Sound, sent him into the place with orders to get Wain on.

And the pilot stayed inside the house.

Mason sent a rum-headed reporter named Carlsen, with orders to keep his two-way open as he went into the Summercot place.

Carlsen went in, cut contact, and stayed in.

So did his pilot.

Then Wain came on. "We're not bucking you for the fun of it, Mason. If you want to know why, come on over and join the party. This stuff can be tapped too easily —deliberately or by a ham."

Mason bit air near his hand-mike, started bawling questions. The click of a cut-off answered him.

"They're all nuts," he told his deputy. "Take over. If I don't phone back inside half an hour, tell Chief Maxwell that someone's running an unlicensed ha-ha academy on his territory and get him to send a squad of troopers to bust in."

Mason used his personal machine. He set the automap controls, leaned back, watched the lights of Lower Manhattan slide past beneath. He didn't appreciate the view.

"Once upon a time," his lips murmured softly, "there was a rabbit-who-took-a-pep-pill-and-socked-a-wolf. Even Hottentots have a version. Cave children were soothed to sleep by a monosyllabic rendering. The idea's quite passé. Worn-out."

Brae Mason sat up. He said aloud: "And what is my subconscious prattling about?" He mused, puzzled.

Premonition, perhaps. A quirk of unease, anticipation of impotence, precognition that skipped the cervical cortex and commented on knowledge yet to be gained, a fear yet to be experienced.

Fear of what? Diminution of self-assurance? Too passive. This was an active detraction, a whispering threat to the ego, resisted before it was met. Fine confused feedin' —like the Scots haggis—fine confused thinking. You're still the youngest, smartest, telepaper editor in New York.

Then why are you taking off personally after errant reporters instead of striking names off the payroll and sitting back at your news desk to view test-transmissions of the new edition, giving smart lordly, last-minute instructions?

Why—

Mason swore. He quit thinking. Darkness had settled over the Sound. The pale wash of the waters showed the rock-serrated coastline. The back-glow of a far air beacon showed little detail of the terrain.

The automap signal buzzed faintly as the vanes feathered and gently lowered the copter towards the sprawling bulk of a house.

Mason took over, glanced down. He saw the tubby shapes of two Teleglobe copters on the rear lawn. Automobile headlights showed a crowd clustered round the gates fronting the main road. He put his machine down gently alongside the others.

There were no lights in the windows fronting the terrace, but a dim figure awaited him at the top of the steps.

"You are expected, sir. This way, sir."

He followed the manservant through open French windows into a dark room, out into a corridor. "Cutting down on light bills?"

"Sorry, sir, but it is not desired that the people out front should gain the impression of any great activity."

"Scared of gatecrashers?"

"Something of the kind, sir, I understand."

A Jeeves, and a house this size, Mason thought; Summercot must be well-heeled for a professor.

The servant opened a door.

Mason felt the quirk of unease again, double. There was that time in the small-town school when the principal had asked to see him, and he hadn't known what it might be about—the ammonia in the ink-wells? The busted window in the cycle-shed? That fool girl with the pigtails who'd cried? Hadn't he felt the same way then, standing outside the door of the principal's room?

Don't be crazy—

Mason thrust hands savagely in pants pockets, walked into the room. It was dimly lit by a single table lamp. The windows were heavily curtained.

Wain and his pilot were together in a double siteasy. Carlsen lounged slackly on an old-fashioned davenport near the windows. His pilot was in a stiff chair against, and blocking, a door in the left-hand wall.

There was only one man standing. Mason looked at him, did a double-take. And then he knew what his forward-perceiving subconscious had been warning him against.

Six-foot two, pale-faced, thin-limbed, but with an ease of bearing, of overweening assurance, of incisive presence that emanated from him almost as a visible aura.

Makeham. The ineffectual beanpole. The stuttering jerk.

The jerk said: "I'm glad you came, Mason, instead of sending more stooges—with apologies to Carlsen." Cool, unstuttering voice, with a wealth of innate confidence—

Mason shook himself out of a slight inertia. He took his hands from his pockets, wondered for a crazy second what to do with them, then pulled out a pack of cigarettes and busied himself with a lighter.

At least, he hadn't been able to do that with the principal—

"I don't know what goes on, but I have an idea what comes off—certain names on Teleglobe's payroll. The explanation had better be good."

Perhaps that was inept, he thought. Perhaps a laugh would have been a better method of self-assertion. Though why he should feel the need—

Wain said lazily through smoke from his ancient pipe: "That's what we're all looking for, Brae Mason—explanations. And a solution."

"I'll handle it," said the transformed Makeham. He crooked a finger at Mason, went over to the windows, drew the heavy curtains aside.

Assert yourself now, Mason told himself. Assert yourself now—or forever have a hole in your ego.

Or—maybe best wait a while before blowing your top. Get the set-up first—

Mason strolled over, as casually as possible.

Makeham pointed. Mason saw the questing, bobbing faces of the crowd on the road. And they saw the light from the window.

Through the thick glass, he heard

shouts. He made out a few: "What's the big idea?" "Who's that at the window?" "Is that Summercot?" ". . . some kind of gag."

Several were waving copies of a newssheet which he guessed to be the Long Island *Courier,* the one that had printed the Summercot advertisement.

Makeham let the curtains swing back.

"Wain," he said, "described it as a Barnum and Bailey advertisement. You can see that sort of thing still has pulling power even in these days of copywriting by psychologists and semanticists. At present those hundred or so out there are just a little curious and maybe irritated at having the gates closed on them. If they knew what had just happened in here, those gates wouldn't hold them.

"You don't get it? I can't blame you. Even with my new clarity of mind and nervous co-ordination I find it difficult fully to correlate the implications."

It was almost a relief to realize and fulfill the precognition. "So the rabbit did take the pep pill and did sock the wolf, eh?" said Mason. He went on quickly: "It's a good story. The oldest story in the world come true." He appraised the upright Makeham. "Why sit on it? Why are you all sitting around as if this was a wake?"

"In a sense—it is. Take a look through that door."

Mason did so. He knew what to expect. He felt that he'd known an hour ago what to expect. The body had been laid out on the laboratory bench, face peaceful but faintly surprised.

"Heart failure," Makeham said, "just as he completed his first successful experiment on his first perfect subject. Me. When we arrived, he said he needn't look further for a better victim of all the social neuroses.

"With the out-of-this world directness and dispassion of a good research man, he'd framed the ad to draw a selection of neurotics so that he could take his pick, instead of looking privately. He shooed away the discards, had the gates locked.

"He explained the principles of the treatment to me and got to work. It took ten minutes.

"It's not wise to get overexcited with coronary thrombosis. He did."

"Has the hospital been informed?"

"No. On my orders."

Mason sneered. "Your orders too that Teleglobe wasn't informed?" He blanked his mind to everything save the urgent necessity to reassert himself. "Getting a little oversize for your boots, aren't you, Makeham?"

He strolled over to a discarded transmitter, began dialing. He saw that Wain was regarding him with wry amusement.

Makeham said: "Put that down, and listen."

It was not a hypnotic compulsion. The magnet doesn't hypnotize the steel. The steel merely obeys lines of force through the path of least resistance. It would be much easier to put the transmitter down than to go on dialing—

Mason fought. Through closed teeth, he said: "Give me one reason —quick."

Their eyes met. Mason looked away first. If that was his ego in his stomach, something was jumping on it with both feet.

Makeham smiled. "That's one reason. Personality is a strange thing. Its effects are felt, but can its cause be defined? Does it lie in the brain? Hardly, or we wouldn't have comparative morons ruling intelligent men. In physical presence? That would let out a five-foot runt like Napoleon. Health? Some of the world's greatest personalities have been virtual or actual cripples.

"You've seen badly-trained speakers dominate an audience, and good speakers lose them. You've seen women marry a Caliban in preference to an Apollo."

Makeham waved a hand towards the room in which Dr. Philip Anstruther Summercot lay deaf to the first howls of his monstrous baby, the Engramat.

"In there," Makeham said, "there's something bigger and more potentially dangerous than the atom bomb. Something that people seek for and pine after all their lives, in some degree, consciously or not.

"Millions go to the stereos to submerge themselves in the stronger personalities of the heroes and heroines, to live dreams of aggrandizement. Millions of suckers fell for those old ads that offered to make them into new men.

"Very few people are completely satisfied with themselves, with characters sufficiently well integrated to resist the suggestion of aggrandizement.

"You spoke of the rabbit taking the pep pill and socking the wolf. What happens when millions of rabbits hear that such a 'pill' exists? That the dream of centuries, the theme of a thousand stories, satires and folk-yarns, has become a fact? The little man who dopes up and slugs his domineering boss—the henpeck who pecks right back—the worm that turns—and all the variants.

"In there," Makeham concluded, "lies the world's most valuable commodity, next to food. And I don't want to get killed in the rush for it.

"So—sit down and listen."

Mason's punctured ego gave a final wriggle. He sighed.

He said: "You have ten minutes before a squad of State troopers busts in here."

Makeham said: "Time enough. I've figured a solution."

News agency item:

". . . . Dr. Summercot's will, unchanged since his resignation from the Vancouver faculty, leaves his

entire estate, estimated at half-a-million dollars, to the University; with the exception of certain experimental apparatus verbally bequeathed shortly before his death to Mr. Clement Makeham, in the presence of several witnesses, including the editor of a New York telepaper.

"The apparatus in question is believed to be connected with the 'hoax' advertisement which appeared in the Long Island *Courier*.

"Mr. Makeham said last night: 'It is the product of a brilliant mind which latterly became obsessed with the idea of changing the makeup of human personality by electronically reducing the resistance offered at the synaptial junctions to the spread of activation of behavior patterns, thus more closely integrating the personality and realizing potentialities previously confined to cerebral processes. New engrams are superimposed, so to speak, and the course of formation of others is eased. Dr. Summercot realized at the last that his theories were based on a false premise and were scientifically unsound. Consequently the machine possesses only sentimental and curiosity value.' "

"That," said Makeham, "disposes of that. All those present"—he indicated Mason, Bill Wain, Carlsen and the two Teleglobe pilots, seated in Mason's office—"having perjured themselves nobly to the Probate Office at my request will now feel equally obliged, no doubt, to become directors of the Engramat Corporation."

Mason said: "And if not?"

"Perjury in the matter of a will—including our statements to the University trustees—carries a two-year sentence," Makeham said calmly, pushing aside the 'stat of the news item to make room for his feet on the side of Mason's desk.

"And my job here?"

"You may keep it. I shan't call on you to be active. You can combine the two quite easily."

"Thanks a lot," said Mason bitterly. "Meantime Alice wants to wake up. You can all collect salaries in lieu from the cashier and get out of my office and out of this building."

Gray-haired Bill Wain, last out, chuckled as he looked back at Mason.

"I've been around," he said, "but in my full and sinful life, it's the first time I've ever seen a guy beef about being made a millionaire."

"There is," said Mason shortly, "a fable about the nondistensibility of frog-skin."

Frowning, he watched the broad-shouldered ex-ideas man close the door.

Bill Wain, he'd have guessed, would be the last man to fall in with the wacky ideas of the transformed Makeham. Somehow it was difficult even to think quite straight after a concentrated dose of Makeham. But dour, pipe-smoking, hard-headed, big-hearted Wain, whose life had been built around newspapers and telepapers, surely wouldn't walk

out without a better reason than the mere beckoning of Makeham—or even the beckoning of dollars.

He jumped up, strode to the door, shouted: "Bill!"

Wain turned. Mason went to meet him, explained his doubts.

Wain's level, gray eyes were merry. "First time you ever ran after anyone, Brae. Can't understand anyone leaving the newspaper game, eh? Don't worry kid. I'll be back. Just taking a holiday—and I need the dough."

"You've taught me a lot, Bill," Mason said awkwardly, "somehow I hated to think—"

Wain shook his head. "You let Makeham shake you more than you know. Save the sentiment. You've got an edition to put to bed. Keep tough." He held out a hand. Mason took it.

"Just a holiday?"

"Sure. Then I'll be needing a job back—even if I am a millionaire."

The directors of the new corporation had met in Mason's office before noon. Before three p.m., Clement Makeham, with a forcefulness and a delirious glibness of tongue that were a delight to watch and hear, had talked a building supervisor into letting them an expensive office suite—without an advance or references.

"The problem," said Wain, who'd been an ad-man at one time, "is to sell a product without advertising it."

The crated Engramat sat in one corner of the largest room. Makeham presided over a central desk. Ex-reporter Carlsen, lovingly tilting a bottle of Bacardi that he described as "director's expenses" added: "And sell to the right people, too."

"Corn," Makeham said suddenly. "Ripe, rich, fresh off the cob. The corniest ad that our combined genius can produce, the sort of hoary blah that only an inhibited, introverted, repressed, ineffectual, day-dreaming drip like . . . like—"

"Like you were two days ago?"

"All right—like I was—would bother to read once. The sort that only a poverty-stricken out-of-town newsprint sheet would accept. Personal recommendations can do the rest. Draft it, Wain."

Wain busied himself with a pencil, lubricated by iced beer. Smeeton and Wrass, the ex-copter pilots, resumed a game of crap against the side of the desk. Makeham celebrated mightily. Carlsen gargled in dreamy bliss.

Wain sat back. "Listen. This should do it: 'What's your boss got that YOU haven't? PERSONALITY, that force latent in all men that only a few learn to use. The SECRET of the AGES has been REVEALED at last! We can give YOU a DYNAMIC PERSONALITY, ability to SWAY MEN to your WILL. We can give you the DRIVE of a NAPOLEON, the PEP of a ROCKEFELLER, the IT of a STEREO STAR, the MAGNETISM of a GREAT

ORATOR! Afraid to ask for a RAISE? Take our TREATMENT and SOON the boss will be asking YOU for one! DAZZLE EVERYONE with your WIT. Be a LEADER, not a LOUSE. The BIGGEST MEN and the PRETTIEST WOMEN will seek YOUR advice, YOUR company, YOUR friendship! WHAT A MAN you'll be! TREATMENT given ONLY IN PERSON. NO PILLS through the POST. WRITE TODAY for CONFIDENTIAL INTERVIEW.'"

Grinning silence for a while. Then—"Feller," said Carlsen reverently, with an appropriate gesture, "does that stink!"

But the real odor of Engramat took quite a while to develop.

April 6
Shaneville
N. Y. State

Engramat Corp.,
Seaton Plaza,
Brooklyn, N. Y.

Dear Mr. Engramat,

I read your ad in the paper what does this treatment cost and so on not that Ime so interested I wouldunt but it happens I pick up a lode near your adres on Thursdays so please fix for a Thursday for me around 1500 hours youd better

Shule Baker

P.S. I drive a truck.

"Sit down, Mr. Baker," soothed Makeham. "What's your trouble?"

Shule Baker lowered his two hundred and ten pounds of brick-hard flesh onto the edge of a siteasy,

continued to torture his cap with fingers like bananas.

"No trouble." It sounded like a gravel-mixer in low gear. "This phony ad. I shoulda known better. I gotta mind to bust you one anyways. What's the gag, uh?"

"No gag, Mr. Baker. Do you want our treatment?"

"Maybe I do. Maybe I don't. I ain't a dope. How do I know it does what you say? How long does it take? What's it cost?"

". . . typical physical overcompensation for psychological deficiencies, morbid suspicions, aggressiveness, fear of ridicule—" Makeham held up a hand for silence—and got it—as he scribbled busily.

He got up. "This will take ten minutes or so. Deposit two dollars. If you're not satisfied, the deposit will be returned as you leave. If you are satisfied, you will sign an agreement to pay us two hundred dollars within a year—with the proviso that no legal action will be taken against you if you do not. You can't lose. Come this way, please."

Shule Baker lumbered after Makeham, steel following the magnet, mumbling: "I don't get it. What's this like? Does it hurt? If I don't like it, I'll tear this place apart, starting on you."

"Through here, Mr. Baker."

June 10.
Shaneville Trucking Co.,
N.Y. State
(Shule S. Baker, President)

Engramat Corp,
Seaton Plaza,
Brooklyn, N. Y.

Dear Sirs:

Inclosed please find a check for five hundred dollars. This is, as you will observe, three hundred dollars more than the implementation of our Agreement calls for. This is little enough recognition of what you have done for me. However, I have recommended your treatment to others—not widely, in accordance with your suggestion, but only to intimate acquaintances; and I am, as you notice, not deputing this letter to my secretary but writing it myself—

Makeham stroked his thin face approvingly as he read aloud this evidence of the astonishing metamorphosis of Baker. "An honest man," he commented. "I knew he had great possibilities, potentialities."

Wain asked: "How about the improved spelling and the two-dollar words?"

"All tucked away in the subconscious before. The block disappeared at the same time as the inferiority complex. And they learn fast, of course."

"Of course," said Wain, with faintly sarcastic emphasis.

June 11.
Eph. Duguid
Advertising Consultant

Engramat Corp,
Seaton Plaza,
Brooklyn, N. Y.

. . . check for one thousand dollars enclosed

July 2
T. D. Sillerbee,
Variety Agent.

Engramat Corp,
Engramat Building,
Manhattan

. . . reminding me of our "Agreement." Do you need a job as a gag-writer? Go chase your collective self down Broadway. You can't take it to court, and even if you could, you'd get laughed right out of it again—

"Bad material," Makeham sighed. "The nontransmutability of sow's ears and silk purses still holds good."

August 6
General Electronics
Division,
Milwaukee

Engramat Corp,
New York, London, Paris

. . . twenty Engramats crated for dispatch to your London premises—

Henry Pipet banged the door assertively behind him, threw his hat jauntily but accurately onto a peg.

"Who's that?" screeched Bella Pipet.

"Who d'you think it is—the iceman?"

Bella waddled into the hallway, mouth agape, regarded her husband with amazement. A trace of gravy adhered to her lower lip.

"What do you mean by banging the door and shouting at me like that? You're late. Your dinner's cold. I believe you've been drinking."

She advanced to smell the evidence.

"I haven't. But if I had, that's my business. And take your fat face away."

"W-what? You crazy? You dare to talk to me like that, you little pipsqueak, and I'll—" She wheezed for breath.

"You'll what?" sneered the ex-henpeck. "I'll tell you what—you can get into the kitchen and rustle me a good hot meal. And don't nibble while you're at it. You eat too much."

Within a few short dazed moments, in which Bella had a hundred thoughts which suddenly, curiously, she was unable to express, the steel obeyed the magnet.

She went to the kitchen.

". . . Never laughed so much since Aunt Jenny died. I've seen top comics in both hemispheres. There's no one to touch him. And three weeks ago, there wasn't an agent in town who'd look at him. He wowed 'em overnight—"

". . . But his personality, my dear—positively OOZES at you. So warm, so dynamic. He's made me feel much better. And I don't care if he is a clairvoyant . . . er . . . quack. I feel I could do anything for him. Positively. ANYTHING."

". . . Are you bats? We already got one washing machine. He talked you into it, uh? Talked YOU into it—you I've seen take a salesman right through the garden and out onto the sidewalk? Don't give me that. I suppose he had nice curly

hair, hey? Think I'm made of dough?"

Think of all the stories of rabbits-taking-pep-pills-and-socking-wolves, staples of escapism through the ages, and invent your own extracts from conversations as the Engramat Colossus grew.

For a dangerous period, it was not recognized as such. It was a closed corporation, so there were no market quotes. The pleonastic, increasingly-brash and semiliterate ads—still confined to small-time publications—were snickered at, ignored, or furtively answered.

And by the paradox of its own being, Engramat created an occlusion of its own implications in the minds of those who controlled it and those who merely observed its effects from the sidelines.

There are none so blind as those who won't see. Induced hallucination covers both the things that aren't there, but can be seen, and the things that are there but can't be seen.

The flaw in the grandiose burgeonings of P-Plus—as it was soon to be termed—was as evident as the blueness of the sky.

But the sky, says the first-year physics student, isn't really blue.

October 2
Engramat Corporation,
New York, Paris, London,
Buenos Aires, Prague,
Warsaw, Berlin, Ankara

Brae Mason, Esq.,
Editor, Teleglobe

(Strictly confidential)

Dear Mason,

Inclosed is the sweetest dough you ever received, representing six months' working of a closed, and close-mouthed, corporation. We don't even have to sink capital to get co-operation, good will and bounteous credit. You know why. I'm just back from Warsaw. The Poles were all over me. Had a little trouble with pirating in Paris. Pirate got the circuit near-right, but didn't understand the operating principle. First customer emerged a gibbering nut. Pirate now in jail.

Sorry you didn't make it to my wedding—Dot Dillo, the show queen, Empress of Video. A yumsome dish. But maybe that sounds out of character? I've bought up Summercot's old place—and his Jeeves.

If you don't like the smell of these doubloons—untaxed, incidentally, you'll have to see to that yourself, you honest boy—donate them to charity.

But at least, drop around and see us sometime.

Clement Makeham

Brae Mason flattened the missive. "'Yumsome dish'" he muttered. "His own wife—Anyway, who'd have dreamed that lanky poltroon would grab off a girl like that."

He felt, suddenly, much older than his years.

He thought awhile, sent for general columnist William Wakewell, whose penchant for plugging keyholes with his eye—or the eyes of the well-known names padding his expense sheet—was equalled by his lighthearted inability to accord a correct interpretation to what he saw, vicariously or otherwise.

"You'll do it yourself," Mason said coldly to the lean-faced Wakewell, who protested at the sugges-

tion of a column-size puff for what was ostensibly a quack ad. "The days when scribblers like you could infiltrate and finally, in effect, control the policy of a paper, have gone. You syndicated yourselves out of existence. Who wants to tune in to your mug on every waveband and firm it for perusal at leisure? So git, or get back on a newsprint sheet for peanuts."

It was Wakewell who coined P-Plus—the corny ads had overlooked this obvious tag—and it was handy coinage for captions and banners from then on.

"So," read his report, nickeled into semipermanence by curious readers from coast to coast, "I tackle the first blonde. 'Is this a secret society?' I ask. Though far from dumb, she doesn't feel competent to answer that one, so she passes me up the beauty-chorus hierarchy that protects—or at least, comforts—the happy crew on the top floor of Engramat Building.

"One up, a choice brunette, says 'Appointment?' I by-pass with my winning way, get to third base, a dish with angles in all the right places—for curves—and she says have I read the advertisements in question and written for an interview and if I've done neither will I go away, since obviously I'm in no need of Treatment with a cap T.

"And elevate your eyebrows, sweet customers: when I suggest the exchange of certain negotiables for the privilege of speaking one word over the disco to the Top Boy she says you can do that from outside for two cents.

"The incorruptible madam agrees however to convey Upwards the intelligence of my coming—"

And a deal more in the same vein. Wakewell was pressed to fill space. Resentfully and in his corniest style, he did.

He was still basically, grudgingly, a reporter who had to eat; so when the burden of his findings finally came, it was reasonably straightforward if not very enlightening.

"So Mr. P-Plus Makeham said it was faith-healing, in the main, and would yours truly care for a short slug? What, I asked, fused somewhat after his spiel about anorhexia, aphasia, toxic tremor, asthenopia, vegetative nervous systems, suggestibility, reciprocal innervation, integration, enuresis, dyschezia and endopsychic conflicts—what would I be needing it for?

"That, he says, is the point. If I wanted the Treatment, I'd need it. If I needed the Treatment, I'd want it. With which double talk—"

Bill Wain threw the *Teleglobe* aside.

"That's a question we haven't asked."

"It wasn't worth asking," said Makeham. "A man doesn't go to a doctor unless he's sick. And he's sick if he's a hypochondriac. Lack of self-regard is the root of personality deficiency. Those corny ads are a double check—a normally

well-adjusted person laughs at them. It would be a derogation of his self-regard if he didn't.

"If he admitted to himself that he really needed improvement in that way, that would be the beginning of a neurosis, his patterns would get snarled up—and he'd end up by needing the treatment.

"On the other hand, a man who realizes he's not well-adjusted has at the same time insufficient self-regard to set up a psychological block against taking the treatment—so he takes it. But—if that man hadn't a personality potential in the first place, he'd never have realized his own lack of adjustment. So we get only the type that will benefit.

"There's a third kind, a parallel with those who are too innately insensitive to know they're sick—they don't go to a doctor and it wouldn't do them any good if they did."

Wain glanced narrow-eyed over his fuming pipe at the self-assured Makeham. "How do you know? Anyway, you seem to have changed your arguments a little. When this thing began, you figured millions would rush for it—"

"Sure—if we advertised it widely and in a sane manner as a general pepping-up treatment. People are naturally hesitant about admitting they've had it, and of recommending it, except to their closest friends. Many are of the kind who'd want to take the kudos for the transformation themselves—'Aw, shucks, I've really been like this all the time, just lying low, waiting for the right moment. Yes, sir'—that's what they say. Don't blame them. There's still a slight stigma attached even to perfectly orthodox psychological treatment.

"We'd be rushed out if those self-regulating principles didn't apply. Figure what would happen; we'd get a flood of two-dollar deposits, sure—but the total would be taxed to the bone. And since the majority wouldn't benefit, we wouldn't get a cent on our 'Agreements.' Don't you see that we lick the Treasury the way we operate now? It's not a legally-enforceable Agreement—so the tax boys have no direct check on whether we get our stipulated two hundred dollars or not. Even if they had—and I've got the best accountants in the city snarling up trails—they could only tax us on that. Who's to tell them that our dear, delighted customers, outfitted with irresistible dollar-drawing propensities by us, usually fork out a lot more? The kind who like to take the kudos to themselves invariably pay over the odds—maybe because they feel that their little secret will then be safer. And that extra dough can't be traced—this isn't a public corporation. It's tax-free."

Makeham was obviously preening himself. The eyes in his pale face glowed with self-esteem. Wain groaned.

"Besides," Makeham added, "if there was a general rush, we'd be pirated right and left."

"Smart, smart feller," Wain

grunted. "All the angles, eh?"

"Naturally."

Bill Wain felt a desire to boot the end of Makeham that he couldn't see behind the massive desk. He refrained. He said: "You haven't answered my original point—"

Makeham got up. "I have. Now I'll demonstrate, and prove the answer—have you ever thought of taking the treatment?"

Wain thought. "No. Except, maybe—"

"Except maybe when I'm around?"

Wain puffed in silence, his honest square face impassive.

Makeham went to the door. His shambling lope had now become something like a strut.

"You're well-integrated," he said. "You're reasonably well-satisfied with yourself. No blocks, inhibitions. You've always led the kind of life that suited you. Come in here. We'll use the original machine."

He waited.

"They're your doubts I'm trying to settle," he said. "You won't suffer a sea-change, I assure you. Or maybe you're scared?"

Bill Wain rose, bulked his shoulders, pointed his pipestem: "Listen, sonny—"

"That's fine," Makeham said. "Come on in."

When Wain came on out, he paused to relight his pipe. Makeham followed. "How d'you feel? Just the same, huh?"

"More so," Wain said briefly.

"Certainly. I told you. You're stable. And as a customer, you'd bring us in two dollars, minus a dollar and a half tax. You'd be a loss."

"Stable?" said Wain. "That's my temperament—not my personality."

And there, as he later had cause to remark, he hit the steam-hammer dead-center with the nail.

Makeham wasn't quite sure what he meant, and changed the subject.

"How about the others?" he asked. "I've been so tied up I haven't had a personal talk with them lately."

"Carlsen's been on a jag for four weeks. He says if he sobers up, he'll die. And if he goes home, his wife'll kill him."

"I mean—has he taken it?"

"Know a lot about your co-partners, don't you? No. He hasn't taken it. He says unlimited Bacardi is all he needs. Little red mice are chasing him between the 99 Club and the Plaza. It won't be long before they catch up. Smeeton and Wrass have taken it."

"I haven't noticed any difference."

Bill Wain puffed a savory ring of smoke. "You wouldn't. I think you figure all the clocks quit working when you leave this office. It's made them more efficient executives, and also increased their natural proclivities. They both have three secretaries apiece now. All blondes. But that's all. There's another director of this circus that you haven't

seemed very curious about—Brae Mason."

"Why should I be curious?"

"Because you're still slightly peeved he stood out in the first place. You don't like to remember him."

Makeham laughed. "You've a very natural tendency to oppose my artificial personality to that of the young man who was your apt journalistic pupil, the white-haired boy of *Teleglobe*. I notice he's kept well away from here."

"So?" Bill Wain grinned. "He was here yesterday, when you were out. 'Where the wind listeth,' he said, 'there I goeth.' We walked around for a while. We wanted to prove a point, too. He did."

"But the treatment—?"

"Yes—I put him through the Engramat. That's how he proved his point."

Makeham sat down rather suddenly. "What was his point?"

Bill Wain shrugged, on his way to the door. "He didn't have to remind me that my old job was still open. I know it is. I'm not worried either way. Engramat isn't top-heavy—yet."

He closed the door before Makeham could ask more questions.

Senator Firbrick became suspicious the morning his quiet, self-effacing but efficient secretary breezed into the office, backslapped genially all round—including the choking senator himself—announced he was lighting out for a livelier job, and breezed out.

A private detective hired by the senator traced back his movements, which included a visit to the local P-Plus establishment.

A clipping agency and dilligent investigation along other lines provided the senator with ammunition for an emergency motion.

"Mr. Chairman," he pompoused, "I shall not be putting it too strongly if I say that the facts I have correlated reveal an insidious threat to the economic and political stability of this country, doubly dangerous because it is disguised behind a screen of the principles of private and individual enterprise which are the bedrock of our prosperity—principles which it seeks to subvert—"

After five minutes' preamble on these lines, Senator Firbrick got down to a few of his "facts."

"Throughout the country, men, hitherto unknown, are thrusting themselves into positions of public, professional and business responsibility—positions for which they have no training, for which they have served no apprenticeship, positions for which they may be totally unfitted.

"A sweeper walked into the office of the president of a mid-Western manufacturing corporation, and in ten minutes, by devious wiles, verbal dexterity, confusion of issues and willful misrepresentation, talked himself into a ten-thousand-a-year job.

"A welder in an airplane factory, a man insignificant and unnoticed before, similarly gained himself a

position of trust—a position where, incidentally, he might affect the very security of the nation in time of war.

"A very minor shareholder at a company meeting in this very city was elected to the Board without previous nomination, by a vote of wildheads whom he apparently bulldozed into supporting him.

"Local governmental authorities in every state are besieged by unconstitutional demands for new elections from factions roused by upstarts.

"In almost every labor union in the country, a state of chaos is beginning to prevail with rival groups centered round obscure malcontents struggling for domination.

"These are a few instances. There are thousands. Read for yourselves, with eyes now open to what is happening—an undermining of authority by men unnaturally elevated above their normal station; a disruption of labor-employer relationships; an insidious and wicked corruption of the very moral fiber of the entire country."

His voice rose in billowing rhetoric.

"And what is the mainspring of this foul attempt to undermine the basis of our democratic structure, which is leadership by men elected to positions of trust after they have proved their fitness to lead? What is the fount of this treasonable insurgence, this foreign anarchy of the spirit, this alien bid to attack our Constitution?

"I will tell you: it is a company with offices in Prague and Warsaw—and in my mind there is no doubt that its inception was even farther East—it is a company whose seemingly-innocuous advertisements in local newspapers are nothing more than wickedly cunning propaganda against our way of life—an obscene heresay. P-Plus it has been termed by people ignorant of its real intentions—"

Borne aloft on the mounting waves of his own sophistry, hot-faced Senator Firbrick was pulled up by the bang of a gavel. "May we please have a definitive motion?" Before Firbrick cooled off enough to reply, a young congressman stood up in the gallery, raised his voice.

"Why doesn't someone ask the senator his real reason for this tirade? Isn't it because his secretary walked out on him and got a better job?"

There were a few murmurs of "throw him out." But not many.

"The senator's whole speech," the congressman shouted, "boils down to this: he figures it's unconstitutional for the best man to win, and if he doesn't use dough to buy himself into politics—like the senator—it's unnatural and alien!"

Senator Firbrick pointed a trembling finger. "You!" he bawled. "You . . . you're a P-Plus!"

"Sure I am. You could do with a dose yourself, you rattle-brained old buzzard."

SENATE ORDERS P-PLUS PROBE

P-PLUS CLINICS BESIEGED AFTER CONGRESSMAN'S ADMISSION

POLICE KEEP MILE-LONG PEP PARADES IN CHECK

INTERNATIONAL COMPLICATIONS WARNS PRESIDENT

A once-obscure young man who became a congressman and made a public admission which testified to the efficacy of P-Plus treatment—that was all that was needed to start the snowball.

Keep in the swim by breathing. Keep in the swim by going P-Plus. Be fashionable.

A dowager duchess who had been bawled-out by her P-Plus chauffeur was trampled to death outside a clinic in London.

In a gravely pedantic editorial, a London paper—still a newsprint sheet which scorned telepaper opposition—warned against this deuteropathic arisement among the neuroses of the age—a device which, at its most favorable valuation, induces and disseminates megalomanic tendencies."

In a rural constituency of England, which was in the throes of a general election, a young farm worker rose to heckle one of the

candidates, Sir Arthur Ponsonby-ffoulkes, Bart., J.P.

He talked Sir Arthur off the platform, and the meeting voted unanimously to accept him as a candidate instead.

In New York, a freak of crossed lines on an overburdened switchboard put a great man—in terms of dollars—through to a sweating Makeham personally.

Makeham roused himself from the camp bed in the office where he was sleeping, groaned into the phone: "Why do you want it? What's wrong with your personality?"

"Nothing at all. But I understand it tones up the system. Anyway, the fact that I want it should be good enough for you. How much?"

"No private appointments. Get in line like the rest. It's a mile long this morning. Or pay a million for a machine and operation instructions."

"I can have one stolen for less," snarled the billionaire.

He did.

And those who were already P-Plus became P-Double-Plus.

"Why . . . why . . . why?" Makeham muttered. "You didn't change, Wain."

Wain smiled. "No. I'm temperamentally stable. And temperament is a facet of character—and you don't alter that, for better or worse. I'm not dominating—so I don't dominate."

The international complications ensued when the Eastern European Federation, impolitely returning Senator Firbrick's compliment about alien ideas, anathemized the P-Plus clinics within its orbit as part of a capitalistic plot aimed at the loyalty of its citizens, and shut them down.

And after all, the clinics did represent a lot of American capital. General Electronics, who made the Engramats for the corporation, got a diplomatic beef issued through the State Department.

Not that it mattered either way. Within a few weeks, a very efficient black market in Engramat treatment was operating within the Eastern Federation.

A federal bid to close down the United States clinics during the period of the Senate Antitrust Committee probe into Engramat was defeated by a tremendous upsurge of public opinion—concentrated on the vague "They" of imposed authority—"They've all had a crack at this dingus and now They want to stop Us."

After an all-night session with his advisers, and certain manufacturers, the President teeveed an appeal for calm to the whole nation.

"The entire resources of our arms and electrical manufacturing industries are to be turned over to the production of Engramats, which will be installed in Federal centers in every state," he announced.

"Certain countries in Europe may feel they have a right to deprive

their citizens of its benefits, but not this country."

An assurance of rapid inoculation against a spreading plague could hardly have been greeted with greater enthusiasm.

Henry Pipet banged the door assertively behind him, threw his hat jauntily but accurately over a peg.

Bella Pipet came into the hallway. Here eyes were cold. Her voice was cold, although her fat trembled a little.

"Don't you dare slam the door like that again," she said with flat vehemence.

"Who you giving that stuff to?" he demanded, a little uneasily. "I told you before—it's my door."

"I won't argue with you, Henry Pipet. You're late. Your dinner's cold. And you can get upstairs and change before you eat it."

"Uh?"

"You heard me."

"Yes, dear," said Henry Pipet. He had a hundred thoughts which suddenly, curiously, he was unable to express. The magnet obeyed the stronger magnet. He went upstairs.

". . . The guy's a punk. Calls himself a comic. I get bigger laughs at the club. Don't see what anyone ever saw in his act. One thing's sure—he's out of big-time."

". . . And so I put the police onto him, my dear—trying to soak me for more money for that dumb clairvoyant act—the idea. Can't think how I ever fell for it the first time."

". . . Our very latest model, madam. You're not interested? But listen, lady—what? Oh, we don't do that kind of exchange. This washing machine—wassat? But I don't WANT your old radio, lady. Oh, sure, but—oh? That so? Well, maybe—"

"I put every cent of my own back in it," said Makeham miserably. "And there's been no Federal compensation. It's not patentable. And on top of everything, Dorothy has to walk out on me. She wants a divorce."

"Tut tut." Brae Mason alliterated unfeelingly: "Dough and the desirable Dorothy Dillo go together. You should know that." He turned to Wain.

Bill Wain grinned. "Not me, Brae Mason. I told you—it was just a holiday. It paid off."

Mason made himself comfortable in the best siteasy in the most luxurious office of the drowned, defunct and desolate Engramat Corporation.

"What's going to be the end of it?" groaned Makeham.

"The beginning," said Mason simply.

"What do you mean?"

"Just that. There'll be a new norm, of course, but nothing with

which to compare it. Within a few months every civilized person on the globe will have had a shot of P-Plus. And that'll leave everyone right back where they started."

"What are you talking about?" Makeham's face was strained. "I'm not the same."

"You will be. I've been boning up on the subject. You changed the bodily components of personality—the patterns of neurones. But you didn't change character."

"That's what I told him," Bill Wain said.

"Sure—that's the nub. Personality is an instrument of character—not vice-versa. And you can only change character by self-striving—or choosing the right parents. Pretty soon you'll be surrounded again by people who have the edge over you in character-integration—like dear Dorothy."

Makeham stuttered: "But the neuroses I s-s-suffered—those were p-put right—"

"And they're rapidly coming back again. You'll have the same old feeling of inadequacy, your self-regard will begin to disappear, the inferiority complexes will creep in again—and you'll be a flock of little neuroses.

"It's the environment that matters, and the innate character. If you wanted to stay P-Plus, you should have kept the Engramat to yourself or busted it after your treatment.

"By letting everyone have it—all right, maybe you didn't, but the effect's the same—the level of personality has been changed, but in perfect ratio to the ability of the character to utilize that personality.

"Big fish will still eat little fish. If you want to retain any benefits of the treatment, find yourself a desert island away from stronger characters—or yank at your bootstraps before you become submerged again."

Makeham stiffened himself. "That's crazy. I still feel reasonably self-assured."

"Uh-huh?" Mason got up, flexed lazily. "C'mon out from behind that desk. I want somewhere to put my feet up."

"I . . . I won't. It's a ridiculous point. I—"

"Move, worm."

Makeham moved, stumbling a little.

Mason lowered himself into the vacated chair, rested his feet on the desk, and gazed placidly up at the ceiling.

He murmured: "Once-upon-a-time-there-was-a-rabbit-who-took-a-pep-pill-and-socked-a-wolf."

He fixed Makeham with benign eyes. "You can write a sequel to that old story now. You know the answer to the implied question:

"What happens if the wolf takes a pep pill, too?"

THE END

CODED SPEECH

BY C. RUDMORE

To Mr. J. Q. Public, the subject of noise—electronic noise—seems unimportant. But that's thanks to the immense efforts made to keep it out of his ears, his radio, and his telephone—expensive efforts for which, inevitably, J. Q. Public pays. The trick is; can we get a cheaper method of getting rid of noise?

To send speech signals over a telephone line by a code has been a sort of alchemist's dream since A. G. Bell first perfected the "speaking telegraph". A code system might be desired for various reasons, but we wish to speak here mainly of one —to get rid of interference and distortion. The general notion is that it is easier to clean up a distorted code than it is to clean up distorted speech. This is because each code stands for a certain small range of signal values, and if we pick the code which is nearest to the distorted one, we won't make a mistake unless the distortion amounts to more than half the difference between adjacent codes. That leaves us with just one source of error the difference between the code and the original speech, and we can make that so small as to be unobjectionable if we take the codes close enough together.

Coding is particularly valuable in pulse transmission schemes. As we saw in the previous article "Talking on Pulses," we can transmit speech perfectly well by sending samples, provided the samples are taken close enough together. For commercial telephones, the minimum time separation is one hundred twenty-five microseconds—one microsecond-one millionth of a second—which means that at least eight thousand samples must be sent each second. In pulse transmission systems, these samples are sent to the receiver in the form of pulses. It is possible to make the height of each pulse proportional to the height of the sample it represents, but this is not usually done be-

cause it makes the system too sensitive to changes in gain. A more satisfactory way is to shift the time of occurrence of a pulse by an amount proportional to the sample —so-called pulse position modulation (PPM). A high degree of immunity to disturbance is thus obtained because we don't care how big the received pulse is; we are interested only in when it happens. The noise or disturbance does get in its effect however because it changes slightly the time at which the pulse appears to start, and even if we generate a new clean pulse locally, the timing is slightly off. If we repeat the pulse many times to cover a long distance, we get an accumulation of errors such that even a small error in one link can grow to a large intolerable error for the complete system.

To realize a system in which pulses can be recreated without error and an indefinite number of repeater stations can be used with as good a signal out of the last as went into the first we introduce the coding principle. The first public announcement of this principle, which is called PCM for "pulse code modulation" or "pulse count modulation" was made at a joint meeting of the American Section of the International Scientific Radio Union and the Institute of Radio Engineers on May 5, 1947 at Washington, D. C.

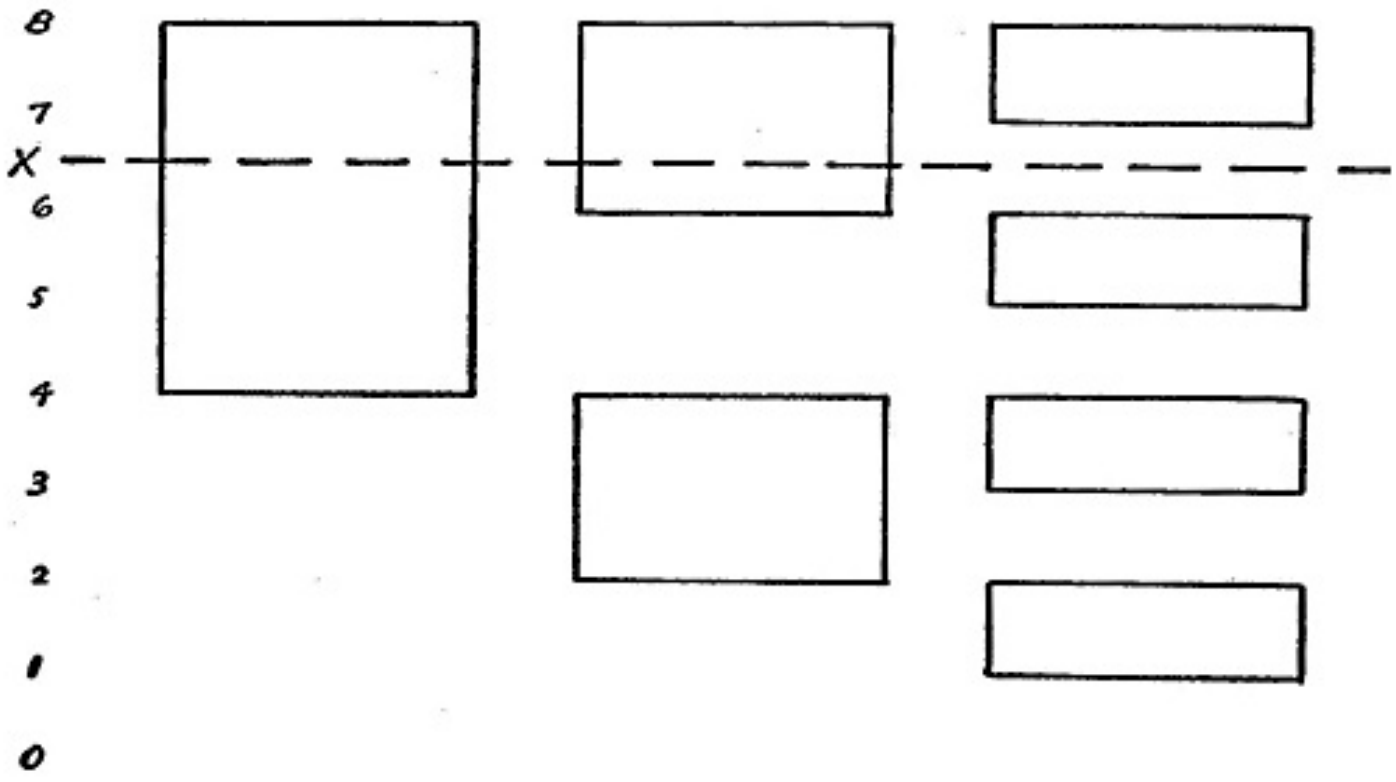


FIG 1 HOLES IN APERTURE PLATE OF "PEEK-A-BOO" TUBE FOR 3-DIGIT CODING

Papers on the subject were presented by representatives of the Bell Telephone Laboratories of New York and the Coles Signal Laboratory of Red Bank, New Jersey. Some further disclosures were made at the summer meeting of the American Institute of Electrical Engineers in June, 1947. Brief articles appeared in the Bell Laboratories Record of July, 1947, and in the Bell System Technical Journal of the same date. A demonstration of a working system was given at a meeting of the Institute of Radio Engineers at New York City, October 1, 1947. Enough has now been revealed to make a discussion of some of the general principles possible.

A basic part of the new art is the notion of "quantizing" the magnitudes of signals. We are really borrowing a term here from modern physics and using it in much the same way. In quantum mechanics as applied to the theory of the atom, not all values of the co-ordinates describing the electron are permitted, but only *certain* preferred ones chosen according to definite rules. The reason physicists assume these magnitudes to be quantized is that results may then be calculated which fit the experimentally observed facts. In communication on the other hand, quantizing is done by deliberate choice to secure a specific benefit. Quantizing enables us to suppress the effect of noise and distortion provided it is smaller than half of the difference between two adjacent steps.

We might think of quantizing as a generalization of Procrustes' bed. Procrustes, as you may recall, was the old cuss with the standard size bed, which he insisted on fitting to his victims. If the victim was too long he was cut down to size, and if too short, a painful stretching process was ordered. This could be considered as one step quantization, in which all signals come out the same size. It would be no good for speech transmission, although you might be surprised how much you could understand if only one more step were added, so that all signals were reduced to two sizes. Speech is durable stuff and if you don't mind distortion you can get a lot of information over a very bad system. For a truly satisfactory grade of speech quality, however, we need about a hundred different magnitudes, so the modern speech quantizer might be regarded as a group of one hundred Procrustean disciples each with his own bed, but with the sizes carefully graded. Provided the victim were not a gaint or a midget, one of the beds could be found which need cost him only a slight scalping or stretch-out.

In the case of commercial speech transmission, one hundred properly chosen values of voltage would take care of all telephone users from the loudest shouter down to the weakest mumbler well enough so that they would not realize that their magnitudes were being restricted. With only one hundred distinct values be-

ing transmitted, noise need not cause an error until it exceeds half of the smallest step. When the noise does produce a change of more than half a step it may do either one of two things—it may add on a half step to the true value and cause the receiver to register the next higher step, or it may subtract a half step and push the value down into the next lower zone. What we should do then is to keep our noise level below the critical value at which error begins. If each repeater in a radio relay system is working above the critical noise level and sending out new pulses which are free from noise, no errors can accrue. The only errors are those which were put in by quantizing and since these do not grow they are just as innocuous for one thousand repeaters as for one.

Published details about actual quantizing processes are so far rather skimpy. The reader familiar with the electronic art will doubtless think of many ways of measuring voltages and classifying them into discrete amplitude ranges. It is a sorting process with which we are familiar in many industries, for instance grading the size of coal or prunes. The only difference is that we must do the sorting very fast, for we have at least eight thousand samples to grade every second from each speech channel. We shall take a look at some specific methods after we have discussed the objectives more fully.

Let's suppose then that we are able to sort our speech voltage samples into say one hundred different sizes. This means that we can make our pulses ride through noise which does not throw us off more than one half of one percent of our largest size. This is still a relatively small disturbance, and we would like to work through much worse conditions. We take a tip here from our familiar number system, which does not use one hundred distinct symbols to count to one hundred. As we all know we have ten different figures and when we have used them all individually, we start another column and begin over again. In terms of pulses, this means that if our measured sample were say in size No. 67, we could send one pulse of sixty-seven volts, but it might be better to send two pulses, one of six volts followed by one of seven volts. This would give the same information, and to cover one hundred steps, the smallest unit would be ten percent of the largest unit so that we could stand a five percent disturbance without making a mistake. The only penalty is that we have to send twice as many pulses. The improvement going from oh point five percent noise tolerance to five percent is substantial, but is not the best we can do. After all, the decimal system based on the number ten was adopted rather accidentally by man. Some say it happened that way because he first counted on his fingers

In PCM we go all the way down to a number system based on two instead of ten. This means there are only two kinds of pulses to be sent

and recognized. One corresponds to the number 0 and the other to the number 1. In a PCM—AM system where the number zero is designated by sending no pulse at all and the number unity by sending a pulse of the full power of the radio transmitter, we need not make an error if we can keep the noise peaks from reaching half of the signal pulse heights. This is on the assumption that pulses are recognized by a slicer set to operate at half the signal peak, which is a reasonable place to work. Note that the tolerable disturbance has thereby been raised to fifty percent and the number of pulses we have to send for each sample has been increased to seven. The latter number comes from the fact that two raised to the seventh power is 128, the power of two which is nearest to our assumed one hundred distinct numbers. The bandwidth needed is directly proportional to the number of pulses per sample. Comparing cases of sending one pulse with one hundred different values, and sending seven pulses with two different values per pulse, we increase our margin over noise by one hundred-fold at the expense of a seven-fold increment in bandwidth. Not even FM buys advantage over noise from excess bandwidth at such a bargain rate.

It is instructive to look at the business of counting in twos or in more elegant language, the binary system, as distinguished from the decimal system. It is what we would have to use if we had only two symbols for numbers, 0 and 1. We would start in the same way as in our decimal system and write down the numbers 0 and 1 with the same significance as they always have had. But when we come to the next number which we now call two, we would have to write it as 10, for the figures 2 to 9 inclusive are not available. Three become 11, and then we have to start another column and write four as 100. Five is 101, six is 110, seven 111, and eight 1000. That is probably enough to get the idea.

Binary counting is quite old and is a natural for any process built up on only two distinct conditions. The famous mathematician Boole used it in the nineteenth century as a tool for satisfying himself as to the truth of Spinoza's propositions in philosophy. By using the symbol unity to represent "true", and "zero" to represent "false" Boole was able to get at the truth or falsity of complicated statements without tying his brain into knots. Relay algebra is a fairly recent application of the binary system. A relay in telephone circuit language is a switch, and it may be either open or closed. By taking 0 to represent open and 1 to represent closed, it is possible to design and analyze complicated circuits using a lot of relays. The results secured that way are almost as good as the answers a veteran machine switching man pulls out of his head without being able to explain how he does it. The binary principle has also been used in special types

of computing machines, which do not get fatigued repeating a large number of simple operations. It is also an interesting if unimportant fact that winning combinations at the game called Nim, in which players take turns drawing from three piles of matches, can be calculated readily by means of binary notation.

We can now explain the origin of the word "code" in Pulse Code Modulation. The signals are not only quantized but coded in sequences of on or off pulses. Electronic means for doing these operations at the transmitter and retranslating back to the original signal form at the receiver have been providng a happy hunting ground for the inventor for some time. For an early disclosure containing the germs of many ideas which are used, the reader interested in circuit details is referred to U.S. Patent No. 2,272,070, issued to A. H. Reeves, February 3, 1942. Descriptions of more recent developments are just beginning to be released, and a watchful eye on the technical periodicals in the next few months will be rewarded with many interesting tricks in circuitry.

The methods demonstrated by engineers of the Bell Laboratories at the before mentioned meeting of the Institute of Radio Engineers are particularly intriguing. The operations of quantizing and coding are performed by a single cathode ray tube—jestingly referred to by the chairman of the meeting at which it was described as the "peek-a-boo" tube. We recall than an ordinary cathode ray tube consists of an electron gun which shoots a beam of electrons between two pairs of deflection plates. One pair is horizontal and the voltage applied between these plates controls the vertical deflection of the beam. The other pair is vertical and the voltage between them controls the horizontal deflection of the beam. The beam strikes a fluorescent screen after passing between the deflecting plates and a bright spot appears at the point of impact. This bright spot is an approximation to a mathematical point with x—co-ordinate fixed by the voltage on one pair of plates and the y—co-ordinate by the voltage on the other pair. We can thus plot curves on the face of the tube by applying deflection voltage representing the quantities to be plotted.

To make a PCM coding tube*, we replace the fluorescent screen by a metal plate with an array of holes cut out as shown in Figure 1. We show the arrangement for a three-digit coder, but this will make clear how to do the case of a larger number of digits. The holes allow the electron beam to go through and strike another plate beyond. The electrons striking the second plate constitute the current output from the tube. The signal voltage is impressed on the plates controlling the vertical deflection. The beam is thereby moved upward to the point X with the vertical distance from the 0 mark to X proportional to the signal. For the horizontal deflec-

tion, we impress a "sawtooth" sweep voltage—the kind which builds up gradually from zero to enough volts to deflect the beam clear across the plate, and then quickly falls back to zero. The beam, therefore, moves uniformly across the plate at a height determined by the signal. The "fly-back" or quick return of the beam may be made of no consequence by killing the vertical deflection voltage during this short recovery interval.

In Figure 1 suppose it takes eight volts of signal to move the beam from the bottom to the top of the plate. The dashed line XY indicates the path of the beam for the signal of six point five volts. There are three columns of holes. As the beam enters at the six point five volt vertical scale position on the left it encounters a hole in the first column and produces a pulse of current on the plate beyond. It likewise encounts another hole in the second column and produces another pulse. But it passes between the holes in the third column and produces no pulse in this position. If we designate a pulse by "1" and "no pulse" by "0" the sequence of two pulses followed by a blank is 110, which is the number "6" in binary notation. The six point five-volt signal is thus coded as one of six volts. The arrangement of holes is seen to be such that any voltage between 0 and 8 volts is automatically sorted into the proper one of eight different codes. That is, such would be the case if it were not for the usual annoying little difficulties which invariably crop up whenever we try to put a bright idea into practice.

*The "one world" of scientific progress is neatly illustrated by a recent publication out of Germany in which a tube of quite similar type is proposed for the same purpose by F. Schroter, the German television expert.

The first trouble to be noticed is that the signal voltage may change while the beam is traveling across the tube. The change might be enough to cause the beam to wander into the code slot adjacent to the one it initially selected. It thus could start to deliver one code and wind up delivering another one. This could produce a big error. For example if the signal were four point one volts at the beginning of the sweep, the beam would start on a path between four point oh and five point oh volts. If after the first hole were passed the signal voltage dropped to three point nine volts, the beam would slide down into the space between three point oh and four point oh volts. The result would be a total of three pulses for the sweep or the code 111 meaning seven point oh volts. This would mean an error of approximately three volts, a far greater error than if the beam had stayed in the original slot all the way. This possibility of a big error from signal change during the sweep may be eliminated by a sampling and holding circuit in the signal path. The signal is not connected to the deflection plates all the time, but is sampled just before the beginning of the sweep. The sampled value is held constant on the

deflection plates during the sweep.

Sampling and holding are accomplished by an electronic clamp. A vacuum tube is inserted between the signal source and a condenser. A biasing voltage applied to the grid of the tube blocks the flow of current to the condenser except during the brief sampling intervals when a large unblocking grid pulse is applied. The condenser charges up quickly to the signal voltage during the sampling interval. It then must hold this voltage until the next sampling time, for there is no discharge path when the tube is blocked. The voltage on the condenser can be applied to the grid of an amplifier tube and delivered in enhanced form from the output of the amplifier to the deflecting plates of the coder. The condenser may be discharged quickly at the end of the sweep by an auxiliary discharge tube, but this is not necessary if a two-way clamp is provided. In the latter arrangement a pair of oppositely poled tubes is used in parallel in the charging circuit so that the condenser may either charge up to the signal voltage through one tube or discharge down to the signal voltage through the other, depending on whether the new sample is bigger or smaller than the one just preceding it.

We are now ready to look at another difficulty. Suppose the signal voltage were held at a value very near to the dividing line between two adjacent codes. The electrons constituting the beam do not strike the target in a geometric point but are actually spread over a definite area. This means there could be some electrons hitting the plate below the division line at the same time others are hitting above. What kind of a code would then be sent? To avoid a case of electronic schizophrenia, something new must be added to make the choice of codes always definite. Here is a case where it is better to be wrong than not to make a decision at all. The solution is found here by stringing wires parallel to the code division lines. These wires are placed in the path of the beam some distance before the target is struck If the beam hits a wire, the wire emits secondary electrons. These secondary electrons are attracted to a postively charged collector plate. The resultant voltage on the collector plate is amplified and added to the vertical deflection voltage. The result is that the beam is pushed away from the wire. The beam thus can not stay in contact with a wire and hence must find a stable position between the wires. A small amount of bias added at the right time helps it to make up its mind. This means the beam has to stay within the boundaries of one code for each held sample of signal—there is no region of confusion.

The coding tube announced by the Bell Laboratories has seven columns of holes in the aperture plate and can generate one hundred twenty-eight different codes. A demonstration was given of trans-

mission of music with over one thousand different steps, which would require ten digits. It was stated that the same coding tube was used, but the method of increasing the number of steps was not explained

We next turn to the problem of decoding the pulse at the receiver. Here again many methods might be used, but we will content ourselves with describing one—the one based on the exponential discharge of a condenser through a resistance. By "exponential" we mean that during equal time intervals the voltage on a condenser with a resistance connected across its terminals drops to the same fraction of the value it had at the beginning of the interval. The fraction depends on the "time constant" or the product of capacitance and resistance. By suitable choice of the "time constant", we can make the condenser discharge to half its initial value in the time interval occupied by one PCM digit pulse. During the time assigned to the next digit pulse another drop of one half will occur reducing the voltage to one fourth that of the beginning of the first pulse interval, and so on. Suppose the original signal was six point five volts. As shown in Figure 1, this results in the coded sequence 110 when the sweep is from left to right. It was convenient to assume this sweep direction when explaining the notation, but we could just as well sweep from right to left giving the sequence 011 in our assumed case. To send the low digit pulses first is more convenient when decoding with the condenser-resistance combination. Suppose the train of pulses at the receiver is 011, and that a quick-charging circuit is connected between the pulses and the condenser at the midpoint of each pulse position. Between these instants, the condenser discharges through its resistance in accordance with the exponential law. During the first interval no pulse is received and no charge is delivered to the condenser. During the second interval the condenser receives a charge of let us say four volts which decays to a value of one half that or two volts at the time the next pulse actuates the charging circuit. The third pulse delivers a charge of four volts. The total voltage is then six volts which is the correct decoded value. It can be measured by a sampling circuit and fed to the receiving channel output. To take another example suppose the signal sample is 7.2 volts putting the sweep in the top slot. This gives the code 111 whichever way we sweep it. In the receiver three pulses of four volts each hit the condenser at staggered times. The first decreases to one fourth this value or one volt. The second decreases to one half or two volts The third one is sampled immediately giving a total of four plus two plus one or seven volts, again the correct decoded value.

We have thus far talked about quantized steps of equal size. As a matter of fact if we have a limited number of steps available such as

one hundred twenty-eight and a wide range of talkers to handle, dividing the steps equally may not be the best thing to do at all. If one subscriber talks in a quiet confidential tone and another shouts at the top of his lungs, we have a problem on our hands designing a quantizing scale suitable for both. Even in the case of a single talker, there is a great difference between consonant and vowel sounds as far as the corresponding electrical voltages produced are concerned, and we should have some steps available for each. The solution is found empirically by tapering the steps. Best results occur when many more steps are provided for weak sounds than are used near the peaks of strong sounds. When the speech sounds are loud, bigger errors can be tolerated. The statement about using one hundred twenty-eight steps to give satisfactory speech quality is only true if the steps are tapered severely, with the steps around zero value of the impressed signal very much smaller than those near the peaks reached by the loudest talker.

The tapering could have been done by grading the size of holes in

the aperture plate of the coding tube. This is a difficult mechanical job. Either the tube would have to be made much bigger to accommodate the bigger holes, or the smallest size holes would have to be shrunk to near-microscopic dimension. It was found easier to do the tapering in the electrical circuit by inserting a compressor ahead of the coding tube at the transmitter, and a complementary expander after the decoder at the receiver. The compressor consists of silicon crystals shunted across the line. These crystals have a fairly high resistance and do not disturb the line when the signal is weak. When the signal is strong however, the crystal resistance is decreased by the larger currents flowing through them and the shunting loss is increased. The result is that the voltage on the coder does not increase as fast as the original signal voltage, and the effect is the same as if the holes in the aperture plate widened toward the end of the tube reached by the beam when the signal is large.

At the receiver the same crystal arrangement is used but this time it is placed in the negative feedback path of an amplifer. Negative feedback means that a portion of the output of an amplifier is used to buck the input and thereby reduce the gain. When weak signals are applied to the crystals they produce small loss and the bucking action is strong. When the signal is stronger the crystals cause loss in the feedback path and there is less bucking. The amplifier thus has more gain for strong signals than for weak and hence expands the output to compensate for the compression which took place at the transmitter.

We have not even mentioned yet one of the most difficult problems of all—the synchronizing of systems such as PCM, that is, making the receiver keep step with the transmitter. The incoming wave to the receiver represents a string of pulses representing say seven digit positions for each of a considerable number of channels. The time allotted for each digit pulse is one and a half millionths of a second for twelve speech channels in time division. If the time were divided among one hundred channels, each digit pulse would be allotted less than two ten millionths of a second. At the receiver we must not make an error in the timing of one digit. In effect we must set up clocks at the transmitter and receiver which will keep time to within better than a millionth of a second of each other. What the practical limit is in this respect remains to be determined.

The Bell Telephone Laboratories demonstrated a PCM system with groups of twelve channels in time division. To get more than twelve channels provision was made for sending similar groups on adjacent frequency bands so that a combination of time division and frequency division was employed.

The synchronizing was accomplished by means of a very precise quartz crystal band filter tuned to the pulse repetition frequency. When this filter is actuated by pulses it responds at the proper frequency, and when no pulses arrive it coasts at the same frequency until the next pulse comes along. From the output of this filter the timing framework of the receiver is built. Slicers and gates remove the disturbing effects of noise on the accuracy of the "clock". The clock now runs at the right rate, but it still remains to "set" it, so that the digits are delivered to the right positions and each channel comes out at the right gate. With seven digits per channel and twelve channels, there are eighty-four different settings of the receiver of which eighty-three are wrong.

The right position is found by marking one pulse. The smallest digit of channel 1 of Group 1 is borrowed leaving six-digit quality on that channel. This digit is forced to be alternately off and on in successive frames. No other digit can do this because the low pass filters in the channel inputs do not allow passage of frequencies high enough to change digits at this rate. A circuit is furnished which is sensitive to the on-and-off pulse alternation. When it gets the proper response the system is locked in step; when the response is missing the timing is allowed to slip a notch and another trial made. The maximum search time even if the first eighty-three trials are unsuccessful is of the order of one tenth of a second. The "hunting" only happens after a system failure or shutdown and itself produces no noticeable break in continuity of service.

The apparatus we have discussed represents only a few exploratory skirmishes with the problem of communicating by pulses. Future advances will probably bring much higher operating speeds and much shorter pulses. Wider transmission bands will be needed and here the recently developed traveling wave amplifier tube may find a field of great usefulness. Measuring gear of even more incredible precision will be required, and new principles will likely be made use of to satisfy these demands. Consider for example the problem of sending television by PCM. A modern television channel requires a band of four to five megacycles so that the sampling rate for any pulse method of transmission must be of the order of ten million times per second. If we needed as many as five digits for our quantizing, the pulse rate would be fifty million per second for a one channel system. A twelve-channel television group adds up to six hundred million pulses per second. It sounds fantastic, but don't bet it won't be done!

THE END

LETTER TO A PHOENIX

BY FREDRIC BROWN

The Phoenix had one way to immortality—a painful way. No man, as an individual, is immortal, yet we are immortal through descendants. But races? They're strictly mortal—

Illustrated by Orban

There is much to tell you, so much that it is difficult to know where to begin. Fortunately, I have forgotten most of the things that have happened to me. Fortunately, the mind has a limited capacity for remembering. It would be horrible if I remembered the details of a hundred and eighty thousand years—the details of four thousand lifetimes that I have lived since the first great atomic war.

Not that I have forgotten the really great moments. I remember being on the first expedition to land on Mars and the third to land on Venus. I remember—I believe it was in the third great war—the blasting of Skoro from the sky by a force that compares to nuclear fission as a nova compares to our slowly dying sun. I was second in command of a Hyper-A Class spacer in the war against the second extragalactic invaders, the ones who established bases on Jupe's moons before we knew we were there and then almost drove us out of the Solar System before we found the one weapon they couldn't stand up against. So they fled where we couldn't follow them, then, outside of the Galaxy. When we did follow them, about fifteen thousand years later, they were gone. They were dead three thousand years.

And that is what I want to tell you about—that mighty race and the others—but first, so that you will know how I know what I know, I will tell you about myself.

I am not immortal. There is only one immortal being in the universe; of it, more anon. Compared to it, I am of no importance, but you will not understand or believe what I say to you unless you understand what I am.

There is little in a name, and that is a fortunate thing—for I do not remember mine. That is less strange than you think, for a hundred and

eighty thousand years is a long time and for one reason or another I have changed my name a thousand times or more. And what could matter less than the name my parents gave me a hundred and eighty thousand years ago?

I am not a mutant. What happened to me happened when I was twenty-three years old, during the first atomic war. The first war, that is, in which both sides used atomic weapons—puny weapons, of course, compared to subsequent ones. It was less than a score of years after the discovery of the atom bomb. The

first bombs were dropped in a minor war while I was still a child. They ended that war quickly for only one side had them.

The first atomic war wasn't a bad one—the first one never is. I was lucky for, if it had been a bad one—one which ended a civilization—I'd not have survived it despite the biological accident that happened to me. If it had ended a civilization, I wouldn't have been kept alive during the sixteen-year sleep period I went through about thirty years later. But again I get ahead of the story.

I was, I believe, twenty or twenty-one years old when the war started. They didn't take me for the army right away because I was not physically fit. I was suffering from a rather rare disease of the pituitary gland—Somebody's syndrome. I've forgotten the name. It caused obesity, among other things. I was about fifty pounds overweight for my height and had little stamina. I was rejected without a second thought.

About two years later my disease had progressed slightly, but other things had progressed more than slightly. By that time the army was taking anyone; they'd have taken a one-legged one-armed blind man if he was willing to fight. And I was willing to fight. I'd lost my family in a dusting, I hated my job in a war plant, and I had been told by doctors that my disease was incurable and I had only a year or two to live in any case. So I went to what was left of the army, and what was left of the army took me without a second thought and sent me to the nearest front, which was ten miles away. I was in the fighting one day after I joined.

Now I remember enough to know that *I* hadn't anything to do with it, but it happened that the time I joined was the turn of the tide. The other side was out of bombs and dust and getting low on shells and bullets. We were out of bombs and dust, too, but they hadn't knocked out *all* of our production facilities and we'd got just about all of theirs. We still had planes to carry them, too, and we still had the semblance of an organization to send the planes to the right places. Nearly the right places, anyway; sometimes we dropped them too close to our own troops by mistake. It was a week after I'd got into the fighting that I got out of it again—knocked out of it by one of our smaller bombs that had been dropped about a mile away.

I came to, about two weeks later, in a base hospital, pretty badly burned. By that time the war was over, except for the mopping up, and except for restoring order and getting the world started up again. You see, that hadn't been what I call a blow-up war. It killed off—I'm just guessing; I don't remember the fraction—about a fourth or a fifth of the world's population. There was enough productive capacity left, and there were enough people left, to keep on going; there were dark ages for a few centuries, but there

was no return to savagery, no starting over again. In such times, people go back to using candles for light and burning wood for fuel, but not because they don't know how to use electricity or mine coal; but because the confusions and revolutions keep them off balance for a while. The knowledge is there, in abeyance, until order returns.

It's not like a blow-up war, when nine-tenths or more of the population of Earth—or of Earth and the other planets—is killed. Then is when the world reverts to utter savagery and the hundredth generation rediscovers metals to tip their spears.

But again I digressed. After I recovered consciousness in the hospital, I was in pain for a long time. There were, by then, no more anaesthetics. I had deep radiation burns, from which I suffered almost intolerably for the first few months until, gradually, they healed. I did not sleep—that was the strange thing. And it was a terrifying thing, then, for I did not understand what had happened to me, and the unknown is always terrifying. The doctors paid little heed—for I was one of millions burned or otherwise injured— and I think they did not believe my statements that I had not slept at all. They thought I had slept but little and that I was either exaggerating or making an honest error. But I had *not* slept at all. I did not sleep until long after I left the hospital, cured. Cured, incidentally, of the disease of my pituitary gland, and with my weight back to normal, my health perfect.

I didn't sleep for thirty years. Then *I did sleep,* and I slept for sixteen years. And at the end of that forty-six year period, I was still, physically, at the apparent age of twenty-three.

Do you begin to see what had happened as I began to see it then? The radiation—or combination of types of radiation—I had gone through, had radically changed the functions of my pituitary. And there were other factors involved. I studied endocrinology once, about a hundred and fifty thousand years ago, and I think I found the pattern. If my calculations were correct, what happened to me was one chance in a billion.

The factors of decay and aging were not eliminated, of course, but the rate was reduced by about fifteen thousand times. I age at the rate of one day every forty-five years. So I am not immortal. I have aged eleven years in the past hundred and eighty millennia. My physical age is now thirty-four.

And forty-five years is to me as a day. I do not sleep for about thirty years of it—then I sleep for about fifteen. It is well for me that my first few "days" were not spent in a period of complete social disorganization or savagery, else I would not have survived my first few sleeps. But I did survive them and by that time I had learned a system and could take care of my own survival. Since then, I have slept about four

thousand times, and I have survived. Perhaps someday I shall be unlucky. Perhaps someday, despite certain safeguards, someone will discover and break into the cave or vault into which I seal myself, secretly, for a period of sleep. But it is not likely. I have years in which to prepare each of those places and the experience of four thousand sleeps back of me. You could pass such a place a thousand times and never know it was there, nor be able to enter if you suspected.

No, my chances for survival between my periods of waking life are much better than my chances of survival during my conscious, active periods. It is perhaps a miracle that I have survived so many of those, despite the techniques of survival that I have developed.

And those techniques are good. I've lived through seven major atomic—and super-atomic—wars that have reduced the population of Earth to a few savages around a few campfires in a few still habitable areas. And at other times, in other eras, I've been in five galaxies besides our own.

I've had several thousand wives but always one at a time for I was born in a monogamous era and the habit has persisted. And I have raised several thousand children. Of course, I have never been able to remain with one wife longer than thirty years before I must disappear, but thirty years is long enough for both of us—especially when she ages at a normal rate and I age imperceptibly. Oh, it leads to problems, of course, but I've been able to handle them. I always marry, when I do marry, a girl as much younger than myself as possible, so the disparity will not become too great. Say I am thirty; I marry a girl of sixteen. Then when it is time that I must leave her, she is forty-six and I am still thirty. And it is best for both of us, for everyone, that when I awaken I do not again go back to that place. If she still lives, she will be past sixty and it would not be well, even for her, to have a husband come back from the dead—still young. And I have left her well provided, a wealthy widow—wealthy in money or in whatever may have constituted wealth in that particular era. Sometimes it has been beads and arrowheads, sometimes wheat in a granary and once—there have been peculiar civilizations—it was fish scales. I have never had the slightest difficulty in acquiring my share, or more, of money or its equivalent. A few thousand years' practice and the difficulty becomes the other way—knowing when to stop in order not to become unduly wealthy and so attract attention.

For obvious reasons, I've always managed to do that. For reasons that you will see I've never wanted power, nor have I ever—after the first few hundred years—let people suspect that I was different from them. I even spend a few hours each night lying thinking, pretending to sleep.

But none of that is important, any

more than I am important. I tell it to you only so you will understand how I know the thing that I am about to tell you.

And when I tell you, it is not because I'm trying to sell you anything. It's something you can't change if you want to, and—when you understand it—you won't want to.

I'm not trying to influence you or to lead you. In four thousand lifetimes I've been almost everything—except a leader. I've avoided that. Oh, often enough I have been a god among savages, but that was because I had to be one in order to survive. I used the powers they thought were magic only to keep a degree of order, never to lead them, never to hold them back. If I taught them to use the bow and arrow, it was because game was scarce and we were starving and my survival depended upon theirs. Seeing that the pattern was necessary, I have never disturbed it.

What I tell you now will not disturb the pattern.

It is this: The human race is the only immortal organism in the universe.

There have been other races, but they have died away or they will die. We charted them once, a hundred thousand years ago, with an instrument that detected the presence of thought, the presence of intelligence, however alien and at whatever distance—and gave us a measure of that mind and its qualities. And fifty thousand years later that instrument was rediscovered. There were about as many races as before but only eight of them were ones that had been there fifty thousand years ago and each of those eight was dying, senescent. They had passed the peak of their powers and they were dying.

They had reached the limit of their capabilities—and there is always a limit—and they had no choice but to die. Life is dynamic; it can never be static—at however high or low a level—and survive.

That is what I am trying to tell you, so that you will never again be afraid. Only a race that destroys itself and its progress periodically, that goes back to its beginning, can survive more than, say, a hundred thousand years of intelligent life.

In all the universe only the human race has ever reached a high level of intelligence without reaching a high level of sanity. We are unique. We are already at least five times as old as any other race has ever been and it is because we are not sane. And man has, at times, had glimmerings of the fact that insanity is divine. But only at high levels of culture does he realize that he is collectively insane, that fight against it as he will he will always destroy himself—and rise anew out of the ashes.

The phoenix, the bird that periodically immolates itself upon a flaming pyre to rise new-born and live again for another millennium, and again and forever, is only meta-

phorically a myth. It exists and there is only one of it.

You are the phoenix.

Nothing will ever destroy you, now that—during many high civilization—your seed has been scattered on the planets of a thousand suns, in a hundred galaxies, there ever to repeat the pattern. The pattern that started a hundred and eighty thousand years ago—I think.

I cannot be sure of that for I have seen that the twenty to forty thousand years that elapse between the fall of one civilization and the rise of the next destroy all traces. In twenty to forty thousand years memories become legends and legends become superstitions and even the superstitions become lost. Metals rust and corrode back into earth while the wind and the rain and the jungle erode and cover stone. The contours of the very continents change—and glaciers come and go, and a city of forty thousand years before is under miles of earth and miles of water.

So I cannot be sure. Perhaps the first blow-up that I knew was not the first; civilization may have risen and fallen before my time. If so, it merely strengthens the case I put before you to say that mankind *may* have survived more than the hundred and eighty thousand years I know of, may have lived through more than the six blow-ups that have happened since what I think to have been the first discovery of the phoenix's pyre.

But—except that we scattered our seed to the stars so well that even the dying of the sun or its becoming a nova would not destroy us—the past does not matter. Lur, Candra, Thragan, Kah, Mu, Atlantis—those are the six I have known, and they are gone as thoroughly as this one will be twenty thousand years or so hence, but the human race, here or in other galaxies, will survive and will live forever.

It will help your peace of mind, here in the year 1949 of your current era, to know that—for your minds are disturbed. Perhaps, I do not know, it will help your thoughts to know that the coming atomic war, the one that will probably happen in your generation, will not be a blow-up war; it will come too soon for that, before you have developed the really destructive weapons man has had so often before. It will set you back, yes. There will be darkish ages for a century or a few centuries. Then, with the memory of what you will call World War III as a warning, man will think—as he has always thought after a mild atomic war—that he has conquered his own insanity.

For a while—if the pattern holds—he will hold it in check. He will reach the stars again, to find himself already there. Why, you'll be back on Mars within five hundred years, and I'll go there too, to see again the canals I once helped to dig. I've not been there for eighty thousand years and I'd like to see what time has done to it and to those of us who were cut off there the last time man-

kind lost the space drive. Of course they've followed the pattern too, but the rate is not necessarily constant. We may find them at any stage in the cycle except the top. If they were at the top of the cycle, we wouldn't have to go to them—they'd come to us. Thinking, of course, as they think by now, that they are Martians.

I wonder how high, this time, you will get? Not quite as high, I hope, as Thragan. I hope that never again is rediscovered the weapon Thragan used against her colony on Skoro, which was then the fifth planet until the Thragans blew it into asteroids. Of course that weapon would be developed only long after intergalactic travel again becomes commonplace. If I see it coming I'll get out of the Galaxy, but I'd hate to have to do that. I like Earth and I'd like to spend the rest of my mortal lifetime on it if it lasts that long.

Possibly it won't, but the human race will last. Everywhere and forever, for it will never be sane and only insanity is divine. Only the mad destroy themselves and all they have wrought.

And only the phoenix lives forever.

THE END

BOOK REVIEWS

"Voyages to the Moon," by Marjorie Hope Nicolson; The Macmillan Company, New York 1948. 297 pages with 8 plates. $4.00

Modern book titles are usually somewhat too short to give the reader an idea of the full and precise scope of the contents of a work. If Miss Nicolson had chosen to imitate the style of the titles of many of the works she discusses in her "Voyages to the Moon," her own title page would have looked about as follows: "A Discourse on Voyages to the Moon, the Sun, the Planets and other Worlds generally, written by divers authors from the earliest times to the time of the first Balloon Ascensions made during the Years 1783-4, with Remarks upon their Sources and an Epilogue about a few selected later works of this kind; to which is appended a Bibliography of one hundred and thirty-three works up to the year 1784 with an added listing of fifty-eight books and articles dealing with the theme itself and with related sciences."

This about tells the scope of the work without being able to deal with the depth of penetration. It is a most remarkable piece of work, written by a no less remarkable female scholar. Miss Nicolson received her Ph.D from Yale University in 1920 and then became instructor and later assistant professor of English at the University of Minnesota. After a trip to Europe as a Guggenheim Fellow—or whatever the female form of a "fellow" may be—she became associate professor of English at Smith College—from 1926-1929—and then professor and dean, from 1929 until 1941. In that year she left Smith College for Columbia University where she is still the only woman to hold a full professorship in the Graduate School. In addition to teaching she produced quite a number of short and long essays for various scholarly publications, mostly on themes which tie in with that of her present book. In between she collected ten honorary doctorates for herself, was president of the United Chapters of Phi Beta Kappa, won the John Addison Porter Prize from Yale and the Rose Mary Crawshay Prize from the British Academy—for her recent book "Newton Demands the Muse." In short there is a long background to rattle off when she is introduced to a lecture audience, but

her own feeling about this is that it reminds her of Samuel Johnson's female preacher "whom he compared to a dog standing on its hind legs; he doesn't do it well, but attracts attention because he does it at all."

I'm not going to dispute Miss Nicolson's feelings with her, but that quote certainly does not apply to her book. In fact my own feeling is that she could do it at all only because she could do it well. Beginning, after a sidewise glance at the mythical king Bladud with Lucian's "True History" she arrives (after a few more feminine side glances at Cicero's "Somnium Scipionis," Plutarch's "Face in the Moon," Cervantes' "Don Quixote" and Ariosto's "Orlando furioso" in the period following the invention of the telescope. Here further subdivision has been provided by one of the authors to be discussed, Bishop John Wilkins who wrote that there are "several ways whereby this flying in air hath been or may be attempted" and who listed them as: (1) "by spirits, or angels," (2) "by the help of fowls," (3) "by wings fastened immediately to the body" and (4) "by a flying chariot."

Of course it is Kepler's posthumous "Somnium" which heads the procession of flight "by spirits, or angels," the pages about the "Somnium" are one of the best appreciations of this little known work of the great astronomer I have ever read. The influence of this book on others is traced, some old poetry is quoted which, to me at least, was news because of its age. Milton seems to have been influenced by it, too, and at least the "method" was adopted by Athanasius Kircher, S. J. Traces linger on through Christian Huygens to Emanuel Swedenborg.

The next chapter deals, of course, with the voyages accomplished "by the help of fowls," notably Francis Godwin's "Man in the Moone: or A Discourse of a Voyage Thither." I was greatly pleased to see a full ten pages devoted to the "Voyage to Cacklogallinia" which was published in 1727 and which has been ascribed both to Dean Swift and to Daniel Defoe. The real author is still unknown, but the story is still worth reading. After that we progress to method No. 3 which first requires some discussion of serious attempts, like Leonardo de Vinci's sketches, which, however, is merely the best known of many. Of works of fiction "The Life and Adventures of Peter Wilkins" (1750) is discussed at length, followed by a summary of Rétif de la Bretonne's "La Dé couverte australe par un homme volant" or "Le Dédale français." I realized with some pity that Miss Nicolson had actually read her way through the three volumes of endlessly cascading French and having only recently finished another one of Rétif's unlimited ruminations I can fully understand her remark that her "first reading was also her last." Most modern readers will be fully

satisfied with her condensation.

In the following chapter, devoted to the "flying chariot," Miss Nicolson tells of an unpublished manuscript which she found in the British Museum and which deals with a kite voyage to the moon. Anonymously written it is called—with apparent scientfic seriousness—"Selenographia," but the subtitle kills any memories of the great work of Johannes Hevelius with the same title by proclaiming: "The Lunarian, or Newes from the World in the Moon to the Lunaticks of This World." The manuscript insists that Cornelius van Drebble was the original discoverer of the world in the moon and that a much more exact description exists, written by "Lucas Lunanimus of Lunenbergi, and originally writ by the same hand in the Lunick Language; and now transproged out of old Babelonick meeter into plain English." It seems that this manuscript is one of the stories that start with wit and fire but later on deteriorate lamentably and become extremely tedious.

But summarizing and commenting upon the stories based on the "flying chariot" does not quite exhaust the material, there is one more chapter called "Variations on a Theme" which serves as a catch-all for those things which Bishop John Wilkins failed to foresee. There is the "Voyage to the World of Cartesius" which is accomplished by an "Act of Will," helped along by some special snuff. There is the tale called "Raccolta"—first ed. probably 1767—dealing with the moon trip of "Cavaliere Wild Scull" and "Giovanni Wilkins." There is Voltaire's star-roving Sirian giant "Micromégas." There is "The Blazing World"—don't ask me to define its location—written by the Duchess of Newcastle—published in 1666—which seems to be somewhat strong even for such a hardened researcher as Miss Nicholson and which was, of all things, inspired by the attendance of a session of the Royal Society.

The "Epilogue," which is actually the seventh chapter, deals merely with a very few typical examples of the nineteenth century: Edgar Allan Poe's "Hanns Pfaall," Locke's famous "Moon Hoax," Jules Verne's "From the Earth to the Moon," H. G. Wells "First Men in the Moon" and C. S. Lewis "Out of the Silent Planet"—plus a short, sharp and well-deserved slap at Lewis' "Perelandra." This Epilogue is merely a windup, leading, as it does, into the period of modern science and modern speculation. "If there are other inhabited worlds, perhaps the technology that now seems to threaten imagination will make a path to the planets, and we shall know which of our romancers came closest to the truth. But if that day ever comes, it will not be the end but another beginning."

Willy Ley

"The Atmospheres of the Earth and Planets," edited by Gerard P. Kuiper. The University of Chicag Press, 5750 Ellis Avenue, Chicago 37, Illinois. vii plus 366 pages with XVI plates. 1948. $7.50.

From long experience I know how shocked and disappointed science-fiction fans always feel when told that generally less than ten percent of the work of a large observatory is concerned with planets. As a result, progress in our knowledge of the planets has been correspondingly slow. This may be attributed not so much to lack of interest in the planets themselves as to the extreme difficulty of research in this field. Yet often it seems that the only time a large telescope is turned on the Moon, Mars, or Saturn, is when the trustees of the institution come around, and it becomes necessary to display a spectacular object for their edification.

The pace has been so slow that in the past it had not been difficult to keep abreast of planetary discovery. But any author today who expects to write about life on other worlds is going to find himself badly behind the times unless he keeps a copy of "The Atmospheres of the Earth and Planets" close by his typewriter. Here for the first time is a collection of fifteen papers on the latest advances in planetary and high-altitude research each written by an expert. The book is edited by Dr. Gerard Kuiper, Director of the Yerkes and McDonald Observatories, and Professor of Astronomy at the University of Chicago. Although the writing is fairly technical with some mathematics, on the whole it makes tolerably easy reading.

Perhaps as good a way as any to give an idea of the contents of the book is by asking some questions of the type that might occur in a science-fiction yarn. How many can you answer with assurance?

1. What other biological process besides photosynthesis is known upon the Earth that might permit the growth of plant life on Mars?

2. On Mars why would the existence of lichens be considered more probable than the dry mosses?

Ans. Chapter XIV "The Possibility of Photosynthesis on Mars," by James Franck, Department of Chemistry, University of Chicago. Pp. 355, 356.

3. What can be deduced about the atmospheres of Mars and Venus from spectroscopic observations of the Earthlight on the Moon?

Ans. "Spectroscopic Observations of the Planets at Mount Wilson," Chapter XI, by Theodore Dunham, Jr., Harvard University. P. 303.

4. What gas might be produced on the Moon by heating due to meteoritic impact?

5. What terrestrial mineral has a reflection spectrum that closely matches the light reflected from the red desert regions of Mars?

6. What kinds of vegetation seem

to be ruled out on Mars as the result of drift curves taken across the planets?

7. What observations indicate that the rings of Saturn may be covered by frost or even composed of ice?

Ans. "Survey of Planetary atmosphere," Chapter XII, by Gerard Kuiper, University of Chicago. Pp. 322, 335, 339, 340, respectively.

8. What is the color temperature of the Sun as revealed by ultraviolet spectrograms taken from V-2 rockets?

Ans. The Upper Atmosphere Studied from Rockets, Chapter IV, by Jesse L. Greenstein, Mount Wilson and Palomar Observatories.

9. How much has the composition of the Earth's atmosphere probably changed throughout geological history?

Ans. "Geological Evidence on the Evolution of the Earth's Atmosphere," Chapter VIII, by Rollin T. Chamberlin, Department of Geology, University of Chicago. P. 254.

10. What line of reasoning leads to the conclusion that argon might be the major constituent of the atmosphere of Mars?

Ans. "Rare Gases and the Formation of the Earth's Atmosphere," Chapter IX, by Harrison Brown, Institute for Nuclear Studies and Department of Chemistry, University of Chicago. P. 268.

As stated on the jacket, the question of life on other worlds can be settled only through the study of planetary atmospheres. Formerly this material has been scattered through the volumes of a dozen scientific journals, making it a hopeless task to run down a particular point unless you have access to a large scientific library. Textbooks are generally too elementary and not sufficiently detailed for the peculiar requirements of the science-fiction writer. Here in one volume is a wealth of material waiting to be explored, written and analyzed by the best meteorologists, astronomers, and rocket specialists in the country.

R. S. Richardson

THE END

THE ANALYTICAL LABORATORY

Being pressed (hard!) for space this time, a bare report:

May, 1949 issue

Place	Story	Author	Points
1.	Needle (Part I)	Hal Clement	1.45
2.	Mother Earth	Isaac Asimov	2.54
3.	Lost Ulysses	William L. Bade	2.89
4.	The Conroy Diary	René Lafayette	3.91
5.	Prophecy	Poul Anderson	4.32

Hm-m-m—and I've always maintained that you couldn't write a good detective story in science-fiction!

THE EDITOR.

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2. After Worlds Collide — Balmer & Wylie — $2.75 each
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JULIUS UNGER • Box 35, Brooklyn 4, New York

BRASS TACKS

Your friend's right; $C_3 F_8$ it should be. Typos will happen!

Dear Mr. Campbell:

If you don't quit improving Astounding, I am going to stop buying the magazine. I have always had hopes of doing some science-fiction writing for you, but your stories are getting so good that I am getting discouraged.

Of course the cover was the first thing I looked at after your saying that you were going to have it done by a new artist. I must say the boy is good—if he isn't a she—and looks like he—or she—might develop into a good STF artist. Although the article was even better than usual the rest of the stories were about as good as you usually have which was a letdown after last issue. "The Undecided," by E. F. Russell, was the best story in this month's mag. It had fast action, a good plot idea, better-than-average dialogue, and it showed a reasonable picture of an alien life-form. The only weak spot, if it is one, was that it had me sympathizing with the poor caterpillar-men. The second-place spot was copped by Lafayette's "Plague". He is improving this series as more and more background shows up. The weakness of the background was what kept the first ones of this series from making a better showing. The third part of "Seetee Shock" draws third place although the whole story would be in first place. Confusing, isn't it? "Devious Weapon" and "Colonial" are tied for fourth; the first for the plot idea and the other for the writing in it. "Prodigy" comes in last but is still a better story than your competitors usually carry.

Too bad that Brass Tacks got crowded out but you really had a full issue this time. By the way, I got my roommate to read the article on fluorine and he liked it fairly well, as he is taking organic chemistry, but he says that a compound such as $C_3 F_{10}$ is impossible; that it would have to be either $C_4 F_{10}$ or $C_3 F_8$ Is he wrong or was there a typographical error? I suspect that if he found it more of your readers will, too. He doesn't read science-fiction, anyway, so he doesn't deserve much consideration, but I would like to know if there could be such a compound.

Thanks for a very good issue and I hope that you get to publish some pictures of the other side of the

Moon very soon now.—Norman E. Hartman, P. O. Box 285, Gold Beach, Oregon.

The collection was lost the hard way!

Dear Mr. Campbell:

When I received the February number of Astounding SCIENCE FICTION, it was the first time in about eight years I had an issue of that periodical in my hands.

In 1941, when I was in Java, I subscribed to ASF but when the war started and the Japs invaded us, not only was the possibility of getting any more issues gone, but I lost every number I possessed together with all my other things. Now that I am back in the Netherlands and have a job again, I have started another subscription and I am glad to see that although the size is smaller than I remember it used to be, the stories seem to be as good as they used to be—if not better.

I might as well give you a Lab report, so here goes:

1. "A Present From Joe"
2. "Manna"
3. "The Prisoner In The Skull"
4. "Next Friday Morning"
5. "Christmas Tree"

This does not mean I thought "Christmas Tree" bad, far from that. I did not put in the serial because I want to wait until that is complete, but as far as it goes, I think it even tops the other stories.

I am sad when I realize what a lot of fine stories I must have missed since '41, and I should like to order all the old volumes, but that is impossible because dollars are too scarce in the Netherlands to allow me to use them for that purpose. Would it perhaps be possible for you to let your American readers know that if they possess any old copies they do not want to keep any longer —although that hardly seems probable—I should be very grateful if they would send them to me instead of throwing them away. It is impossible to repay them in money, but if they have a suggestion for payment in another form, I shall be only too glad to hear about it.—J. J. Hillen, Jonkerlaan 21, Wassenaar, Netherlands.

Notice to fans:

Dear Mr. Campbell:

Would you be kind enough to tell the fans, via Brass Tacks:

1. The dates of the Cinvention are September 3-4-5. The Cinvention is NOT in July.

2. Don Ford has a new address: Box 116, Sharonville, Ohio. Don is the guy to send that loose buck for membership in the Cinvention Committee.

3. The Cinvention is NOT an "inner circle" gathering. The Torcon last year was Don's first convention, the Cinvention will be my first. If you like science fiction, you'll have the time of your life at the Cinvention.

Reason for the above, there's a bit of misinformation floating about that we'd like to nail.

And from all of the Cinvention Committee to all science fiction fans, a most cordial invitation to the Cinvention.

THIS IS GOING TO BE THE BEST ONE YET.—Roy Lavender, 138 Blymer Street, Delaware, Ohio.

Anyone want to check him?

Dear Mr. Campbell:

Possibly some of the readers of ASF might relish a little whadizit, so I diffidently submit the following:

11.00100100010010100111110 1-
11000001101000010001 11

Reading J. J. Coupling's description of digital computers in the February issue of ASF suggested the enjoyable pastime of converting some commonplace quantity such as π into the binary system. Doubtless it would seem that the above value for π was slightly carried to extremes, but if so I can only plead as excuse a certain curiosity concerning possible relationships which failed to appear. The value of π used to obtain this binary is correct to fifteen places. If the Timothy Lawrence Pauls and Elsie Lambeths among your readers find this contribution trivial I can only crave their indulgence since my parents were not exposed to lethal radiations.—Art Kalaugher, New Orleans 19, La.

Another free-fall effect I hadn't thought of!

Dear John:

Apropos of Hal Clements' good yarn "Fireproof," you might be interested in knowing that already scientists are having their troubles from working in an essentially gravitationless field. In the latest *Physical Review,* there's a discussion of results that they have had from cloudchamber work in V-2's. After it starts falling back again, the chamber no longer clears itself of the droplets from the preceding tracks; they just hang around and show up as a persistent fogging which makes the later pictures worthless. I have a hunch that they will eventually have to use some sort of electrostatic clearing gimmick to sweep the chamber clean.

Arthur Dugan's story of "The Case of the Missing Octane" was reasonably well worked out—and a special bouquet to the typesetter that got all the formulae right. That's a job that not even the textbooks or journals do very often.—John H. Pomeroy.

THE END

* * * * * * *

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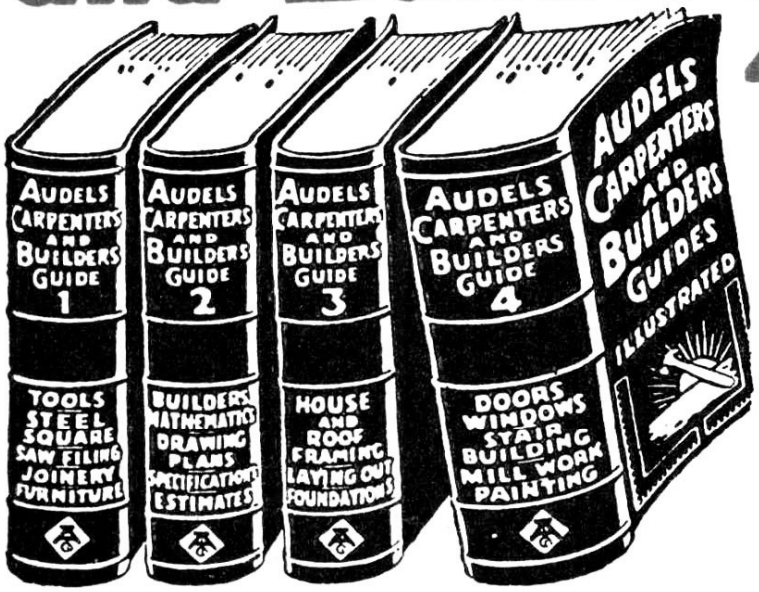

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