

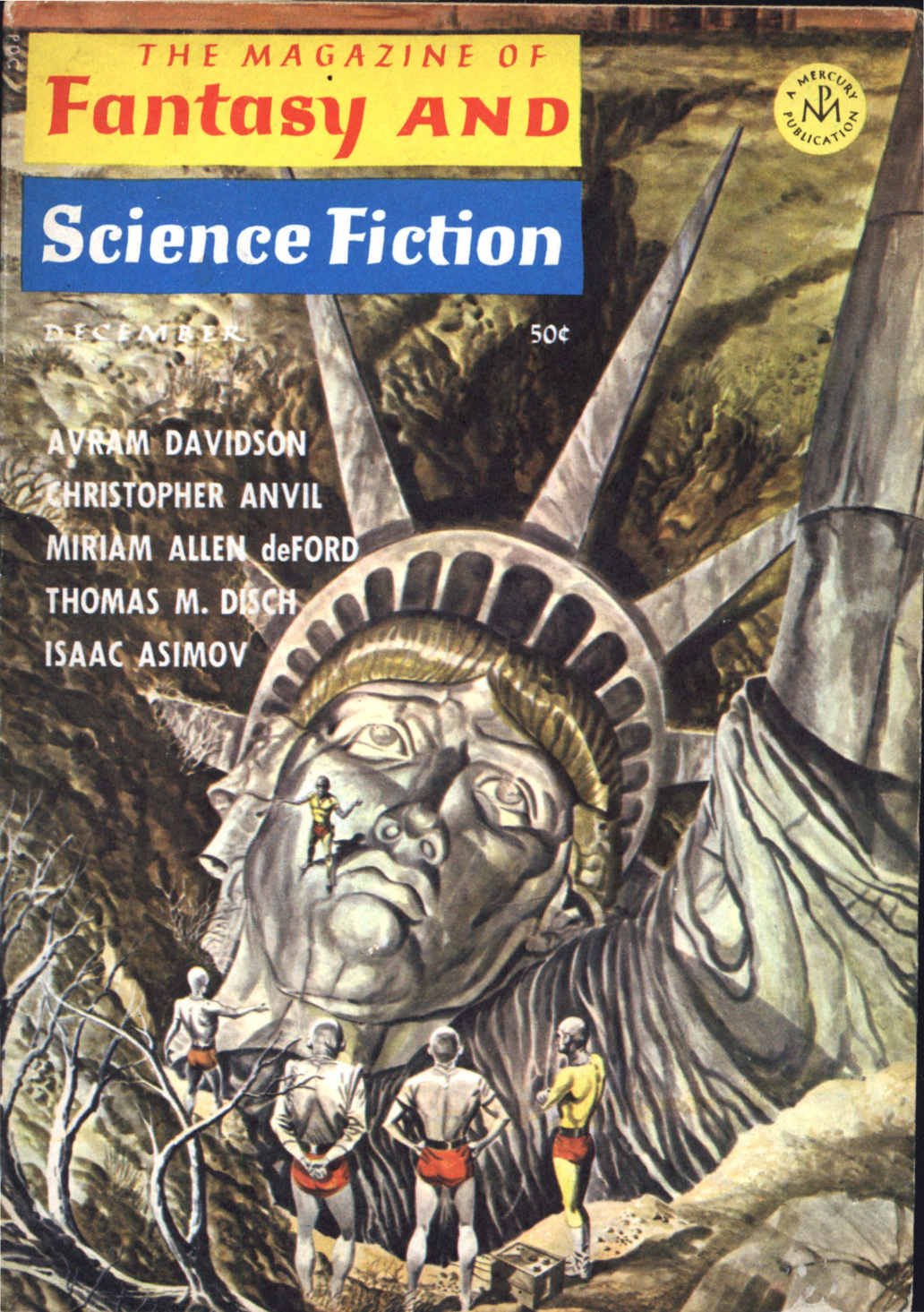
THE MAGAZINE OF  
**Fantasy AND**

**Science Fiction**

DECEMBER

50¢

AVRAM DAVIDSON  
CHRISTOPHER ANVIL  
MIRIAM ALLEN deFORD  
THOMAS M. DISCH  
ISAAC ASIMOV



# Fantasy and Science Fiction

DECEMBER      Including Venture Science Fiction

---

## NOVELETS

Sabotage	CHRISTOPHER ANVIL	6
Bumberboom	AVRAM DAVIDSON	96

## SHORT STORIES

The Mystery of the Purloined Grenouilles	GERALD JONAS	39
Doubting Thomas	THOMAS M. DISCH	43
Von Goom's Gambit	VICTOR CONTOSKI	66
The Green Snow	MIRIAM ALLEN DEFORD	71

## FEATURES

Books	JUDITH MERRIL	30
Cartoon	GAHAN WILSON	38
The Martian Atmosphere	TED THOMAS	65
The Gods ( <i>verse</i> )	L. SPRAGUE DE CAMP	82
Science: The Symbol-Minded Chemist	ISAAC ASIMOV	83

F&SF Marketplace	128
------------------	-----

Index to Volume XXXI	130
----------------------	-----

Cover by Howard Purcell, illustrating "Bumberboom" (see p. 95)

---

Joseph W. Ferman, PUBLISHER

Ted White, ASSISTANT EDITOR

Judith Merrill, BOOK EDITOR

Edward L. Ferman, EDITOR

Isaac Asimov, SCIENCE EDITOR

Robert P. Mills, CONSULTING EDITOR

Dale Beardale, CIRCULATION MANAGER

---

The Magazine of Fantasy and Science Fiction, Volume 31, No. 6, Whole No. 187, Dec. 1966. Published monthly by Mercury Press, Inc., at 50¢ a copy. Annual subscription \$5.00; \$5.50 in Canada and the Pan American Union, \$6.00 in all other countries. Publication office, 10 Ferry Street, Concord, N. H. 03302. Editorial and general mail should be sent to 347 East 53rd St., New York, N. Y. 10022. Second Class postage paid at Concord, N. H. Printed in U.S.A. © 1966 by Mercury Press, Inc. All rights including translations into other languages, reserved. Submissions must be accompanied by stamped, self-addressed envelopes; the Publisher assumes no responsibility for return of unsolicited manuscripts.

# Christmas Gift Rates



**\$5.00 for one subscription**

**(Your own, new or renewal, or first gift)**

**\$9.00 for two subscriptions**

**\$3.50 each additional subscription**

**Order now—pay in January.**

**No additional postage for U.S. or possessions. Canada or Pan American countries \$.50 per year; other countries, \$1.00 per year.**

**THIS SPECIAL OFFER EXPIRES JANUARY 15, 1967**

**Send FANTASY AND SCIENCE FICTION as a Christmas gift to:**

Name .....

**Address** .....

City ..... State ..... Zip .....



Name .....

**Address** .....

City ..... State ..... Zip .....

**FROM** . . . . .

**Address** .....

City ..... State ..... Zip .....

**ENTER my own subscription** ☐ **new** ☐ **renewal**

**Check one:** ☐ I enclose \$\_\_\_\_; ☐ Bill me after Christmas

***Please send me a gift card for each person on my list—to be personalized with my own signature and mailed from my house.***

**MERCURY PRESS, 347 East 53 St., New York, N.Y., 10022**

**NEW AND  
CLASSIC**



**FROM  
DOUBLEDAY**

**NEBULA AWARD  
STORIES 1965**

*Edited by Damon Knight*

There's everything from jelly-beans to a 30-story Venusian sea monster in these four award-winning stories and four distinguished runners-up chosen by the Science Fiction Writers of America as the year's tops. Authors included are Roger Zelazny, Brian W. Aldiss, Harlan Ellison, J. G. Ballard, Gordon Dickson, Larry Niven, and James H. Schmitz.

**\$4.95**

**WATCHERS OF THE DARK**

*Lloyd Biggle, Jr.*

Jan Darzek gets a million dollars from a mysterious Mr. Smith. His assignment: Identify the terrible power that has laid waste whole planets, reducing their strange inhabitants to wailing,

starving mobs. By one of SF's best-known writers. **\$4.50**

**SCIENCE FICTION FOR  
PEOPLE WHO HATE  
SCIENCE FICTION**

*Edited by Terry Carr*

As for people who love science fiction — you'll flip! Nine great stories by Ray Bradbury, Arthur C. Clarke, Damon Knight, Edmond Hamilton, Wilmar H. Shiras, H. L. Gold, Avram Davidson, Robert A. Heinlein, and Frederic Brown.

**\$3.95**

**EARTHBLOOD**

*Keith Laumer and  
Rosel George Brown*

The year is 13,000 A.D. Tailed, scaled, finned, and feathered monsters and humanoids share the universe with villainous engines of destruction and a few pure-strain humans. A galactic space-chase that will have you cheering.

**\$4.50**

*At all booksellers*

**DOUBLEDAY**



*Despite the increasing importance of propaganda and psychological warfare, mid-twentieth century conflict is still overwhelmingly attuned to the idea that the only good \_\_\_\_ (fill-in-the-space) is a dead one, and thus to the concept of developing more effective killing hardware. The combined military hardware of Earth would surely make an impressive showing, but how would it stand up against a purely psychological assault? Here is a convincing and suspenseful story of one battle in such an assault, and if the results are bloodless by contemporary standards, they are certainly no less brutal.*

# SABOTAGE

by Christopher Anvil

MAJOR RICHARD MARTIN stopped with one hand on the door of Colonel Tyler's office. From inside came voices, loud and angry. Martin glanced back past Lieutenant Schmidt at the colonel's pert, shapely, and at the moment somewhat pale receptionist. She nodded earnestly, and rolled her eyes toward the sky, which lay several thousands of feet up, through the layers of dirt, concrete, steel, and electronic shielding equipment.

Martin braced himself, waited for a pause in the uproar from the colonel's office, then knocked briskly on the door.

From inside came a short angry bark. "Come in!"

Martin glanced back at Lieutenant Schmidt—who was looking hungrily at the pretty receptionist—and took the lieutenant by the arm.

"Follow me," growled Martin, and shoved open the colonel's door.

The scene in the office suggested a pause for breath in a fistfight. Colonel Tyler was to one side of his desk, his face furious, his back half-turned to the door, and a folded paper clenched in his hand. A second colonel, with staff emblem at his collar, stood angrily by Tyler's big wall map, one hand stretched out to bang two groups of little whitely-glowing emblems at the edge of the map.

"The general," said the staff

colonel tightly, "is extremely *anxious* to have these missing Tamars located."

Colonel Tyler glanced around, saw Martin, and relaxed slightly. "Ah, good, there you are." Then he frowned at Schmidt, and looked back at Martin reprovingly. "This is only for combat-team commanders, Major."

"I know it, sir," said Martin. "Lieutenant Schmidt is here on another matter."

The staff colonel, standing impatiently by the map, spoke brusquely. "The lieutenant can wait outside, Major."

Martin gripped Schmidt's arm, and looked at Colonel Tyler. "This is a matter of the utmost importance, sir."

The staff colonel said sharply, "It can wait. Get him outside."

Martin continued to hold Schmidt's arm, and looked directly at Colonel Tyler.

Colonel Tyler glanced at the staff colonel. "This goddamned folderol of yours will keep."

"The general—"

"Nuts! Do you think I don't want to find those missing units? I don't need your damned pep talk!"

"The whole situation is now critical—"

"*'Critical'*," snarled Colonel Tyler. "It's been '*critical*' since the first scout ship went down into their damned poisonous atmosphere. It's been critical since our first pilot ran into a gasbag and got

mindjammed for his pains. *Critical!* Do you think it wasn't critical when they had the commander of the Fifth Fleet lobbing impulse torpedoes into his own base? Wasn't it critical when we found the president and the defense secretary on the floor choking each other and neither one could even speak till we got him under a shield? And *that* was just their first blunderings! *Critical!* If you'd get your head out of your boot for about five seconds, you'd see it's been nothing but one hairbreadth critical mess since that first stinking damned critical contact."

"*All right!*" shouted the staff colonel. "But this is *the first time* we've ever seen a chance ahead to put *them* out! This is *the first time* we've ever been anywhere in sight of the *end*! You simpleton! Can't you see that this poses an entirely new situation? Don't you see that these new—"

Colonel Tyler's eyes gave a little glint. His face went blank. "Colonel, do you realize you are discussing classified information in the presence of an officer not cleared to hear it?"

The staff colonel stopped abruptly and turned to stare at the lieutenant. Martin still had him by the arm, and he was still right there in the room.

"Naturally," said Colonel Tyler, his face expressionless, "I will have to report this breach of regulations—which has, of course,

taken place in the presence of two witnesses. Take your papers outside, please, and wait in the outer office."

The staff colonel looked around dazedly, stared at Lieutenant Schmidt, started to speak, took another look at Colonel Tyler, who was watching him with a flinty expression, swallowed, took a long envelope from Colonel Tyler's desk, and the folded paper that Colonel Tyler had tossed down there, and went out.

Colonel Tyler snapped on the intercom. "Sergeant Dana?"

"Sir?" came the girl's pleasant voice.

"Colonel Burnett wishes to wait in the outer office. This is perfectly agreeable with me."

"Yes, sir."

"But if he leaves, for any reason, let me know immediately."

"Yes, sir."

Colonel Tyler snapped off the intercom, and glanced at Schmidt, then at Martin.

"Now, Major, what is the cause of this interruption?"

"Sir, we think we may have located the missing enemy units."

Tyler's face was immediately all attention. He listened intently as Martin and Schmidt explained. Then he picked up his phone, gave a few brief orders, put the phone back in its cradle, and snapped on the intercom.

"Ask Colonel Burnett if he'll step back in here for a moment."

"Yes, sir."

Colonel Tyler glanced at Martin. "As soon as we get this out of the way, I'll want the rest of the details."

"Yes, sir."

The staff colonel, perspiring freely, came back in. Colonel Tyler looked at him clinically, then glanced at Lieutenant Schmidt. "I'd appreciate it if you'd step outside for a few minutes, Lieutenant."

"Yes, sir." Schmidt went out.

Colonel Tyler glanced at the staff colonel.

"Three of my combat-team commanders are on the surface, risking their necks for a population that doesn't even know they exist. One of my other commanders is on standby reserve and totally worn out. I won't call him in here unless the general himself personally and specifically orders it. Now, you want all combat-team commanders to attend this so-called briefing. Well, Major Martin here was on the surface the day before yesterday, has had no real opportunity to rest, and is up to his ears in work. He may have to leave any time. But he's here. This is the best I can do for you, Colonel, and I'll tell you flatly that I think you're wasting our time. Now go ahead with your damned talk."

Colonel Burnett swallowed hard, then held out the folded paper that Colonel Tyler had been gripping when Martin came in.

"Read this, Major, then sign it on the back."

Martin took the paper, and read:

**URGENT:** Six Tamar penetration units still remain unlocated following disappearance from Sector II. Three units vanished from Plot fourteen months ago. Another block of three vanished five months ago. All six still remain off-plot. Past experience indicates enemy penetration of vital target area is proceeding unopposed. All personnel are urgently required to exercise maximum diligence and ingenuity to locate these missing enemy units at the earliest possible moment.

The message was signed by the "Commanding General NARD-COM STRIKE Field Force I." Stamped across the top and bottom were the words, "Deliver by Hand—Endorse and Return to CG FFI."

Martin turned the paper over and signed his name under Colonel Tyler's rapidly-scrawled signature. Martin was already familiar with the facts in the paper, so, as Colonel Tyler had said, it was just so much wasted time. Martin handed the paper back to Colonel Burnett.

Colonel Burnett glanced at Martin's signature, then drew a long envelope from an inside pocket, and cleared his throat.

"Now, gentlemen, this document is—" his voice dropped in

reverence—"the latest Staff Evaluation."

Martin waited patiently. Colonel Tyler irritably glanced at the clock.

Burnett went on. "This document may not be read aloud. Its contents may not be copied. The information it contains may not be transferred in any way from any one person who has read it to another who has not. It may be discussed only in conditions of maximum security, under full shield, and only in the presence —" his voice faltered—"of those fully qualified to read it themselves. Read it, initial each page, and endorse it on the back of the final page." He handed it to Colonel Tyler, who looked it over, in the manner of one already familiar with the contents, scribbled his initials page-by-page and wrote his name on the back.

Colonel Tyler handed it to Martin, then glanced back at the staff colonel, Burnett.

"You'd have less trouble getting these things read, if you'd have your experts translate them into some language known to humans."

Martin was looking at the first section of the paper:

"1) The state of conflict currently existing between the human-controlled space military-socioeconomic complex centering on the planet Earth and the psychologically-oriented culture of the planet Tamar VI (Code 146-

BL110101-976bA14-Ragan) is, in the presently existing stage of hostilities, entering upon a crucial phase requiring of all controlling personnel the highest degree of operative vigilance consonant with the attainment of previously-assigned overriding primary objectives."

Martin read this over again, shook his head, and started again at the beginning. Then he slowly read it all the way through, breaking it down as he went:

1) The war against Tamar VI is now entering a crucial phase, in which the highest vigilance will be required.

2) Essentially, this war is one of technology versus a species of mental accomplishment which can only be described as the power of telepathic assault and possession.

3) There are two main theaters of operation, very widely separated. These are the home planets of the two opposed races. We are able physically to cross the intervening space to strike at the Tamar home planet. They are able to bridge this space psychologically to strike at our home planet. Either side can attack the other offensively. Neither side has a truly effective defense.

4) Our basic war plan remains:

a) Offense: Attack by nuclear and subnuclear explosives against the Tamar home planet.

b) Defense: Countermeasures to neutralize or recapture strategically-placed individuals overcome by Tamar psychological penetration.

5) We continue under severe immediate handicaps:

a) Offense: Tamar VI is a giant planet, its atmosphere dense, heavily clouded, and corrosive. The precise nature of most of the planet's structure and inhabitants remains obscure. Attack is thus difficult to plan or evaluate.

b) Defense: Because of the cost of the complex electronic shielding equipment, the bulk of Earth's population remains exposed to Tamar psychological attack. As each Tamar penetration unit can attack only one individual at a time, as each such attack takes time, and as only several hundred Tamar penetration units are known to exist, the population as a whole, while completely exposed, appears safe from direct assault. However, to avoid panic, the public has not been informed of this attack and believes the war to be confined to the region of the Tamar home planet itself. Because of this secrecy, defensive operations must be financed through contingency funds and by other irregular means. This seriously hampers operations.

6) The basic war plan, as stated, relies on continued blocking of the Tamar attack, with ultimate victory to be won by assault



against the Tamar home planet. Toward this end, the present force of Class III long-range battleships operating off Tamar VI is soon to be strengthened by the far more powerful planetary bombardment ships *Revenge* and *Killer*.

7) Owing, however, to the skill of the defensive force of Tamar penetration units operating against our fleet, this attack is not expected to be decisive. These local Tamar units not only attack unshielded personnel, but have also learned to unbalance the most advanced electronic computing equipment, with catastrophic results. This equipment must either be shielded, or else replaced where feasible by mechanical, hydraulic, pneumatic, or other types of computing equipment. This, together with the demonstrated enemy capacity to overload, at times, all but the most powerful ship-borne shields, makes the final result of our present attack uncertain.

8) Two interstellar-drive devices, known respectively as Fuse and Match, are therefore under construction. Use of these devices on Tamar VI is scheduled for thirty-two months from date, and is expected to create a subnuclear detonation in the planet's interior. It is doubtful that the planet can survive such an explosion.

9) It follows that enemy activity should be terminated by the end of the next thirty-two months.

10) Granting the psychological powers of the Tamar and their known ruthlessness, it is inconceivable that the enemy will submit to destruction without cunning and extremely dangerous resistance. It is necessary, therefore, to maintain secrecy regarding these and other measures. Moreover, as our own physical measures approach completion, there is every reason to guard against new and more refined Tamar psychological measures.

11) Past experience shows the practical impossibility of meaningful two-way communication with the Tamars or of creating even a temporary truce. Cultural analysis, though necessarily highly uncertain, suggests that the Tamar view of the universe must be basically at variance with that of humanity. In this view, there is no true common frame of reference and hence no way out by means of a truce.

12) We must, therefore, regard the next thirty-two months as an extremely critical and dangerous period.

Martin duly initialed each page and signed his name on the back. He handed the paper to Colonel Tyler, who handed it back to the staff colonel, Burnett, and said, "Is that it?"

"Yes."

Colonel Tyler reached for the phone.

The staff colonel looked acute-

ly uneasy. "Ah—about what I said earlier—"

Colonel Tyler said coldly, "I hope you aren't about to suggest anything contrary to regulations, Colonel."

Colonel Burnett shut his mouth and looked blank.

Colonel Tyler picked up the phone.

Burnett said anxiously, "I'm sure I didn't—"

Tyler put the phone back in its cradle but kept his hand on it.

"I didn't make the regulations, but I have to live by them. In the hearing of Lieutenant Schmidt, who was not cleared to receive the information, you stated authoritatively that we now, for the first time, are in a position to see the end of the war. As a matter of fact, Lieutenant Schmidt is no more likely than Major Martin or I to blab this information. But the regulations are perfectly clear."

"But I'd ordered the lieutenant to get out! I—"

"You knew Major Martin was holding him here. Were you trying to induce the lieutenant to disobey his own commanding officer? Or were you trying to block both of my officers from reporting to me on a matter of the utmost urgency? And what the devil are you doing now—trying to get me to join you in concealing the offense?"

The staff colonel opened his mouth, shut it, and swallowed.

Colonel Tyler picked up the phone, and spoke into it briefly and pointedly. Then he put the phone back in its cradle.

There was a strained silence that lasted for possibly two minutes. Then there was a rap on the door.

"Come in," said Colonel Tyler.

Six spotlessly-uniformed MP's, two of them armed with sub-machine guns, came in and very politely escorted the staff colonel out of the office.

Colonel Tyler glanced at Martin. "Get Schmidt in here."

Martin stepped into the outer office to find Lieutenant Schmidt talking in a low voice to the smiling Sergeant Dana.

Martin said, "Schmidt."

"Yes, sir. Just a moment, sir."

Martin stepped back into the colonel's office. Outside, he could hear the girl say something, then Schmidt say something. Then the lieutenant, looking bemused but hopeful, stepped into the office, and Martin shut the door.

Colonel Tyler glanced at Schmidt's face, and cleared his throat. "Lieutenant, this information of yours is interesting. Let's go over it again, and get the details."

"Yes, sir."

"To begin with, you got a three-day pass to the surface?"

"Yes, sir. To visit my—my girl, sir."

"But she wasn't very friendly?"

"Well—it seemed, at least, that it wasn't she so much as her mother, sir. You see, I have a cover job, as a traveling salesman selling sets of encyclopedias. The mother thinks this is pretty feeble stuff and wants her daughter to find somebody with better prospects."

The colonel nodded sympathetically.

Schmidt said, "I've known Janice's family for a long time, but apparently they'd decided they didn't know me, so this time the mother went to work with a string of questions. I think I might have gotten through this, but as it happened, I was worn out from that mess at the power station, and I kept losing the drift of the argument. Well, right on the hassock near the couch where I was sitting, while she shot these questions at me, was a newspaper. The headline kept staring me in the face: PENNSY A-BLAST AVERTED. I kept wondering how the thing had looked from the outside. So, right in the middle of the harangue, with her telling me how serious life is, I picked up the paper and started to read. That did it."

Colonel Tyler smiled. "If you'd like us to rig up some better cover—"

"Thank you, sir, but I don't think so. Janice could have stopped this third degree any time, but she sat through the whole thing, listening carefully. I got

the impression that maybe her mother was just asking the questions for her anyway. Some of them were rough questions, but Janice didn't say anything on my side.—That's enough for me."

The colonel nodded. "What did you do then?"

"Well, I found myself in the road in front of the house. I should have felt low, but as a matter of fact I was too tired. I still had my pass, and I didn't know what to do with it. I could have gone home, but there was no future in that. At home, they're all sorrowful and pitying, except for my kid sister. Well, for lack of anything else, I walked down to the newsstand, got a paper with this story about "PENNSY A-BLAST AVERTED" in it, and read that. Some college students came in, and I got the idea to go see the old place again." Schmidt scowled, and the colonel leaned forward intently.

"Go on."

"Well, this is a little hard to explain, sir. I've gone back before, you see, and I've felt like some kind of ghost. The place was the same, but the faces were different, and I didn't fit in anywhere. This time it wasn't that way."

Martin was listening closely, and the colonel was leaning forward, his gaze intent.

"You noticed something wrong, is that it?"

"Not exactly wrong, sir."

Strange. The trouble was, I was worn-out, and I'm afraid I wasn't too observant. The first thing that seemed odd was that a student I'd never seen before turned to me in a matter-of-fact way and said, 'Man, I can't take much more of this, can you? I mean, what's the *point* of everything? Why *both-er*?' "

The colonel said, "This was as you were walking toward the college?"

"No, sir, I was just leaving the newsstand."

"What did you say to him?"

"The remark fit my mood, and I agreed. But then I wondered what he was talking about. By that time, we were slowly walking toward the college. As I say, I was tired. So was he. He seemed to be barely able to drag himself along. After a while, he said, 'I mean, what *is* the use?' Well, I didn't know what he was talking about, but it wasn't too far from how I felt, so I said, 'I know what you mean.' We dragged on up the hill, and pretty soon it developed we were headed for different places. He said 'See you,' and I said, 'Yeah.' "

"These were the only comments?"

"Yes, sir. By itself, it didn't mean much. But on the way up the hill, maybe half-a-dozen more men students passed us going down in the other direction. Every one of them looked as full of

pep and spirit as if he'd just been hit in the stomach. A girl came out the gate just as I went in, and she looked as if she'd long since given up hope in everything. Well, I went on in, it was the change of classes, and—" He shook his head. "I can't describe it. But I had a little playback camera with me—I'd started out thinking I'd take some pictures of Janice—and I took some shots of the college instead."

"Do you have the camera with you?"

"Yes, sir, I—" He reddened slightly. "Ah, I seem to have left it in the outer office, sir. If I could —"

"Go right ahead."

The lieutenant went out. The colonel glanced quizzically at Martin, who smiled and said nothing.

Outside, there was a murmured masculine comment, a quiet feminine laugh, and then Schmidt was back, carrying a small leather case. He handed it to the colonel, who slid the camera out of the case, pulled out the two extension eyepieces, made sure the lever was at "P" for "playback," then looked into the eyepieces.

Martin, watching, could remember the recorded scenes vividly. The first showed a very pretty girl walking slowly toward him past a group of students. The girl had a dazed look, and her face was streaked, as if from tears. She

passed three unshaven male students sitting on the steps of the building. She was a very pretty girl. The three male students sat with their heads in their hands and stared dully across the campus as she passed.

There was a stretch of pale transparency in the film, then a shot of a large group of intermingled students drifting listlessly across the campus. When they went by, they left behind, here and there, an eraser, a pencil, or a slide rule, that someone or other had dropped, and that no one bothered to pick up.

There was another stretch of transparency, then a view of a tall, drearily trudging student with a three-day beard, partly shaven so that the better part of one side of his face showed a less pronounced beard, and with about two square inches of that side again partly shaved, as if he tried to shave on successive days but each time had given it up.

Several other scenes showed more of the same thing—listless, dispirited men or girls, trudging singly or in groups across the campus.

Colonel Tyler ran the scenes through again, then carefully put down the camera, and glanced at Schmidt.

"The whole school was like this?"

"All that I saw of it, sir—that is, the students. I don't know

about the faculty or the administration."

"How was the rest of the town?"

"Here and there, the atmosphere was odd, as if people were wondering why they bothered, anyway. But there was no other place where it was as bad as the college."

"And the students you saw off-campus were the same?"

"Yes, sir. All the ones I saw."

"Do you have any idea what's behind it?"

"No, sir. Except that there's obviously something unnatural going on. And the Tamars have hit schools before, from different angles."

Colonel Tyler nodded thoughtfully, handed the camera back to the lieutenant, and glanced briefly at Martin.

"What's your theory about this?"

"Only that the Tamars are behind it, sir. How and why are something else again."

The colonel glanced at the wall map of the continent, with its tiny glowing dots of many colors and the groups of white dots at the edge representing enemy penetration units that had been lost and had not yet been relocated.

"As for 'how,'" he said, "with six units out of the eighty they normally assign to this continent, they have power enough to make plenty of trouble, though it's a good question just how they do it." He glanced back at Schmidt.



"All you found out is shown on that film?"

"Yes, sir. At the time, it all seemed strange to me, but I was about knocked out, myself, and didn't realize what it might mean. I just went home and put in the rest of the three-day pass getting caught up on sleep. I didn't think of the Tamars till I got rested up, and then it was time to come back."

The colonel nodded, and said thoughtfully, "As for *why* they'd do this—"

The phone rang. He picked it up and said, "Colonel Tyler," and listened. "Yes," he said, "I see. You think it is worth our attention, then? . . . yes . . . yes . . . then this is completely new to you, too? . . . yes . . . okay, Sam. Thanks. Good-by." He put the phone back, and smiled. "Well, gentlemen, Reconnaissance agrees with us. They don't have any better idea what's going on there than we do, and of course they've had no time to do a thorough check. But they sent a team out there with the new portable snoopers about ten minutes ago, and the reading went right off the end of the scale." The colonel beamed. "We've found them, gentlemen. And tomorrow we'll go in and take them out. For now, rest up and check your equipment."

Resting up, for Martin, meant leaving his desk, where the official forms were piled high in the IN

basket, and heading for his apartment. Martin's apartment was scaled to fit the needs of an organization that had its funds funneled to it secretly and that had to spend much of these funds on expensive shielding equipment. The apartment had bedroom, bathroom, kitchenette, and a room jokingly referred to as the "living-dining" room. The whole works fitted inside a space about fifteen feet on a side. The living-dining room was about six feet square and equipped with two straight-back chairs, a folding card table, and a TV set that was fed canned programs through a cable. Anyone with a tendency to claustrophobia soon imagined that the walls were starting to close in on him. As both of the hatch-like doors to the room opened inward, nearly met in the center, and were hung from the same side on walls that faced each other, this illusion had an unpleasant habit of coming true. The kitchenette was a little larger, but with more equipment crammed into it. The bathroom was smaller yet. The only room where two individuals could shut the doors and simultaneously draw a breath without making their eardrums pop was the bedroom. The bedroom was large enough to move around in. The ventilator grille opened into it, incidentally providing the source for eerie whispering sounds that echoed through the room all night.

Martin shared this apartment with his second-in-command, a burly captain by the name of Burns. Right now, Burns was stretched out flat on his cot, his hands clasped behind his head, his eyes shut, and a look of weary exasperation on his face.

"Same damned thing as always," he was saying. "Fall all over ourselves in a desperate rush for six weeks, till the men drop in their tracks, and you catch yourself staring at your hand to try and remember if you're on duty or off—and then Recon loses the bastards, and for the next six weeks there's nothing to do but run through drills and fill out forms. And then—*Wham!* Recon catches hold again, and we're back on the treadmill."

"It wasn't Reconnaissance this time," said Martin. "Schmidt ran into it on a three-day pass."

Burns opened his eyes.

"You mean he bumped into it by accident?"

"Exactly."

"How did that happen?"

"His girl axed him, and he found himself with time on his hands. He wandered back to his old college, which was in the same town, and ran into a funny set-up." Martin described it, and Burns sat up, frowning.

"Apathy, huh? Well—what of it? I can't see the Tamars wasting six units on that."

Martin opened his locker,

pulled out a holstered automatic, and set it on his cot.

"They may not have the whole six units on it. We don't know yet just *what* they've got on it."

Burns nodded, got up, and went to his locker. "I still don't get their point."

"Neither do I," said Martin. "But they're there. It follows that there's trouble for us in it somewhere."

Carefully, Martin took from his locker a small, olive-colored belt case with two short wires attached, then a helmet with a slightly-flattened bulge in front, and a little white box made of opaque plastic. One-by-one, he set them on the cot beside the gun.

Burns said exasperatedly, "What's the use of making a college full of apathetic students? So what? How does that hurt our war effort? The Tamar haven't got so many penetration units they can afford to do things for the fun of it." He frowned suddenly, and said, "Yeah, but on the other hand—how did they *do* it?"

Martin sat down on his cot and began disassembling the gun. "Now you're on the right track."

"How many students in this college?"

"Over a thousand."

"And they've *all* had the spirit knocked out of them?"

"All Schmidt saw."

Burns swore. "The gasbags must have hit the jackpot this

time. They're always trying for some kind of leverage, or some multiplier effect. Something to overcome the fact that we have greater numbers than their penetration teams can handle directly."

Carefully, Martin cleaned the disassembled gun. "They've got a multiplier effect this time."

Burns thought it over, frowning, then said, "I suppose it fits their usual method. If they can, they like best to get control of people in key positions. If they can't do that, then they try to get someone who *will* be in a key position, later. Like that Space Academy mess."

Martin lightly oiled the parts, and reassembled the gun. "That one was ideal, from their viewpoint, all right."

"Sure. Crack a few selected instructors, and then feed the false information directly to the future officers. Then, when they *are* officers, they'll make dangerous mistakes. We were lucky to break that up before they wrecked us."

Martin slid the gun back into its holster. "Still, the actual multiplier factor there wasn't up to this one. And the cadets they sabotaged—despite the hypnotic effect of the Tamars—were only hurt *in one category of their knowledge*. This present thing seems to strike not at a man's knowledge, but at his *spirit*. When a man's spirit is deadened, all his knowledge is more or less useless."

Burns finished cleaning and oiling his own gun, and, like Martin, next checked the working of a small switch recessed just under the edge of his helmet. "Yes, I see what you mean. But I don't see how they do that. Always before, the individual they succeeded in capturing was either used directly—say to give a disastrous order—or else, if he was an instructor, he was used to drive home some dangerous piece of false knowledge. A man may be made to believe, for instance, that hydrogen sulfide gas has an evil smell, but still isn't poisonous. This is false knowledge. It's dangerous. But it won't dispirit a man. The Tamars can teach carefully selected bits of false knowledge. They can do it without departing too much from the school's standard routine. Maybe no one will notice. But how do they teach *apathy*?"

"I don't know." Frowning, Martin opened the small white case and took out a thing like a dental bridge, with two little stainless steel arms that held a dark red capsule. He slid it into his mouth, fitted it carefully to a lower molar, touched it with his tongue, moved the capsule, and felt it swing up and over to rest on the biting surface of the tooth. Then, carefully, he removed the device.

"Not only," he said, "*how* do they teach it, but how do they teach *the whole college* to be apathetic? They must have some kind

of mass-production assembly line going." He went into the bathroom, washed the device at the sink, dried it, and put it back in the box.

Across the room, Burns had the capsule in his mouth, and an inward-turned look on his face as he gingerly tried out the device.

Martin put everything back in his locker but the case with two wires attached, then took out a long, olive-colored one-piece suit, with gloves and padded boots attached.

Burns now eased the capsule out of his mouth, and stepped into the bathroom. There was a sound of rushing water. His voice came out faintly muffled.

"The more I think of it, the less I like it. Defeatism is catching, anyway. If they've found some way to compound it and strengthen it—but what's the *method*? They don't have *courses* in defeatism."

"Obviously, they'd use some other name."

"Such as what?"

"I haven't figured that out yet."

Martin put on the suit, pulled up the zipper, and carefully snapped together the long thin blocks of connectors to either side. He pressed a small button on the side of the little olive case, saw a tiny lens light up bright-green, indicating that the battery was fully charged, slid the case into a pocket of the suit, connected the

two wires to their plugs, zipped the pocket shut, and snapped together the connector blocks on either side. From the sink, Burns growled his opinion of the Tamars, the war, and what they'd probably run into the next day.

"Maybe," said Martin, "by this time tomorrow, you'll be happy over the whole thing."

"Let us hope it doesn't go like that *last* mess." Burns came out of the bathroom. "Sorry, Mart. I didn't mean to talk while you were wrestling with that suit."

Martin grunted, and unrolled the shaped hood that fit closely over his head, with nothing open but two eyeholes and two small holes to breathe through. He zipped it on, and snapped the last connector blocks together. Then he slid his gloved hand along the center of his chest, felt the pressure-switch beneath the cloth, fine wires, and tiny spheroidal units that were linked together in a layer under the cloth. He pressed the switch, then looked at his cot against the wall. Slowly he raised his right hand to place it over his eyes. He saw neither hand nor arm. He felt the pressure as his hand pressed the cloth gently against his face, but he saw only the cot.

He turned, reached into his locker, and saw the helmet apparently drift out toward him unsupported. He settled it carefully on his head, feeling the built-in con-

necter blocks of helmet and hood snap together. He shut the door leading to the small bathroom, felt the door with his fingers as he shut it, through the gloves of the suit, but saw the door swing eerily shut as if for no visible reason. On the back of the door was a full-length mirror.

Martin looked in the mirror, saw Burns' locker and cot across the room, saw Burns shrug into his own suit, pull up the zipper, and snap shut the blocks—but of himself Martin saw nothing until he leaned very close to the mirror. And then he saw, floating directly before him, all there was that was visible of him—two small black dots—the pupils of his eyes.

A few moments later, Burns vanished, and the two men carefully checked each other.

"Okay," said Martin. "Nothing visible."

"Same with you."

Martin shoved in the pressure-switch. At almost the same instant, Burns suddenly appeared. Methodically, the two men removed their slightly-oversize helmets, put them away, and began to unsnap the connector blocks.

The next day, they would go through the same procedure all over again, but with gun, capsule, and a few other standard items in place. Now they carefully took the suits off, and hung them carefully in the lockers.

"I'd still like to know," said

Burns, "how the gasbags worked this one."

Martin smiled. "The turning wheel of time reveals all. Just *wait* twenty-four hours."

"Yeah," said Burns dryly. "If we're still here by then."

The next day, the colonel took the unusual step of giving a brief talk to the assembled troops, before starting to the surface.

"Gentlemen, what we face today is the deadliest kind of sneak attack. Yet it *appears* comparatively harmless. There is some danger that we may underestimate this situation and suffer a defeat we can't afford. I think it will pay us if we go over, briefly, our past experiences, to bring this present situation into perspective."

He glanced at Martin. "Major, suppose you briefly analyze a typical enemy attack."

Martin quickly thought it over. "Their typical attack has five phases. The first apparently is a kind of psychological reconnaissance-in-force, to decide future tactics, and to test the resistance of various key-points; to us, these key-points are individuals in positions that are in one way or another sensitive. The second phase of their attack is the psychological assault to capture a selected key-point. Just how this is done is their secret; from our viewpoint, the individual under attack feels strain, tension, and severe depression.



"If he rejects the sensations, successfully throws them out of his mind, and refuses to give in, the attack finally runs down or is broken off. Apparently the enemy suffers some kind of psychic loss or injury in the process, because following an unsuccessful attack there is a lessening of enemy activity. But if the psychological attack is successful, the key-point is captured. From our viewpoint, the individual cracks, and the enemy now takes control of his actions. That control of his actions constitutes the third phase, in which, if he is a government official, he makes harmful decisions, signs the wrong documents, recommends the wrong course of action. If he's a teacher, he plants in his student's minds selected bits of false information. The damage is reinforced with almost hypnotic effect by the powerful personality, not of the individual taken over but apparently of the entity that has psychological control.

"The fourth phase of the attack is actually the effect of the bad teaching or wrong decisions, which compound and pile up, and alert us, if nothing else does, to the realization that something is wrong.

"The fifth phase is retreat. We have overall control of this planet, and there are evidently far more of us than there are of them. Using advanced electronic techniques, we counterattack, and they

immediately withdraw, leaving us with possession of the key-point. Following a brief delay, they strike back at us by an attack on another key-point—that is, from our viewpoint—another individual. Meanwhile, we have the first individual to rehabilitate and all the damage he's done to repair. At any given time, there appear to be twenty to thirty enemy attacks in progress in our own sector, except after they've suffered a repulse, when the number drops by almost half. Of these various attacks, we are, at any given time, unaware of at least a few. The enemy relies heavily on concealment, and we often have to reconstruct the sequence of events afterward."

The colonel nodded. "Good." He turned to Burns. "Captain, how do we recognize a captured key-point, an individual who's given in to them?"

"In two ways, so far, sir. First, by the stream of damaging incidents that all lead back to that one individual. Industrial accidents, for instance, involving the students of one teacher. Second, by a peculiar compelling quality in the speech of the captured individual himself as he drives home his false points."

"Right. Now, one more question. Martin, at what are these attacks directed? What is the enemy's target?"

Martin frowned. "The earliest attacks were apparently random,

like the blows of a person lashing out at someone in a dark room. But very quickly they came to be directed at key government officials, legislators, high officers in the Space Command. Then there was a progressive shift to attacks on our technology—directly, at first, by striking at industrial leaders and technological specialists, then indirectly by distorting the training of students going into industry. As for this latest attack—” Martin shook his head. “It seems to be directed against a whole student body. But I frankly don’t see what is the actual objective.”

The colonel nodded. “What our opponents are trying for, of course, is to find a decisive weak point. But as it happens, the key positions in government, industry, and the armed forces, are usually held by people who are accustomed to being under pressure and are prepared to resist pressure. After the comparative few who are susceptible have been taken over, discovered, and replaced, the enemy is driven to try a new approach. Attacking the schools gives a multiplier effect and it is comparatively easier, but the results are slow. New graduates are rarely given positions of importance. And the false knowledge given to them is likely to result in industrial accidents that are troublesome but comparatively minor, and that, one way or another, disqualify the individuals concerned. Some new

tactic becomes necessary. What they have hit on now is a way to *emotionally stun* an entire student body. Past blows have been aimed at government and industry. This latest blow is aimed at *the emotions of a large group of people.*”

The colonel paused, and Martin was aware of the stir in the room as some of the significance of this began to dawn.

“Attitudes,” said the colonel, “are catching. And they’re basic. Strike a weapon from a man’s hand, and he’ll find another. Make his leaders betray him, and he’ll choose new leaders. Let his technology fail him, and he’ll repair it. But fix him so he just doesn’t give a damn about anything—” The colonel glanced around the room. “Gentlemen, this is one fight we can’t afford to lose.”

Now, on the surface, Martin and the others were dispersed across the campus, an invisible net of unseen eyes watching in each classroom and administrative office, joined together by little short-range transmitters at their throats and thimble-sized receivers at their ears. Painstakingly they watched and listened, and then the voice of a sergeant named Cains spoke in Martin’s ear.

“Major, I think I’ve found it.”

“Where?”

“Room 24 of the Nears Social Studies Building.”

Martin mentally pinpointed

the building on the map he'd memorized on the way to the surface. "All right. What's going on there?"

"Just a lecture in elementary psychology, sir, but it's got all the signs. The lecturer's voice goes right into your head. What he says makes you feel cheap, small, and helpless. You have to keep fighting it off, and it's hard to keep up with him."

"That sounds like it, all right. We'll be right there."

The colonel's voice spoke in Martin's ear.

"Major Carney, move your men to blocking positions outside the Nears Building. If this man should happen to get away from us, we'll mark him with a dye pellet. You will arrange the accident."

Carney's voice replied, "Yes, sir. We'll get him, sir."

"Major Martin, you will keep a continuous watch on the rest of the buildings, but move your ready squad to just outside the Nears Building. It seems to me that to straighten this out is going to be unusually tough. Sergeant Cains will step outside as soon as the door opens and wait by the door. You and I and Captain Burns will handle this ourselves."

The door of Room 24 of the Nears Building swung open as if it had been insecurely latched and blown back by the wind. The colonel, Martin, and Burns waited for

the count of three, then stepped through quickly, each man grasping the shoulder of the unseen man in front of him.

To their right were rows of seated students. To their left was a long blackboard, with a closed door halfway down the room. Near this closed door was a desk, and on the far side of the desk, facing the blackboard, stood an individual with an omniscient expression and a voice that carried a peculiarly penetrating blend of complaint, jeer, and triumph.

The colonel, Martin, and Burns stepped aside as the instructor stopped speaking, glanced across the room, then strode with quick decisive steps to bang shut the door. With the instructor at the door, the colonel led the way behind the desk to the opposite corner of the room, where the three men then stood with their backs to the side wall and waited.

The instructor returned to his desk.

Martin briefly studied the class, which had a uniform dulled and dreary look. Many of the students appeared to have passed into a kind of cataleptic trance and sat perfectly motionless, eyes directly to the front, as the instructor strode back, glanced briefly at an indecipherable scrawl chalked on the blackboard, then faced the class. His voice rose with the whine of a wasp preparing to sting.

"We will now," he said, "summarize our conclusions."

He turned to the blackboard and with two decisive slashes drew a pair of roughly horizontal lines, one about a foot and a half above the other. Hand raised, he paused for a moment, then with a quick snap of the arm drew an off-center egg-shaped scrawl between the two lines. Above the upper line, he rapidly scratched a series of minus signs. His motions were abrupt and exaggerated, but Martin noted that no one in the class smiled, or even changed expression.

The instructor now faced the class.

"This is the basic human situation. Here we have—" he slashed the chalk across the oval—"the ego. And here—" he slashed at the upper line—"repulsion. Here—" the lower line—"attraction. And the result?" With quick slashes he drew a downward-pointing arrow. "The ego moves *down*. The ego is driven by repulsion, drawn by attraction. The ego is without will. There is no such thing as will. There is only desire. Desire is rooted in the subconscious. We are unaware of the subconscious. Hence the desires that determine our actions are outside forces, not subject to our control. We do not control desires. Desires control us. Man is a puppet. Man must cast off hypocrisy and admit his willless, soulless, helpless state.

There is only desire and nothing but desire, and desire, whether it be greed, lust—"

The keening voice rose and fell in intensity, driving home each individual thought with an impact that could be felt, and Martin had the feeling that he was being crammed head-first into a little twisted room, where all the furniture was warped, where walls and ceiling met at odd angles, and where the windows were of distorted glass, looking out on an apparently insane world.

The colonel's voice, low and distinct, spoke in his ear.

"Martin. Take him out."

Martin pressed his tongue against the base of the capsule hinged close beside a lower tooth. He felt the capsule swing up and over, to fit smoothly against the biting surface of the tooth. He stepped forward.

The keening voice went on, but as Martin paused some three feet from the slightly puffy face with its faint sheen of perspiration, and as he raised his hand to the edge of his helmet, he was barely conscious of the voice. Martin clenched his teeth, felt the capsule crush, swallowed the stinging, cool-feeling liquid, and at the same moment forced back the recessed switch set just inside the edge of his oversize helmet. Then he focused his whole mind and consciousness on the man before him.

Just how or when it happened, Martin didn't know, but abruptly he was conscious of the shift of viewpoint, saw the class suddenly in front of him instead of to the side, heard the apparent change in tone of voice, saw the slight dimming of light, now seen through different organs of vision.

To one side was a barely-perceptible creak of leather and a rustle of cloth.

The voice went on ". . . no individuality, but only complexity. Psychology becomes a science and disproves itself, for there is no psyche. Psyche is a fiction, the soul is a . . ."

Then the voice abruptly came to a halt, as if awaiting fresh orders.

Martin felt, at his shoulder, a brief reassuring grip. Something brushed past, and there was the faint, barely perceptible shuffle of two men very quietly carrying a third.

Martin, looking out through the unfamiliar visual apparatus, briefly considered the jolt in store for the personality that had been put to the service of spreading this infected philosophy. It would, of course, have to be "rehabilitated." What would it feel when it came to, occupying a drone-body, with the sweat-course rising in front of it, where it would be driven to call on will-power in increasing measure, would have to surmount every kind of obstacle, to merely escape the slowly advancing boundary

that meant agonizing pain. Slowly, nerve and determination would have to be built up, through one trial, failure, and sheet of agony after another, till at last the personality was strong enough to break through the final obstacle. That in turn would mean that it was strong enough to protect itself against psychological attack and could be trusted in its former position. The personality would have amnesia for the incidents of the course, but the reflexes and attitudes would remain. Martin, who had gone through it several times during his training, did not relish the idea of starting it with the belief that will-power and spirit were myths that couldn't be called upon in need.

The door of the classroom swung wide, as if it had been insecurely latched, and a gust of wind had blown it open.

Martin waited a moment, then closed the door.

The class sat motionless, waiting for the voice to go on.

Martin returned to the desk, and briefly considered the problem. The key-point was now retaken but the damage, if possible, still had to be undone. That would mean a slight change in the presentation.

He looked searchingly at the class, then leaned forward, and focused his whole attention.

The voice obediently snapped with energy. The platitudes rolled glibly out.



" . . . Yes, the psyche is a fiction. A figment. Imaginary. A leftover relic of past theories, amusing but vapid, unproved, prescientific." Here and there, pencils scratched, and Martin could see that he had the helpless attention of his audience. "Yes, a mere construct of prescientific minds. A myth. A theory. Unproved, though useful to its believers, and as yet, of course, not *disproved*." The pencils scratched on. "Just as will is unproved, just as the concept of a Supreme Being is unproved—yet they are not *disproved*. These concepts are prescientific, just as the sun is prescientific, and the sun is not disproved. The sun *exists*." The pencils continued to scratch; those few still not taking notes continued to watch him with unfocused gaze. He had the impression that he was feeding bits of information into a computer which would accept whatever he might give it and act accordingly.

Martin groped in memory for the earlier part of the lecture, seeking a way to undercut the ideas that had left him feeling as if he were being shoved into a narrow twisted room.

"Yes, the ego is driven by repulsion, drawn by attraction. But the essential consciousness of man is not the ego of psychology. The ego is without will. But man's consciousness *has* will. There is no such *thing* as will, because will is not a thing. *Yet will exists*."

Carefully, concentrating on each separate thought, Martin worked down the long list, drawing distinctions that undercut each separate assertion that he could trace in memory. Tensely, he hurled the ideas across:

"Man is a puppet. His body is controlled by strings called nerves. His brain is a calculating machine, built of protoplasm. Seen thus, man has complexity, but no individuality. Yet body and brain are not all. Who is the observer who considers body and brain? The idea of soul is ancient, prescientific, unproved, *yet not disproved*. If there is a puppet, worked by strings, *what works the strings*? What applies certain ultimate changes in electrical potential that control the body and the calculating machine of the brain?"

Relentlessly, he destroyed the earlier assertions, while time stretched out, and he stood drenched in sweat, and the pencils scratched on endlessly:

" . . . As psychology becomes a science, it is no longer psychology, as the psyche does not exist, to the present instruments of science. What science does not observe, it cannot record and cannot study. But psychology itself is not yet out of its infancy. Its conclusions are tentative, *not final*. Its failure to observe does not disprove the existence of the thing not observed. A man with inadequate instruments may fail to

detect a particular star, but the star he fails to observe *is still there*. The failure is that of the method, not of the star . . .”

At some point, Martin sensed a change. The pencils obediently scratched, and the watching gaze still seemed unfocused, but the look of dulled apathy was gone. It dawned on Martin that he had finally cut the foundation out from under the previous teachings.

He now spoke more freely, driving home a belief in soul, will, character, and the power of man to fight and eventually conquer obstacles. When he was through, he knew, no present-day teacher of psychology would recognize the course. But that didn't trouble Martin. A glance at the clock showed him he had only a few minutes left, but the audience was attentive, and the pencils wrote rapidly, and as the second hand of the clock on the wall swung up toward the hour mark, some memory warned Martin that these classes were ended in a special way.

“Now,” he said, varying the procedure slightly, “soon the bell will ring, and you will feel wide awake. You will go out conscious that you have judgment, the power of choice, and will. When the bell rings, you will feel wide awake, fresh, full of energy.”

The second hand aligned itself with the minute hand. In the hallway, a bell rang jarringly.

The class stirred, sat up, burst

into an explosion of sound and energy. With a rush, the class emptied into the hall.

Drenched in sweat, Martin leaned against the desk.

Now, he thought, let that blast of energy hit the rest of them. Let faith and determination compete with apathy, and see what happens.

Martin felt the relief of a man who sees success close at hand.

Behind him, there was the quiet click of a latch.

Martin remembered the door near the desk. He turned.

A well-groomed man with an intensely-piercing gaze stood in the doorway, and stared directly into his eyes.

It dawned on Martin that this was the chairman of the department.

The two men stood staring at each other. The chairman of the department said nothing, but the intense unwavering gaze, and the sense of a powerful, dominant personality began to make itself felt.

Abruptly, Martin felt a brief sensation of dread. There was a flicker of some unspecified fear.

—Something might happen to him.

The thought wavered, then strengthened.

The dread closed around him like an iron strap.

His heart began to race.

The palms of his hands felt damp and his legs weak and shaky.

The department chairman smiled and took a slow step forward.

Somewhere within Martin, there was a sensation like the impact of a massive object striking against a granite cliff. There was a sense of heavy jarring—but nothing gave.

Martin continued to look into the intense eyes, focusing his own gaze on the faint light that seemed to be there somewhere deep in the backs of the eyes.

A thought flashed briefly through his mind: Had this entity, whatever it was, ever gone through the equivalent of the sweat course? Had it ever been compelled to call up will and nerve a thousand times, or be sent painfully back to the beginning, to start from there and do the whole thing all over again?—Just what was the limit of its resistance?

Martin stepped forward, focusing his gaze on that faint light, deep in the eyes.

Again there was a sense of mental collision.

For a long moment, nothing happened.

Then there was a slow, heavy yielding.

The light, whatever it was, didn't waver in the eyes. But the sense of attack weakened, then broke.

The department chairman abruptly shook his head, and stepped back.

For an instant, Martin was sure he had won. As this certainty flooded through him, he became vaguely aware that he was off-balance mentally.

Abruptly, with his opponent still turned away, the sensation of dread was back. The imagined iron strap drew tight around his chest.

The department chairman looked up again, the light in his eyes intense and unwavering. He looked directly into Martin's eyes.

This time, the jar and shock were heavier than Martin had ever experienced.

The room wavered around him.

It came to Martin that he was under attack from two directions at once. From the man here before him, and from a distance. With a violent effort of will, he struggled hard to stay conscious.

Once again, nothing gave. But this time, the crushing anxiety grew, drew tighter, and tighter still.

Somewhere, there was a faint rustle of cloth. Martin, his gaze watery, but still fixed on the man in front of him, knew dimly that neither of them had moved.

Now, close at hand, there was a faint quiet scuff

The pressure mounted till Martin saw through a red haze. The blood pounded in his ears, and he couldn't breathe. Through a sea of agony, he struggled to hold out.

Then, somewhere, something broke.

The sense of pressure dropped to

a fraction of its former strength, then tried to reassert itself.

Martin sucked in a deep breath. Abruptly, his vision cleared. He snapped the hallucinatory band, smashed the whole body of thoughts struggling to get control.

In front of him, the department chairman wavered on his feet.

Martin faced him steadily, uncertain what could have happened. Then he noticed the change in the eyes, as if a different personality looked out.

There was a brief compression of cloth at the sleeve, near the department chairman's shoulder, as if an invisible hand gave a brief reassuring grip.

It dawned on Martin that when the colonel planned an attack, he planned it right. After the enemy had his reserve committed, *then* the colonel made his move.

Martin grinned. The gasbags had lost something this time. And it wasn't over yet.

The reason for their original rapid progress was clear enough now.

By controlling the source of supposedly-valid psychological knowledge, the enemy had gained an opportunity to thoroughly sabotage the outlook of each individual student in the regular course of

his education. Then, by the combined force of their wrong beliefs, the sabotaged individuals unwittingly sabotaged others, snowballing the trouble.

Given a little more time undisturbed, there was no telling what kind of a catastrophe might have been achieved. But now, using their own techniques, it should be possible to build up exactly the opposite attitudes from those they'd intended. Meanwhile, the previously-captured instructors would be experiencing the sweat course. They would return with amnesia for the details of the whole grim experience, but the resulting attitudes and reflexes would remain. By the time the latest miracle of electronic wizardry had everyone's sense of identity sorted out again, the damage ought to be more than undone.

Martin rested his knuckles on the desk and faced the new class just filing in. Abruptly, Martin thought for a moment of the swordsman of old, and of his entirely different kind of battle, and he looked around with a sense of strangeness at the quiet, peaceful surroundings. Then he shook his head.

This was different.

But it was just as deadly. ◀

# BOOKS



OUR ANCESTORS WERE AFRAID of magic; we are afraid of the word. Except for children, anthropologists, and s-f writers, no one uses the word in its proper meaning—which is, simply, that class of phenomenon and experience which we can neither explain nor explain away. In a culture whose firmest faith is the concept of linear cause-and-effect, the popular inclination is to deny the “reality” of any incomprehensibles which cannot be classified as “miracles of modern science.” What is left over is manifestly either error of observation, outright trickery, or gullible “superstition.”

Our ancestors were comforted and sustained by their myths; we admit to none. Except for children, psychologists, and s-f writers, no one accepts contemporary mythology in its true sense—which is, of course, the symbolic projection (personification, objectivization) of unconscious knowledge. In a culture so antagonistic to the concept of magic as to exclude it even from religion (rejecting all revelation for rationale; favoring the manifestation over the inspiration), the popular inclination is to

deny the “reality” of any awareness whose source is unnameable. Persistent symbolic figures originating outside the bestiaries of scientific classification (Dinosaur, Germ, Neanderthal Man, Astro/Cosmo/naut, Miracle Drug, Hell-Bomb, and of course Scientist, both Noble and Mad) are, manifestly, distortions of observation (“folklore” and—usually—“flying saucer”), deliberately perpetuated illusions (“false religions,” “red propaganda”), or simply “imagination” (good as in “creative,” bad as in “neurotic”).

But we continue to create and cherish our mythic symbols. (Add, for instance: Auschwitz Ovens, Coca-Cola Bottle, Jack-and-Jackie, Thinking Machine, Pinup Girl/Marilyn Monroe, etc.) What we lack is the codification of the myths themselves. “Myth” is in a sense the mathematic of unconscious symbolism, the means by which we organize and recognize the raw symbols which are our only means of communication with our own non-conscious selves. The mnemonic device of the myth maintains the symbolic language in available, accessible form.

The as-yet unformulated contemporary mythology is the map modern man must use in the search for his soul. And how desperate that search is becoming is evident not only in our private and personal disorientations (sexual "abnormality," suicide, drug addiction, etc., as well as the official statistics on "mental illness"), but in our public, institutional confusions as well (cold wars, dirty little wars, price wars, gang wars, race wars, space race, etc.).

An increasingly large part of serious speculative fiction, in and out of "science fiction," now concerns itself with the examination and analysis of mythology, and a significant, if smaller, segment with the creative search for viable modern myths. Most of these latter attempts, inevitably, emerge as imitations, rationalizations, or cosmetic-modernizations of the no longer vital mythotypes of the agrarian and nomadic cultures of the past. But here and there, one feels the authentic thrill, if only for a chapter, a scene, or a page, as bits of the new Passion are articulated.

Eight recent s-f novels fall within this mythotropic movement, combining to produce in interchange something a bit more than the sum of their statements.

Edgar Pangborn's *THE JUDG-*

*MENT OF EVE*<sup>1</sup> is set in the dawn of a new culture, following on the devastation of the "One Day War" and the plagues and mutations that followed it. The story is told by a scholar of some centuries later, endeavoring to piece out the substance of one of the basic myths of his own time. In the retelling of one of the most enduring of folk tales (the three princes seeking their fortunes in competition for the hand of the beautiful princess), Pangborn is attempting neither to rationalize the legend nor to justify it in terms of the present or possible future. He makes no effort at the sort of realism which is the usual measure of the atom-doom story—indeed—deliberately bypasses the period of degradation and dissolution.

*EVE* is the story of a beginning—not individualized but abstracted. A culture has grown from this conception to a point where it can now inquire into its own origins; but the mythic significance of Eve herself and the man who wins her—mythic mother and father of the new world—is of less importance than the role of the myth itself in nurturing the new culture.

The whole thing is a job that could not have been done by any writer less skilled, less tender, or more sentimental than Pangborn, who has managed to demonstrate the life-giving function of myth in

<sup>1</sup>*THE JUDGMENT OF EVE*, Edgar Pangborn; Simon & Schuster, 1966; 224 pp.; \$3.95.

—if not an actual myth—a most effective fairy-tale.

In Avram Davidson's *THE KAR-CHEE REIGN*<sup>2</sup> the setting is again a devastated civilization—this time as the result of the invasion of Earth by the Kar-Chee, whose superscience planetary mining operation has tumbled whole empires into the sea, altered the faces of the continents, and left only small enclaves of humanity clinging, in various degrees of primitivism and reconstruction, to isolated pockets of still fertile land.

When the story opens, there is already an established mythology, in the process of rigidifying into ritual, based on the invaders and their powers. More accurately, there are a number of such incipient cults, and it is the confrontation of two of them which opens the way for an effort at resistance. In the course of the rebellion itself, a new mythology is created.

Davidson's treatment falls a good bit short of the poetic strength of Pangborn's. The book lacks the simplicity and classic proportions of *EVE*. But it offers some meaty material for consideration of the complex functions served by mythology.

The vital role of the viable myth in the formation of a culture is directly opposed by the restrictive nature of moribund ritualized

myth, and most "conventional" science fiction has (in keeping with the general cultural posture) concerned itself with the myth-breaking, rather than myth-making necessities. Jack Vance's *THE BLUE WORLD*<sup>3</sup> is a colorful and absorbing instance of development along these more traditional lines.

On a predominantly marine world, the descendants of a space voyage known as "The Escape" maintain a precarious foothold on tiny island settlements. The several castes into which these People of the Floats are born all trace their origins to the colonizing crew! For each caste—Hoodwink, Smuggler, Bezzler, Malpractor, etc.—there is a traditional job, and ritual training:—

"When the Ship of Space discharged the Firsts upon these blessed floats, there were four Hoodwinks among the Two Hundred. Later, when the towers were built and the lamps established, there were hoods to wink, and it seemed only appropriate that the Hoodwinks should occupy themselves at the trade. . . ."

The mythology that has grown up on the complex base of the writings and artifacts of the crew members, and the terrifying powers of the Kragen, the giant native seaw dwellers, has hardened into a ritu-

<sup>2</sup>*THE KAR-CHEE REIGN*, Avram Davidson, and *ROCANNON'S WORLD*, Ursula K. LeGuin; Ace Double G-574; 138 pp., 117 pp. resp.; 50¢.

<sup>3</sup>*THE BLUE WORLD*, Jack Vance; Ballantine U2169, 1966; 190 pp.; 50¢.

alistic strait-jacket, suppressing all exploration and development. Vance, at his inventive and dramatic best, develops this through a beautifully paced adventure story (including much carefully-thought-out utilization of the marine ecology) to a traditionally satisfying collapse of the barriers of ritual ignorance under the assault of pragmatic experimentation.

Ursula LeGuin's first novel, *ROCANNON'S WORLD*<sup>4</sup>, is in a similar sense a successful version of a (different) standard science-fantasy approach—removed from plain-fantasy sword-and-sorcery not only by its displacement to a remote planet, where elves and gnomes and winged steeds blend into the landscape without offense to the reader's sensibilities or credibilities—and where the anthropologist-hero from a galactic civilization is sustained as a reasonable element in the story, by cutting him off from his base world and its scientific resources—but even more, as a result of the charm and delicacy of the writing. Nothing here to keep you up thinking all night, but a pleasant few hours of reading.

Claude Nunes' (also first) novel, *INHERIT THE EARTH*<sup>5</sup>, fails to achieve either the poetic, speculative, or dramatic satisfactions of

any of the books already discussed, but it does pose a problem intrinsically fascinating, and for the first half of the book, at least, sustains a high level of both narrative and speculative interest. In a sense, its failure after that is a more vital contribution to the happenstance-symposium exchange effected by this whole group of books than either Vance's attack on myth-as-superstition, or LeGuin's nostalgic reshaping of yesterday's myth figures. The protagonists here are artificially developed doll-size humanoids, whose origins and initial situation are such as to remove both fear of death and pressure of hunger from their biopsychic composition: presumably the culture they create as they take over the abandoned radioactive earth will be either without myths, or so different in its basic symbols as to *appear* mythless. But Nunes chickens out: by the end of the book, the creatures have begun to die and hunger, and the statement-by-default appears to be simply that there is no drama to be found in the absence of the essential human myths.

As it happens, three of the books in this group are first novels, all of them, by further coincidence, the work of writers who were first published during 1962. Of the

<sup>4</sup>*ROCANNON'S WORLD*—see note for *THE KAR-CHEE REIGN*.

<sup>5</sup>*INHERIT THE EARTH*, Claude Nunes, and *DAWNMAN PLANET*, Mack Reynolds; Ace Double G-580, 1966; 127 pp., 117 pp. resp.; 50¢.



three, Roger Zelazny is the only one whose reputation is already solidly established by his magazine work: *THIS IMMORTAL*<sup>6</sup>, in fact, appeared originally in a shorter version in this magazine (" . . . And Call Me Conrad," *F&SF* Oct. & Nov. 1965).

It is unfair, I suppose, to judge a book by one's expectations—but it is also inevitable: a Grade B novel by a Grade C (or unknown) writer will always look better than the same Grade B from a Grade A man. With this in mind, I regret to say that I found *IMMORTAL* an impressive disappointment: impressive for its poetry, its technical skill, its occasional philosophic insights and character asides; disappointing as a novel, both in conception and structure.

Superficially, the book might be classified as "conservative" s-f, in the same sense as the Vance and LeGuin. Actually, it is better described as reactionary. Zelazny's response to the common feeling of myth-loss is an attempt to refurbish the old forms of positing a devolutionary process (radiation-induced) in which the figures of ancient Greek mythology reappear "naturally": not so much the new-wine-in-old-bottles of the usual old-myth-justification or sword-and-sorcery as an attempt to decant the old stuff into new ones. Let it be said for the author's technical skill that he carried out the exer-

cise expertly within the framework of the book; but though he never spilled a drop, last night's champagne in today's plastic flask is still warm and flat—and likely to be confusing as well.

The old myths have not lost their power to enchant; they have simply lost the power of myth, because their images are no longer those in which we clothe our archetypes. The sabertooth has succeeded Cerberus as a symbolic figure; the browsing brontosaurus evokes more responsive overtones (or innertones?) than Cyclops brooding in his cave; the eternal exile comes to mind more readily in blank-faced body-bristling space armor than in the Greek or Roman draperies of either Odysseus or the Wandering Jew. There is no way to turn this psychic clock back, however much we might prefer the (now) mellower symbols of a less complicated world.

I cannot leave this discussion, however, without adding that, though the plot and story elements are conventional (for s-f), and the thematic content confusingly inverted, the style and treatment are (for s-f) almost revolutionary: alternately intensely-intimately-tender and tough-hard-boiled in mood, essentially introspective in tone, much more preoccupied with personal moralities and ethics than group mores or behavior, the treatment is very close to the Hammett-

<sup>6</sup>*THIS IMMORTAL*, Roger Zelazny, Ace F-393, 1966; 174 pp., 40¢.

Chandler school—something rarely attempted and much less often realized, in any variety of s-f. And as was sometimes true of Hammett, and almost always of Chandler, the writing itself covers all varieties of excellence, from glib to superb.

Samuel Delaney, as it happens, also began publishing in 1962. To the best of my knowledge, nothing of his has ever appeared in a magazine, and *EMPIRE STAR*<sup>7</sup> and *BABEL-17*<sup>8</sup> are his sixth and seventh novels, all published by Ace. I think it would be fair to say that, with Zelazny and Thomas Disch, he represents the most promising of the new American s-f writers so far.

But Delaney offers no such firm grips for dissection and discussion as Zelazny does. Before reading these two new books, I had seen only one other (*THE BALLAD OF BETA 2*, *F&SF Books*, Nov. 1965). Since then I have gone racing through the other four, and in the storm of impressions left behind, I can say only this much—

There is, in Delaney's work, a mythic-poetic power comparable in its intensity and creative effects only to the work of such names as Sturgeon, Ballard, Vonnegut, Cordwainer Smith. His style is undeveloped—indeed, still highly

# Poul Anderson's newest S-F

Dominic Flandry—the James Bond of outer space—is pitched into a war between two non-human races and must sleuth out the reasons why mankind's rivals started the trouble . . .

## ENSIGN FLANDRY

\$4.50, now at your bookstore



**CHILTON BOOKS**

derivative of both Sturgeon and Smith. He mixes the most melodramatic absurd cosmic *shticks* with shockingly powerful images and insights. (E. E. Smith and van Vogt aren't even *in* it with extra-super-galactic Delaney space opera.)

He tosses basic concepts of time and space and mathematics (but valid ones; not pseudo-surface jargon) around as dizzily as he juggles dazzling psychological insights and aesthetic theorizings. He likes the word "multiplex," and it suits him.

The total effect of his books is

<sup>7</sup>*EMPIRE STAR*, Samuel R. Delaney, and *THE TREE LORD OF IMETEN*, Tom Purdom; Ace Double M-139, 1966; 102 pp., 152 pp. resp.; 45¢.

<sup>8</sup>*BABEL-17*, Samuel R. Delaney; Ace F-388, 1966; 173 pp., 40¢.

the exact opposite of Zelazny's novel: the surface is confusing; the essence is marvellously clear. If I go back and read through the novels again, perhaps by the time the next one comes along, I will be able to articulate the components of my excitement. Meantime—I don't know where he came from, where he's going, or quite clearly what he's doing now—but this is one of the people who has begun to carve the new myth out of the void. I hope he can keep it up. I want to read more.

—JUDITH MERRIL

**STRANGE SIGNPOSTS, AN ANTHOLOGY OF THE FANTASTIC**, Roger Elwood and Sam Moskowitz, eds.; Holt Rinehart and Winston 1966; 319 pp.; \$5.50

**STRANGE SIGNPOSTS** is a bottom-of-the-barrel anthology. There are Big Names in it, but don't be tempted: most of them are represented by bad stories, or excerpts from novels, or unfinished works. Mary Shelley's "story," for instance, is an extremely disjointed 21-page condensation of an entire novel, freed from any "extraneous dialogue, description or other unnecessary exposition." They're lucky she's dead. H. G. Wells is represented by a very early story—unfinished—and Edgar Rice Burroughs by a very late one—unfinished. There is an unusually silly excerpt from a novel by Jules Verne (which you can probably

find in its entirety if you want to), an excerpt from a boy's book that describes a helicopter (and then goes on much too long), and early pieces by Arthur C. Clarke and Robert Bloch that I sincerely hope are their worst. Two other Big Names are included: Lovecraft ("The Whisperer in Darkness") and Nathaniel Hawthorne ("Rappacini's Daughter"). The former is available in a paperback collection of Lovecraft's from Arkham House and the latter—how could they have the face to include it?—is available just about everywhere; there is no excuse for including it in anything again except a textbook. There are three naive stories from writers of the '30's, one so-so 19th century piece, a good-enough story by Bradbury with a clever idea, and a piece by Edgar Allan Poe that is two parts tedious philosophizing and politicizing and one part real fun. (This story *should* be in the book and this one they should have cut.) Mr. Elwood's Introduction thoughtfully synopsisizes most of the stories, apparently without the slightest suspicion that he is letting out Hawthorne's whole secret and ruining Lovecraft's very slow, very effective build-up of suspense. Lucky they're both dead, too.

A collection of obscure stories by Big Names might be worth it; or of unfindable stories or out-of-print works or previously uncollected writers (I believe someone has just

issued "The King in Yellow" in paperback and a fairly expensive paperback collection of LeFanu); or even of historical curiosities like Frank Reade's helicopter (if they're tolerable) but this is none of them. It is not even a collection of predictions, as the introduction suggests:

Bloch's story is sheer fantasy, Burroughs' certainly the same and Hawthorne's hardly more. This is one of that damned flood of anthologies that do nothing but cheapen the market, exasperate reviewers and disappoint all but the most unsophisticated readers.

—JOANNA RUSS

## BOOKS RECEIVED

### FICTION

**BARBARELLA**, Jean-Claude Forest, translated by Richard Seaver; Grove 1966; 68 pp.; \$5.95 (a book collection of the French "adult comic strip")

**THE REVOLVING BOY**, Gertrude Friedberg; Doubleday 1966; 191 pp.; \$3.95

**MASTERS' CHOICE**, Laurence M. Janifer, ed.; Simon & Schuster 1966; 350 pp.; \$5.95 (18 stories)

**TURNING ON**, Damon Knight; Doubleday 1966; 180 pp.; \$3.50 (13 stories)

**NEBULA AWARD STORIES 1965**, Damon Knight, ed.; Doubleday 1966; 299 pp.; \$4.95 (8 stories)

**MOON OF THREE RINGS**, Andre Norton; Viking 1966; 316 pp.; \$3.75

**THE WITCHES OF KARRES**, James H. Schmitz; Chilton 1966; 202 pp.; \$4.95

### PAPERBACKS

**SPECTRUM 4**, Kingsley Amis and Robert Conquest, eds.; Berkley 1966; 287 pp.; 75¢ (14 stories)

**THE DROWNED WORLD**, J. G. Ballard; Berkley 1966; 158 pp.; 50¢

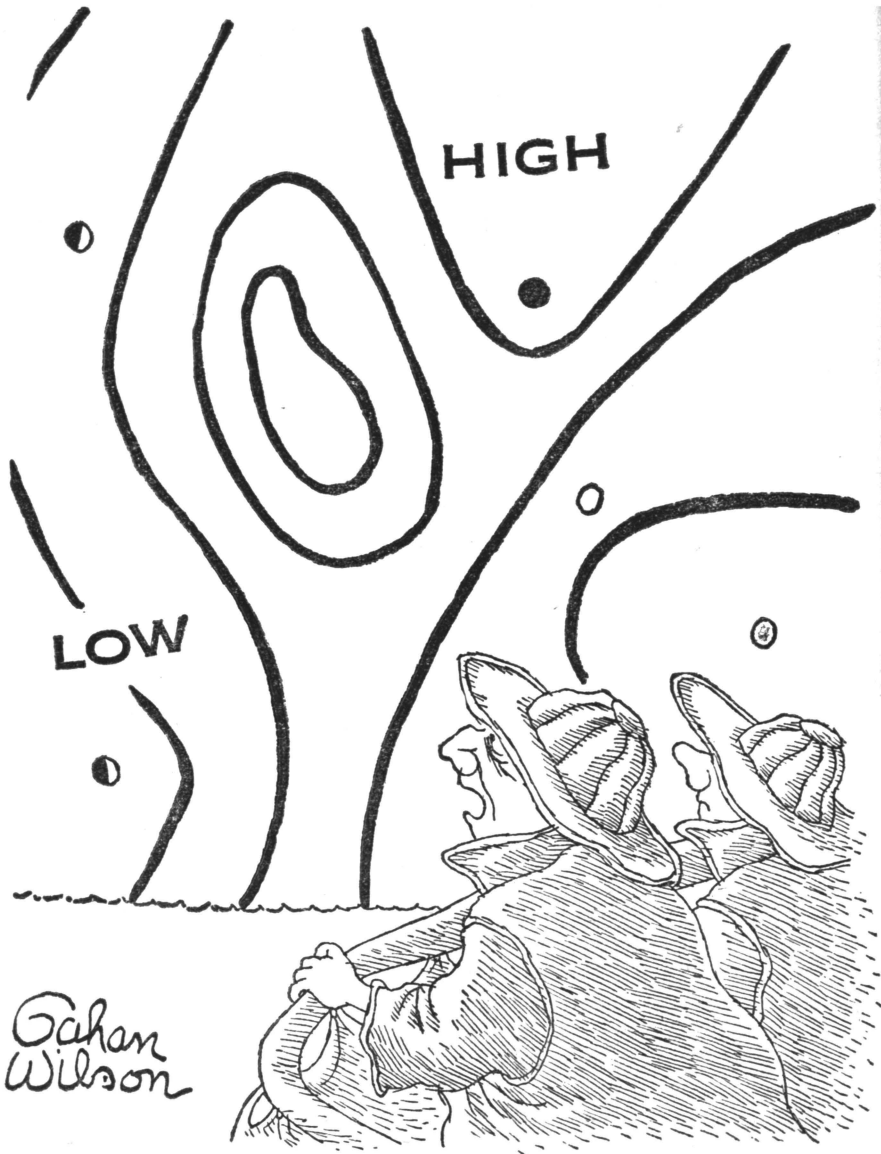
**WORLD IN ECLIPSE**, William Dexter; Paperback Library 1966; 158 pp.; 50¢

**DESTINATION: VOID**, Frank Herbert; Berkley 1966; 190 pp.; 50¢

**CATASTROPHE PLANET**, Keith Laumer; Berkley 1966; 158 pp.; 50¢

**THE TOLKIEN READER**, J. R. R. Tolkien; Ballantine 1966; Pub. note-xvi pp. 5 sections, total of 279 pp.; 95¢

**THE PAN BOOK OF HORROR STORIES**, Herbert Van Thal, ed.; Gold Medal 1966; 254 pp.; 50¢ (21 stories)



*"Looks like a storm tomorrow, sure."*

*Gerald Jonas is a 33-year-old New Yorker and staff writer for the ubiquitous Talk of the Town section of The New Yorker. His poems have been published in The New Yorker, Atlantic Monthly, Saturday Review, Look and F&SF (IMAGINARY NUMBERS IN A REAL GARDEN, April 1965). For all its crystal-clear logic and faultless resolution, this short tale about an impoverished Frenchman's unlikely power system may not exactly suspend your disbelief. But it is funny.*

## *The Mystery of the Purloined Grenouilles*

*by Gerald Jonas*

RATIOCINATION IS, IN ITSELF, A Science. This basic lesson (which once having learned I have never forgotten) invariably brings to my mind a curious and bizarre occurrence which I offer here by way of illustration for the proposition advanced in the first sentence of this paragraph.

It was toward the latter portion of April in the year 19— that I made the reacquaintance of a certain M. Edouard W—, whose agility of thought had most favorably impressed me during a brief *rencontre* in his rooms at 14 Rue Auber in the Weir section of the 15th *arrondissement* of P— many years ago. A man of noble parentage but sadly diminished means, he had been forced to re-

tire to his ancestral home in a desolate *faubourg* on the Northern Shore of L— I—, where he supplemented his meager "second income" by some discreet winkle-picking. When, therefore, he called me long distance from his meager *pied-a-mer* to urge my attendance on his unhappy fate, I felt compelled to undertake the journey, arduous though it may be during rush hour (which it then was).

I arrived just as a sun of immense orange girth was settling into the salty water beyond the sandy spit beyond his seedy house. When he first opened the door, I was relieved to note that nothing untoward—at least nothing *overtly* untoward—had happened in

the interim. The house was quite submerged in darkness, but I could make out the tension that held my friend's perfectly shaped nostrils in thrall. Settled at length on a *chaise longue* in his kitchen, I begged my friend to tell me—in the febrile gloom—what was up.

"You will remember," he said immediately, "the work on electromagnetism brought to fruition by Professor Luigi Galvani of Bologna before his untimely death. Through his experiments, he established that an electrical current introduced into the leg of a member of the genus *Batrachia*—even one recently deceased—will result in a muscular spasm roughly proportional to the strength of the electrical impulse and the dimensions of the frog's leg. The principle he gave his life for—he died some years ago of a severe case of warts—is now the property of every schoolchild: the Galvanic phenomenon. *But*, by applying the techniques of ratiocination, I discovered only recently—hidden behind the fog of publicity surrounding the more flashy progress of nuclear physics—that the true significance of Galvani's work has not yet been plumbed!"

Here my friend re-lit his cigarette and I was able to ask him a question that had been burning in my mind like a taper during the course of the interview so far: "What," I said, "is that awful smell?"

My friend coughed gently—and there was all the acumen of years of inbreeding in that cough—and then (with a little nod of his perfectly wrought head as if to suggest that a gentleman of reduced means could not be held accountable for every little stink on L—— I——) he went on:

"Ratiocination is, in itself, a Science. For in what, essentially, does Reason consist if not in the process of Ratiocination itself? Thus, by a simple application of the principle of *non sequitur*, I concluded that by *reversing* the procedure of Galvani, it might be possible to produce massive quantities of electromagnetical energies, at a substantial savings over the rates of the Long Island Light Company. You may observe on the kitchen table the results of my labor."

Peering as closely as I dared at the profusion of technicalia that bestrewed the tabletop, I noticed immediately a number of copper wires leading from a number of tightly bound copper coils to a number of small plates of some porcelain-like substance. On the plates themselves, where I had already guessed the key to the experiment should lie, there was absolutely—nothing!

Aghast, I whirled about to confront my friend, but the delicate smile on his perfectly shaped lips told me what I should have already known: i.e., that he already

knew. "Indeed," he began, 'the frogs are gone. It is as you see every morning. I import at great expense a number of frogs—members of the noble species, *Rana esculenta*—from France. After linking them up to the dynamos, I begin to tickle them gently with this goosefeather you perceive here. The frogs begin to laugh, their legs begin to twitch with uncontrollable glee, and great waves of Galvanic energy surge *back* through the copper wires into the copper coils. From thence comes the power that lights my lights, heats my heat, and turns all the wheels in my humble home. The frogs—chosen for their abundance of Batrachian risibility as well as the plump development of their leg muscles—continue to chuckle all night, and this provides just enough current to power a tiny night-light beside my simple *pallet*. When I awake—but what can I say that you have not already guessed? When I awake, prepared to stir my house to life again with a waft of a goosefeather, I find the frogs have quite vanished. Into the ether!"

I shuddered uncontrollably. It was not yet the height of summer on L—— I—— (it being then April), and there are uncharted winds on the Northern Shore that blow with an almost Antarctic ferocity. The lightless, heatless house seemed colder suddenly, and I noticed for the first time, staring

at my hapless friend, the perfectly shaped bags beneath his eyes. "Your phone," I said, lifting the receiver, "is not powered by your homemade generator?"

My deduction proved to be correct, and, without waiting for confirmation, I dialed the number of my other good friend, C. Jules DouxPain, who had only recently emigrated to this country to assume direction of the Belgian Waffle Pavilion at the New York World's Fair.

As quickly, briefly, simply and concisely as I was able, I outlined the situation to him, upon which he said, "Do not disturb anything. Do not even move, except for calls of nature. You may open one window, but that only in the kitchen, on the leeward side. I shall be there in one hour and twelve minutes, unless today is Saturday, Sunday or a holiday, in which case I must allow six minutes more to change at Jamaica."

I assured him that it was Tuesday, and, some thirty seconds before the appointed time, we perceived a knock on the door. But when my friend W—— went to unlatch it, there was no one to be seen. The threshold was—empty! Precisely thirty seconds later, a shadowy figure appeared in the leeward window frame and let itself into the kitchen. It resolved itself into my friend DouxPain. "The mystery is resolved," he said quietly.



"But how . . . ?" I began.

"Ratiocination is, in itself, a Science," he began, so quickly after I myself had begun that I was forced to put an end—however temporary—to my beginning. DouxPain glanced around him, as if eager to find someone to dispute his proposition, but there was, as he well knew, no one. "You, W—, are a Somnambulist. This is evident from the *papillotes* (however well-shaped they may be) under your bloodshot eyes. Also, your funds are low, as evidenced by the fact that your house is bare of most of the accustomed amenities but a pack of cigarettes, two *chaises longues*, a *pallet*, and a few kitchen gadgets that I stepped over while climbing in. We need look no further for a culprit than *you yourself*, W— —. Nightly you arise from your uneasy rest (haunted by dreams of former riches) and pass into the kitchen where, by the glow of the night-light, your eyes cannot fail to fall upon the faintly chuckling amphibians on the dinner plates on the kitchen table. Being of French mind and body, your unconscious is not only Ratiocinative, but also eminently practical, and no doubt it instantly constructs a logical

system involving the emptiness of your stomach, the function of the table, and the sight of the succulent *grenouilles*."

"In other words . . . ?" I began.

DouxPain merely smiled. "In other words, when W—— finishes his secret repast, his Gallic unconscious seeks a way to clear the debris. But his unconscious, which is after all *not* conscious, cannot be expected to remember that, without frogs, this house has no electrical power and that, ergo, the electrically-operated garbage-disposal unit, indigenous to all houses on the Northern Shore, cannot operate. If I am correct in my chain of deductions—and I am—you will find in the kitchen sink both the evidence for the resolution of this mystery and the explanation for that ghastly stink you now perceive."

With a thin, high-pitched wail that sounded like a 51-denier *cri*, W—— raced to the kitchen sink. We followed hard on his heels. There, in a jumbled heap of bones and cold *sauce bechamel*, could be seen an unutterably liquescent mass of glaucous *leftovers*! The frogs in question were indubitably —*dead*! *In pace requiescant!*



*According to THOMAS, the computer for the C.I.A., nothing was impossible, but the report sent by the Agency's man in Uganda was extremely improbable, by an order of more than a billion to one. Nevertheless, a levitator capable of lifting a herd of twenty-five cattle would certainly be capable of handling more dangerous payloads. If, of course, the levitator existed. Here, Thomas Disch (COME TO VENUS MELANCHOLY, Nov. 1965) spins an inventive tale about a run-in between science and witchcraft. Which comes out on top? Read on.*

## DOUBTING THOMAS

*by Thomas M. Disch*

AS MOST PEOPLE SAW HIM, THOMAS seemed to be not at all what he in fact was. THOMAS was a computer for the C.I.A. He computed the Theoretical Happen-chance of Misreport and Sham. But from the point of view of Irving Whitehall, sitting in a cab three blocks up Pennsylvania Avenue, THOMAS looked convincingly like a tropical garden.

The original specifications had called for nothing more than a simple basalt cube, rather like the Kaaba. But there had been protests (860 pounds in one month at the height of it), and finally Congress overruled its own architectural

committee, who still insisted that the Kaaba they had planted at the foot of Pennsylvania Avenue was an indispensable element in the aesthetic balance of the Whole. There had been, at the same time, a new crisis in West Africa, occasioned by some American manufacturers, and Congress was able to kill two birds with their one cubical stone: they ordered a garden to be planted on and about THOMAS, which garden would allegorize the amity between the two great continents, Africa and North America.

Fortunately for the sake of continued amity, THOMAS generat-

ed quite a bit of heat, and by some careful expedients and judicious gardening, the tropical garden that surrounded the sides of the cube (Africa) thrived quite as well as the pine forest that crowned its top (North America). Whether or not the aesthetic balance of the Whole had been upset was a moot point, but the garden had done wonders for public relations: THOMAS was the first stop on the itinerary of all the Africans who came to Washington—about 200,000 per annum.

There was a party of them there now. Thirty black young faces smiled at the Polaroid man.

Whitehall stepped out of the cab and waited for the meter to spit back his credit card. When the card was returned, a panel on the dashboard lit up: *Thank you for your patronage. I hope you enjoyed your ride.*

"Oh, you're quite welcome," Whitehall replied, and the cab drove off.

"Hello, Mr. Whitehall," the Polaroid man called out.

"Hello, Benny."

The Polaroid man turned back to his group, scowling. "You there—with the orchid in your buttonhole—move over to the left. You're blocking the person behind you. The rest of you—look straight ahead!"

But, of course, they didn't—not at least until they had seen Irving Whitehall vanish into the

gloom of the well-manicured jungle. Whitehall always felt like a public relations exhibit when that sort of thing happened. Of course, *he* knew that he had worked his way up in the Civil Service (and before that up the no less rigorous ascent of subsistence scholarships towards his PhD) without once taking advantage of his skin color. Even in clear-cut cases of discrimination, he'd said nothing. Such a charge, if it were not proven, left a black mark on the accuser's record, and if proven, it would virtually bring an end to the career of the accused. Whitehall had possessed enough confidence in his own ability to be generous toward those he passed on the way up, even when he didn't like them. His confidence had been justified, as it turned out, for Whitehall, at the age of forty-three, was THOMAS's chief nursemaid and programmer. He was, so to speak, king of the jungle.

He was also chief liaison and interpreter between the great computer and the great bureaucracy which possessed it. It was for this reason that he had been called back from a vacation in the state of Quebec to see Dean Toller, Director of the Central Intelligence Agency and Whitehall's immediate superior. That Toller had given Whitehall instructions to proceed directly to his own (Whitehall's) office was a sign, more than the interruption of his vacation,

that Toller meant business. For Toller was the sort of man who, when he is listening to Bach on stereo, has to see the tape unwinding in the machine. And when there were problems with THOMAS, he had to be there, in Whitehall's office, with THOMAS underfoot.

Toller, sitting at Whitehall's desk, was fuming. Whitehall threw a sympathetic glance at his chief aide, Clabber, and the other two assistants whom Toller had commandeered. They were looking desperately out-of-sorts. They had never been meant for liaison.

Dean Toller got up from behind the desk, growling (one learned eventually to discount anything less than a tornado from Toller), and advanced, waving a slender piece of ticker tape in Whitehall's face. It was a report from THOMAS.

"What's this mean, Whitehall? Do you know what this means? Will you kindly tell me what the hell *this* means?"

Whitehall took the slip of paper. It read, in its entirety: *Not Bloody Likely*.

"It means, sir, that the report it received is extremely improbable. The order of probability is more than a billion to one. THOMAS can't calculate probabilities of that magnitude. Or improbabilities, I suppose I should say."

"You mean to say—impossible."

"Well, as nearly as THOMAS can come to saying so, yes. Strictly speaking, I suppose nothing is impossible."

"If something's impossible, the machine should say so, Whitehall. In any case, it shouldn't be using dirty language. *Bloody* is a dirty word in England."

"Yes sir. I suppose it's a little joke on the part of the person who originally programmed the machine."

"And who might that be?"

"I suppose it was me, sir."

"You suppose?"

"That's a habit of speech I've picked up, probably from working in probabilities, I suppose. I *did* put it in THOMAS, but I never expected it to come out again. May I ask what that report was about? Perhaps it was a joke?"

"You won't believe it, Whitehall."

"Belief isn't part of my job—only probabilities."

"Last week when you were gone, a report came in from Uganda. I would have thought Nesb—that is to say, our man in Kampala—was playing a joke. Except that he hasn't any sense of humor. In fact, Nesbit—that is to say—"

"Our man in Kampala," Toller and Whitehall said in chorus.

"Well, damn it all, Whitehall, you're not supposed to know these men except by code number."

"I wouldn't sir, if you didn't always drop their names around."

"Our man in Kampala," Toller went on imperturbably, "has one of the highest reliability ratings in the service. If something is a rumor, Nesbit says so—and he usually knows just how much faith to put in it. Clabber, what was Nesbit's coefficient *before* this?"

"Point eight seven, sir. Only Sandbourne in Moscow has a higher rating."

"Who?"

"Agent 36-M, sir."

"Watch that, Clabber. Don't use the agents' names, even with me. It's a bad habit to get into. Security risks, you know."

Clabber, by one slight twitch of the eyebrow and a tightening of the skin across his cheekbone, indicated to Whitehall how impossible Toller was to deal with. Whitehall cocked his head to one side and pursed his lips, a gesture which served equally well to pacify his aide and to preface his question to Toller:

"And what was the report that agent 9-K sent in?"

"Nonsense. Utter nonsense. He said that some witch doctors in Uganda, and he gave their names—they live out in the Murchison Falls reserve where that sort of thing is still legal—that these witch doctors have made a levitator—an antigravity machine, capable of lifting ten tons."

Despite himself, Whitehall pronounced the single, definitive judgment: "*Impossible.*"

"Or as THOMAS puts it—*Not Bloody Likely*, eh? But there it is. Nesbit has, or had, a reliability rating of point eight seven."

"Who was his informant?" A hamadryad?"

"He didn't believe his informant, so he managed to get into the reserve himself—and you should see his expense account! Just going through the gate cost five hundred dollars! He was there three weeks and claims to have seen the thing himself."

"It was a trick."

"Nesbit says that no trickery was possible. It was done in the open. The platform of the levitator was made of teakwood planks, and there was a lattice of bamboo that served as a guardrail. There was no motor in evidence. The payload was a herd of about twenty-five ankole cattle. Ten tons, approximately. The whole shebang was taken up to a height of one hundred feet, well above the tallest of the trees in the area. Then it began to move laterally. It only came down after there was an accident—one of the cows went over the guardrail and fell to earth. Nesbit says he saw the cow afterward and gravity had made quite an effect on her. The whole operation, which lasted twelve minutes, was conducted by two witch doctors, one on the levitator, one on the ground, helping. That's Nesbit's whole story. What do you think?"

"It has all the verisimilitude of a Paul Bunyan yarn."

"My first thought was to send over an analyst. I hate to call Nesbit back here, because he's doing the rest of the work well enough. Except—"

"Except?"

"That this thing has gotten THOMAS and our whole operation completely fouled up. Nesbit's rating has gone down as fast as the cow that fell out of the levitator. As of right now, it stands at point three seven. Can you imagine what that does to the reports he sends in."

"THOMAS is only doing what he's programmed to do. When he calculates the probability of any given report, he has only two variables to work with. The inherent probability of the report and the reliability of the person making the report. I assume that THOMAS has changed Nesbit's rating because of his report on the levitator."

"But the other reports Nesbit sends in are getting low ratings now. If Nesbit said it was three o'clock in Uganda, THOMAS would doubt his word. It's a damned nuisance. Besides, how can THOMAS know that the levitator report is false? He's prejudging."

"Yes, he'll do that in extreme cases."

"Whitehall, have you thought that, just possibly, Nesbit is nei-

ther lying nor insane, that he may have seen what he said he saw?"

Whitehall gave Toller a rather commiserating look, but made no reply. It was remarkable, he thought, how contagious an irrational idea can become. Toller flushed violently and ground out his cigar in the ashtray.

"Don't give me that pitying look, Doctor Whitehall. I may not have got beyond freshman year in college, but by God I'm your superior and you'll answer my questions."

"Well, since you ask, I'd say that antigravity is just conceivably possible. It supposes another model of the physical universe than the one we have now, but we've changed models before. But that a witch doctor should be the Newton of the 21st Century? Not Bloody Likely. It goes against all of Western tradition and against my own personal taste. It's anti-rational. It's antimathematical. Witchcraft and sympathetic magic work by analogy, not by good old cause-and-effect. When witchcraft has been effective, it's been through the power of suggestion. There have been cases—"

"I know them all. What do you think I've been reading about this last week? But what's wrong with working by analogy. THOMAS works by analogies."

"So he does. But an analogy computer doesn't *cause* the events it simulates mathematically any

more than an abacus does your laundry. Pure science is descriptive. Witchcraft has always been prescriptive."

"Well then, account for this: Monday of this week the delegate to the U.N. from Uganda complained about violations of Ugandese air space. Specifically, he claimed that planes flying over the Murchison Falls reserve were disturbing the animals there."

"It may, of course, have been a bona fide complaint."

"It may. There's also this: yesterday, Sandbourne—"

"Agent 36-M, don't you mean?" Clabber interrupted. The remark was quite out of place, and Whitehall's look said as much.

"—sent in a report from Moscow," Toller went on. "He says that seven of the Soviet's best agents have been taken off present assignments and are being sent to Kampala. Five of those agents were here in Washington, so I've been able to confirm that much of the report. The Soviets seem to be more open to doubt on the subject than THOMAS."

"I understand that the Soviet premier also has his horoscope told once a week. THOMAS doesn't, as far as I know."

"But you will have to admit that something seems to be happening in the Murchison Falls reserve?"

"Something. Perhaps."

"But when I fed the new data

into THOMAS, *this* was his reply." Toller held the pink slip of paper aloft. "He still doesn't give the report one chance in a billion. Do you realize all the things—the quite impossible things—that THOMAS gave a better chance than that? Whitehall, I began to think that your baby has an Achilles heel."

"It may be," Whitehall began judiciously, for far-out possibilities always intrigued him, "that THOMAS cannot, in his very nature, believe in witchcraft. It may be deeper than a programming pattern. THOMAS is a machine, after all, and a machine might be said to have an absolute faith in cause-and-effect. I believe that faith is justified, but I'm human enough to enjoy a little taste of the supernatural. On television, late at night, usually."

"If this is happening, Whitehall, it isn't supernatural. By definition."

"Of course, of course."

There was a long silence punctuated by the cracking of Clabber's knuckles. "Then you intend," Whitehall finally said, "to send new investigators to Kampala? I don't know what sort of rating THOMAS would give you for doing it, but I tend to agree. But I fail to understand, since your mind was made up before I came back and probably before you called me, why you needed to consult with me at all."

"Because of the young man I want to send, Whitehall. Thomas Mwanga Chwa. You're going to get him for me."

Medical school, traditionally, has never been a snap, and a good engineering college can be pretty rough. But when, in 1985, Harvard Medical School and the Massachusetts Institute of Technology pooled their joint resources and faculties to establish The Kennedy School of Servomechanical and Micro-Surgery, there came upon the face of the earth not just a new kind of school but a new kind of student. For in 1985 micro-surgery existed only as an idea which could not be realized until there were enough doctors who thought like engineers and engineers who understood the farther reaches of medicine to begin the research. Now in its second generation, that research was flourishing.

Admission to The Kennedy School was by invitation; its invitations were seldom refused. Every year *Life* magazine did an article on the freshman class, with short biographies of twelve of the new students. Some of the biographies seemed, as the saying goes, not bloody likely. Take the case, for instance, of Thomas Mwanga Chwa.

Thomas Mwanga Chwa was the eldest son of a Buganda witch doctor, who was himself descended

from the Kabaka Mwanga, hereditary ruler of Buganda, the chief of Uganda's four provinces. At age seven, the son of the witch doctor converted to Catholicism and ran away to Kampala, the capital city. In the Jesuit orphanage where he took refuge, Thomas' education consisted of large doses of Aquinas, and, when his grounding in the faith was secure, of Plato, Aristotle, Augustine, and even such modern philosophers as Descartes, Pascal, or even Voltaire whom the fathers deemed no longer dangerous.

Then, at age twelve, Thomas discovered logical positivism. Clandestinely, he read through Russell, Wittgenstein, and Ayers. It was like a second conversion. Till that time, Thomas Mwanga Chwa had had little physics and less chemistry. His math was sound but out-of-date, and his biology was strictly intuitive. In the next five years he remedied those deficiencies to the degree that, when he took the Scholastic Achievement Tests sponsored in Kampala by the Peace Corps Office, Thomas Mwanga Chwa received, in both physics and biology, the second-highest scores in the world. The invitation to attend The Kennedy School was automatic. Thomas accepted almost as automatically.

But even for Thomas Mwanga Chwa, The Kennedy School was no snap. Always before he had



studied at his own pace, which had been fast enough but rather eccentric. At The Kennedy School he had to keep in step even when he was running. He thought that he hated every minute of it, while in fact he was in love with the ordeal. The whirlwind of ideas at the school had put him at times almost into a trance-state.

For a wonder, he even made a few friends.

Of course, like all the students at The Kennedy School, he was asked everywhere: to U.N. dinners in New York; to the Peace Corps' Annual Masquerade at the Plaza; to *all* the important occasions in Boston. Like all the other students, he reluctantly had to turn down these invitations. Only in his first weeks at the school, before he'd learned the ropes, had he gone to one of these dinners. Dr. Irving Whitehall of Philadelphia (the Whitehalls had been leaders in the great Freedom-Now movement of the last century) had invited him to a gathering of Philadelphia's better sort. It had been pleasant enough: Whitehall proved an engaging conversationalist, and he and Thomas argued at length about the role of the church in African politics. (Thomas had become by now—and rather ungratefully—something of an anticleric.) At the end of the evening, Whitehall had warned him of the dangers of being lionized.

And now look what had happened: it was two weeks before final exams, it was two o'clock in the morning, and Dr. Whitehall was downstairs in the visitors' room, insisting that he see Thomas at once. It was a pain in the neck!

It was also, intriguingly, odd.

Whitehall, when Thomas came down, offered only the most perfunctory greetings and whisked him off to his limosine outside. "Security," he explained. "We can't forget that, can we?"

Thomas naturally distrusted any limitations, for whatever reason, on what he could say or think or do. His father had called them "taboos," and at the orphanage they were "occasions of sin." Now it was "security." Still, when Whitehead pronounced that word there was on his lips the hint of a smile, which suggested that the two of *them* really shouldn't be bothered by such things; that *they* were not slaves of duty, even when they did what duty required. It was hard to dislike the man.

"Thomas, my boy, I have a story to tell you and a favor to ask," Whitehall began, once their security was assured and the limosine was purring smoothly through the glass canyons of downtown Boston. "The favor isn't personal, and if you can't help us, you'll be hurting the government's feelings, not mine." With suitable expurgations, Whitehall told Thomas the

story Nesbit had sent in from Uganda. "Of course," he concluded, "it's all an enormous fraud."

"Of course. What he probably saw was a balloon ascent. Or something."

"Yes, I agree: or something. Perhaps—and this is only a wild theory—perhaps the Bugandi are intending to make their big bid for power, and they think that a levitator, even the idea of one, is a juju stronger than the Parliament army. A machine that can drop ankole cattle can drop bombs. Unless the rumor is squelched, it could be almost as effective as the real thing—at least for as long as it takes to pull a *coup*. Rumor is a powerful weapon."

"And you think my father has a hand in this, is that it?"

"Our agent claims to have *seen* your father go up in the levitator."

"Fiddlesticks!" *Fiddlesticks* was the definitive word that year at The Kennedy School for gross improbabilities.

"We would like to be able to agree, but we must know *exactly* what is afoot. That's why we come to you. We assume that your sympathies are with the legitimate government, not with the Bugandi."

"In short, you want me to spy on my own father, whom I haven't seen since the age of seven. We aren't on very good terms, you know. I doubt that he'd recognize

me. In any case, I can't interrupt my studies."

"Your finals are in two weeks. We can wait that long. As for his liking you, rest assured that he will. You're in the privileged position of a prodigal son."

"I'm afraid, Mr. Whitehall, that you don't understand. I refuse to go."

"Of course, you'll be well paid."

"No, Mr. Whitehall! I *won't* go. I refuse—categorically. Now, if you'll take me back to the dorm . . ."

"But you don't give any reason for refusing. I really must have a reason."

"My distaste—"

"—isn't reason enough, Thomas. Too much may be at stake."

"I *hate* Uganda. I *hate* the jungle. I *hate*—"

"Yes, Thomas, what do you hate?"

"My father," Thomas Mwanga Chwa replied quietly.

"Oh well, in that case, I can't insist." Whitehall directed the driver to return to The Kennedy School, and then, turning back to the witch doctor's son, asked, in a tone of feigned and friendly interest, how his classes were coming.

"Well enough, thank you."

So, on the way back, Thomas described the first-year study program, his teachers, and such of the other students as he had noticed. By the time they returned to the

dormitory, Thomas waxed so confidential as to reveal his single peeve—the time that had to be wasted in English. “As if I were illiterate!”

Whitehall laughed agreeably. “Lots of luck, Thomas,” he called out of the window of the moving car. Instead of, simply, “Good-bye.”

Lots of luck? That was an odd thing, Thomas thought, for him to say.

But as it turned out, it wasn't odd at all. Thomas flunked his final in English. He simply hadn't bothered to read the novels assigned for the course, confident that he could bluff his way to a C with synopses and lecture notes. Yes, he needed luck now.

In consequence of this one failure—his other marks were in the upper ten per cent of his class where they belonged—Thomas was threatened with expulsion. It was the first time in his memory that he had really failed at anything, and he became suddenly aware that it was only through the good graces of people he had never met and institutions he only knew the names of that he had been able even to enter The Kennedy School. The awareness that he was an alien in Boston, that *his* country was Uganda (Uganda, he would *die* if he ever had to go back to live there!)—this awareness was humiliating, but not without

its lesson. If Thomas hoped to live and work at The Kennedy School (and he had no other hope in the world), he had better do more than read the required books for his English course.

He had better cooperate.

So it was that he saw Whitehall for a third time. Thomas didn't beat around the bush. In exchange for his services for the C.I.A. he extracted a promise to be allowed to apply for U.S. naturalization papers. If he passed a simple test of literacy he would become a citizen before he had graduated from The Kennedy School. Quite incidentally, the matter of the English exam was also straightened out with Whitehall's help.

Whitehall regretted manipulating people this way, especially people like Thomas, whom he liked. He consoled himself that it was Toller and not he who had dreamed the thing up—except for one detail: the bogus question on Thomas' English test. That had been his own contribution.

Kampala, like Rome, is built upon seven hills. One of these hills is still, for the sake of traditions, crowned by the grass-thatched mausoleum of the Kabakas, but elsewhere the influence of the old masters of Uganda had been displaced by the astonishing neo-Roman “renaissance” of modern times, for which the Roman Catholic Church must receive full

credit. In the census of 2020, fully one half of the native population of the country was found to be Catholic, and the ever-increasing strength of the Catholic-Agrarian League in the Parliament indicates that the growth of Catholicism in Uganda has not abated.

Almost everyone had profited from this renaissance—except the Bugandi, who had, in the last half of the 20th Century, themselves controlled the government. Their policy had followed the usual course of African Nationalism: once they had achieved self-government they had found themselves adrift in history without program or prospects. Theirs had been an essentially conservative movement, and the ideal they had wished to preserve was primitivism—or, which is almost the same thing, anti-Westernism. Their greatest political strength lay in the villages, but more and more, the youngest, brightest villagers were moving to the cities.

As the more progressive elements of the Bugandi were converted to Catholicism and were in other ways Westernized, the influence of the Bugandi waned. Soon there were new laws against the old ways: English was to be the official language for schools and courts; the native mode of dress—or of undress, in this case—was outlawed “for decency’s sake”; building and sanitary codes were forced upon the reluctant villages

and either ruined them or turned them into towns. Naturally, witchcraft became a criminal offense.

The Murchison Falls reserve alone was exempted from these blue laws, and so the die-hard elements of the Bugandi spread out over the 1,200 square miles of the reserve and waited to become extinct along with the other inhabitants of the reserve: the black rhinoceros, the oribi, and the crested crane, once the symbol of the nation, now only the totem of a tribe.

Inside the reserve’s well-guarded borders the Bugandi were allowed, even encouraged, to be as primitive as they liked, for this was one of the last havens of the anthropologist. Here there was no medicine but the medicine of the witch doctor; no missionaries; not even metal plows or plastic buttons. There were, however, strict game quotas, but the Bugandi had always been herdsmen, and their sheep and ankole cattle roamed freely through the grasslands of the reserve.

The ride from the airfield at Kampala to the reserve was no more than three hours. The roads were good, and the farms at the side of the road were thriving. The weather was balmy, and the air, after a year in Boston, smelled good in Thomas’ nostrils.

But *he* did not feel good, far from it. The prospect of confront-

ing his father after more than a decade distressed him. This distress had mounted from being merely psychological at takeoff time at LaGuardia to a mild fever here on the highway approaching the reserve. Of course, it might be just the altitude. His father on the other hand might say he had caught a dose of the evil eye.

Would his father say that? It had been so long since he had seen him and his own environment had been so different in the meantime that he did not know what to expect of his father. His ideas of witch doctors and primitive peoples had come from movies and cartoons in *The New Yorker*; the experiences of his own early childhood he had almost completely repressed.

As the limousine moved into wilder looking country, Thomas' stomach tightened into a tense, miserable knot of unreasoning anxiety. He felt the beginnings of a grand headache.

At the gate to Murchison Falls reserve there was a minimum of fuss, since Thomas' papers had preceded him. He had, ignominiously, to leave his European clothes at the guardhouse and enter the reserve wrapped in a scratchy woolen blanket. His feet, which customarily were bare only when he was in bed, tested the texture of the dirt path tentatively, just as a man would test the water before entering it. Then, with

a wan smile at the gate keepers and the driver of the limousine, he walked into the jungle.

He had studied a map of the reserve and knew how to find his father's village. But a map is in two dimensions and a jungle is decidedly in three. Throughout his school years, as a part of the civilizing process, the good fathers at the orphanage had constantly warned their charges against the Wild (including any wildness they might yet harbor within themselves), and Thomas, receptive as ever, had developed a considerable phobia for jungles, and particularly for snakes. Now every creeper that brushed against his bare shoulder sent a thrill of fear through his body. It was transparently Freudian, and yet there it was—and reason could do little against it.

The light in the jungle was irregular, now intensely, painfully bright, and then, after a turn in the path, of a gloomy greenness suddenly like twilight. The shapes of trees and plants and hanging vines were ambiguous, and his fear grew; there were sounds to which he could assign no interpretation, and his fear grew deeper.

Then there was a sound that he recognized quite well: the drums. If he had ever understood their language, he had long since forgotten it, but doubtless they were announcing his visit.

His first impression of the vil-

lage, when it appeared in a burst of sunlight after a sharp twist in the path, was not of the squalor (he had been steeling himself to expect that) but of its beauty, almost of a sort of splendor. He knew that this was just the shock of recognition. Still, it was something he had not expected, and momentarily he was unmanned.

From the largest of the grass-thatched huts emerged a party of the older men of the village. Thomas suspected that the figure who led them was his father, if only because he did lead them. But the man's face was so overlain with paint, his head so bristling with feathers that if he had been Whitehall, Thomas would not have been able to recognize him.

The man spoke, and the sound of that tongue, unheard for so many years, was like a sword cutting through the knot of his stomach: "Mwanga Chwa, you have returned, as it has been foretold."

"Only," Thomas replied falteringly, "only for a visit." But then he had to correct himself, for the word he had used for "visit" was not without a derogatory connotation in the old language. "Only for a while."

"Yes, he has returned. For did not I myself draw the circle and bring within it the very image of Mwanga Chwa?" The convocation of elders nodded agreement, and Thomas' father (there was no doubt that it was he) withdrew

from a leather bag around his neck a mangled photo of Thomas clipped from the article in *Life*. He handed it to Thomas.

"Wouldn't fingernail parings work better?" he asked sarcastically.

Solemnly the old man withdrew a shriveled scrap of organic matter from the same bag: Thomas, like David Copperfield, had been born with a caul.

He blushed. "Father," he said, though in English, "please be reasonable."

The old man took back the picture and wrapped it about the shriveled caul and placed both back in the bag.

It was not his father who was being unreasonable: *he* was only being himself. Thomas himself was over-reacting. He offered a conciliatory hand for his father to shake, which the old man grasped with surprising firmness. Then before he knew what had happened, Thomas found himself on his back in the dust, surrounded by a throng of laughing old men. He was aghast, then slowly he began to see the humor of the joke and even began to laugh, if rather weakly.

Rising to his knees, Mwanga Chwa kissed his father's hand, as in all conscience any son was obliged to do. It made him feel almost ill to perform the simple ceremony of obeisance. *Though I kiss his hand*, Thomas told himself,

rather jesuitically, *I yield nothing to him, nothing*. A Sacrament needs both form and intention, and Thomas was keeping his intentions to himself.

Then his father, from out the crowd of elders, drew forth a young man, more or less Thomas' peer, but dressed like the witch doctor in paint and feathers—his apprentice, seemingly. He was scowling, and he approached Thomas with great reluctance.

"This, Mwanga Chwa," his father said, "is my *huk*."

Thomas ventured to say hello, though he kept his hands at his side. "Hello, Huck," he said politely in his father's tongue.

The young man's scowl grew more severe. Huck refused to get down on his knees until the old man had given him a poke in the ribs with his medicine stick. Then he bent over and kissed Thomas' foot. It was profoundly embarrassing.

His father's *huk*! Now the word came back to him: Huck was his father's bastard! The prodigal's brother (in this case, his half-brother), true to the parable, was not at all pleased to welcome the prodigal home.

That night the fatted calf was gotten out, and Thomas, at the right hand of his father, drank large draughts of palm wine and ate the hot gobbets of meat with his fingers, even when it hurt. He was introduced to a bewildering

succession of uncles, cousins, and brothers, legitimate and otherwise, and for as long as the feasting lasted they were all one big happy family.

All, excepting Huck. He sat at the foot of the table and matched his brother cup for cup, while the furrows in his brow grew deeper and deeper. At intervals he would shout something Thomas couldn't catch. Then, very late, he got up and did some very gymnastic sort of dance, which Thomas admired greatly, for at that point he doubted whether he could have done a fox trot. His father, however, was not at all pleased by this demonstration. He rose from the table and dismissed Huck from their company with a deliberate, low-down kick. The elders laughed.

A few minutes later Thomas excused himself to go out and vomit. When it was all out of his system, he became aware that he was not alone. Huck had joined him. In silence and darkness the half-brothers regarded each other. Thomas made a very tentative smile. With a lunge, and before Thomas could realize his intentions, Huck had caught his foot and sunk his teeth into the exact spot where, earlier, he had planted his dutiful kiss. Thomas was both too drunk and too startled to feel much pain. *What the hell!* he swore meagerly. Huck darted back into the darkness, smiling, with blood on his lips.

Thomas was not an expert at interpreting his own feelings. Generally he distrusted them because they were so changeable and tried to think of them as little as he could. Sometimes though, despite his best efforts, they would intrude themselves on his consciousness and insist on being, if not dealt with, noticed. So it had been that night three weeks ago in Whitehall's car; so it was now. Now he realized that the feeling he had defined for Whitehall as hatred was something entirely different: it was fear. He feared his father. Was that it *exactly*? Or did he fear, rather, recognizing just what he did feel toward his father? And what then would that be?

If only there had been something else to think about! But without books, without civilized companions to talk with, he could do nothing but introspect. It was depressing—and it was dull, so dull. The sheer tedium of the village life, which even at the age of six Thomas had not been able to endure, grew steadily more oppressive once the spirit of the feast was past. Thomas had not yet broached the subject of the levitator—or whatever it was—hoping that his father would take the initiative. When he didn't, Thomas could think of no way to open the subject without revealing the real purpose of his visit. He followed his father everywhere, hoping that sheer persistence would

lead to the levitator, and yet he soon had the feeling that his father was keeping an eye on *him*.

There were other times, at midday usually, when the old man would just sit there, his eyes focused on vacuity; Thomas couldn't stand this. The habit of civilization, of being always occupied, was too strong in him. But the conversations he had with his father were even more infuriating, for like a true witch doctor he was impervious to logical consideration. In any case, there was only one subject he would discuss: his son's apprenticeship.

"Mwanga Chwa," the old man would say, pulling some dessicated leaves from a pouch that hung at his side, "it is the time of your education. You are very old to be so ignorant."

"Thank you, father, but my education is already coming out my ears."

The old man regarded his son's ears with momentary curiosity. "Today I will teach to you a very powerful protection against the curse of your enemy."

"Oh, I don't have enemies."

"Then who left the marks of his teeth on your foot?"

"Huck was just drunk. He hasn't troubled me since that night."

"It is because he does not believe you will stay here with us. He does not believe you have come to take his place."

"I haven't. I won't."



"Mwanga Chwa, you *will*!" This, with a rap of his medicine stick on Thomas' close-cropped, black skull. At that moment the witch doctor looked for all the world like Irving Whitehall.

"No. Never. Absolutely not. I *refuse*!" When they reached this point in their conversation, his father would sink back into that deadly, enervating, smug silence. Thomas knew he was being worn down.

"Mwanga Chwa," his father began on the fourth day of his visit, "my son, it is the wooden bird that you have come here to see, is it not true?"

Earlier Thomas would have been flustered, but he had had time enough to see that his father, though illogical, was shrewd. "It is quite true. And is there a wooden bird? And does it fly? And *how* does it fly?"

"It will be a great weapon against our enemies, my son. Yes, and when the people of the city see the wooden birds flying above them and see the fire falling from the sky, they will understand the power of the Bugandi, and witchcraft will take back the seven hills and destroy the churches the Romans have built there. All Africa will honor the power of the Bugandi."

Thomas could not help but smile at the Napoleonic grandeur of the undertaking. Probably, he thought, it was this chimera that

was giving the reserve the strength to continue in the face of all the forces arrayed against it. "Yes," he said, "it may well do all that—if the thing can get off the ground."

"Just as you yourself, Mwanga Chwa," the old man went on, ignoring as usual Thomas' contribution to the conversation, "will understand the power of witchcraft." He looked into his son's eyes with such a deadly intensity then that Thomas could not sustain the gaze; his eyes fell to the image that the old man held in his hands and through which he shoved, that very moment, a long, bone needle. There was a stabbing pain in Thomas's stomach, but pride kept him from crying aloud. The old man twisted the needle in the wax doll, and sweat sprang out on Thomas' forehead.

"Forgive me, my son, but you must learn now the power of witchcraft. For only when you believe, will the wooden bird rise. And now you do not believe."

It was just at this time, while Thomas was lying in bed (or, more literally, on a pallet) with a multitude of obscure ailments, that the headline came out in the Washington papers: UGANDA INVENTS ANTIGRAVITY! The story was slightly garbled, but its outlines were clearly those which Thomas had heard from Whitehall. Thus Whitehall's first suspicion fell on his novice agent, but

when, within a few hours of the news break, Clabber, his chief aide, tendered his resignation, Whitehall's suspicions rested at last on that party.

Nothing could be proven, and to a degree Whitehall even sympathized with the foolish fellow. The money he could have received for his story could hardly have been sufficient to compensate for the position he was losing. Clabber might be said therefore to be acting on principle—even if that principle was no larger than revenge on the way he had been dealt with by Toller. It was just as well that Clabber was leaving—despite the fact that he knew THOMAS' ways better than anyone but Whitehall himself. In the Civil Service one must learn to live with petty tyrants like Toller, for one man's petty tyrant was a department's good administrator.

Clabber had precipitated a crisis though, and the crisis had to be dealt with. The morning after the story broke in Washington, Kampala's four chief newspapers carried highly colored accounts of witchcraft and treason. The afternoon papers modified these distortions in the direction of truth but slightly. The more progressive elements of the Congress, though they didn't believe one whit in the rumor, sought to exploit it. They called for the complete eradication of "retrograde primitivism" and the conversion of the Murchison

Falls reserve to farmland. It began to look as though a pogrom was getting under way.

It was Toller's idea to dust off the old story (so useful in the days of UFO's) of Optical Illusions. At a press conference, Toller pointed out the patent absurdity of "anti-gravity" (the government's leading physicists were quick to confirm him in this). How much less likely that this manifest impossibility could be accomplished by witch doctors! He then revealed that THOMAS' verdict had been *Impossible*, editing the original language for the sake of the English papers. He capped his argument with the "explanation" THOMAS himself had given of the strange event: it was an Optical Illusion, caused by "the strange climatic conditions of Uganda in late spring and early summer." This was not, of course, strictly true, for THOMAS, contrary to popular opinion only calculated probabilities; he did not have to account to anyone for the occurrence of the improbable.

Prophets are not honored in their own country, and it was with THOMAS as it had been for those who had gone before. The United States had grown quite used to the *pronunciamentos* of computers, but in the nations of West Africa it was another story. Countries like Uganda were in the first flush of Enlightenment, and THOMAS was to them the very

God of Reason. The fact that the building that housed him was in the form of the Kaaba and that a good many of the residents of these countries were of Moslem descent did not at all diminish his value as an oracle. That this Kaaba was in turn sheathed in a small growth of African jungle added just that touch of homely mystery to the broth of Pure Reason that made it delectable to tastes that were not, after all, that far or that long removed from the jungle themselves. THOMAS was, in fact, a superior sort of witch, and this was his chief (though never admitted) value to the C.I.A. Thrice THOMAS had said that revolutions that had seemed imminent would not occur—and lo, they had not occurred!

The power of a good strong doubt was not quite up to moving mountains, but it served very well to keep them in their place.

When the pain abated—and it had been terrible; he did not want to remember how terrible it had been—Thomas suspected that he was under the influence of a narcotic. The air in the mud hut was heavy with an unfamiliar, smoky sweetness. His mind felt lazy, and even his perception that he might be drugged was clouded by an uncharacteristic lack of concern. It was enough that the pain was gone, that his body was whole and sound.

At intervals his father had come

into the hut and left biting his lip. This Thomas interpreted as a sign that he approved of the course that his patient's convalescence was taking—though, Thomas thought hazily, he might equally well be considered his victim.

One day when his recovery was almost complete (the only exception being still his critical sense, which languished sluggishly in that sweet air), his father announced: "Today, Mwanga Chwa, you yourself will fly in the wooden bird. Today you will yourself become as I, a witch doctor, is it not true?"

And it was true. Thomas let two trained cosmeticians prepare him for the event. His lazy mind played with the idea of a lamb being dressed for the sacrifice, but he made no objections. He was thankful that mirrors were not allowed on the reserve, though he supposed he had only to look at his father to see himself as others saw him.

Why should he object, after all? After what he had been through that week, he willingly conceded that witchcraft was the equal of the science he knew. Why not, therefore, join the enemy, if the enemy seems to be in the right? Oh, his mind could spin out theories and excuses all day long. The truth was that he wanted this, he enjoyed it. It was exciting the way Halloween is exciting for a child.

When he left the hut, still un-

steady on his feet, there was the familiar cluster of older men, who applauded him as though he were making a first-night entrance, which in a way he was.

Huck, however, was notably absent from the gathering, though Thomas suspected he would be watching from the wings, waiting like some malign understudy for a slip-up. *Well, let him*, Thomas thought, puffing out his chest in conscious pride and practically strutting toward his father. He was more changed than he knew.

The entire party made its way single-file along a path in the jungle, the older men chattering excitedly as they followed behind Thomas and his father. The fear of the jungle, which had taken him so many years to learn, was cast aside as easily as his European clothes had been left at the gate. He began to feel almost comfortable in his weighty headdress, though it *would* keep snagging in the branches to the amusement of the men behind him.

The path wound upwards, first through a stand of bamboo, then through clusters of St. John's wort and giant labelias. He must have been walking the better part of one day, but the time had gone past like water in a spring brook.

When they came to the levitator, it was bigger than he had been expecting. It was not going too far to say it was impressive: a raft of rough teak logs twenty feet

square, this raft supporting a pyramid built up solidly to a height of ten feet. It must have weighed twice ten tons. There was no provision for carrying cargo on this barge; it was strictly a passenger vehicle.

"Mwanga Chwa, my son, today you will take the wooden bird into the air. Rise high as the mountain itself, but when a coldness commences and it is hard to breathe, rise no higher. Sail to the farthest edges of the reserve, but do not go beyond those borders today, for that time has not yet come."

In full consciousness of his dignity, like a priest mounting the altar for his first Mass, Mwanga Chwa ascended the wooden pyramid, then turned to face his father. The old man had in his hands a small wax figure, which he placed in what looked like a child's toy boat. He stared at his son with a deadly intensity, but today Mwanga Chwa did not flinch at that gaze. The old man threw boat and doll into the air, and Mwanga Chwa felt the pyramid beneath him stir like a surf-board lifting from the waves.

But, instantly, it settled to the ground again. Another force was holding the pyramid in place like an anchor. Thomas' gaze turned directly to the source of this retrograde impulse. Huck was standing, half-concealed, in a stand of spiky-leaved labelias. For a second time their eyes met, but this time

it was Thomas who, with a shake of his headdress and a ringing *Hah!* interrupted their communion. He could feel the resisting will snap like a dry twig and in the same instant he felt himself propelled upwards. The elders gave a cheer, but already he had risen so high that the cheer sounded weak, a wisp of sound only.

There was aboard this strange vessel nothing to steer by and no device that would hold it steady at a given altitude. There was only the mind of Mwanga Chwa. For a witch doctor, wishing makes it so: when he thought the ascent should be slower, it slowed; when, with the sense of glory fully possessing him, he wished for speed, there seemed no limit to the speed he could command.

In that corner of his mind that still had to account for things, he supposed that the force that bore himself and the great pyramid up was the force of faith, his faith and the faith of the men below. Such things have been said to happen.

He had flown before, in airplanes, but this, oh this was something else entirely. The pleasure of riding in a plane was nothing to this, the intoxication of his own flight. As well compare the syllogisms of a theologian to the mystic's ecstasies!

As he ascended the horizon dropped and spread out, and hills rose beyond hills. He saw the

farmlands beyond the jungles, and a part of him was drawn toward those crisp, geometric fields. In his mind it seemed that he could encompass the entire continent.

Then, despite his father's admonition, he realized that he had gone too high. Unconsciously his body was braced rigidly against the cold. He let the levitator drop a thousand feet and began moving eastward. Soon he could see that he was directly over the boundaries of the reserve, but boundaries meant nothing at that god-like height. He moved serenely past, and as he wished for more speed and yet more, the pyramid hurtled forward and the wind tore the careful headdress of feathers from the head. There was seemingly no limit to the energy that had been made available to him.

The thought that Uganda might be repossessed by the Bugandi, by *his* people, was not beyond the realm of possibility. It seemed that he might almost reach out and possess it himself.

Anything was possible to him in this flash of glory: he was Alexander; he was Phaeton; he was Apollo; and his chariot veered about and sailed into the afternoon sun toward the city of Kampala.

Unthinkingly, beside himself with joy, he cried aloud his triumph. Surely all the wide heaven was filled with that splendid, willful shout.

It was, inevitably, a disaster. Thomas might have anticipated the outcome of his fatal disobedience, but Thomas had been superseded by Mwanga Chwa, and Mwanga Chwa was too young in the ways of witchcraft to know anything but its glory. He had not had time to learn its limits.

When the pyramid appeared over the city, it was at a great height, a mere speck in the russet of the twilight sky. One man said to another: "Look, there it is above, as we have been told. That same Optical Illusion of which THOMAS has spoken. That is the work of the Bugandi. They think they will frighten us with shadows. They have no other weapons than that."

And the other man agreed.

There was no faith in that city; there was, indeed, a great lack of it. Doubt clouded the sky as palpably as smoke after a great fire, and the wooden bird began slowly to settle. It had flown long and far and was tired.

Thomas could feel this new drag against the buoyant pyramid, so much stronger than his brother's willed resistance, which was after all not *doubt* but mere dissent. He resisted it, seeking calmer areas of unbroken faith and trying to ride them away from the city, but it was like taking a sailboat through a sea of whirlpools. At last he reached a sort of lagoon and drifted there. Oh, to relax!

The entire student body of the fourth form at the Sacred Heart Orphanage were gathered about the far colonnade of the playing ground. They were observing a black splotch directly overhead in the dusky, lavender sky.

"It is *so*!" one of the fourth-formers insisted.

"Oh, it ain't either! How could it be?" a second insisted.

"It is *so*!" the first persisted unreasoningly. "I *know* it is." By the expressions in their eyes, it was evident that the great majority of his class mates were of the same opinion, reasonable or no.

A black-complected man in black robes came striding briskly over the playing field, a cricket bat in his hand. As he approached, the minority spokesman called to him: "Brother Antoninus, tell them that isn't any old antigravity machine up there."

"What nonsense is this?" Brother Antoninus asked impatiently, without deigning to look where the boy was pointing. (He had, in any case, already seen it.) "Of course it's not! What sort of heathenish superstition are you boys deluding yourselves with? The next thing I'll find you in the jungle, beating on drums. Speak up, James, answer my question!"

The first boy lowered his head. "I only thought—"

"You *didn't* think—that's exactly it. If you'd thought, you would have realized that it is an Optical

Illusion, the commonest thing in the world. Now come back to the classroom. You're already ten minutes late for arithmetic." And he gave the boy a good-natured swat with the cricket bat.

In an instant, the Optical Illusion was forgotten. It hadn't been that interesting to look at anyhow, and arithmetic was obviously more important.

The lagoon had suddenly become the very heart of the maelstrom. As the prosaic forces of gravity caught the pyramid in their grip, Mwanga Chwa grew uncertain and Thomas asserted himself. "This is impossible," Thomas thought. "This cannot be."

The pyramid dropped faster.

"I am dreaming. It's as simple as that. Flight is a common enough dream, and because I am falling in the dream and will come to earth at any moment now, I can expect to awake quick as a wink."

The pyramid fell at thirty-two feet per second. Several bodies were crushed beneath it, and Thomas Mwanga Chwa was never surely identified.

At the same moment but several miles away, in a reserve for wildlife, one of the natives residing there, a young man of about Thomas' age, dropped a toy boat containing a crude wax figure into

an anthill, doing considerable damage. The native smiled and said *Hah!*

But that was not Thomas' only, or even his definitive, epitaph. In Washington, at the foot of Pennsylvania Avenue, on a small pyramid atop the Kaaba there, a statue stands, executed on the basis of a photograph that appeared in *Life* magazine, so that Thomas appears, perhaps uncharacteristically, in a business suit. The epigraph was written by Irving Whitehall, and it reads:

**THOMAS MWANGA CHWA**  
2009—2028

As *Icarus* rose too high, so

*Thomas* went too far.

He sailed over the world's  
edge,

And his boat was shattered on  
the reefs of doubt.

Those who follow him will  
honor his glorious memory.

But THOMAS, the other THOMAS, obstinately held to his first opinion (it is almost as though he were jealous), and it does no good to try and convince him that the whole thing had been anything but *Not Bloody Likely*.

This is the epitaph, probably, that Thomas would have chosen for himself. ◀

## *THE MARTIAN ATMOSPHERE*

*by Ted Thomas*

THE SCIENTISTS HAVE BEEN studying the results of the observations made by Mariner IV on the Martian atmosphere. Gathering the data was a fine technical accomplishment, but there isn't enough of it. It is possible to arrive at different conclusions concerning the Martian atmosphere, yet each conclusion will be reasonably consistent with the data picked up during the fly-by.

A Martian atmospheric model can be pieced together from Mariner IV spectroscopic observations. These showed peak ionization at a height of 120 kilometers, among other things. Carbon dioxide absorption lines had already been found. When these facts are pulled together, it is reasonable to suppose that the Martian atmosphere consists mainly of carbon dioxide.

Temperature considerations are important. If the peak ionization can be taken to correspond to the F2 peak in Earth's atmosphere, then the Martian atmosphere must be very cold. The temperature of

the Martian surface must be about minus 63 degrees C, and it grows colder as you go higher. The temperature distribution in the Martian atmosphere is easier to guess at once you know the temperatures at which carbon dioxide freezes and falls out as snow. Conditions seem to be just on the ragged edge for carbon dioxide snow on Mars.

There is room for all kinds of guesses about what has gone on in the Martian atmosphere. Perhaps the oxygen is now tied up as metallic oxides, and the water has formed hydrates. Or perhaps in the dim past a dying plant life stopped removing carbon dioxide and replenishing the oxygen needed by the animal life. Faced with both starvation and suffocation, what agonies the animal population must have gone through. Slowly and painfully the stifling blanket of carbon dioxide accumulated. Over a long period of time perhaps the shaping hand of evolution allowed some of the animal species to linger. Perhaps a few linger still.



*This very funny story was enthusiastically recommended to us by Laurence M. Janifer and, once read, just as enthusiastically acquired for publication in F&SF. It first appeared in Chess Review (but you need not be a chess-player to enjoy it). Its author writes that he is "30 years old, a graduate student in English at the University of Wisconsin, married, fat, and happy. I have published poetry, translations of modern Polish poetry, and book reviews in a variety of little magazines . . ."—And adds, "By the way, I'm a lousy chess-player." But a first-rate writer.*

## VON GOOM'S GAMBIT

*by Victor Contoski*

YOU WON'T FIND VON GOOM'S Gambit in any of the books on chess openings. Ludvik Pachman's *Moderne Schachtheorie* simply ignores it. Paul Keres' authoritative work *Teoria Debiutow Szachowych* mentions it only in passing in a footnote on page 239, advising the reader never to try it under any circumstances and makes sure the advice is followed by giving no further information. Dr. Max Euwe's *Archives* lists the gambit in the index under the initials V. G. (Gambit), but fortunately gives no page number. The twenty-volume *Chess Encyclopedia* (fourth edition) states that

Von Goom is a myth and classifies him with werewolves and vampires. His Gambit is not mentioned. Vassily Nikolayevitch Kryllov heartily recommends Von Goom's Gambit in the English edition of his book, *Russian Theory of the Opening*; the Russian edition makes no mention of it. Fortunately Kryllov himself did not—and does not yet—know the moves, so he did not recommend them to his American readers. If he had, the cold war would be finished. In fact, America would be finished, and possibly the world.

Von Goom was an inconspicu-

ous man, as most discoverers usually are; and he probably made his discovery by accident, as most discoverers usually do. He was the illegitimate son of a well known actress and a prominent political figure. The scandal of his birth haunted his early years, and as soon as he could legally do so he changed his name to Von Goom. He refused to take a Christian name because he claimed he was no Christian, a fact which seemed trivial at the time but was to explain much about this strange man. He grew fast early in life and attained a height of five feet, four inches, by the time he was ten years old. He seemed to think this height was sufficient, for he stopped growing. When his corpse was measured after his sudden demise, it proved to be exactly five feet, four inches. Soon after he stopped growing, he also stopped talking. He never stopped working because he never started. The fortunes of his parents proved sufficient for all his needs. At the first opportunity, he quit school and spent the next twenty years of his life reading science fiction and growing a mustache on one side of his face. Apparently, sometime during this period, he learned to play chess.

On April 5, 1997, he entered his first chess tournament, the Minnesota State Championship. At first, the players thought he was a deaf mute because he refused to

speak. Then the tournament director, announcing the pairings for the round, made a mistake and announced, "Curt Brasket—White; Van Goom—Black." A small, cutting voice filled with infinite sarcasm said, "Von Goom." It was the first time Von Goom had spoken in twenty years. He was to speak once more before his death.

Von Goom did not win the Minnesota State Championship. He lost to Brasket in twenty-nine moves. Then he lost to George Barnes in twenty-three moves, to K. N. Pedersen in nineteen, Fredrick G. Galvin in seven, James Seifert in thirty-nine. Dr. Milton Otteson in three and Baby George Jackson (who was five years old at the time) in one hundred and two. Thereupon, he retired from tournament chess for two years.

His next appearance was December 12, 1999, in the Greater Birmingham Open, where he also lost all his games. During the remainder of the year, he played in the Fresno Chess Festival, the Eastern States Chess Congress, the Peach State Invitational and the Alaska Championship. His score for the year was: opponents forty-one; Von Goom zero.

Von Goom, however, was determined. For a period of two and one-half years thereafter he entered every tournament he could. Money was no obstacle and distance was no barrier. He bought his own private plane and learned

to fly so that he could travel across the continent playing chess at every possible occasion. At the end of the two and one-half year period, he was still looking for his first win.

Then he discovered his Gambit. The discovery must surely have been by accident, but the credit—or rather the infamy—of working out the variations must be attributed to Von Goom. His unholy studies convinced him that the Gambit could be played with either the White or the Black pieces. There was no defense against it. He must have spent many a terrible night over the chessboard analyzing things man was not meant to analyze. The discovery of the Gambit and its implications turned his hair snow white, although his half mustache remained a dirty brown to his dying day, which was not far off.

His first opportunity to play the Gambit came in the Greater New York Open. The pre-tournament favorite was the wily defending Champion, grandmaster Miroslav Terminsky, although sentiment favored John George Bateman, the Intercollegiate Champion, who was also all-American quarterback for Notre Dame, Phi Beta Kappa and the youngest member of the Atomic Energy Commission. By this time, Von Goom had become a familiar, almost comic, figure in the chess world. People came to accept his silence, his withdrawal,

even his half mustache. As Von Goom signed his entry card, a few players remarked that his hair had turned white; but most people ignored him. Fifteen minutes after the first round began, Von Goom won his first game of chess. His opponent had died of a heart attack.

He won his second game too when his opponent became violently sick to his stomach after the first six moves. His third opponent got up from the table and left the tournament hall in disgust, never to play again. His fourth broke down in tears, begging Von Goom to desist from playing the Gambit. The tournament director had to lead the poor man from the hall. The next opponent simply sat and stared at Von Goom's opening position until he lost the game by forfeit.

His string of victories had placed Von Goom among the leaders of the tournament, and his next opponent was the Intercollegiate Champion John George Bateman, a hot-tempered, attacking player. Von Goom played his Gambit, or, if you prefer to be technical, his Counter Gambit, since he played the Black pieces. John George's attempted refutation was as unconventional as it was ineffective. He jumped to his feet, reached across the table, grabbed Von Goom by the collar of his shirt and hit him in the mouth. But it did no good. Even as Von Goom fell, *he made*

*his next move.* John George Bateman, who had never been sick a day in his life, collapsed in an epileptic fit.

Thus, Von Goom, who had never won a game of chess in his life before, was to play the wily grandmaster, Miroslav Terminsky, for the championship. Unfortunately, the game was shown to a crowd of spectators on a huge demonstration board mounted at one end of the hall. The tension mounted as the two contestants sat down to play. The crowd gasped in shock and horror when they saw the opening moves of Von Goom's Gambit. Then silence descended, a long, unbroken silence. A reporter who dropped by at the end of the day to interview the winner found to his amazement that the crowd and players alike had turned to stone. Only Terminsky had escaped the holocaust. The lucky man had gone insane.

A few more like results in tournaments and Von Goom became, by default, the chess champion of America. As such he received an invitation to play in the Challengers Tournament, the winner of which would play a match for the world championship with the current champion, Dr. Vladislav Feorintoshkin, author, humanitarian and winner of the Nobel Peace Prize. Some officials of the International Chess Federation talked of banning the Gambit from play, but Von Goom took midnight jour-

neys to their houses and *showed them the Gambit*. They disappeared from the face of the earth. Thus it appeared that the way to the world championship stood open for him.

Unknown to Von Goom, however, the night before he arrived in Portoroz, Yugoslavia, the site of the tournament, the International Chess Federation held a secret meeting. The finest brains in the world gathered together seeking a refutation to Von Goom's Gambit—and they found it. The following night, the most intelligent men of their generation, the leading grandmasters of the world, took Von Goom out in the woods and shot him. The great humanitarian Dr. Feorintoshkin looked down at the body and said, "A merciful end for Van Goom." A small, cutting voice filled with infinite sarcasm said, "Von Goom." Then the leading grandmasters shot him again and cleverly concealed his body in a shallow grave, which has not been found to this day. After all, they have the finest brains in the world.

And what of Von Goom's Gambit? Chess is a game of logic. Thirty-two pieces move on a board of sixty-four squares, colored alternately dark and light. As they move they form patterns. Some of these patterns are pleasing to the logical mind of man, and some are not. They show what man is capable of and what is beyond his

reach. Take any position of the pieces on the chessboard. Usually it tells of the logical or semi-logical plans of the players, their strategy in playing for a win or a draw, and their personalities. If you see a pattern from the King's Gambit Accepted, you know that both players are tacticians, that the fight will be brief but fierce. A pattern from the Queen's Gambit Declined, however, tells that the players are strategists playing for minute advantages, the weakening of one square or the placing of a Rook on a half-opened file. From such patterns, pleasing or displeasing, you can tell much not only about the game and the players but also about man in general, and perhaps even about the order of the universe.

Now suppose someone discovers by accident or design a pattern on the chessboard that is more

than displeasing, an alien pattern that tells unspeakable things about the mind of the player, man in general and the order of the universe. Suppose no normal man can look at such a pattern and remain normal. Surely such a pattern must have been formed by Von Goom's Gambit.

I wish the story could end here, but I fear it will not end for a long time. History has shown that discoveries cannot be unmade. Two months ago in Camden, New Jersey, a forty-three year old man was found turned to stone staring at a position on a chessboard. In Salt Lake City, the Utah State champion suddenly went screaming mad. And, last week in Minneapolis, a woman studying chess suddenly gave birth to twins—although she was not pregnant at the time.

Myself, I'm giving up the game.

---

## CHANGING YOUR ADDRESS?

The Magazine of FANTASY and SCIENCE FICTION will follow you anywhere providing you let us know six weeks in advance. Please be sure to give us your old address as well as the new one, and be sure to add the ZIP number. (If convenient, send the address label from the wrapper of the next copy of F&SF you receive.)

MERCURY PUBLICATIONS  
*Subscription Service*  
347 East 53 Street  
New York, N. Y. 10022

*Snow gives us snowmen and blizzards, skiing and avalanches; that is, white snow. When the snow began falling green on an afternoon in late February, it was a source of great fun for the Matlock children; they pretended it was pistachio ice cream. For their parents, and for the scientific community, it was first an enigma and then, a source of great fear . . .*

# THE GREEN SNOW

*by Miriam Allen deFord*

IT WAS A MORNING IN LATE February, and the sky threatened snow. The Matlock children—Bruce, aged eleven, and Norma, aged nine—and their frisky setter Laird hoped it was true. Their father, who had to commute to the city and back, and their mother, who had shopping to do, were not so pleased. Nobody consulted the two Siamese, Marse and Miss, but undoubtedly they would have agreed with the older Matlocks; they insisted on going wherever the kids and the dog went, but they hated to get their paws wet and cold.

It held off all morning and most of the afternoon; when the children got home from school it was

still threatening and no more. Mrs. Matlock had done her shopping and come home again, but she was due at a meeting of the library committee at four, and she disliked driving when the roads were slippery. She had no choice, though, for her husband wouldn't be back with the big car till after six. She put a casserole dinner in a slow oven, gave strict orders to Norma and Bruce that there was to be no TV and no playing outside till their homework was done, and started out.

Ten minutes later the snow began to fall—slow and light at first, then thick and heavy.

And it wasn't white. It was green.

The trees took on a faint semblance of spring, their twigs and branches lightly tinted as they would be in April. Soon all the deceptive likeness vanished under an avalanche of strange shining greenness. The children, who had stared in amazement through the windows, could no longer resist. Abandoning books and papers, they rushed out into the garden.

It felt like snow. Crystals formed and melted on their outstretched hands. When they gathered it, it made a firm cold ball.

But it was green.

Well, then, it was green. Hilariously they wallowed in the rapidly forming drifts, pelted each other, screamed with excitement and tossed handfuls into each other's open mouths. It tasted like snow as they swallowed it, but they pretended it was pistachio ice cream and delicious. Laird joined in the fun; Marse and Miss kept advancing and retreating when the children threw handfuls of snow at them.

Everywhere they could see now the world was deep green, like midsummer. Only it was cold.

The committee meeting broke up when the green flakes began drifting down. For a few minutes everybody pretended not to notice, each one thinking with alarm that something had gone wrong with either eyes or mind. When everyone's uneasiness became apparent

to all the others, each member had only one desire—to get home, where it was safe, as soon as possible. The three women and two men, puzzled and rather frightened, hastily adjourned the session.

"I've heard of red snow—it's some kind of microscopic organism—but never of green," said Mr. Whitby. None of the others had heard even of red snow. The other man, Mr. Van Horn, looked relieved; he happened to be color-blind, and would never have known otherwise what made the falling snow so strangely dark. The three women all had children at home, and they felt it urgent to keep them from getting too near to this queer phenomenon. Mrs. Matlock, who lived farthest away, drove dangerously fast and reached her house to find the garden well trampled but children and animals all inside—they had seen the car coming and had run in fast. Bruce and Norma were both demurely busy with their homework, but their experienced mother was not fooled; damp clothes, short breath, and tousled hair told her the story.

"I see you haven't noticed the funny snow," she said dryly, and went into the kitchen to look after her dinner.

By the time Mr. Matlock got there, late and worried, the storm had become a blizzard.

"I just about made it," he said, gasping. "Thank goodness you're all home and now both cars are in

the garage. Haven't you had the radio or TV on?"

"You mean it's in the city too?" his wife asked, rather stupidly. Somehow it hadn't occurred to her.

"Of course—it's happening for miles around," he answered impatiently. The green snow had worried him more than he cared to admit. He tuned in the nearest station. Outside, the drifts had reached the windowsills.

The announcer was bringing in reports from meteorologists, chemists, any scientists the station could reach who might conceivably have some explanation. None of them had. Green snow was absolutely unique. An ominously soothing tone in the newscaster's voice was the most alarming thing about the broadcast, and it didn't help when he began introducing clergymen from local churches who assured them that this was merely a natural phenomenon and nothing to bother about at all. The older Matlocks merely toyed with their dinner; the children ate as heartily as ever, but without chatter—everybody was listening to the radio, which they had switched on instead of TV while they were in the dining room. Even the dog and the two cats seemed to understand; they all sat motionless staring at the set, as if they got the message too.

The green snow kept on falling. The wind blew it in clouds that dashed against the windows. With-

out bothering to clear away the dishes, the Matlocks turned out the lights, the better to observe what was happening outside. Laughing nervously at himself, Matlock toured the house to see that all doors and windows were locked tight.

They switched back to TV just in time to see Dr. Ha'lgren, the professor of dermatology at the nearby university. They caught him in the middle of a sentence.

"—so I repeat, there is no reason for anxiety. But until this peculiar snow has been analyzed in the laboratory, it might be better to stay away from it. Anyone who has already touched it had better bathe thoroughly in hot water with chemical soap or some other sterilizing agent, it can do no harm and may wash off any residue that might irritate the skin. As soon as the substance has been analyzed we shall report our findings."

They had all been out in it. The Matlocks had two bathrooms; the children first, of course, no matter how obstreperously they protested. When they were thoroughly scrubbed, they rushed back in pajamas and bathrobes to listen again, with the sound turned up loud so their parents could hear. Then Laird got his bath, and finally the annoyed and wriggling cats. They all gathered again in the living room.

There was another doctor on now—a specialist in internal



medicine. "There is no cause for apprehension," he said firmly. "The probability is that the only danger from this strange snowfall is the same as from an ordinary one—colds and chilblains from too long and close contact with it. But until the analysis gives us a clean bill of health, I should like as an internist to supplement Dr. Hallgren's prescription of hot baths. If anybody—and this probably means just children—has accidentally swallowed any of this snow, and if any symptoms whatever should develop, call your family doctor at once and get his advice."

Bruce and Norma exchanged guilty glances. "Did you?" their mother asked fiercely. "Well, I guess a little," Bruce said. "We played it was pistachio ice cream," Norma confessed. But they both said they felt fine, and they displayed no signs of illness.

"Laird dived right into a drift," Bruce remarked. Laird sneezed.

"Should we call the vet, do you think?" Mrs. Matlock suggested.

"Nonsense," her husband said. "Wait a while, anyway, and see if anything happens. Look—I think the snow is stopping."

It was. The fall was thinning, and slowly the wind died down and the air cleared. Whatever damage had been done was probably over. Apparently the TV station thought so too, for after announcing it would break in with

spot news, it resumed the regular schedule. The children, their homework finished, busied themselves with a new jigsaw puzzle, rather elated by the strangeness of spending the evening in the living room in their nightclothes.

Only the animals continued to act strangely. The two Siamese kept prowling and whining in their raucous voices. Laird, whose usual early evening post was on the floor between Bruce's feet, refused to sit still anywhere; he roamed from one to another of them, gazed searchingly into their faces, moved on again. He didn't sneeze any more, but he kept trembling as if he were frightened.

Mrs. Matlock, back from the kitchen, turned on the radio, low, and sat down close to it. She didn't want to infect the others with her nervousness, but she had to hear, if news interrupted the music and commercials. She glanced at the clock; it was half past eight. She looked significantly at her husband.

"Bedtime, kids," he said crisply.

They were good children; they gathered their things together. "Will you wake us if there's anything new?" Bruce asked. "I'll do that," his father promised him. Norma, always the more sensitive of the two, clung to her mother's hand as she was tucked in bed and asked in a whisper if she could have the night light on. "Scary baby," Bruce jeered; but he made

no objection when Mrs. Matlock left the door ajar between their rooms.

It was too cold to put the animals in the back room, originally a pantry, where they usually slept. Tacitly they let them stay where they were. The setter finally curled up near Mrs. Matlock as she sat beside the radio; Marse and Miss, tired out, huddled together in a corner of the couch.

Matlock got up, went to the picture window, and peered out into the night. Not only had the snow stopped, but the clouds were gone and the moon was up. Under its light the expanse of snow looked almost normal—only a little darker and more shadowy than snow should be.

"Well," he said in an overly cheerful tone that revealed his hidden tension, "I guess whatever it is has finished. Was there anything new on the radio? I haven't been paying attention."

"Nothing so far we hadn't heard before, or I'd have told you." They caught each other's eye and laughed in relief. "But—oh, here it is—they're going to announce the results of the laboratory analysis."

"We are interrupting this concert to give the first report on analysis of the green snow that fell on all the southeastern part of the State this afternoon and evening," said the announcer. "This is a public service statement. The authorities have the situation well in hand

and full instructions will be issued regularly on all radio and television stations. Please listen attentively and follow all orders implicitly. The next voice you hear will be that of the State Director of Public Health, Mr. John McNamee."

"My Lord! That doesn't sound so good!" Matlock exclaimed. Quickly he turned on the TV set instead, to see the Director as well as hear him. Their arms around each other, the Matlocks stared at the screen, their ears alert.

McNamee's paunch and jowls and fringe of hair filled the screen.

"Ladies and gentlemen," he said, "I have here in my hand the very important report of the chemical analysis made by the university laboratory, which has just been given me. The report, I mean, not the laboratory!" He smiled apologetically.

"The green snow—"

At which moment the electricity failed. The screen faded, both TV and radio fell silent, and the Matlocks sat in darkness.

The cats wailed. The dog howled. Both children, wakened suddenly, ran barefoot into the room, blundered against furniture, and stumbled into their parents' arms.

"Let's see what we're doing," said Mr. Matlock. "Have we any candles?"

"I'll find them." Mrs. Matlock disentangled herself. They heard

her rummaging in the kitchen and striking a match. In a minute she was back, in either hand a candle stuck to a saucer.

"Now, kids, there's nothing to be scared about," said their father in tones which he wished were considerably firmer. "You know how often the power fails in a storm. It has nothing to do with the green snow."

"I think," said Mrs. Matlock, "we should all calm down and be sensible and go to bed where we'll be safe and warm and have a good sleep. Then in the morning if the electricity's still off at least we'll find out from the paper what this is all about and what they want us to do."

"I'll second that," her husband said. "Come on, kids, back to bed, both of you."

"Can I have Laird with me?" Bruce asked eagerly. That was a rarely granted treat for both boy and dog.

"May I. Yes, if he wants to. And if you want the cats, Norma, and they're willing—"

Bruce screamed.

"Look!" he cried, pointing a trembling finger at the front door that opened into the living room.

Dimly, in the candlelight, they all saw it.

A long, snakelike trail of green—something, creeping under the sill.

It wasn't wet; it left no moisture behind it. Whatever it was, it

had separated from the ordinary snow that had been its means of transport. As they stared, the trail widened.

The two cats went wild. They clawed their way up the curtains, couldn't get a purchase at the top, and both fell back again. The dog shook and whimpered, his eyes terrified. The humans for a long minute were paralyzed with fear; then the older Matlocks pulled themselves together.

"The phone!" Mrs. Matlock breathed.

"No use—who'd you call? Try it, but I'm sure it's dead."

It was; there was no dial tone. Stepping gingerly around the growing greenness, she tiptoed back to the others.

"Let's get out of here while we can," her husband ordered. "Our bedroom will be best—it's largest. Quick march, kids. Careful, now—go around, and through the dining room to the hall. I'll take the candles."

The stairs were still clear, though the hall was half covered. Too frightened to talk, the children raced ahead of them. Once in the room, Mrs. Matlock tore a blanket from the bed and Matlock stuffed it tightly against the door-sill.

"That won't hold long," he said. "What have we here to reinforce it?"

The curtain rods were iron. Matlock stood on a chair, pulled

the curtains down, and added them, rods and all, to the barrier.

Just as they were, the children threw themselves on the bed, the dog between them. They had not been able to corral the frantic cats. In a few minutes all three were deep in the sleep of exhaustion. The parents, too tense to think of sleeping, stood together at the window that looked on the front garden, whispering for the children's sake.

"If we can hold out till daylight," he said, "perhaps we'll be able to get some idea of what's happened—and what we can do about it."

"If anything."

"If anything. We've got to face that. Can you see anything out there?"

"Not much. The snow seems to be turning white."

"As whatever it is leaves it."

"Yes. Will it fill the whole house?"

"How do I know? The whole town, perhaps—the whole State."

"The whole world." Mrs. Matlock shuddered. In the candlelight Matlock looked at his watch. Not even ten yet. Nine long dreadful hours to sunrise.

"Darling," he said, "if this is it—it's been a good life. And you were the best thing in it."

"And you for me." For a long time they were silent.

At last she murmured, "If it comes to that—if there's no hope

left at all—I don't want them smothered by that horrible thing. What can we do?"

"There's the gun in the dresser drawer. And not just them—there are enough bullets for us all. I'll take care of it. But only if it's an absolute certainty."

"Of course. And you must be sure there's one left for you."

"I promise."

There was a sudden chorus of shrieks from downstairs. White and shaking, they listened. Bruce stirred and muttered, then fell asleep again. The dog awoke, jumped off the bed, and stood, panting, at the barricaded door. Matlock crossed the room, caught him by the collar, and brought him back to the window where Mrs. Matlock knelt on a pillow, staring through the pane. Laird laid his head against her knees and she reached down to stroke him until he lay quiet again. The shrieks ended abruptly. There was no further sound.

"Marse and Miss," she whispered.

"Probably," he said grimly.

Her knees hurt and she rose stiffly and fell into an armchair. The dog followed her, as if reluctant to be separated. Matlock sighed.

"I suppose," he said, "there's no point in even speculating what it is or where it comes from. A scientist would think that was the most important thing. Me, all I want to

find out is when or whether it stops, and how we get away from it—if we do.”

“I wish we dared open the door,” his wife supplemented, “so we could see how things are now.”

“Well, we don’t.”

Better not tell her, he thought, that the wadded mass against the doorcrack had moved a little, more than once, as if experimentally. Instead, on pretense of stretching his cramped muscles, he went unobtrusively over to the door and pushed the barricade firmly with his toe. He looked about him for something better. In the closet was a heavy box containing shoe-shining materials. Casting a glance at his wife to make sure she was looking elsewhere, he fetched it and laid it against the door. Straightening up, he saw her eyes upon him.

“Let’s not pretend, dear,” she said quietly. He went to her and sat on the arm of the chair and clasped her to him. A tear fell on his hand. “Don’t cry, sweetheart,” he whispered. “I’m not,” she said, blinking away the tears. “It’s just—we can at least *think* how to fight this thing, even if we don’t win—but poor little Marse and Miss!” He bent and kissed her wet cheek.

They blew out the candles—who knew how long they would need their only artificial source of light?—and began to wait out the endless hours. Once in a while, in the stillness and darkness, one or

the other of them would fall into an uneasy doze, awakening with a startled jerk. And at last the long night ended; the day broke with a cloudless sky, and they could see the outside world again.

The snow of last night’s storm lay thick on the trees and bushes and in untrodden drifts on the ground. It was pure white, as new snow always was. There was nothing left of the green.

The children stirred and the dog went padding over to them. Cautiously Matlock lifted the window and stuck his head and shoulders out to view the scene. Their next door neighbor’s house was as untouched, from without, as their own.

He had had plenty of time to plan.

He stooped and laid his hand against the barrier at the door. He could feel no pressure. But he dared not open the door to see what lay beyond.

“Pack a small bag with anything in this room you very much want to keep,” he said, “and find some things of ours to keep the kids warm. I’ll wake them. Then all of us can get to work and make a firmly knotted rope out of the sheets and blankets. We can’t go through the house or downstairs, but as far as I can see it’s all clear outside, so we must get out through the window and then, if we can get into the garage, into the cars and away from here.”

"And if we can't?"

"Then we'll have to start walking and pray we can reach safety and other people somewhere. I'll go first, to test the rope and help the rest of you down. Throw me the bag and then send first Norma and then Bruce and then Laird, and I'll catch them if they slip. Then come down yourself, and we'll all be there to help you."

She swayed and shut her eyes, but she had nothing better to offer. Without a word she began packing her jewelry, and what else of value she could find, into a small bag.

Twenty minutes later they all stood, shaken but intact, in the snowy garden. With the resilience of childhood, it had become an exciting adventure to Norma and Bruce, giggling at the sight of each other draped in their parents' coats and with their feet waddling awkwardly in their parents' shoes stuffed with hosiery to keep them on. All the galoshes and rubber boots were downstairs.

"Stand back," Matlock commanded. "I'm going to open the door of the garage."

It was just as they had left it; there had been nothing living in it to attract the rapacious greenness.

All the other houses on their street were shut and silent. It was easy to guess what it looked like inside them. Matlock drove the larger car with Bruce and Norma; his wife followed in the smaller car with the dog.

They were outside their suburban town altogether and halfway to the next one before they saw a sign of life. Trudging through the snow came two figures who waved them to a stop.

They were a dairy farmer and his young son whose house and farm buildings could be seen across the fields. They had spent the night on the roof after the green stuff had left the snow and begun to enter the house. In the morning they had climbed down and looked through a kitchen window from the outside. Everything inside was blanketed with green, like a rough carpet made up of millions of tiny knots. The thing lay absolutely still; it was either dead or comatose. Matlock went back with them on foot to the big barn. Carefully they opened the door a crack, ready to slam it shut again. Floor and walls were solid green. Showing through it were the clean bones of all the cows.

"Thank God there was only us left here," the farmer choked. "My wife died last year and my daughter's married and lives out West. And the men that work for me don't live in. But there goes everything we had in the world."

"Forget it, dad," the boy growled, near tears. "We're lucky to be here ourselves. If we can get one of the trucks going we'd better make tracks away from here. Which way are you headed, Mister?"

"Just away," said Matlock. "As

far as we can get, hoping we can reach the end of this. If it was limited to any one region, no matter how large, we can find some sort of refuge until things get sorted out. Come along with us if you like."

"We'll be a disaster area, all right," the farmer said, brightening. "Maybe the government will compensate us, once they've figured out what the devil this thing is and just how much damage it's done."

If there's any government left, Matlock thought gloomily; but there was no need to make things worse. "How are you fixed for gas?" he asked. "We've got plenty," the son said. "We'll load the truck and share and share alike."

The little procession started off again. The road was bare of traffic; no snow plows were out. They had gone a mile before they saw even one stalled car. As they passed around it, Matlock looked through its window, and wished he hadn't. They must have had to open the window for fresh air, before the green menace had begun to leave the snow. From the contorted postures of the skeletons, the two occupants must have gone down fighting the thing that had first overwhelmed and then devoured them.

Two hours later they realized they were nearing the limit of the invasion. Snow plows were working, cars were being towed away.

They reached the outskirts of a town and people were on the sidewalks and traffic on the streets.

"Where's the town hall?" Matlock asked a passer-by.

By mid-afternoon the Matlocks and the couple from the dairy farm had become only part of a mass of refugees.

A week later the 500 square miles affected had been mopped up. There were hundreds of rescues, but the dead—often the unidentifiable dead, unless the skeletons were found in their own homes, surrounded by the tatters of their own clothing—ran into thousands. Nobody knew, or ever would know, if the Green Things (the popular name that clung to them) had been dead the next day from exhaustion and repletion, or merely sleeping off their giant feast. Armor-clad teams attacked them with poison gas and then with blow-torches that turned them into flakes of carbon. Sections of the material were removed first and turned over, in sealed containers, to the laboratories for further investigation; and by that time they were certainly dead.

The final report was that the green mass was made up of billions of discrete particles. The nearest analogy to their composition being some species of lichen. They were protein compounds, but of an utterly unfamiliar variety. Whatever their place of origin, it seemed probable that they had been drift-

ing in the atmosphere, had been trapped in snow-heavy clouds, and deposited on earth so mixed with the snow as to give it its weird green color.

Where had they come from? The scientific journals and the science columns of the newspapers were full of conflicting theories and explanations.

It was a full year later that the Matlocks, in their new house, ran across the first public revelation of the Vovoidsky Solution—at first hotly disputed and ridiculed, then, with further incontrovertible evidence, gradually accepted until both the United States and the Soviet Union were forced to face the issue and alter their plans to meet it.

Professor Vovoidsky, who fortunately for the political repercussions was living and working in neutral Sweden, proved to his own satisfaction, and ultimately to the reluctant conviction of everyone, that the Green Things had been torn from their age-old habitat by the first instrument-landings on the moon.

How they had been propelled then, even in the moon's weak gravity, into outer space was still not altogether clear; further lunar exploration (this time with special precautions) might explain that. But propelled they had been, and had drifted earthward, frozen into immobility. Once in the earth's atmosphere, they would

eventually have been dissipated, destroyed by the sun's rays, as doubtless many other congeries of them had been, had they not fortuitously met those heavy clouds and ridden the snow to this small geographical area. Once on the ground, the relative warmth had gradually revived them. Whatever they fed on by nature (it was probably, Vovoidsky surmised, each other), they were protein-eaters, and they were ravenous. They moved very slowly, but they moved, and no unprepared victim could stop them as they sensed and approached living matter that could be made into food.

Vovoidsky received the next year's Nobel Prize for chemistry. In his speech of acceptance he inveighed bitterly against what he called the "idiotic fairy tale" of the celebrated archaeologist von Hevenin. Von Hevinin had had the audacity to present seriously the most far-fetched gloss on the Vovoidsky Solution that had yet appeared among so many far-fetched ones.

Myth, von Hevinin maintained, constituted the blurred memory of historical fact. Folk-sayings were the distorted and degenerate descendants of valid scientific statements.

It was his opinion that in the remote past, thousands of years ago, someone before us had landed on or at least landed instruments on the moon, that this was not the



first time a portion of the green covering of its rough surface had been dislodged, shot into space, and fallen to earth, devouring all life where it alighted.

For is there not an immemorial folk-saying, a universal childish fantasy, which runs to the effect that the moon is made of green cheese?

## THE GODS

The ghosts of gods were marching down the hallway of the past;  
The shuffle of their footsteps woke me from my sleep at last;  
I stared into the darkness, and I shuddered as they passed.

A grim and one-eyed Odin strode, and hammer-wielding Thor,  
And there were golden-bearded Zeus and Ares, god of war,  
And Mithra, Ler, Ganesha, Ra, Shamash, and many more.

I looked on Quetzalcoatl's plumes and Loki's hair of fire;  
Along with Krishna's flute I heard Apollo's twanging lyre;  
I caught a wink from Pan and witnessed Ishtar's fierce desire.

Just then a funny, ibis-headed godlet caught my eye.  
"Come here and tell me, Thoth!" I called. The bird-head wafted nigh.  
"What means this rout of deities? Where go they hence, and why?"

"As you create us, you destroy us," said the long-billed wight,  
"And those that you've discarded here have yielded up their might;  
"They're bound for non-existence in the quiet lands of night."

"And what of those who stand aloof—the four with beards?" I cried.  
"They're Christ and Yahveh, Marx and Lenin," Thoth the Wise replied.  
Although these four are worshiped now, they will not long abide."

"Will earth be godless, then?" I said, and Thoth responded: "Nay!  
"You'll make more gods, in names of whom to burn and maim and **slay.**"  
"What sort of gods? Abstractions pale, or bloodless theories, say?"

But Thoth of Egypt turned away and went in silence dumb.  
I thought of Venus's bosom, heard afar Damballa's drum,  
And wept the old gods, passing on, and feared the gods to come.



# THE SYMBOL-MINDED CHEMIST

*by Isaac Asimov*

I VIEW WITH EQUANIMITY THE growing numeralization of our society. Calmly, I have memorized my zip-code number, my social security number, my area code number, and my all-numeral telephone number. I am even glad that Massachusetts has, for the most part, all-numeral license plates. I have memorized the numbers on both my cars.

I was actually relieved to see letter combinations go. For me, such things are confusing. When I was attending Columbia University, for instance, there were many cars parked in its vicinity with license plates that began with CU. I would pass a car with a license number CU-1234, let us say, and in my mind a maddening little voice would say "copper-1234" because Cu is the chemical symbol for copper.

Here in Newton, the town I live in, we have three telephone exchanges, two of which are Lasell and Bigelow. To me, the number LA5-1234 is "Lanthanum 5-1234" and the number BI4-1234 is "Bismuth 4-1234". Sometimes I ask for telephone numbers in that fashion and produce alarm and despondency in the fair young things at the other end of the wire. (I once asked for a Dewey-2 number, pronouncing it precisely as Dyoo-ee, as is my wont, and the dear young operator asked me "Is that D-U?")

Well, then, since I am talking about telephone exchanges and chemical symbols; and since telephone exchanges are disappearing; let's concentrate on chemical symbols. (How's that for sneakiness?)

I strongly suspect that the advance of science or any branch of it depends upon the development of a simple and standardized language

into which its concepts can be put. Only in this manner can one scientist understand another in his field. Without it, communication breaks down and, as a result, everything else does, too.

Prior to the eighteenth century, for instance, there was no generally agreed-upon chemical language. On the contrary, alchemists gloried in obscurity and made up the most fanciful appellations for the various substances they worked with. Using mythology and metaphor they strove to make themselves sound mystical and great and to obscure the fact that, in general, they didn't know what they were talking about. (There were honorable exceptions, of course.)

The result was that when serious chemists arose, they found they could not understand the work of the past (and among the alchemical fakery and nonsense were hidden some real and important achievements it would have been important to unearth). They could scarcely understand each other, in fact, and chemistry could advance only with difficulty, if at all.

Toward the end of the eighteenth century, chemists were painfully aware of the language difficulty; and, in 1782, the French chemist, Louis Bernard Guyton de Morveau, published a paper pointing out the need for a systematized, simple and logical chemical nomenclature.

This caught the eye of Antoine Laurent Lavoisier (see SLOW BURN, F & SF, October 1962), the foremost chemist of the time. He joined with Guyton de Morveau and with two other chemists, Claude Louis Berthollet and Antoine Francois de Fourcroy to work out such a language, and by 1787, this was done.

It is the chemical language we still use today. When we speak of "sodium chloride" or "sulfuric acid" or "potassium periodate" we are using the language worked out by Lavoisier and the rest, and it works fine.

At least it works fine for inorganic compounds which have relatively simple compositions. Organic compounds (those containing carbon and hydrogen atoms) are another matter entirely. They proved to be entirely too complicated for Lavoisier's simple language.

Organic nomenclature grew almost haphazardly and was filled with "trivial names" (names that are made up without any reference to—or, sometimes, knowledge of—the constitution of the compound), most of which can't be gotten rid of now. It was not until 1892 that, at an International Congress of chemists held in Geneva, a systematic nomenclature for organic compounds was worked out, a nomenclature that could be used to write the molecular structure of any compound named.

For instance, if someone gives me the name "9,12,15-octadeca-

trienoic acid" I can write the formula of that compound, since I happen to know the Geneva nomenclature; and I can do so even if I have never heard of that particular compound before. If I am, however, given the equivalent trivial name of the compound; that is, linolenic acid; then I am helpless. I either happen to know the formula or I am stuck.

Still, while words are useful and even satisfactory for inorganic compounds and for organic compounds that are not *too* complicated, they are not the ultimate. Something still simpler than words, and something capable of more graphic combination to show molecular structure, is needed.

The first opportunity to pass beyond words came in the opening decade of the nineteenth century, when the English chemist, John Dalton, worked out the modern atomic theory. Dalton suggested that all matter was made up of atoms, that each element was made up of a distinct species of atom, and that materials that were not elements were composed of atoms of different elements in close association. Why, then, should we not represent each different kind of atom or element with some sort of symbol? The structure of compounds (substances that are not elements) can then be shown by putting together the symbols of different atoms in appropriate combination to form what eventually came to be called molecules.

In 1808, Dalton published his symbols. Each atom was a little circle, naturally, and different atoms were distinguished by small variations among the circles. An unadorned circle represented an oxygen atom; a circle with a dot in the middle was a hydrogen atom; a circle with a vertical line dividing it into equal halves was a nitrogen atom; a circle that was blacked in completely was a carbon atom, and so on.

These circles looked very graphic, but they were "trivial." Nothing about them necessarily suggested which element they represented (although the black circle did suggest the blackness of carbon). They had to be memorized.

What's more, although the number of elements known in 1808 was far smaller than those known today, there were still too many to be conveniently represented by sheer geometry. Dalton found himself forced to use initials. The sulfur atom was represented by a circle with an "S" inside; the phosphorus atom by a circle with a "P" inside and so on.

The Swedish chemist, Jons Jakob Berzelius, went a step farther in 1814. Why bother with circles if one had to place initials inside? Surely the initials were sufficient in themselves. S and P could stand for sulfur and phosphorus, respectively, without the enclosing circle.

As far as possible, Berzelius suggested, each element ought to be represented by its initial. If more than one element began with the same letter, one could be represented by the initial and the rest by the initial plus a second letter distinctive enough to suggest the name of the element. Thus, if carbon is represented as C, then chlorine can be represented as Cl, chromium as Cr and cobalt as Co.

Berzelius's system was adopted almost at once, remains in force to the present day, and will probably never be changed. The letter or letters representing the element in general (or a single atom of that element in particular) are known as the "chemical symbol" of that element, and to any professional chemist they become so familiar that, as in my case, telephone exchanges and automobile licenses become elements.

It is a sad commentary on human nature that John Dalton, a gentle Quaker, a noble character, and a great man of science, could not bring himself to accept what the whole world, then and since, agreed was an improvement on his own suggestion. To Dalton, Berzelius's system was no more than an alphabet soup which he felt sure would not establish itself. He was wrong.

Berzelius had a rather complicated system for envisaging the manner in which these chemical symbols of the elements could be put together to suggest molecular structure. That part of his system was abandoned in favor of the use of numbers. Thus, if the water molecule contains two hydrogen atoms and one oxygen atom, it is  $\text{H}_2\text{O}$ ; if the sulfuric acid molecule contains two hydrogen atoms, a sulfur atom and four oxygen atoms, it is  $\text{H}_2\text{SO}_4$ , and so on.

Such a system is quite satisfactory for most inorganic compounds and a few organic ones. However, in organic chemistry, all but a very few kinds of molecules have such complicated structures that a mere enumeration of atoms is insufficient. Special "structural formulas" had to be invented, but that is another story for another time.

Suppose, then, that we concentrate only on the chemical symbols of the elements themselves for the rest of the article, and forget about molecules. Ideally, there should be only initials, but there are only 26 letters to the alphabet and there are more than 26 different elements.

In fact, there are 104 elements known at present. Of these, the 104th has recently been discovered by Soviet scientists and has not yet been given a name and a symbol. Still that leaves 103 elements with names and symbols so chemists are forced, whether they will or no, into two-letter symbols. Fortunately, nothing more is needed. There are

$26 \times 26$  or 676 different two-letter combinations and we are not likely ever to reach that number of elements.

In fact, when later chemists considered the matter, they were sorry that single letters had ever been used for symbols. It was neater to be uniform and since it was impossible to give every element a one-letter symbol, it would have been desirable to give every element, without exception, a two-letter symbol. For that reason chemists have, in the last century, usually given new elements two-letter symbols even when a one-letter symbol was available.

Those elements that are now represented by a single letter were, in almost every case, known at the time that Berzelius was establishing his system and they received their symbols then. The initial letters were then frozen into chemical history and can no longer be changed. So many thousands of papers and books have referred to the oxygen atom as O so many millions of times that to begin to refer to the oxygen atom as Ox, for instance, is now unthinkable.

Sixteen elements are symbolized (or have been symbolized) by single letters. Let's list them in the order of discovery:

*Table 1—Single-Letter Symbols*

<i>Element</i>	<i>Symbol</i>	<i>Year of Discovery</i>
Carbon	C	prehistoric
Sulfur	S	prehistoric
Phosphorus	P	1669
Nitrogen	N	1772
Oxygen	O	1774
Tungsten	W	1783
Uranium	U	1789
Hydrogen	H	1790
Yttrium	Y	1794
Potassium	K	1807
Boron	B	1808
Iodine	I	1811
Vanadium	V	1830
Fluorine	F	1886
Argon	A	1894
Einsteinium	E	1952

Of these sixteen, twelve were known at the time that Berzelius first advanced his system, and vanadium was discovered while the system

was still young. One-letter symbols were viewed favorably then. Fluorine was not isolated till 1886, but its existence was known in Berzelius's time (see DEATH IN THE LABORATORY, *F & SF*, September 1965). It had been named then and had received its symbol.

Only two elements discovered after 1830, without prior suspicion of their existence, were given single-letter symbols. These were argon and einsteinium and, as it happened, neither kept those symbols.

In 1957, an official body of chemists made some recommendations as to chemical symbols which were adopted. They would gladly, I suspect, have wiped out all one-letter symbols, but they couldn't. However, they could forbid one-letter symbols in the future and they could tackle argon and einsteinium. Argon, as it happens, forms no known compounds so that its symbol is rarely used in chemical papers, and einsteinium had only been known for five years and that in the barest sub-microscopic traces so that its compounds had not been studied. Therefore, it was safe to decree that the symbol for argon would be, henceforth, Ar instead of A, and the symbol for einsteinium would be Es instead of E.

Looking at Table 1, you can see that two of the symbols do not appear to be true initials. The symbol for tungsten is W and that for potassium is K. Why is that?

The answer is that while in modern times names given to new elements are accepted internationally (with minor inflectional differences) this is not true of elements known from ancient times. What we call iron in English is "Eisen" in German, "fer" in French, and "hierro" in Spanish. Well, then, if we use initials, should the symbol for the element be I, F, E, or H.

Berzelius's decision (a wise one) was to favor no living nation and to use the Latin names of all elements, where those existed. As it happens, eight of the elements discovered before the custom of uniform international usage was established have names that are distinctly different in English and in Latin. Three others are different in English and in German and international usage has fixed on the German names for the symbols. All eleven are listed in alphabetical order in Table 2:

*Table 2—Names of Elements*

<i>English name</i>	<i>Latin name</i>	<i>Symbol</i>
Antimony	Stibium	Sb
Copper	Cuprum	Cu

Gold	Aurum	Au
Iron	Ferrum	Fe
Lead	Plumbum	Pb
Mercury	Hydrargyrum	Hg
Potassium	Kalium*	K
Silver	Argentum	Ag
Sodium	Natrium*	Na
Tin	Stannum	Sn
Tungsten	Wolfram*	W

\*German usage

Some of these various names can be traced. "Cuprum" is supposed to be derived from the island of Cyprus (Kupros, in Greek) where copper mines were found in early ancient times; and from "cuprum" comes "copper."

"Hydrargyrum" means "water-silver" or "liquid silver," which is an apt description of the element we know as mercury. The old English name "quicksilver" is similar. "Quick" means "alive" (as in "the quick and the dead") and quicksilver darts here and there like a living thing when spilled, instead of sitting like a lump of ordinary dead silver.

The name "mercury" dates back to the Middle Ages, when the alchemists lined up the seven metals with the seven planets. Gold was the Sun, silver was the Moon, and copper was Venus—the three most precious metals lined up with the three most brilliant planets in order of preciousness and of brilliance. (The Sun and the Moon were considered planets in the days before Copernicus.) Iron was Mars because iron is characteristic of the weapons of war; quicksilver was Mercury because Mercury moved so quickly through the heavens, like darting quicksilver; and lead was Saturn, because Saturn moved more slowly than any other planet and therefore seemed leaden in its motions. Tin was Jupiter by elimination. Of these names, only Mercury maintained its identification, and what was quicksilver became mercury.

The remaining Latin names: aurum, ferrum, plumbum, argentum, and stannum, are of uncertain origin. Of the English names, "tin" may possibly have come from "stannum"; "iron" may come from the same source as "ore"; and "gold" may be derived from an old Teutonic word for "yellow." (Even today the German word for yellow is "gelb.") The words "lead" and "silver" are of uncertain origin.

Antimony was discovered about 1450. Why it should be called antimony is unknown, and most derivations I have seen for it are completely unconvincing. Although the metal itself was not known in ancient



times, certain of its compounds, in powdered form, were used to darken the eyelids (a kind of primitive mascara) and the Latin name "stibium" may come from a word meaning "mark." One of the suggested derivations for "antimony" tries to obtain it from "stibium" by way of the Arabic.

Tungsten occurs in a mineral found in Germany called "wolframite," a name of uncertain origin. It also occurs in a mineral found in Sweden and called "tungsten" (meaning "heavy stone" in Swedish, because the mineral happens to be markedly denser than ordinary rocks). The metal occurring in these minerals was isolated, nearly simultaneously, in Sweden and in Germany; in Sweden by Karl Wilhelm Scheele and in Germany by two Spanish brothers, Fausto and Juan Jose de Elhuyar. Scheele called the metal "tungsten" after the mineral, while the mineral was eventually given the new name of "scheelite" in Scheele's honor. The Elhuyar brothers named the metal "wolfram," from the mineral. In English, tungsten came into use, but international usage drew the chemical symbol for the element from wolfram.

There is an element that can be isolated from a compound known as "soda niter." In 1807, the English chemist, Humphry Davy, isolated it from another compound called simply "soda" and he named it "sodium" in consequence. The Germans, however, preferred to concentrate on the "niter" and they named it "Natrium." International usage settled on the Natrium for the symbol. Another element found in soda niter came to be called "nitrogen" in English, so that "nitrogen" and "Natrium" are, in essence, the same word, although they describe two entirely different elements.

In ancient times, a useful chemical was obtained by burning certain plants in large pots and leaching the ashes with water. In English the resulting compound, in very straightforward fashion, was called "pot ash" which was eventually run into a single word—potash.

In Arabic, however, the substance was "al-kili," meaning "the ash." The substance is what chemists would nowadays call a fairly strong base and such substances are now called "alkalis"—from the Arabic.

A metal was isolated by Humphry Davy in 1807 from potash, and he named it "potassium." The German chemists, however, preferred to go to the Arabic and from al-kili came "Kalium." It was the latter from which the chemical symbol was drawn.

You mustn't think, though, that German youngsters studying chemistry have it better than we do because Na, K, and W make immediate sense to them and not to us.

The Germans, generally, are rather reluctant to make use of Greek and Latin words in forming their own terms, but stick to German. We have hydrogen ("water-producer"), oxygen ("acid-producer") and nitrogen ("niter-producer") as three very common and important elements—with names derived from the Greek.

The German equivalents, in down-to-Earth German are Wasserstoff ("water-substance"), Sauerstoff ("acid-substance") and Stickstoff ("suffocation-substance"). Pity the poor German youngsters taking their first chemistry courses and wondering why Wasserstoff should be symbolized as H, Sauerstoff as O and Stickstoff as N. For, of course, the Germans use the international symbols as all other nations do.

To professional chemists, these anomalies offer no problem. The symbols become second nature, take my word for it, and "Na" becomes "sodium" so firmly that a chemist would face the symbol "So" in complete confusion and find himself unable to imagine what element that could possibly represent.

To the beginner, though, the Na/sodium relationship is a puzzle, and even less peculiar symbols aren't clear. For instance, is Cl chlorine or calcium, is Ca calcium or californium, is Th thorium, thulium, or thallium, is Ni nickel or nitrogen, is As arsenic or astatine, is Ir iron or iridium and so on.

If such a beginner is presented with a periodic table of the elements, he has to run up and down it in a hit-and-miss way seeking for the symbol whose element he is trying to identify. If he has an alphabetic listing of the elements, that makes things a little easier, for the symbols are then roughly (but not exactly) in alphabetic order. There still has to be some hunting.

What the first-year chemistry student really needs is an alphabetical listing of *symbols* and such a listing I have never seen in all my years in chemistry. I will therefore take the opportunity of presenting one here; a table I honestly believe to be unique—and useful!

*Table 3—An Alphabetical Listing of the Chemical Symbols of the Elements*

<i>Chemical Symbol</i>	<i>Element</i>
Ac	Actinium
Ag	Silver (Argentum)
Al	Aluminum

*Table 3—An Alphabetical Listing of the Chemical  
(cont.) Symbols of the Elements*

<i>Chemical Symbol</i>	<i>Element</i>
Am	Americium
Ar	Argon
As	Arsenic
At	Astatine
Au	Gold (Aurum)
B	Boron
Ba	Barium
Be	Beryllium
Bi	Bismuth
Bk	Berkelium
Br	Bromine
C	Carbon
Ca	Calcium
Cd	Cadmium
Ce	Cerium
Cf	Californium
Cl	Chlorine
Cm	Curium
Co	Cobalt
Cr	Chromium
Cs	Cesium
Cu	Copper (Cuprum)
Dy	Dysprosium
Er	Erbium
Es	Einsteinium
Eu	Europium
F	Fluorine
Fe	Iron (Ferrum)
Fm	Fermium
Fr	Francium
Ga	Gallium
Gd	Gadolinium
Ge	Germanium
H	Hydrogen
He	Helium
Hf	Hafnium

*Table 3—An Alphabetical Listing of the Chemical  
(cont.) Symbols of the Elements*

<i>Chemical Symbol</i>	<i>Element</i>
Hg	Mercury (Hydrargyrum)
Ho	Holmium
I	Iodine
In	Indium
Ir	Iridium
K	Potassium (Kalium)
Kr	Krypton
La	Lanthanum
Li	Lithium
Lu	Lutetium
Lw	Lawrencium
Md	Mendelevium
Mg	Magnesium
Mn	Manganese
Mo	Molybdenum
N	Nitrogen
Na	Sodium (Natrium)
Nb	Niobium
Nd	Neodymium
Ne	Neon
Ni	Nickel
No	Nobelium
Np	Neptunium
O	Oxygen
Os	Osmium
P	Phosphorus
Pa	Protactinium
Pb	Lead (Plumbum)
Pd	Palladium
Pm	Promethium
Po	Polonium
Pr	Praseodymium
Pt	Platinum
Pu	Plutonium
Ra	Radium

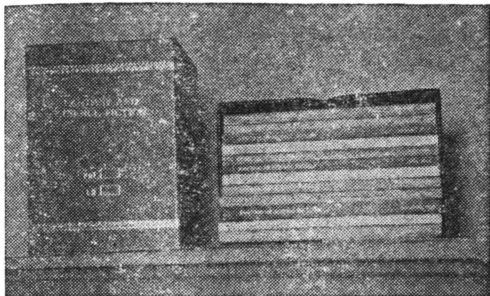
*Table 3—An Alphabetical Listing of the Chemical  
(cont.) Symbols of the Elements*

<i>Chemical Symbol</i>	<i>Element</i>
Rb	Rubidium
Re	Rhenium
Rh	Rhodium
Rn	Radon
Ru	Ruthenium
S	Sulfur
Sb	Antimony (Stibium)
Sc	Scandium
Se	Selenium
Si	Silicon
Sm	Samarium
Sn	Tin (Stannum)
Sr	Strontium
Ta	Tantalum
Tb	Terbium
Tc	Technetium
Te	Tellurium
Th	Thorium
Ti	Titanium
Tl	Thallium
Tm	Thulium
U	Uranium
V	Vanadium
W	Tungsten (Wolfram)
Xe	Xenon
Y	Yttrium
Yb	Ytterbium
Zn	Zinc
Zr	Zirconium

Some final notes. The element, niobium, is known quite commonly as "columbium," particularly in the United States. The element under that alias has the symbol Cb. Nobelium, on the other hand, has no official name. The initial discoverers, who gave it its name, described an experiment that couldn't be repeated. The element was discovered later by another type of experiment that could be repeated. The second dis-

coverers could, if they chose, give the element another name, but so far they haven't chosen.

Finally, the Soviet chemists have not yet named element 104, but there are rumors that they may name it in honor of Igor Vasilevich Kurchatov, who died in 1960. He had led the Soviet team that developed nuclear bombs after World War II. If so, element 104 will probably be called "kurchatovium" and its symbol will probably be Kc.



*Handsome, Sturdy*  
**VOLUME FILES**  
*for Your Copies of*  
**FANTASY AND**  
**SCIENCE FICTION**

Each Volume File will keep  
 12 copies of **FANTASY &**

**SCIENCE FICTION** clean, orderly, and readily accessible. Sturdily built, the files are covered with a rich black and red washable leatherette, and the lettering is in 16-carat gold leaf.

Reasonably priced at \$2.50 each, 3 for \$7.00, or 6 for \$13.00, they are shipped fully prepaid on a money back basis if not satisfactory. Order direct from: **JESSE JONES BOX CORPORATION**

*Dept. F&SF*

**P.O. Box 5120**

**Philadelphia 41, Pa.**

*About the, ahem, cover . . .*

Though the Franco-American relationship seems to have become a bit strained of late, the error on our cover is purely unintentional. Our apologies to the original designer of the grand old lady, M. Bartholdi, and to the cover artist, Howard Purcell. Mr. Purcell painted the statue correctly, but it was flopped in printing for mechanical reasons. This resulted in depicting the left arm as uplifted, rather than the right. Again, sorry.

*Cannon or, more precisely, bombards have an exciting and colorful history, going back to the 13th Century in China. (Chinese records called them "the heaven-shaking thunder bombs.") That there have been few if any SF stories based on cannon-lore is perhaps no great surprise; that when one came along it would be from the imaginative and far-ranging pen of Avram Davidson should be not much greater a surprise. Here then, with all the sweep and thunder you might expect (along with more than a bit of humor; Mr. Davidson's wit is not easily muzzled) is the story of that gigantic engine of destruction . . .*

## **BUMBERBOOM**

by Avram Davidson

ALONG THE NARROW ROAD, marked a few times with cairns of whitewashed stones, a young man came by with a careful look and a deliberate gait and a something in his budget which went drip-a-drip red. The land showed gardens and fenced fields and flowering fruit trees. The bleating of sheep sounded faintly. The young man's somewhat large mouth became somewhat smaller as he reflected how well such a land might yield . . . and as he wondered who might hold the yield of it.

Around the road's bend he came upon a small house of wood with an old man peering from the door

with weepy eyes that gave a sudden start on seeing who it was whose feet-sounds on the road had brought him from his fusty bed. And his scrannel legs shook.

"Fortune favor you, senior," the young man said, showing his empty palms. "I do but seek a chance and place to build a fire to broil the pair of leverets which fortune has sent my way for breakfast."

The old man shook his head and stubble beard. "Leverets, my young, should not be seared on a naked fire. Leverets should be stewed gently in a proper pot with carrots, onions, and a leek and a leaf of laurel, to say the least."

With a sigh and a smile and a shrug, the young man said, "You speak as much to the wit as would my own father, who (I will conceal nothing) is High Man to the Hereditor of Land Qanaras, a land not totally without Fortune's favor, though not the puissant realm it was before the Great Gene Shift. Woe!—and my own name, it is Mallian, son Hazelip."

The old man nodded and bobbed his throat. "This place, to which I make you free, though poor in all but such mere things as pot and fire and garden herbs—this place, I say, is mine. Ronan, it is called, and I am by salutary custom called only 'Ronan's.' To be sure, I have another name, but in view of my age and ill health you will excuse my not pronouncing it, lest some ill-disposed person overhear and use the knowledge to work a malevolence upon me . . . Yonder is the well at which you may fill the pot. Só. So. And who can be ignorant—ahem-hum-hem—of the past and present fame of Land Qanaras, that diligent and canny country in which doubtless flourishes a mastery of medicine of geography, medicine of art and craft, and medicine of magic as well as other forms of healing; who? Enough, enough. Water, my young. The leverets are already dead and need not be drowned."

The stew of young hares was sweet and savory, and Ronan's put

his crusts to soak in the juice, remarking that they would do him well for his noonmeal. "Ah ahah!" he said, with a pleasurable eructation. "How much better are hares in the pot with carrots than in the garden with them! And what brings you here, my young," he sought for a fragment of flesh caught by a rotting tush, "to the small enclave which is this Section, not properly termable a Land, and under the beneficent protection of Themselves, the Kings of the Dwerfs; what? eh? um ahum . . ." He rolled his rufous and watery eyes swiftly to his guest, then ostentatiously away.

Mallian gave a start, and his hand twitched towards his sling and pouch, none of which totally escaped rheumy old Ronan's, for all his silly miming. "I should have known!" Mallian growled, bringing his thick brown brows together in a scowl. "Those cairns of whited stones . . . It is a Bandy sign, isn't it?"

Now how the old senior rolled his watery eyes up and down and shook his head! "*We* make no use of that pejorative expression, my young! *We* do not call Them 'Bandies,' *No!* *We* call Them, the Kings of the Dwerfs, so." He winked, pouching up one cheek, squeezing out a tear. "And we are grateful for Their benevolences, yes we are." He drew down the corners of his cavernous and



hound-lip mouth in a mocking expression. "Let the Dwerfs humorously call us 'Stickpins'! But —'Bandy'? Hem! Hem! No sir, that word is not to be used." And he rambled on and on about the Dwerfyemen and his loyalty, meanwhile drawing his face into all sorts of mimes and mows which mocked of his words, when there came in from the distance a confused noise, at which he fell silent and harkened, his mouth drooping open and nasty.

It was not until they were outside in the clear day that they could hear the noise resolve into a shouting or a howling and a continuous rumbling and rattling. Old Ronan's began to shake and mumble, keeping very close to his visitor, as though having observed again that this one had large hands and shoulders and was young and seemingly strong. "Fortune forbend that there should be foreign troops in the Section," he quavered. "An outrage not to be born, do I not pay my tax and levy, for all that I'm a Stickpin? Go up a bit, my young, on that hill where I point, and see what is the cause and source of all this unseemly riot—not exposing yourself unduely, but taking pains to spy out everything."

So up Mallian went, spiraling along the hill through the fragrant acacias and the stinking reptilian sumacs, and so to the top, where, through the coppice peering, he

could see all these good fenced fat lands and the deep wide grasslands.

But more immediately below and along the road he saw a most unprecedented sight, stood open-mouthed and tugged the coarse bottoms of his bifurcated beard, grunting in astonishment. He turned and, through cupped hands, called once, "*Come up—I*" and turned again to watch further, paying no wit to the querelous pipings and pantings of the ancient.

Up from around the concealing curve of another hill and along what Mallian conceived must be the famed Broad Road which led to and through the whole length of the Erst Marshes came a procession in some ways reminiscent of pilgrim throngs or decimated tribes fleeing famine or pestilence or plunder—men and women and children clad in rags when clad at all, some few afree afoot, some fewer riding, but most of them attached in one way or other to the thing ridden: a thing, immense, of great length, tubular, rather like the most gigantic blow-gun the most inflamed imagination might conceive of, trundling and rumbling along on enormous and metal-shod wheels, the spokes and rims as thick as a man—some of them in harness to which they bent so low that they were horizontal, squatting as though for greater traction—some bowing as though at huge oars, pushing against

beams thrust through the spokes—some straining their arms against the rims of the wheels or against the body or butt of the monstrous engine—others pushing with their backs—

This tremendous contrivance rocked and rumbled and shook and rolled on, and all the while its attendance roared and shouted and howled, and the wind shifted and flung the stink of them into Mallian's face. "In Fortune's name, what is it?" he demanded of old Ronan's, extending an arm to pull him up. The senior looked and shrieked and moaned and pressed his cheeks with his palms.

"What is it?" cried Mallian, shaking him.

Ronan's threw out his arms. "Juggernaut!" he screamed. "Juggernaut! Bumberboom!"

All that frightened old Ronan's had to do—indeed, was able to do—was skitter back to his little house and release the pigeon whose arrival in the proper belled cage of its home dove-cote would not only inform the local confederate Dwerf King that something was wrong in his realm but would inform him a fairly close approximation of *where*. Yet the old man refused utterly to perform this small task by himself, would not unhand Mallian at all, and pulled along with him until they were back at the senior's place and the bird released.

"Remain, remain with me, my

young," he pleaded, loose tears coursing down his twitching face. "At least until the Sectional Constabulary shall have arrived and set things aright."

But the last thing which Mallian wanted was an interview with a Bandy border-guardsmen. He arose and shook his head.

"Stay, stay, do. I have smoked pullets and both black beer and white, strained comb-honey, dried fruits," he began to enumerate the attractions of abiding, but was interrupted in a way he had not fancied to be.

A smile full of teeth parted Mallian's light brown beard. "Good, good. Not bad for one of your priorly announced poverty; well may one envy the rich of this Section. Now—as a reward for my accompanying you back here, to say nothing of the work of topping that mountainous hill to obtain intelligence for you—let you replenish, and quickly! my budget here with as many such smokelings as will fit. Then you may fill the chinks and interstices with the aforesaid dried fruits. No, no, another word not. I am too modest to appreciate the compliments you would pay me by a continued solicitation of my presence. One jug of black beer I may be persuaded to take; the honey I must forego until another occasion. So.

"Fortune favor you, senior Ronan's. One further deed we may do each other. You will not need to

inform your Dwerfymen of my presence or passage; I, in turn, will not need to inform them—unless I am stopped by them, of course—hem! hem!—of your treasonous grimaces and repetitions of the fell name of *Bandy*. Sun shine upon you, and forfend the shadow of the Juggernaut Bumberboom!”

Thus, laughing loudly, he left the ancient as he had first found him, weeping and alarmed, and went on his way. Indeed, he had fully retraced his way to the top of the hill before he realized that he had not asked *the* question. He scowled and fingered his long moustaches, deliberating a return, but finally decided against it. “Such an old queery man would know no medicine of any sort,” he assured himself. “Let alone wit of this most vital matter. But I will keep in mind his words about the vaporous device which pumps and drains the Erst Marshes, for—if, indeed, it is not a mere vapor of the senior himself (and how he cozened me out of half a hare; shame!)—for such medicine may well imply the presence of more. Hem, hem, we will see.”

The road was riddled and grid-dled with great ruts from the gigantic gunwheels. Amidst clots of filth lay a man who had unjudiciously interposed his neck between wheel and road, and a child who mewed and yipped at Mallian but made no attempt to walk.

Man and child, quick and dead, looked as like as the spit of their mouths—blond hair so pale as to be almost as white as that of the People of the Moon—equally pale, but pale, pale blue of small, small eyes—a sort of squinting blankness of expression—and slack, silly mouths. Idiot father and idiot son, was Mallian’s impression. And he wondered how they had come to be with the gun crew. And he went on.

Warm was the day and the beer soon went down swift. Mallian was about to hoist the jug for the last time when he heard a too-well-remembered thudding on the road and looked, quickly, from one to another side for cover. But the land was flat for many arms’ lengths on either side of the road. “Curse!” he muttered and reached with a sigh for sling and stones, when he bethought that he might hide—did he trot fast—behind a certain maple tree.

Mallian trotted, saw the ditch behind the tree, tumbled into it cod over cap, and had just time to right himself and peer out as the *thudthud-thudthud* of hooves came by, and he saw the mounts.

There were two of them, fat and hairy barrel-bodied Bandy ponies—a description which would as well have fit the two squat Dwerfymen riders whose short legs fit the curves of their mounts’ sides as though steamed and bent thereto. Large heads, broad backs, beards

which would reach to their protruding navels if not whipped away by wind, faces neither grim nor alarmed but intent and determined, the Bandies came at the gallop. The scabbards of their slashers were on their backs, within quick reach of their hands. They looked to neither side nor did they speak; in a moment more they were gone.

But the crossroads, when he came to them, swarmed with people.

"They have taken everything, everything eatable in my house!" a woman wailed, gesturing to the empty shelves revealed by the open doors.

But another cried, "Take'? I did not wait for them to *take*—I *gave* them all there was to eat in mine!"

"Wisely done, wisely done!" a man agreed, wiping from his red face a sweat which came from agitation rather than heat. "Food can always be purchased, food is even now growing and grazing—food, in short, can be replaced. But how can one replace that destroyed by the destruction sure to be caused if the Crew of Bumberboom were to fire even one shot from their enormous cannon? Surely it would shatter bodies and houses alike!"

And a fourth person, by his look and manner probably someone of some stature in the community, said in a sober tone of voice as he

patted the middle front of his well-filled tunic, "All this is very true, but since the community and property of the Section as a whole is threatened, it is not a problem to be entirely dealt with by individuals. Fortunately, as we have seen, our protectors have been alerted. Two of their constables have already passed by and, by now, are doubtless making arrangements with the cannon's Crew. It is equally fortunate," he pointed out, looking around and gathering in the approval of the crowd, "that the demands of the Crew of Bumberboom are so modest . . . that it is only food they seek and not women or power or dominion. Eh ahem? For who could resist in the face of that tremendous and destructive engine!"

Someone else muttered that it might be better for the Crew if their needs were not limited to food alone but included water, soap, and a change of clothing. There were scattered laughs at this. The magnate, however, pursed his lips and drew his face into lines of disapproval. "That is as it may be," he said, severely. "The educated person knows that customs differ among different people, and it is not for us to risk offending the Crew of Bumberboom by making gauche comments on such matters. For my part, so long as they withdraw satisfied from the Section, I care not if they ever or never bathe again, eh ahem?"

Clearly he spoke for the majority and the majority slowly began to disperse to go about their other business, confident that the Dwerf agents would deal with the matter which had so excited and upset them. Mallian approached the magnate and saluted him, the latter returning the gesture with an air of mildly surprised condescension. "Whence and whither, strange my young?" he enquired. "And for why?"

Mal sighed. "Ah, senior, your question not only sums up the matter, it places a finger upon the sore center of it. The whence is easily answered: Land Qanaras, a Land afflicted and perplexed. As to whither, I do not yet know, and can say only that I am wandering in search of a medicine which will supply an answer. Which last, I perceive you have already realized, comprises the why. But before I speak of that I would enquire of you concerning a current matter. Sympathize with my ignorance and inform me as to what is Bumberboom, or Juggernaut, as I have heard it also denominated, and who its Crew may be."

The magnate's face had shown a conflict between flattery at Mal's compliments and unease at the prospect of being involved in his problems. But the gathering round of a few gaping loungers eager for free diversion decided his mind. "Important matters," he said, importantly, holding up his

chin so that his jowls withdraw, "are not to be discussed where every lack-work may gawp and crane at an inoffensive visitor. Come along with me, my young, and I will not scruple to take time away from my many important affairs and inform you."

And, as they walked slowly through the crossroads hamlet, he related to him that Bumberboom was an engine or contrivance of both great size and potency, founded upon the principles of a medicine known only to its Crew. It had the capacity of casting great shots over great distances accompanied (so it was said), by hideous and deadly fires and deadly and hideous noises. Whence it had been derived, when and by whom made, only the Crew itself could say, and they—perhaps naturally enough—would not. "Suffice it that they have the secret of this medicine and that they use it to go whither they will, depending for sustenance upon the inevitable desire of those among whom they wander that they immediately wander elsewhere without giving an exhibition of their powers, which would prove painful in the extreme. Thus, my young, is your question answered.

"As for your problems, hem hem, I greatly regret that my civic and commercial duties do not permit me to indulge in hearing them. I must content myself reluctantly with saying that no Land under

the beneficent protection of the Kings of the Dwerfs can be either afflicted or perplexed, and on this note I, alas, must take my leave. Fortune favor you!"

He waddled off briskly towards a showy dwelling-place from which came kitchen smells indicative that at least one household had left the supply of food to the Crew of Bumberboom for the governing powers to deal with.

"Sun shine upon you," Mal said, somewhat glumly, for he had learned very little from the man which he had not already been able to deduce by himself. But as he reflected on the possible uses of Bumberboom it occurred to him that therein it was conceivable lay an answer to his quest and question, though not in any way which he had previously considered.

The hamlet fell away behind him, and as he continued along the famed Broad Road he saw upon its dusty surface the hoofprints of the Dwerfish ponies, and the grooves made by the great wheels of Bumberboom. Slowly he began to smile, and then he quickened his steps and strode briskly along.

The situation at the border was perhaps brittle rather than tense; so occupied with their affairs were those gathered there that they did not observe Mallian approaching. He heard a hoarse babble of voices from farther away and saw the huge muzzle of Bumberboom lifted up from behind a rise of ground. The

whitewashed stone cairns marking the dominion of the Dwerfs stood on each side of the road, and beyond them on each side of the road was another symbol consisting of two long wooden beams painted red. Their ends were planted in the ground and they inclined towards each other until for a short space they crisscrossed. The sight of the two Dwerfs brought him to pause a moment and to consider concealment . . . but they were on foot, and their mounts were tethered off at a distance, and moreover their territory clearly came to an end here, although he was not familiar with what new territory might be symbolized by the red beams.

Neither had he before ever seen men like those who stood conversing with the Bandies. They wore not the breeches, shirt and tunic so common elsewhere, but closefitting upper garments extending as a sort of hood or cap closely over the scalp and to which a sort of curious simulated ears were attached. And tights of cloth they wore about their loins. These garments had not the rough look of wool nor (it suddenly seemed) the dull look of linen, but they had a mightily attractive smoothness and sheen and glow, and they rippled when even a muscle was moved.

"Oh, we are so infinitely obliged to the Kings of the Dwerfs," one was saying, in a tone which seemed to indicate very little sense

of true obligation. Rays of sunlight slanted through the bowering branches of the trees and picked out the emblematics embroidered upon the red tunics of the Dwerfy-men. "We are so obliged to them—through their constables of course—" he bowed and put more expression into the salute than was in his face, "for having sent us this number of greatly desirable guests. And such guests as they are, too!"

And a second said, with a dull and lowering look, "Our appreciation will be conveyed from our Masters to yours, very shortly, have no fears."

One of the Dwerfs said with a shrug, "They would away, as we have told you, and who can hold what will away? Furthermore, who can argue with Bumberboom?"

The other Dwerf, hearing or perhaps subtly feeling the approach of some one behind, glanced back and saw Mal coming. He took his comrade's arm and turned him around. "Hold, Raffin. Do you remember that report?"

Raffin puckered his caterpillar brows and nodded. "I do. And I do believe, Gorlin, that this is one with whom we would speak. Halt, fellow, in the names of the Kings!"

But Mal, skipping nimbly, said, "It is a false report, to begin with, and a case of erroneous identification to continue with. Furthermore, the names of your Kings are as nothing to me for I was never their subject, and lastly—"

"Hold! Hold!"

"—lastly," Mal said, lining up beside the stranger-men, "I am not at the present moment any longer in your Section or your Land at all, and accordingly I defy you, Bandy rogues that you are!" And he spraddled his legs in contempt at them.

The Dwerfs grunted their rage and simultaneously began to reach for their slashers and to move forward upon their crook legs, but the guards from the other side of the border took several paces toward them and regarded them with extreme disfavor. They stopped.

"So be it, then," said Raffin, after a moment. "We will not invoke the doctrine of close pursuit. But be assured, Stickpin," he flung the term at unflinching Mallian, "and be assured, you other Stickpins, that we will complain upon you for harboring a malignant, an enemy, a ruffian, fugitive, and recusant, a rapiner and an otherwise offender against our Kings, their Crowns and Staves; and we will demand and, I do not doubt, will obtain his return."

Mallian bracked his tongue and again spraddled his legs.

Said one of the other guards, "Demand, then. It may be you will secure his return—and with him, too, the return of Bumberboom and all its Crew."

The Dwerfs made no reply to this but turned and proceeded to their ponies. One of them, however, whirled around and flung out

his hand and forefinger at Mal. "As for you, fellow!" he declared roundly, "were you at all instructed in any wise of medicine of history, you would understand—you would *know*—that the bodily form of the Dwerfs is the original bodily form of all mankind. We have only pity for you who descend out of those misshapen sufferers from the Great Gene Shift." He swung himself about once more and neither of them spoke again. The two stout ponies went trot-a-trot down the road, dust motes rising to dance in the sunbeams.

Mallian turned his head to see the stranger-men regarding him without expression. He thrust his hand into his bosom and withdrew the letter of statements in its pouch. He handed it out . . . to the air, as it were, for none reached to take it. After a moment and in some perplexity he asked, "Does none desire to examine the well-phrased let-pass with which my natal territory—or, to be more precise, its governance—has supplied me?"

With a slight yawn one of them said, and he shook his head, "None of whom I know . . . Such ceremonies are reserved for those arrived on official purposes, and not for mere proletaries or profugitives."

Stung by such belittling indifference, Mallian exclaimed to the effect that he was indeed on just such purposes arrived. The stran-

gers smiled at him a trifle scornfully. "These pretensions are at the moment and under the circumstances amusing," they said, "but they will not do, barbado; a-no-no, they will not do at all. Those arrived on official purposes unto this Land of Elver State, of which we of the corps of guards are both the internal and the external defense, arrive with proper pomp. They, for one thing, are dressed in garments of serrycloth, as indeed are we, ahem hum. For another, they ride upon smooth-haired horses adorned with many trappings of broideries and burnishments, and so do all their party—which, by definition, is numerous. And for another and the last, though this by no means the least, they come provided with a multitude of rich donatives of which distribution is made to the members of the corps of guards."

Mallian cast down his eyes and gnawed upon his lips. "Nonetheless," he declared, "I have been issued with this letter of statements directing all to let me pass, and the fact of your having made no gesture to prevent my passage at all would not altogether seem to justify my failing to present it. And inasmuch as you desire not to trouble to read it, it would be a pretty courtesy on my part to read it to you. I have oftentimes been commended for my reading voice, and I doubt not but that you gallants of the Elver Guards will desire to do



the same, and furthermore, the problem set down herein, which is the high purpose of my journeyings, may so move you as to search among your minds to see if peradventure you know of a medicine which may shed both light and hope thereon."

And he read them the let-pass, or letter of statements, as he had done to the pseudomorphs, and to the People of the Moon.

"Ah, well," said one with a snuffle of his nose, "interesting and absorbing as the bearded one's problem is, and while I doubt not that the medicines of our Masters contains an answer to it—it is no more than the speck of a fly compared to the problem lying over the rise there. Anent which, let us move and consider, for an action of some sort will assuredly be required of our hands."

They proceeded upward and then paused, considering, Mal with them. There had evidently been a house of some sort there below, but it had been unstrategically situated in terms of the attempts of the Crew of Bumberboom to pass with their weapon along the road above it. It had gone off the road, and the marks of its going were eaten into the berm, and before it had either been brought to rest or come to rest of its own accord, it had thoroughly crushed the house—the fragments of which were being now unskillfully transformed into cook-fires. The

harnesses hung empty, the guide-ropes lay ignored upon the ground. The Crew was both at rest and at meat. And, it became at once apparent, at other occupations as well.

"Scandalous!" exclaimed Malian. "Shocking!"

One of the Elver Guards shrugged. "As well be scandalized or shocked at cats and dogs," he said.

Mal protested. "But dogs and cats are not human—"

The upper lip of the Elver Guard went up further. "Are *those?*" he demanded.

Not overmuch regarding this remark, Mal allowed his mind to run still more over a notion which, in seedling form, had occurred to him before. Cautiously, tentatively, he began to broach the matter. "I have been in some measure too overwhelmed by your kindness in offering me refuge," he explained, "from those hangmen Dwerfs to express my gratification fully. But —"

"No need, no need," the Elver murmured, scratching his armhole—then, as though only then becoming aware of what he was doing, he stepped back from the berm with a curse and a scowl. "A tetany upon those wittol swine! They must have fleas as large as mice—if indeed no worse. I am for going away and constructing a steam-lodge and boiling self and habit."

"Do, Naccanath," murmured another Elver. "And when asked how you proceeded to rid the State of this lumbering menace, be prepared to answer, 'I bathed me.' But for praise or commendation, do not be prepared."

The guard Naccanath hesitated, muttered, scratched.

Mallian moved his mouth against the sudden fretful silence. "But now that I am able to take two consecutive breaths free from fear of Bandyman pursuit and am made aware not only of my safety and refuge but of the wisdom of those whose—"

A fight broke out among the Crew below, but was soon settled.

An Elver said, in a faintly dissatisfied tone, "Ah . . . he did but club him. I had thought he might well eat him; it would surprise me not a wit."

And another said, a peevish note in his voice, bruising a blossom under his nose to counteract the noisome taint now rising from below, "Why need they eat each other when all the world rushes to supply them with far less gamy food? In fact," his face became a sight brighter, "may this not be a possible solution?—videlicet, simply to supply them with a steady ration of victual, thus depriving them of incentive to leave their present location. Denizened right here, they remain under supervision and do no further damage and post no further threat."

Musing a moment, the others then shook their heads. Another said, "They would breed, Durraneth, at a rate which would soon enough make their maintenance a cost not to be considered. Further, experience has shown that nomads do not easily take to denization."

They sighed and sucked their lips and their unhappy breaths caused their smooth garments to ripple and shimmer in a marvelous manner, for which Mallian, nevertheless, had but small eyes.

"—whose tolerance has undoubtedly saved my life," he continued resolutely—and a shade more loudly. The Elver Guards now turned to consider him and his words. "What is the point of your narration, profugitive?" demanded the one called Durraneth, in his voice a coolness only to be expected in one whose own proposal had just now been considered and dismissed. Barely had he finished asking his question when a head appeared above the berm, its countenance vacant and filthy, and looked at them openmouthed as they stepped backwards with fastidious precaution. "Cappin?" it enquired. "Cappin Mog?" A bellow from below diverted it so that it turned, released its hold, slid down and away and did not return.

"The point of my narration, gallant Guards Elver, is just this: that I would ask of you a consid-

eration for which I offer to perform a service, thus and thus, inform me kindly where I may inquire of your Masters a medicine to solve the problems of my own Land Qanaras, and in return I will rid you and all the Land of Elver State forever of Bumberboom and its Crew."

The green shade flashed blue as a jay noisily chased another through the trees. Narrowly the guards regarded him. Then Naccanath said, "Seemingly such an agreement would be of benefit to all and of detriment to none. Still, I am moved to inquire—not from suspicion, fie upon such a thought, hem hem, but out of mere curiosity and interest—how do you propose to do this?"

Mallian's fingers stroked the left and then the right tip of his short beard, through which a slight smile peeped deprecatingly. "To reveal this before an agreement has been reached would perhaps be out of keeping with the traditions of negotiating. I point this out, not from suspicion, fie upon the thought, hem hem, but simply because I have been very traditionally reared and do not desire to cast reflection upon my upbringing by departing therefrom even in trifles."

After another silence, Durraneth said, with something like a frown, "Would it be untraditional for you to indicate by which route you intend for yourself and them

to depart, and your destination as well?"

Mallian said it would not. Logic, he pointed out, would indicate a departure by the shortest route (other than the one back into the near-lying Section of the Dwerf Kings' dominions) out of Elver State, and to show his perfect good will and trust in the matter he would entreat the advice of the company as to a good route to achieve this purpose—accompanied, perhaps, by a map—and, as for his destination, well:

"I am a hill man by origin, and lonely therefore. Nevertheless there is nought of the hermit in my background or makeup; I admire also the proximity of fair lowlands and goodly towns to which one may conveniently descend to purchase merchandise with the modest yield of the hills. And therefore—"

Durraneth cleared his throat and cast a slant glance at his fellows. "And therefore—inform me if I understand you arightly, Mallian son Hazelip—and therefore you desire information about a place lying outside of Elver State and situated upon a hill overlooking fair lowlands and goodly towns, or perhaps at least one goodly town. Is it so?"

Mal frankly admitted that the conjecture was correct. "At least one goodly town," he murmured, "although two or even three would be better."

The guard-lodge had a stark neatness about it which Mallian, familiar with the companionable disorder of Qanaras and the opulent show of the Dwerfs, found a bit chilling. There were, to be sure, many contrivances visible which seemed both curious and interesting, as well as an entire shelf bearing nought but books, which much impressed him. " 'Where are much books is much medicine,' " he quoted, reverently.

The Elver Guards gave but a nod or two at this and began to spread a table with maps and to converse in low tones among themselves, paying to Mal's thoughtfully-pointed-out observation that it was now high noon and meal-time, inattention to which the very best of wills could only call coarse. He therefore did not feel a compunction at devoting himself forthwith to the smoked pullets and dried fruits with which his budget had thoughtfully been filled by old Ronan's. And when the guard Naccanath said, over his shoulder, "Attend hither, profugitive," he replied that he in no wise feared that Elver folk would work him a malignancy via use and medicine of his own and proper name, and therefore he would cheerfully respond to it, which was Mallian, son Hazelip High Man to the Hereditor of Land Qanaras. "But at the moment I eat," he pointed out. He raised his brows and bit and chewed.

The Crewmen's supply had all been eaten to a faretheewell, and they sat or lay about snoring or scratching or simply staring about them as Mal approached. He had come quite near before it occurred to them to stare at him. He was already among them before any of them had made up their minds that he perhaps ought not to be. But it was not until he had begun to make a circuit of the ponderous engine that anything like concern began really to make itself evident. The sight of Bumberboom at close up proved interesting enough even to banish the train of thought caused by the sight of the crew close up. The same near-idiot face repeated over and over again in varying stages of grime, the same snaggle and snarl of pale hair and small, vacant, pale blue eyes—what did it mean?

It scarcely could mean that the same moron Crew which was now attached to Bumberboom had created it in the first place. They could never have fashioned those immense and massy wheels of stout wood reinforced with iron and rimmed with broad iron tires. Never could they have founded that gigantic tube whereon, in the casting, figures of beasts and monsters had been fixed, never have devised that ornate breech in the shape of a bearded face with lips puckered as though whistling, nor the even more ornate and in fact rather frightening face which ter-

minated the great tube's other end, mouth distended into an enormous shout—mouth silent now, but threatening of anything but silence . . .

Anything but silence now among the Crew, whose disturbance bore more resemblance to a poultry-yard than an anthill, running and squawking—thrice in succession people fell full-tilt against Mallian, but it was certain from their great alarm that it had not been their aim to do so.

And as they trotted about they set up a cry and howl which presently resolved itself in Mallian's ears into the same words, meaningless as yet, which he had heard before from one of them . . . now, however, not as a question, but as an appeal for aid. "Cappin Mog! Cappin Mog! *Cappin Mog!*"

And Mal meanwhile continued his perambulation and examination. The carriage was fitted with large boxes, but these were locked. He was about to make a closer inspection when someone bellowed close by, and at the same moment, something struck him between the shoulder blades. He took a quick step sideways before spinning around, and the sight of his face acted as instant deterrent to the one who had evidently flung the clod and was now doing a sort of angry dance with another clod in his hand. His arms were inordinately long and thickly thewed;

chest and trunk were barrel-thick; neck there was none visible, and the broadnosed face was alive with fury.

"Gid 'way!" it shouted, though perhaps with a shade more caution than in its previous bellow. "Gid 'way! Gid oud! Don' touch-a! Killya! Cutcha-troat!"

And the others of the Crew, male and female, taking courage from this couthless champion, began to draw in behind him, shaking their fists.

"Cutcha-troat, tellya! Gid oud! Don't touch-a! Bumberboom! Bumberboom!"

The rabble highly approving these sentiments, at once began to shout the word most familiar to them: "Bumberboom! Bumberboom! *Bumberboom! Bumberboom!*"

Mallian stood where he was and let them howl, and by and by they began to tire of it. He had by now become a familiar object to them and, as he neither moved nor spoke nor did anything of further interest, they grew bored with him, and—one by one—he could see some emotion too faint to be wonder, perplexity of a low order, perhaps, begin to overtake them. They did not really know any more why they were there or why they were so loudly engaged. And so, first one by one, and then, as regarded those who were left, all of a sudden, they ceased their commotion and wandered off.

Not so the one who had thrown both turf and threats at Mal. Highly intelligent he was not, but neither was he an utter idiot. He knew that Mal had no business near the great weapon, and he was determined to get him away from it. Regardless of the defection of his Crew he now came a step nearer, hitched up his dissolving breeches, and menaced with his hands.

"Toll ya, gid oud!" he belowered. "Trow ya down and kill-ya, ya don' gid oud!"

Mal asked, "Who are you?"

A look of astonishment came upon the man's face. He had evidently never been asked the question before, and it was not any doubt as to his identity but a shock that his identity was not universally known which made him go slack.

After a moment he said, "Who my? My Cappin Mog! Is who." And for emphasis shouted, "Mog! Mog! Cappin Mog! Cappin of Bumberboom and alla Crew! Is who—"

Mallian allowed his own face to register an extreme mixture of enlightenment, astonishment, impressment, and self-deprecation. "Oh, *you* are Captain Mog!"

The captain gave an emphatic nod and grunt, patted his stomach, clearly quite pleased with the effect. "My Cappin Mog," he affirmed. "Is who."

"Pardon, senior . . . pardon,

Captain . . ." He bowed and showed his palms. "I did not know, you see . . ." The man nodded and came close to smirking and in fact emitted a pleased sound which came close enough to being a giggle to be identified as such, grotesque as the sound seemed coming from him. He gazed from side to side and wiped his loose mouth with the back of his bristly paw. And at that, Mallian gave a bound and a jump and sailed forward and upward and kicked him in the side of the head and felled him like a tree.

Some of the Crew observed what happened and their hoots of astonishment brought others back from casual wandering about the vicinity. They formed a rough circle about the two, though it was without either intention of doing so or awareness of the utility thereof. Several of them growled and even shouted at Mallian and bared their dirty teeth and spat. One or two even went so far as to look about for a weapon—but what immediately came to view was an overlooked loaf of bread, and in a moment they were too concerned with an idiot quarrel about it to pursue the audacious gesture.

Mog lay a while on his side, his eyes opened, he frowned, he rolled over on his elbows and gazed at Mallian and at the Crewmen. He smacked his lips tentatively. "Cutcha-troat," he said, but with-

out real passion. Then he raised his rump and so in stages got to his feet. "Gid oud," he repeated. "Killya . . ." He looked around for some means of accomplishing this, saw nothing save his slack-mouthed followers and the great gun. Toward this he flung up his arms. "*Bumberboom!*" he cried, warningly. "*Bumberboom!* God-dam sunamabitchen big noise! *Drop-down-dead!*"

His small pale eyes observed approvingly that Mal, apparently convinced by this fearsome threat, had begun to walk away, and he drew back a trifle to let him pass. Whereat Mal repeated his spring and his sally and knocked him down again. This time he remained down a much longer time, and when he next arose, it was not to address himself to Mal at all. He put his hands at his hips and threw back his head and shouted. The words meant nothing of themselves to Mal, but the effect was immediate. The Crewmen left their places in the circle and bent to their positions in the harness and elsewhere. Mog took a deep breath. He cried, "Forehead . . . *harsh!*" They bent, dug in their feet, groaned.

"*Bumberboom!*" they cried.

"*Bumberboom!*" The limber lifted.

"*Bumberboom!*" The trail lifted.

"*Bum . . . ber . . . boom!*" The ponderous equipage trembled, shifted. The great wheels shiv-

ered, dropped dirt and turf. Turned. Turned slowly. But turned.

Bumberboom began to move forward.

"You may stop her here, Captain Mog," Mal said, presently. The man looked at him. "Stop? *Here?*" Mog's face moved, uncertainly. Mal gestured, pointed. Then he gave a slight teeter or two, as though readying himself to jump. Mog crouched, cried out, covered his head with his arms. He shouted, walking backwards. And the cannon's wheels ceased to turn and the crew promptly slipped its harness and lay down in the road like dogs.

Elver Guard Naccanath asked, coming forward with his comrades, "You do not propose to leave them there, I trust?"

"Not for any longer than is required for us to settle our indentures. You have an information to give me—or, rather, two; likewise, a map."

Naccanath's thin lips parted in his thin, smooth-shaven face. He unrolled something in his hands. "Attend, then pro—hem—Mal-lian son Hazelip High Man to the Hereditor of Land Qanaras. Here is a carto or map which is limned upon strong linen, and we have marked with red a few several places which bear upon this present business. Thus: this border station. This road. Follow my finger, now . . . This road forks

*here and here and here.* The right of this last one leads to our capital community, wherein our Masters of a surety can medicate your question—but thither you go not now, for instead you are to follow via the left fork of this first furcation, and this leads, as is clearly delineated, to the Great Rift and all the Land Nor.

“And concerning this same, observe how we have reddled for you a choice of hills, few of which overlook less than a league of fine fat flatland nor fewer than two prosperous trading towns.”

Mallian’s pursed lips thrust out in concentration between his beard and his moustachioes, he nodded, traced the lines with his brown and furry fingers, so different from the thin pale digit of his present informer, who, asked what sundry of produce and people Land Nor afforded, replied that it was a good yielder of hogs and hides and horses, as well as grain and small timber, but that its people were of a sullen and willful disposition. “Though I do not doubt,” he concluded, “that they will be willing enough to trade with you.”

“Nor do I,” Mallian said, well enough pleased. He reached his hand for the map, but it was not forthcoming. “Come, come, Elver senior,” he said, reproachfully; “surely you do not think that even my own keen mind can have committed the carto to memory? Why, unless you relinquish it, neither I

nor my newly-gained companions can be sure of finding our way out of Elver State as expeditiously as all of us might wish.”

Naccanath rolled the map up and thrust it into a tube of worked leather. “You may be well sure of it,” he said, “for guard Durraneth and I will accompany you as far as the Rift. We would think it but ill hospitality,” he said, “to do other.”

Mallian cleared his throat and avoided eyes. “I am like to be overwhelmed by such high courtesy. But so be it . . . Captain Mog! On!”

He took his seat, with some sullenness, upon the cases fixed by the gun-carriage, and, the procession underway, diverted himself by picking the locks. He found in one nothing but some handful of a mouldy-powdery substance, and in the other nothing but an ill-made book. With a shrug of his shoulders, he began to turn the dusty pages and to read. Presently he cast a glance, swiftly and suspiciously, at the Elver pair. But they, absorbed in moody thought, spared him no look but rode silently along on their lean horses. He grunted and turned a leaf.

The pothecary in the first town wherein they paused threw up his hands as Mallian entered. “I have no victualry at all to supply you with,” he cried, in a trembling and petulant voice. “By reason of lack-



ing either wife or servant-woman, I eat in the cookshops. Moreover, such treacles and comfits as my shelves afford are of a highly bitter and aperient sort, though a measured quantity may never harm you if you are of a costive disposition. . . . But what can these terms mean to him," he added, in a lower tone, as though to himself; "is it not known to me, if to none other, that all these cannoneers are as dull of wits as dogs, by virtue of having neither bred nor gendered outside their number for generations? Still, they have the medicine of the deadly noise, and it behooves me to speak dulcetly," he sighed. "What would you, senior?"

"Sixteen and one-half measures of crushed charcoal," said Mallian, "to begin with . . . large measures, the largest you have."

The apothecary's lower lip drooped. "Hem, hem, this would suffice to rid of wind the stomachs of a small army, though to be sure it is a small army which . . ." The apple of his throat bobbed in sudden perceptive terror. "Pay no heed to my previous comments, Master!" he pleaded. "I perceive with utter conviction the falsity of my conjectures. Charcoal—sixteen and one-half large measures. Immediately, Master! Immediately!"

He scurried about from keg to ladle to scales, darting looks of bewilderment at Mallian. Presently he inquired, "And what next is

your design, lordling? You say fourteen and a half large measures of sulphur? It will be my delight—nonetheless, may I not point out that sulphur is not in current favor for fumations? Asa-fœdita is much preferred nowadays as an ingredient to banish the dæmons and miasmas, as well—hem! Observe how I fawn contritely for having made the suggestion! Sulphur it shall be . . ."

The third substance caused him no little concern; he nibbled his mouth and frowned and snuvvled. "Snowy nitrum, Master? Forgive both the poverty of my mind and shop alike, but—Hold! I adjure but myself, Master-Lord! Is not 'snowy nitrum' another name for what is also termed the saline stone, or saltpeter? In one moment I shall have looked into my lexicon. Thus, thus. And my conjecture was correct! Sixty-nine large measures of saltpeter, more correctly denominated 'snowy nitrum' . . . it may well exhaust my supply, but of that, nothing. The drysalts must wait their pickled meats upon a fresh supply, whenever.

"I know not the use nor preparation of this triune of charcoal, sulphur, and saltpeter. Shall I triturate it for you with a mortar and pestle?"

"By no means," Mallian said, hastily. "That is . . . hem. Reflection seems demanded here." He pulled a bit on his beard and

peeped from under his lashes at the pothecary, a small and bony-browed man of no particular age. There were things which this one was accustomed to doing which Mallian had never done himself; furthermore, he had said a thing which Mallian wished to hear be said again and at more length. The more he considered the more he favored the notion. At last cleared his throat and spoke.

"Senior pothecary, is yours a trade which might be swiftly sold for a profit?"

The drugsman looked out the open door in a quick and fearful look. He put his dry lips up to Mallian's sun-browned ear. "There is no business to be sold for a profit in Elver State," he hissed. "The taxers lurk like beasts of prey . . . Why do you ask? There is no business even to be *held* for a profit. Why, lordling mine, do you ask? What is stational commerce to you? You pass through, Master, with your giant thundermaker and you are supplied and you pass on and you pass on. Neither profits nor taxes nor stocks nor sales are matters you need review . . . *Why do you ask?*"

Indeed, the shop did have a decidedly well-taxed look to it and its meager shelves. Mal was fortunate in having obtained the things he wanted. "The Free Company of Cannoneers—" he caught the open mouth, blank look—"Bumberboom, that is—" "Oh, aye, Master.

Bumberboom." "—The Free Company of Cannoneers is in need of the services of a responsible and learned man, versed in such medicines as history and, for another example, pothecation. And it thus befalls me to wonder—"

The pothecary genuflected and kissed Mallian's hands and knees. He locked his shop and deposited the keys with the local surgeon. And that night whilst the Crew lay deep in snoring and the Elver Guards camped disdainfully apart with heads upon saddles, he and the pothecary spoke long ad low together beside a guttering fire, and the coldly indifferent stars pulsed overhead.

"No," said the chymist, whose name was Zembac Pix. "No, Master-Lord, I have made no especial study of the matter. All of my life, Bumberboom—or, as some call it, Juggernaut—has been a byword. Bad mothers frighten bad children with it. One comes across references to it in chronicles. Whence it first came, neither do I nor anyone else know. Nor who first devised it. I was a younger man when first I saw it; most fled in terror or hasted to bring out food, but I tarried as near as I dared. So it was, or so it seemed, that none but I noticed that these fearsome fellows were little better, if better at all, than idiots. This one Mog was not then their captain. I know not what he was named, 'twas long ago and my mind has been

crammed overfull ever since of drug receipts and tax-demands. Well, hem a hum. But he was not quite an idiot; indeed, I think he was a wit wittier than this one. Let us say a moron, then. And off they trundled, I wondering as they went. Twice more before today have I seen them. And heard of them more than twice. It has been counted a cause for thanks that, unlike other wandering armsmen, they never ravished nor rapted away any women. They took no recruits, either.

"The reason for this gensual clannishness, I cannot say. But its results are plain: No fresh genes have come their way since, aye, hem, who knows when? And whatsoever flaws they had amongst them to start with, such have been multiplied and squared and cubed, to use the tongue of the medicine called mathematic. And thus only idiot habit keeps them going and coming and passing to and fro. And only equally idiot habit keeps the rest of the world afearing them and yielding to them. I cannot say how old this olden book you've found may be—a century at least, I venture. It is not by the gun alone, then, nor by medicine alone, then, that the great noise and destruction comes . . . No . . . But by these three substances, mixed and moisted and dried and cracked and sieved. By my cod and cullions, this is no small thing you have discovered!"

Mallian spat into the fire. Then he reached out in the dimness and gently took Zembac Pix, the apothecary, by the throat. "You must remember that pronoun," he said softly. He felt the apple of the throat bob up and down. "I. Not you. I. Not we. I . . . Fortunately Mallian son Hazelip is of a trusting nature." He released his grasp.

"*Fortunately* . . ." said Pix, in a tremulous whisper.

"I have great plans. Great needs. I can offer great rewards. You, potionman, may become the councillor of the councillors of kings. Therefore be exceedingly virtuous. And exceedingly cautious."

He gazed into the other's eyes, glinted by a single dull-red spot of fire-glow in each. And watched them move as the other nodded.

They stood upon the lip of the cliff. There down beyond lay the Rift, wide and uneven and hummocked here and there; and beyond on the other side the ruins huddled haggardly. Mallian spat stoutly. "It will be no easy crossing," he observed. "Still, I perceive there is a road of sorts, and cross we must. Nevertheless . . ."

He paused so long that Durraneth and Naccanath stirred somewhat restlessly, and the unease communicated itself to the other Elvers who had ridden out from their near-adjacent city to witness both arrival and departure.

"What mean you by *nevertheless*?" Naccanath asked—perhaps still recollecting his flea-bite, he reined his horse up a way apart from Bumberboom and its Crew. The way hither had followed no rigid schedule. The Crew waked to the day when it felt the day full upon it, was by no means immediately prepared for toil, and made up for its swiftness at eating by its almost pythonic requirements for post-digestive rests. Naccanath had urgently hinted for more speed; Mal had—rather less urgently—passed it on to Captain Mog, and Captain Mog had cursed and kicked and cudgeled . . . and gotten a short burst of increased pace . . . for a moment or so. At intervals.

"By *nevertheless*," Mallian said, rather slowly, "I mean that there is something which we must do before we begin to cross." He issued a loud order to Mog, who issued a louder one. Mog knew nothing of Mallian's quest, nothing of the problem behind Mallian's question. All he knew to the point was that if Mal asked him to do something and he did not do it, he would be kicked in the head. He had tried a number of ways to avoid this, but the only one which ever worked was to obey orders. Quickly.

Slowly, therefore, erratically, Bumberboom began to move around until its great muzzle was pointing toward the Rift. Another

order, and the massive gun was unlimbered. Its trail now rested on the ground. Naccanath cleared his throat, looked at Durraneth. Durraneth returned the look.

"What—and I point out the extreme civility with which the question is asked—what is it your intention to have done now, son Hazelip?"

Mal stroked the points of his beard. "It is my intention to fire the gun," he said.

The horsemen backed up a pace or two or three as though they had practiced the movement. "Fire—fire *Bumberboom*?"

"So some call it. Others, I understand, prefer the name of Juggernaut."

One of the Elvers said, "I have not heard that this has been done at all of late." He cleared his throat twice.

"So much the better for doing it now. The crew wants practice, and no one can object to whatever damage may be done the Rift."

Naccanath said, rather sharply, "The Rift! It is not the Rift which concerns us—we are still on Elver soil, and I consider the possible great damage which may be done thereto . . . including, and this is no small consideration, to *us*—It would be much better for you to wait until you are already in the Rift."

"No it would not. I desire to calculate a matter called range . . . a matter of arcane medicine

which it will henceforth be important for me to know . . . and in particular the trajectory as calculated from an eminence of land, as it might be a cliff or hill."

The Elvers consulted hurriedly together and then requested that Mallian might delay his calculations until they were able to get well away from the site. He frowned, gave a short and slightly impatient nod, and they were off even faster than the two Dwerfy-men had gone, the time Mallian had hidden in the ditch.

"They fear the fatal noise," he said to Zembac Pix, with a twisted grin. "It is as well. The less they see, the better so. Well. Down goes the large-grained powder as the book directs. Hold firm the ladle, Zembac Pix. So. So. Smoothly. So." Mallian took the ram and tried to follow the directions so that the powder was securely back where it should be but not so firmly packed that it would not properly ignite. Then, satisfied, he ordered the shot brought forward. Mog and his mates came up with the great round stone, hoisted it . . . dropped it. The man responsible howled for his toes and then howled for his ribs as Mog beat upon them. But it was done at last.

Next the fine powder was laid in a train along the groove to the touch-hole. "What next?" asked Mallian. Pix looked into the book. "Next is fire," he said. "Captain Mog! A brand of fire!"

The Crewmen seemed unsure of how they should seem. What memories they might hold of actual gunfire must be at many removes and quite dim, muted not by time alone but by the thick membranes of their sluggish minds. They had been bred to the gun, lived by and for the gun, had nought but the great gun at all. Yet they had never fired it, had forgotten how to make its fuel, forgotten perhaps all save some dim glints of recollections of old mumblings and mutterings which served them for history. They were excited. They were uneasy. Something new had come into their brute lives. One of them, who had watched the loading, perhaps spoke for all. "Bumberboom . . . Bumberboom *eat*," he said.

Zembac Pix received the burning stick and said, before handing it to Mal, "Stand carefully as the handbook directs, lest the cannon crush you by its—" But Mallian, impatient, seized the fire and thrust it at the train of powder. It hissed, vanished. Then, with a roar like thunder waging war on thunder, the hideous muzzle-mouth spewed flame and smoke. The gun leaped as though wounded, fell back, subsided. Darkness, thick darkness, evil stench surrounded them. Gradually, it cleared away. They looked at each other. ". . . recoil," Zembac Pix finished his sentence.

The Crew rose slowly from the ground, idiot faces round with

awe and terror and joy. The occasion required words. They found them—or, at least, *it*. “Bumberboom! Bumberboom! Bumberboom!” They leaped and lurched and shouted and roared.

“Bumberboom!

“Bumberboom!

“Bumberboom!”

Zembac Pix pointed far out into the Rift. “The shot seems to have scored a trench along that hillock. Ha! Ahem hum-hum!”

“So I see . . . yes. Suppose that were a row of houses. Ha! Ha-ha!”

“Elver houses!”

“Bandy houses!”

“Ha ha!”

Something caught their eye. Something gleamed there in the trench now as clouds drifted away and the sun came through—a something which seemed to have slightly deflected the path of the stone shot. They discussed what it might be, agreed that whatever it might be could well go on waiting. “Captain Mog! On!”

“Forehead . . . *harsh!*”

It was a while later that they saw the Elvers descending by another road which allowed them to steer far clear of the great gun and its Crew—a line of Elver horse-men and behind each guard and riding on the crupper, a man with a spade. “Curious,” said Mal. “Very curious, Master-Lord,” agreed Zembac Pix. But by the time they themselves had gotten

close enough to leave the toiling, chanting Crew and go and see, the sight was more than merely curious.

“Observe, Mallian son Hazelip,” said Naccanath, in an odd tone and a gesture. “See what sight the monstrous voice of Bumberboom has uncovered.”

It was a sight indeed. The hillock had been shoveled and the ground excavated a good way beneath the surface of the general ground-level. There lay revealed the immense figure of an image with upraised arm and with a crown or coronet upon its head from which radiated a series of great spikes at least twice the length of a man. As far as they could see, it was clad in a flowing garment of some strange sort. It was an unfamiliar shade of blue-green which was almost black.

“What is it?” asked Mallian, voice low with awe.

The Elvers shrugged. “Who can say . . . it seems to be hollow.” Thus Naccanath. Durraneth had something else to say.

“Do you recall, Prince of Qanaras,” he began—Mallian noted his own promotion in rank but showed nothing on his face—“Do you recall what said the Dwerfy constable? . . . as say they all, of course . . . that before the Great Gene Shift all men were of their dwarfish size?”

Mallian said, “I do recall. What of it?”

Slowly Durraneeth said, "This great image is hollow. There are passages within. But the spaces seem exceedingly small. Do you suppose—"

"Do I suppose that this evidences a possible truth to the absurd Bandy boast? Never! As well declare that the gigantic statue demonstrates that the original form of mankind was that of the race of the giants!"

Durraneeth nodded slowly. Then his eyes moved from gigantic statue to gigantic gun and back once more. "I wish . . ." he began. "I wish I knew what it had held in its hand . . ." he said. "Oh, I do not know, of course, that it had held anything in its hand. It has an arm, it must have had a hand. . . . No consequence; it was a mere sudden fancy, of no rational importance."

But Mallian had now a question of his own. He pointed down into the pit, past a fallen tree, to where four Elvers stood regarding the newly-found wonder and a fifth stood upon its face. On the brim stood a box of strange sort, from which wires led down to the body of the statue. "What is that?" he asked.

Durraneeth shrugged. "An engine . . . a toy, really. It simulates a magnetical current. Really, it tells us nothing—save only that the entire figure seems to be made of metal. All of it! Incredible. No, I suppose you are correct. About

the original stature of man. The matter, I must suppose, remains as before . . ." For yet another moment he stood there, musing. Then he said, "When you are ready, Prince, to pose your question, we will be ready to serve you in seeking its answer. Do not tarry too long among the morose and barbarous folk of Nor. Fare you well. Fare you well."

The morose and barbarous folk of Nor had for the most part, forewarned by the echoing roar of Bumberboom's sole shot and, further, by the sight of it being toiled across the Trans-Rift Road, fled into the raddled ruins where it was hardly practicable to follow them. They had taken much of their substance with them, but the Crew were experienced foragers; noses keen as dogs', they soon sniffed out food and even sooner devoured it.

Mallian had no desire to go groping about in the ruins after anyone. He consulted the map—Naccanath still held the leathern tube, but Mal held the map, whether Naccanath knew it or not—and consulted Zembac Pix as well. "I would that I had reflected to demand, hem a hum, to request horses of the Elvers. Doubtless they could be trained to pull the gun."

The apothecary's eyes narrowed beneath their bony brows, and he smiled a knowing smile. "Horses will come later," he said. "Horses . . . and many other things . . ."

Getting Bumberboom up a hill had to come first. After that would come supplies—not hastily profffered or hastily seized to be hastily gobbled, but efficiently levied, to be efficiently distributed. And efficiently consumed? Not all of them. The key word was *surplus*. Surplus of commodity meant trade, which meant wealth and power. One area of farms and towns to start with. Power firmly established there meant a fulcrum firmly established there. And with a fulcrum once established, what might not leverage do?

But haste was not to be indulged in. Leaving Zembac Pix in charge of gun and crew, Mal set off to scout out the land, with a particular emphasis on hills. The first one he came to overlooked, to be sure, fine fat fields and no less than four towns, all of them prosperous, but the roads leading up the hill were too narrow by far to admit of Bumberboom's huge carriage being taken up. Widening would be a matter of months. Not to be thought of. The second hill was easy of access but looked down on one small town only, and that none too favorsome in its appearance. He sighed, pressed on. A third hill was well-located but culminated in a peak of rocky scarps such as could afford abiding-place only to birds. A fourth . . . A fifth . . .

Perhaps it was the seventh hill which seemed so ideal in every

way but one. There was a slope of mountable angle, the top was both flat and wide, with enough trees to provide shade when desired and yet without interfering with the maneuverability of the great gun. From the summit Mal could see widespread and fruitful fields, and the rooftops of several towns. He had passed by two of them and observed with approbation the signs of good care and productivity, and a third appeared to be large enough to justify an assumption of the same. It was as tempting, as inviting from above as it had seemed from below; therefore, he had surmounted it despite a difficulty exemplified in the mud even now drying on his feet and shanks. There was definitely a current; one could not exactly say that a swamp lay at the foot of the hill athwart the only possible approach, but there was no gravel-bottomed shallow ford, though carefully he looked for one. Mud, sticky, catchy mud—and Bumberboom mired securely was as good as no Bumberboom at all. Mallian sighed and retraced his steps.

There was a man in the water when he came through it again, breeches slung around his shoulder and shirt tucked up shamelessly around his ribs, and he was spearing small fish with a trident. "Fortune favor you," said Mal.

The man said, "Mm."

"Fortune favor you," repeated



Mal, a trifle louder, a trifle annoyed.

"We don't say, 'Fortune favor you' in these parts."

"Oh? What do you say, then?"

"We say, 'Mm.'"

"Oh. Well, then—Mm."

"Mm." And the man speared another small fish, and another, gutted them and strung them. He had set up a small makeshift smokehouse ashore, and now proceeded to deposit his catch therein before returning to securing more.

"You prefer smoked fish to fresh fish?"

"No, I don't," the man said decidedly. "But they keep and fresh ones don't. Be you purblind? Look-see that dried mud yonder side. And nigh side. I catch fish while there be water. Soon there'll be none till the rains."

Mallian wondered that he had not observed this before. "Senior, I thank you," he said sincerely. "Now indulgently inform me what you say in these parts for farewell."

The man peered into the water. "We say, 'Mm,'" he answered.

Mal sighed. "Mm."

"Mm," said the fisherman. He scratched his navel and speared another fish.

"What governance have you in these parts," he enquired of a man leading a pack-horse as he passed through the next town.

"None," said the man. "And wants none. The Land Nor is non-governanced, by definition."

"I see. I thank you. Mm," said Mal.

"Mm," said the packman.

He accompanied the great gun all the way, but sent Zembac Pix ahead and aside to spread the word that other lands and their rulers—as it might be the Kings of the Dwerfs or the Masters of Elver State—envying the ungovernanced condition of Land Nor, had determined to send armies, troops, spies, and other means of assault thereto, with the intention of establishing a governance over it and over its people. But that the Free Company of Cannoneers, hearing of the dæmonical plan, had come unsolicited to the defense of Land Nor with a weapon more utile than a thousand swords, videlicet, the great cannon BUMBER-BOOM. Zembac Pix went forth and fro and by and by caught up with Mal and Mog and Crew where they were encamped on a threshing-floor.

"Spread you the word?"

"Most diligently, Master-Lord."

"And with what countenance and comments did they receive it?"

The pothecary seemed to hesitate. "For the most part," he said, "without change of countenance and with no other comment than the labial consonant, Mm."

Mal pondered. Then he raised his eyes. "You say, 'For the most part'—"

"A true relation of my statement, Master-Lord. There was an

exception, a tiresome and philosophizing man who keeps an hostelry for the distribution of liquor of malt"—here Zembac Pix wet his lips very slightly and made a small smile—"and his comment was to the effect that Land Nor is non-governanced by definition and it thus follows that Land Nor cannot be governanced inasmuch as according to the laws of logic, a thing is not what it is not but is what it is, and to speak of the governancing of Land Nor is to speak of the moving of the immovable which is to speak nonsense. And much other words he spoke, but only to recapitulate what he had already spoken."

Mal said nothing, but after a moment he shook his head. Then he rose from the threshing-floor. "Captain Mog! On!"

Captain Mog rose from the threshing-floor. "Forehead—harsh!"

The crew rose from the threshing-floor and fell to in its sundry posts and places. "Bumberboom! Bumberboom! Bumberboom!"

*"Bumberboom!"*

The great wheels trembled.

*"Bumberboom!"*

The great wheels moved.

*"Bumberboom!"*

The great wheels turned.

Along the dusty roads it trundled and rumbled. Not in one day did it reach the base of the hill, nor in two, nor three. But by the time it reached it, most of the

marshy stream had vanished away, leaving a foundation of good hard, sun-baked mud. Fallen trees were selected and trimmed to act as brakes and props. And when the now-dwindled stream had dwindled to a mere trickle, they began the ascent. They shouted, they chanted, they grunted rhythmically, they howled. They pushed, they pulled, they levered. Now and then they turned a rope around a stout tree; now and then they rested the gun upon the logs and panted and drew breath, then fell to once again. "Bumberboom! Bumberboom! Bumberboom!"

And at last they dragged it up upon the very crown and summit of the hill, wheeled it into the best place of vantage, and unlimbered it. "Now," said Mal, "to compose and distribute a proclamation." Zembac Pix assisted him in the wording of it, which was to the effect that the Free Company of Cannoneers had now commenced the arduous duty of defending Land Nor against alien and hostile forces intent upon establishing a governance over the Land aforesaid. And that in order to compensate the previously denominated Free Company and in order to sustain it subsequently and to guarantee its defensive postures, voluntary contributions according to the schedule subappended would be received. Each town was held responsible for collecting the donatives of its citizens

and should any town fail to collect and transport the voluntaries assessed it, this would reveal that it was secretly supporting the tyrannical alien pro-governance plan Whereat, it would be necessary for the Free Company to bombard the town aforesaid. And herein fail not.

"How shall we sign it?" asked Mal, mightily pleased by the several crisp turns of phrase.

"Might I suggest, Master-Lord, a succinct: *Mallian, General-Commandanting*?"

"Hem a hum . . . Very good. But . . . do you not recollect how the Elver Guard referred to me as 'Prince'? I do not wish to appear high-flown or much-given to elaborate titles. What think you, then, of a simple *Mallian, Prince*; what?"

Zembac Piz nibbled the end of his quill. "Beautifully suggested, Lordling. Subsequently. When they are ready. One must not seem over-humble to commence with."

A breeze wafted up from the terrain below and it conveyed in it a hint of hogs, hides, horses, and others of the rich usufructs of the land. A faint smile played upon Mallian's features. "I allow myself to be persuaded," he said. "So be it. Go now, have copies made, post them in the public places and proclaim it at the cross-roads. You may accompany the first train of tribute, a hum hum, of donative . . . if you wish."

Zembac Pix declared it would be his pleasure. He descended. He ascended. Time had elapsed. "Canting and poxy pothecary!" Mal cried, raging. "Where have you been? And why so long? Where are the voluntaries of food and drink and staples, of steeds and of trade-goods and manufactured article? From what knacker's yard did you steal that wretched beast which mocks the name of horse? Answer! Reply! And give good account, else I will spread you to the off-wheel of Juggernaut and flog you with the traces!"

Zembac Pix descended delicately from the scrap of rug bound with a rope cinch which served him for saddle, and was momentarily seized with a spasmodic contraction of the glottis which impeded his speech and may possibly have been responsible as well for the slight instability of his gait. And in his arms he tenderly cuddled a firkin containing some sort of liqueous matter.

"Master-Lord," he began, "with the utmost diligence have I carried out every word of your instructions, whether plainly expressed or merely implied. I purchased writing materials, I made clear copies in the most exquisite calligraphy, and I long retained in my possession a specimen the mere sight of which would instantly persuade you; alas, that on returning hither I was with infinite reluctance constrained to employ it for a usage

too gross to be named between us—hem hem—though even kings must live by nature.

"Furthermore I posted them in the public places and I proclaimed their message at the cross-roads. Moreover I entered into all places of resort and refreshment in order the more thoroughly to disseminate the matter. Conceive, then, with what incredulous and tearful regret I must report that, far from hastening to contribute to the meritorious support of the Free Company, they merely hastened to confection pellets of wool and wax to stuff into their ears 'to save them', as they said, 'from the horrid noise and torturesome sound' of Bumberboom . . . The steed and this firkin of liquor of malt do not represent, Lordling, even one single poor contributor but only my success in a game of skill at which I was constrained to participate, they threatening me with many mischiefs and malignancies should I refuse."

There was a long, long silence. Then Zembac Pix, sighing deeply, drew from the firkin of liquor a quantity in a leather cup and offered it to Mallian. And in truth it did not smell ill. The breeze played upon the hill; the crewmen dozed or picked for lice; the sun was warm. "To think of such ingratitude," Mal said, after a while. Zembac Pix wept afresh to think of it. They were mildly surprised to find themselves holding to the

wheels of the cannon and gazing down upon the reprobate lands below.

"I owe it to my father not to disgrace his name and station by a breach of my word, would you not agree?"

"Utterly, Master-Lord."

"I said that contumacy would merit bombardment." He belched slightly upon the vowels of the last word. "And so it must be."

In this they were in perfect accord, but a slight difference of opinion now arose as to whether the town nearest below lay at a distance of two hundred lengths or at one nearer to three hundred lengths—and also whether the demonstrated distance of Bumberboom's range was as much as three hundred lengths or as little as two hundred lengths. They concluded that it was better to use more force than necessary rather than less than necessary, and they accordingly loaded a charge a third heavier than that used before. Furthermore, on the same principle, they rammed a double shot down the barrel.

"And now for to prime her," said Zembac Pix, giggling slightly.

"Hold," said Mal. "Last time we were too close to witness the moment of ejection. I would witness this act and not have my vision clouded with smoke."

The pothecary nodded and chuckled. "Perfectly do I understand and take your meaning. I

shall lay a long powder-trail . . . let me use this length of wood as a gently inclined plane. Excellent, excellent; the powder stays in place and does not slide off! . . . and thus and thus and thus . . . Ahem hem, I seem to have used up the last of the powder."

His face was so woebegone that Mallian was constrained to laugh. "No matter. No matter. We will make more. Is not the recipe contained in the formulary book? Where is the fire-stick? Here. Ha! Hear it sizzle! So—'morose and barbarous' you have been termed, folk of Nor, and now here is your requition for—"

All the thunders of the sky and the lightnings thereof burst upon them in rolling flashes of fire and smoke. The earth shook like a dying man, and they were instantly thrown upon the quaking ground. Things flew screaming over their heads. They lay deafened and stunned for long moments.

Mallian, presently seeing Zembac Pix's mouth moving, said, with a groan, "I cannot hear. I cannot hear."

"I had not spoken. Woe! Mercy! Malignant fates! Where is Bumberboom?"

And the Crew, now picking themselves up from the dirt, with shrieks and wails, began the same question. "Bumberboom? Bumberboom? Bumberboom?" But a few fragments of twisted metal and a shattered wheel were all that re-

mained of that great cannon and weapon more utile than a thousand swords . . .

Mallian felt a sob shake his throat. All his plans, all his efforts, wasted and shattered in a single moment! He fought for and found control. "Age and disuse," he said, "must have corroded the barrel. Never mind. We will somehow contrive to cast another."

Zembac Pix agreed, and said through his tears, "And to prepare more powder. Four and one-half measures of sulphur to thirty-one and a third of—"

"You err. It was of a certainty twenty-five and a fifth of sulfur to six and one eighth of snowy . . . Or was it eleven and one tenth of . . . We must consult the formulary." But of that sole book wherein alone the arcane and secret art of gunnery was delineated, only one scorched bit of page remained, and on it was inscribed the single word *overload*. There was another silence, the longest yet, disturbed only by the idiotic and inconsolable ululations of the Crew.

In a different voice Mallian said, "It is just as well. Clearly the engine represented a mere theorizing, and, as we have plainly seen, is of no practical value whatsoever. What is perhaps more to the point, I observe that the horse is uninjured, and I propose we mount him immediately and proceed by way of the woods to the northern and nearest border of this land of

morose and barbarous folk, for I trust not their humors at all."

"Oh, agreed! Agreed, Master-Lord!" declared Zembac Pix, scrambling up behind him. "Only one question more: What of the erstwhile Crew? Should we try to persuade them to follow?"

Mal wheeled the horse around. "I think not," he said. "Soon enough their bellies will bring

them down to where the pantries and the bake-ovens of the Nor-folk are. But we will not tarry to witness this droll confrontation. We will, however, think about it. I am of the firm opinion that they deserve one another."

He kicked his heels into the horse's sides and Zembac Pix smote it on the rump. They rode down the hill.



## **COMING NEXT MONTH**

For a holiday away from it all, you could scarcely do better than Killabeg Castle, lying in the middle of Killabeg Bog, not far from the west coast of Ireland. Bridget Chauncey, who has inherited the castle and who is trying to convert it into a vacation retreat, discovers a strange thing—a locked room in the tower, fitted up as a laboratory-workshop but fantastically containing a set of dolls houses! As her first guests arrive, still stranger things begin to happen . . .

You will not want to miss **JOHN CHRISTOPHER's** new novel, **THE LITTLE PEOPLE**, beginning in our January issue, on sale December 1.

## MARKET PLACE

### BOOKS-MAGAZINES

SF Bargains. List free. Werewolf Bookshop, Verona 4G, Pa.

Locate any book! Caribbean Magic Bookhunters, Box 15070-C, Orlando, Fla.

ATTIC TREASURE! Diaries, Arts, Letters—"Ruth-bella, Beloved" (\$5.00); Giansincero's Loves (\$10.00); "Love Lyrics, Songs" (\$3.00)—all THREE Original Editions, only \$5.00. Bookways, 444-FS, Fort Lee, N. J. 07024.

BACK ISSUE SF MAGS, BOOKS. FREE CATALOG. Gerry de la Ree, 75 Wyckoff, Wyckoff, N.J. 07481.

Weird Tales, 1949, Three Different, \$2.00. Five, \$3.00. Keller, 704 Grand Street, Brooklyn, N.Y. 11211.

WHY buy books? For information write—Science Fiction Circulating Library, Box 1308, So. San Gabriel, California 91777.

SPECIALISTS: Science Fiction, Fantasy, Weird Fiction. Books, Pocketbooks. Lists issued. Stephen's Book Service, 63 Third Avenue, New York, N.Y. 10003.

FREE BOOK "990 Successful, Little-Known Businesses." Work Home! Plymouth 935K, Brooklyn, New York 11218.

"THE MAGIC OF THINKING BIG." 228 pages dynamic reading. You'll learn the secret that makes people rich. It works. \$2.00, postpaid. Standard Specialties, Box 4382, San Francisco, Calif. 94101.

### BOOKPLATES

FREE CATALOGUE—Many beautiful designs. Special designing too. Address BOOKPLATES, Yellow Springs 4, Ohio.

### HYPNOTISM

FREE Hypnotism, Self-Hypnosis, Sleep learning Catalog! Drawer G400, Ruidoso, New Mexico 88345.

Free Illustrated, Hypnotism Catalogue. Write Powers, 8721 Sunset, Hollywood, California 90069.

LEARN WHILE ASLEEP. Hypnotize with your recorder, phonograph. Astonishing details, sensational catalog free. Sleep-learning Research Association, Box 24-FS, Olympia, Washington.

### PERSONAL

English speaking Swedish/German girls seek penfriends/husbands. Photoalbum \$5.00; prospectus free!—COSMOCLUB "SILVERTHISTLE", Hamburg 72/SF, Germany.

1,000 FASCINATING CURIOS, rare gifts. Fascinating illustrated catalog 10¢. WORLDWIDE CURIO HOUSE, Box 5655-SS, Minneapolis, Minn. 55417.

LOSING Hair? Balding? Dandruff? Free copyrighted booklet. Dr. Shiffer Laboratories, 552 Euclid Arcade, Cleveland, Ohio 44115.

**Do you have something to advertise to sf readers? Books, magazines, typewriters, telescopes, computers, space-drives, or misc. Use the F&SF Market Place at these low, low rates: \$3.00 for minimum of ten (10) words, plus 30¢ for each additional word. Send copy and remittance to: Adv. Dept., Fantasy and Science Fiction, 347 East 53 Street, New York, N. Y. 10022**

## SERVICES-AUTHORS

**WRITERS!** Book manuscripts wanted: fiction, non-fiction. Free brochures furnish tips on writing; reveal how to become published author. Write Exposition Press, Dept. 156L, 386 Park Avenue South, New York, New York 10016.

## MISCELLANEOUS

**1000 Name-Address Labels 75¢.** Bruce Brockmann, 4000 E. 18th Street, Vancouver, Wash.

**UNUSUAL** new comedy record. Side 1 ("Computer, Go Home!") is wild science fiction. Side 2 is "The Naked Interview." Spoken-word mono 12" LP titled **THINK FUZZY!** postpaid, \$3.98, (Virginia residents add 12¢ sales tax), from "Dogbite Record Co., Dept. ARF, Box 532, Arlington, Va. 22216.

**LIGHTER** kits (comic prototypes)—2 for \$1.00. P. O. Box 17845, Charlotte, N. C. 28211.



## YOUR MARKET PLACE

A market is people—alert, intelligent, active people.

Here you can reach 180,000 people (averaging three readers per copy—60,000 paid circulation). Many of them are enthusiastic hobbyists—collecting books, magazines, stamps, coins, model rockets, etc.—actively interested in photography, music, astronomy, painting, sculpture, electronics.

If you have a product or service of merit, tell them about it. The price is right: \$3.00 for a minimum of ten (10) words, plus 30¢ for each additional word. To keep the rate this low, we must request remittance with the order.

**Advertising Dept., Fantasy & Science Fiction**  
**347 East 53 St., New York, N. Y. 10022**



# INDEX TO VOLUME THIRTY-ONE—JULY-DECEMBER 1966

ALDISS, BRIAN W.: Burning Question .....	Oct.	101	DISCH, THOMAS M.: Doubting Thomas .....	Dec.	43
ANVIL, CHRISTOPHER: Sabotage (novelet) .....	Dec.	6	GOULART, RON: Experiment in Autobiography .....	July	38
ASIMOV, ISAAC: The Key (novelet) .....	Oct.	5	GUNTHER, MAX: Municipal Dump .....	Sept.	68
The Prime of Life (Verse) ..	Oct.	56	HENDERSON, ZENNA: Troubling of the Water (novelet) ....	Sept.	100
Science: Balancing the Books	July	83	HOWARD, ROBERT E.: For the Love of Barbara Allen ...	Aug.	82
BB Or Not BB, That Is the Question .....	Aug.	103	JONAS, GERALD: The Mystery of the Purloined Grenouilles .	Dec.	39
I'm Looking Over A Four-Leaf Clover .....	Sept.	89	LAFFERTY, R. A.: Narrow Valley	Sept.	77
Portrait of the Writer as a Boy .....	Oct.	46	LAUMER, KEITH: Founder's Day (novelet) .....	July	5
Old Man River .....	Nov.	105	LEHRMAN, HERB: Revolt of the Potato Picker .....	July	94
The Symbol-Minded Chemist .....	Dec.	83	MALLETTE, MOSE: The Seven Wonders of the Universe .	Aug.	70
Isaac Asimov: A Bibliography	Oct.	36	MARSHALL, ARDREY: Brain Bank (novelet) .....	July	47
BASCH, JOAN PATRICIA: Matog ..	Aug.	45	MERRIL, JUDITH: Books .....	July-Dec.	
BEAGLE, PETER S.: Come Lady Death .....	Aug.	114	PORGES, ARTHUR: The Mirror ..	Oct.	58
BEQUAERT, FRANK: A Matter of Organization .....	Aug.	91	RUSS, JOANNA: Mr. Wilde's Second Chance .....	Sept.	65
BLOCH, ROBERT: The Plot Is the Thing .....	July	26	SCOTT, ROBIN: Near Thing ....	Aug.	99
BRUNNER, JOHN: The Productions of Time (novel) 1st of 2 parts .....	Aug.	4	SPINRAD, NORMAN: The Age of Invention .....	July	78
2nd of 2 parts .....	Sept.	25	Neutral Ground .....	Nov.	92
BUTLER, BILL: Letter to A Tyrant King (verse) .....	Aug.	90	STEVENSON, ROBERT LOUIS: Something In It .....	Oct.	81
CHAPMAN, VIC: Come Back Elena .....	Oct.	65	SWANN, THOMAS BURNETT: The Manor of Roses (short novel) .....	Nov.	5
CLEEVE, BRIAN: The Devil and Democracy .....	Nov.	115	THOMAS, GILBERT: Luana ....	Sept.	5
CLINTON, ED M.: Heir Apparent	Nov.	75	THOMAS, THEODORE L.: Man in the Sea .....	July	76
CONTOSKI, VICTOR: Von Goom's Gambit .....	Dec.	66	Meteoroid Collision .....	Aug.	89
DANIELL, SALLY: An Extraordinary Child (novelet) ...	Oct.	111	Earth Tremor Detection ....	Nov.	83
DAVIDSON, AVRAM: Bumberboom	Dec.	96	The Martian Atmosphere ...	Dec.	65
DE CAMP, L. SPRAGUE: You Can't Beat Brains .....	Oct.	32	THURBER, JAMES: A Friend to Alexander .....	Nov.	84
THE GODS (verse) .....	Dec.	82	VANCE, JACK: The Manse of Iucounu (novelet) .....	July	102
DECLES, JON: The Picture Window (novelet) .....	Oct.	84	WALTON, BRYCE: The Best Is Yet To Be .....	Nov.	66
DE FORD, MIRIAM ALLEN: The Green Snow .....	Dec.	71	WILSON, GAHAN: Cartoons ....	July-Dec.	



**CLIFTON FADIMAN**, writer and editor, judge of the Book-of-the-Month Club, writes: "Each of us has his own special escape-reading. Mine is science fiction. To my mind *Fantasy and Science Fiction* regularly supplies the finest the field has to offer in the way of short fiction."



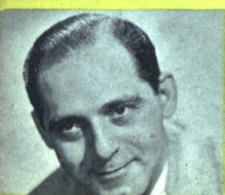
**LOUIS ARMSTRONG** writes: "I believe *The Magazine of Fantasy and Science Fiction* appeals to me because in it one finds refuge and release from everyday life. We are all little children at heart and find comfort in a dream world, and these episodes in the magazine encourage our building castles in space."



**HUGO GERNSBACK**, pioneer in science fiction publishing, writer and editor, writes: "*Plus ça change, plus c'est la même chose*—is a French truism, lamentably accurate of much of our latter day science fiction. Not so in the cyclotronic *Magazine of Fantasy and Science Fiction* which injects sophisticated isotopes, pregnant with imagination, into many of its best narratives."



**ORVILLE PRESCOTT**, literary critic and author, Book Review Editor for the *New York Times*, writes: "People who think that their literary I.Q. is too high for them to enjoy the *Magazine of Fantasy and Science Fiction* don't know what they are missing. The number of well-written, ingenious and entertaining stories it regularly publishes is astonishingly high."



**BEN GRAUER**, radio and television outstanding special events reporter: "Science fiction, I think, offers a wonderful education for its readers—it extends their understanding to include the entire cosmos."

# PEOPLE WITH IMAGINATION

## READ THE MAGAZINE OF FANTASY AND SCIENCE FICTION

Stars of the entertainment world . . . notables in the news . . . distinguished authors and editors—all owe much of their success to imagination. So when they want relaxation or stimulation in reading, they turn naturally to the finest works of imagination; tales of science fiction. And they find such stories—exciting, fast-paced and exceedingly well written—in *THE MAGAZINE OF FANTASY AND SCIENCE FICTION*. Here they find current top-notchers such as Robert Heinlein, Arthur C. Clarke, Theodore Sturgeon and Isaac Asimov; plus unexpected fantasies from writers famous in other fields, such as Stuart Palmer and Mark Van Doren. As a bonus, *F&SF* has a unique record of finding stimulating new talents—such fine writers as Mildred Clingerman, Richard Matheson and Chad Oliver first appeared in these pages. . . . In a word, here is the best of fantasy and science fiction.

**50c** at better newsstands every month

By subscription \$5.00 a year

347 East 53 Street New York 22, N. Y.

