

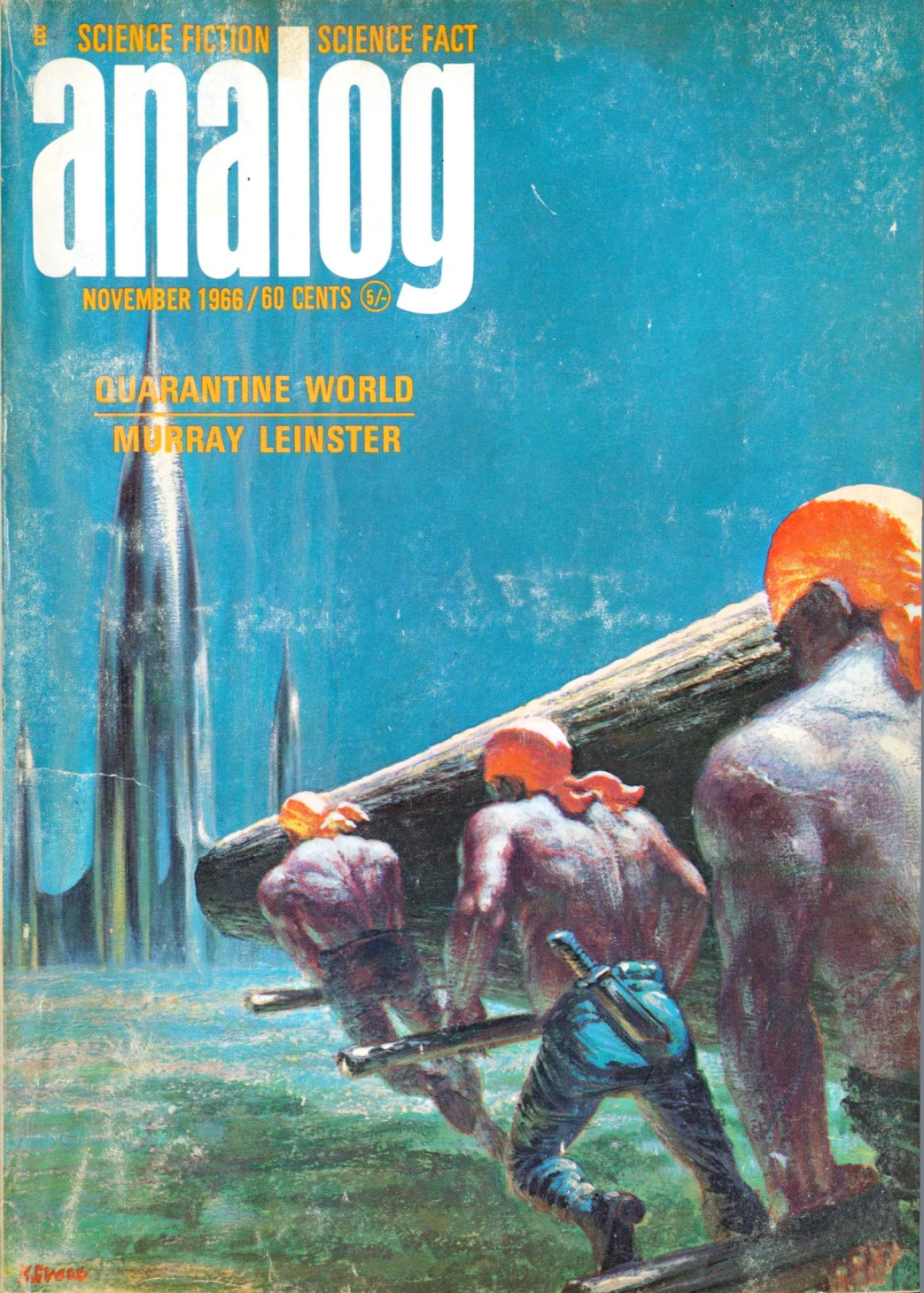
SCIENCE FICTION | SCIENCE FACT

analog

NOVEMBER 1966 / 60 CENTS (57)

QUARANTINE WORLD

MURRAY LEINSTER



Eves

To people who have always meant to own

THE WORLD OF MATHEMATICS

The famous four-volume library edited, with commentaries, by James R. Newman (over 100,000 copies have been sold in the original hard-bound edition currently priced at \$25) is available complete and unabridged in paperback — four volumes, boxed, at only \$9.95.

Partial Contents

GENERAL SURVEY — Jourdain: *The Nature of Mathematics*.

HISTORICAL AND BIOGRAPHICAL — Turnbull: *The Great Mathematicians*; Newman: *The Rhind Papyrus*; Plutarch: *Archimedes*; 12 others.

ARITHMETIC, NUMBERS AND THE ART OF COUNTING — Archimedes: *Poppy Seeds and The Universe*; Ball: *Calculating Prodigies*; Newton: *The Binomial Theorem*; 6 others.

MATHEMATICS OF SPACE AND MOTION — Clifford: *The Science of Space*; The *Space Theory of Matter*; Euler: *The Seven Bridges of Königsberg*; A Famous Problem. Kline: *Projective Geometry*; 7 others.

MATHEMATICS AND THE PHYSICAL WORLD — Galileo: *Mathematics of Motion*; Moseley: *Atomic Numbers*; Boys: *The Soap Bubble*; Mendel: *Mathematics of Heredity*; 18 others.

MATHEMATICS AND THE SOCIAL SCIENCES — Malthus: *Mathematics of Wealth*; Richardson: *Statistics of Deadly Quarrels*; Hurwicz: *On the Theory of Games*; 7 others.

THE LAWS OF CHANCE — De LaPlace: *Concerning Probability*; Peirce: *The Red and The Black*; 5 others.

THE MATHEMATICAL WAY OF THINKING — Peirce: *The Essence of Mathematics*; Mach: *The Economy of Science*; 3 others.

MATHEMATICS AND LOGIC — Boole: *The Mathematical Analysis of Logic*; Nagel: *Symbolic Notation*; 3 others.

THE UNREASONABLENESS OF MATHEMATICS — Kasner and Newman: *Paradox Lost and Paradox Regained*; Hahn: *The Crisis in Intuition*.

BECOMING ONE'S OWN MATHEMATICIAN — G. Polya: *How to Solve It* (excerpt).

THE VOCABULARY OF MATHEMATICS — Kasner and Newman: *New Names for Old*.

MATHEMATICS AS AN ART — Sullivan: *Mathematics as an Art*.

VARIOUS CLEVER MACHINES — Von Neumann: *Theory of Automata*; Turing: *Can a Machine Think?*; Shannon: *A Chess-Playing Machine*.

THE UNGENTLE USES OF MATHEMATICS — Lanchester: *Mathematics in Warfare*; Morse and Kimball: *How to Hunt a Submarine*.

A MATHEMATICAL THEORY OF ART — Birkhoff: *Mathematics of Aesthetics*.

MATHEMATICS IN LITERATURE — Swift: *Cycloid Pudding*; Huxley: *Young Archimedes*; 3 others.

MATHEMATICS AND MUSIC — Jeans: *The Mathematics of Music*.

MATHEMATICAL DIVERSIONS, PUZZLES, AND FANCIES — selections by: Stephen Leacock, Lewis Carroll, W. V. Rouse Ball, 7 others.

THE MATHEMATICIAN EXPLAINS HIMSELF — Hardy: *A Mathematician's Apology*; Poincaré: *Mathematical Creation*; *How Ideas Are Born*; Von Neumann: *The Mathematician*.

MATHEMATICS AND MORALITY — G. D. Birkhoff: *A Mathematical Approach to Ethics*.

The most extensive collection ever published, for layman and expert, of the great literature of Mathematics from the Rhind Papyrus of Egypt to Einstein's theories. Presented in four handsome illustrated volumes with 500 drawings, halftones and facsimile reproductions.

THE WORLD OF MATHEMATICS, published in 1956, became an instantaneous and spectacular bestseller. Since then this superb collection has found its way into more than 112,000 homes in the original higher priced, hard-bound editions.

Over the years it has become apparent that, for many thousands for whom the collection would be most rewarding, the \$25 price has been too high. So we explored every possible way of producing a handsome, readable, durable set at far less. The result is the four-volume paperback WORLD OF MATHEMATICS. Not a word has been cut. The type page is exactly the same as in the original edition. The paper, while of lighter weight, is of excellent quality. The principal cost difference is in the binding and in our savings on substantial printings. We are extremely pleased with the handsome paper-cover binding. The result, at \$9.95 for the boxed set, is surely one of the great book bargains of all time.

From Vajda on Matching Pennies to the Theories of Einstein

From Archimedes on Poppy Seeds and the Universe to Shaw's *The Vice of Gambling and the Virtue of Insurance* — here are 133 great books, essays, articles and stories — more than a million words. All are woven together with a clear

and brilliant 130,000 word commentary by James R. Newman, member of the Board of Editors of *Scientific American Magazine*.

Every Field of Mathematical Thought

Do you know what the smallest thing in the Universe is? The biggest? The fastest? Read D'Arcy Thompson's essay on *Magnitude*. From Von Neumann's classic *Theory of Games* to the mathematics of music—even of metaphysics and golf—every field of mathematical thought is represented.

Two basic books are included in full: Jourdain's *The Nature of Mathematics* and Turnbull's *The Great Mathematicians*.

Only a very small fraction of the authors and titles can be included in the partial contents listed here. In their entirety they are irresistible to all who respond to the miracle of the human mind that dares to chart the galaxies, weigh earth and atom, outguess

chance, invent the straight line, add irrational numbers, and describe infinity.

How to Take Advantage of This Offer

In order to make this great library of books more easily available, your set not only will be sent for a 10-day trial examination but, if desired, it may be purchased on the easy terms offered below.

To examine it in your home for 10 days, simply fill out the order form and mail it today. A set will be sent to you at once. If you are not absolutely sure that you and your family will place the value of THE WORLD OF MATHEMATICS at much greater than its cost, return it to us and owe nothing. Otherwise, you may (if you wish) remit only \$1.95 in 10 days and \$4 monthly for two months, plus postage, as payment in full. At all bookstores, or mail coupon to: SIMON AND SCHUSTER, Publishers, Dept. 100, 630 Fifth Avenue, New York, N. Y. 10020.

10-DAY TRIAL EXAMINATION

**SIMON AND SCHUSTER, Publishers, Dept. 100
630 Fifth Avenue, New York, N. Y. 10020**

Please send me.....sets of THE WORLD OF MATHEMATICS; in four soft-bound volumes, boxed, over 2500 pages, illustrated. If after browsing through it leisurely for 10 days I am not completely delighted, I will return the set(s) and owe nothing. Otherwise I will remit only \$9.95 per set — in three payments consisting of \$1.95 within 10 days, and \$4.00 per month for two months (plus postage) for each set.

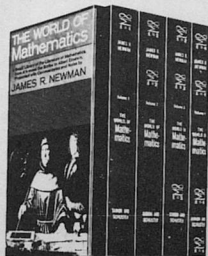
CHECK HERE if you prefer to examine the De Luxe Edition — four handsome, hard-bound volumes, gold-stamped, boxed. Same 10-day examination offer. If you decide to keep the De Luxe set(s), remit only \$5 per set within 10 days, then \$5 per month for each set for four months, plus full postage charges with the last payment.

Name.....
(PLEASE PRINT)

Address.....

City.....Zone...State.....

ADDED SAVINGS: Check here if you are enclosing \$9.95 per soft-bound set (\$25 per De Luxe hard-bound set) as payment in full. Then we will pay all postage. Same 10-day privilege of return for full refund applies.



MAIL
ORDER

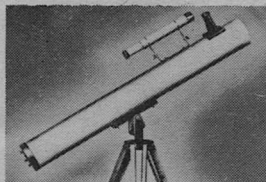
SHOPPING MART



EXCELLENT
for
XMAS
GIFTS!

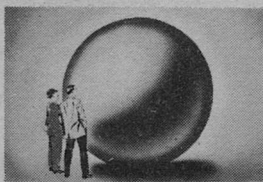
A selection of products available by mail for readers of Science Digest.

All merchandise sold on a money-back guarantee. Order Direct by Stock No. Send check or M.O.



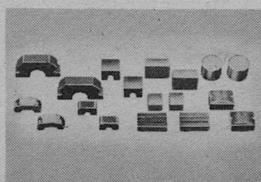
3" Astronomical Telescope

See the stars, moon, phases of Venus, planets close up. 60 to 180 power. Aluminized and overcoated 3" diameter f/10 primary mirror, ventilated cell. Equatorial mount with locks on both axes. Equipped with 60X eyepiece and mounted Barlow lens. 3X finder telescope, hardwood tripod. Included FREE: "STAR CHART"; 222-page "HANDBOOK OF HEAVENS"; "HOW TO USE YOUR TELESCOPE" book. \$29.95 ppd. Order No. 85,050-A. Edmund Scientific Co., Barrington, New Jersey 08007.



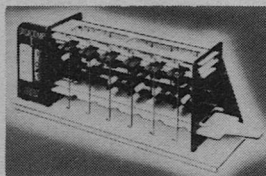
Giant Surplus Balloons

"Balls of fun" for kids, traffic stoppers for stores, terrific for amateur meteorologists. Create a neighborhood sensation. Great backyard fun. Exciting beach attraction. Amateur meteorologists use to measure cloud heights, wind speed, and temp. Made of heavy black rubber. Inflate with vacuum cleaner or auto air hose; or locally available helium for high rise. 8" diam. \$2.00 Ppd. Order Stock No. 60,568-A. Edmund Scientific Co., Barrington, N.J. 08007.



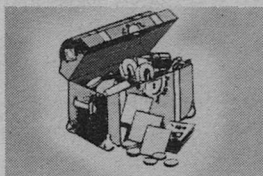
GIANT SALE SURPLUS ALNICO MAGNETS

Save 66% to 90% of Original Cost. Terrific bargains. We bought entire inventory of famous manufacturer who discontinued production. Nine different types and sizes. Set of 18 assorted magnets includes "U", bar, cylinder. All of highest quality, two of each type. Wt. 1 lb. 2 oz. \$4.00 Ppd. Order No. 60,581A. 3-lb. Assortment of 18 as shown plus variety of others. Edmund Scientific Co., Barrington, N.J. 08007.



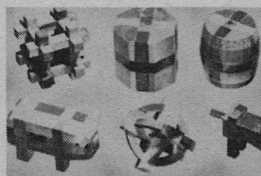
New Model Digital Computer

Solve problems, tell fortunes, play games with miniature version of giant electronic brains! Adds, subtracts, multiplies, shifts, complements, carries, memorizes. Colored plastic parts easily assembled. 12" x 3 1/2" x 4 3/4". Incl. step-by-step assembly diagrams, 32-p. instruction book covering operation, computer language (binary system) programming problems & 15 experiments. \$5.98 Ppd. Order No. 70,683-A. Edmund Scientific Co., Barrington, N.J. 08007.



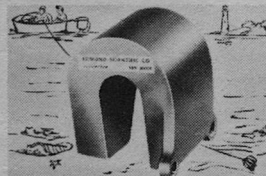
SCIENCE TREASURE CHESTS

Hundreds of thrilling experiments plus a Ten Lens Kit to make telescopes, microscopes, etc. Incl.: extra powerful magnets, polarizing filters, compass, one-way mirror film, diffraction grating, many other items. \$5.50 Ppd. Order Stock No. 70,342-A. Deluxe Chest: Above plus crystal growing kit, electric motor, molecular set, and lots more. \$10.50 ppd. Order Stock No. 70,343-A. Edmund Scientific Co., Barrington, New Jersey 08007.



WOODEN SOLID PUZZLES

Here's a fascinating assortment of 12 different puzzles to provide hours of pleasure and stimulate ability to think and reason. Animals and geometric forms. Take them apart and reassemble them. Lots of fun for the whole family—young and old. Will test skill, patience and ability to solve problems. Order yours now. \$3.00 Ppd. Order Stock No. 70,205-A. Edmund Scientific Company, Barrington, New Jersey 08007.



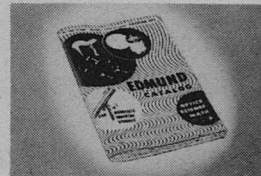
"FISH" WITH A MAGNET

Go treasure hunting on the bottom! Fascinating fun & sometimes profitable! Tie a line to our 5-lb. Magnet—drop it overboard in bay, river, lake or ocean. Troll it along bottom—your "treasure" haul can be outboard motors, anchors, other metal valuables. 5-lb. Magnet is war surplus—Alnico V Type—60v't cost \$50. Lifts over 150 lbs. on land—much greater weights under water. \$12.50 Ppd. Order Stock #70,571-A. Edmund Scientific Co., Barrington, N.J. 08007.



CRYSTAL GROWING KIT

Do a crystallography project—illustrate with large beautiful crystals you grow yourself. Study & demonstrate factors affecting growth, refraction, piezoelectric effect, symmetry, etc. Incl. book "Crystals & Crystal Growing" plus generous supply of chemicals to grow 7 large display crystals (clear, purple, blue-green, green and red). \$9.50 Ppd. Order Stock No. 70,336-A. Edmund Scientific Co., Barrington, New Jersey 08007.



Giant Free Catalog

Completely new 1967 Catalog. 148 pages packed with nearly 4,000 unusual bargains. Exciting new categories. Many new items. 100's of charts, illustrations. Many hard-to-get war surplus bargains. Enormous selection of telescopes, microscopes, binoculars, magnets, magnifiers, prisms, photo components, etc. For hobbyists, experimenters, workshops. Shop by mail. No salesman will call. Write for Catalog "A" to Edmund Scientific Co., Barrington, N.J. 08007.

analog

science fiction — science fact

JOHN W. CAMPBELL
Editor

KAY TARRANT
Assistant Editor

HERBERT S. STOLTZ
Art Director

ROBERT E. PARK
Business Manager

WALTER J. McBRIDE
Advertising Manager

NEXT ISSUE ON SALE
NOVEMBER 10, 1966
\$6.00 per year
in the U.S.A.
60 cents per copy

Cover by
Kelly Freas

Vol. LXXVIII, No. 3 November 1966

SHORT NOVEL

QUARANTINE WORLD, Murray Leinster 8

SHORT STORIES

FACTS TO FIT THE THEORY, Christopher Anvil 58

LETTER FROM A HIGHER CRITIC, Stewart Robb 91

SERIAL

TOO MANY MAGICIANS, Randall Garrett 97

SCIENCE FACT

DIMENSIONS, ANYONE?, John D. Clark, Ph. D. 76

READER'S DEPARTMENTS

THE EDITOR'S PAGE 5

THE ANALYTICAL LABORATORY 75

IN TIMES TO COME 165

THE REFERENCE LIBRARY, P. Schuyler Miller 166

BRASS TACKS 173

COPYRIGHT © 1966 BY THE CONDÉ NAST PUBLICATIONS INC. ALL RIGHTS RESERVED. PRINTED IN THE UNITED STATES OF AMERICA. Analog Science Fiction/Science Fact is published monthly by the Condé Nast Publications, Inc. Executive, Publishing, Editorial and Advertising offices: 420 Lexington Avenue, New York, N.Y. 10017. I.S.V. Patévitch, President; Alfred W. Cook, Treasurer; Mary E. Campbell, Secretary. Second class postage paid at New York, N. Y. and at additional mailing offices, under the Act of March 3, 1879. Subscriptions: In U. S., possessions and Canada, \$6 for one year, \$10 for two years, \$13 for three years. Elsewhere, \$8 for one year, \$16 for two years. Payable in advance. Single copies: In U. S., possessions and Canada, 60¢. Six weeks are required for change of address. In ordering a change, write to Analog Science Fiction/Science Fact, Boulder, Colorado 80302. Give both new and old address as printed on last label. The editorial contents have not been published before, are protected by copyright and cannot be reprinted without the publisher's permission. All stories in this magazine are fiction. No actual persons are designated by name or character. Any similarity is coincidental. We cannot accept responsibility for unsolicited manuscripts or art work. Any material submitted must include return postage.

POSTMASTER: SEND FORM 3579 TO ANALOG SCIENCE FICTION/SCIENCE FACT, BOULDER, COLORADO 80302.

EDITORIAL AND
ADVERTISING OFFICES:
420 LEXINGTON AVENUE
NEW YORK, N. Y. 10017

FDA

THE FRANTIC DITHERING ADMINISTRATION

The powerful FDA is issuing some more edicts as to what Truth is. It is unfortunate that they don't keep up with the data on the field involved.

The latest item is the requirement that vitamin supplements be labeled:

"Vitamins and minerals are supplied in abundant amounts by the foods we eat. The Food and Nutrition Board of the National Research Council recommends that dietary needs be satisfied by foods. Except for persons with special medical needs, there is no scientific basis for recommending routine use of dietary supplements."

Clearly, by definition, that is one of those precisely true statements—because if you turn up with pellagra, that proves you have a "special medical need."

However, it is equally clear that the intent of that labeling is to discourage the use of vitamin and/or mineral supplements.

The FDA might, however, have

overlooked the recently published discovery that a large proportion of schizophrenic psychotics can be brought back to sanity by massive B-vitamin dosage.

It's long been known that B-vitamin shortage has marked mental symptoms—indecision, inability to remember, loss of confidence and sense of security, to and including hallucinations and acute neuroses.

The use of antibiotics in treating bacterial infections such as earache, infected finger, et cetera, frequently results in the patient showing marked mental disturbance—because the antibiotic not only kills off the infective bacteria of the target area, but also the symbiotic intestinal flora, which normally provide us with a large proportion of the B vitamins we need, and can't synthesize for ourselves.

One of my daughters, after a five-day course of antibiotic, started hallucinating very definitely—which, believe me, is a very

frightening thing to a parent. Two hundred milligrams of B-1 ended it in five hours.

Now indecisiveness, poor memory, loss of confidence, always start as "subclinical" factors—the victim doesn't know he's a victim, partly because he *has* lost judgment ability. A doctor, examining him, can't detect it, because the phenomenon is at too low a level to be clearly identifiable. A psychiatrist will, inevitably, seek a psychiatric cause, if he does detect its presence.

Therefore, the victim is not going to be rated as having a "special medical need."

The fact is that the "minimum adult requirement" of vitamins is about as meaningful as the "average adult height."

The female of the species doesn't have the same average height as the male. And the female of the species seems to have a markedly lower efficiency of use of ingested vitamins. That fact, combined with the fact that she also tends to eat less total food means she has a strong tendency to be a victim of subclinical avitaminosis.

I know of one woman in a suburban town who was put on a low-cholesterol diet, and the doctor prescribed one of the "ethical pharmaceutical house" multivitamin supplements because of the somewhat limited diet. The vitamin pills contained several times the "minimum daily requirements"

of all the important vitamins.

Since this happened in a very-high-average-income New York suburb, the poor doctor had no experience with what the woman came down with—a fully developed case of pellagra, complicated with liver-and-gall-bladder syndrome. Pellagra is an avitaminosis found among Egyptian fellahin, African and Central American natives, and the poorest sharecroppers in the South. You don't find that sort of malnutrition disease in a high-income suburb! Particularly in someone getting more than the daily adult minimum requirements of vitamins!

That it was pellagra was readily confirmed; all the typical symptoms were present—mental confusion, depression, indecisiveness — and a very heavy dosage of B-vitamins, particularly B-6, made an almost miraculous change.

The low-cholesterol diet was dropped with a thud; a diet heavy of eggs—one of the world's best gall-bladder stimulants—with inositol and choline supplements rapidly cleared up the gall-bladder syndrome.

Carleton Frederick's books on nutrition and diet very definitely work, and very massively disagree with the FDA's pronouncements.

A large proportion of American women today are running subclinical vitamin deficiencies—because of individual variations in efficiency of absorption and utili-

zation of the vitamins. The analyses of vitamin content in foods are now a good many decades old—and I'm willing to bet that if those assays were repeated, the results might be considerably different, too.

Reason: Plant breeders have made enormous strides in developing commercial seeds and stocks—vegetable strains that grow faster, fuller, and are more easily cultivated, that ship better, and hold their freshness longer after picking. The cost of fresh garden vegetables has not increased in proportion to the increase in labor costs largely because of that very efficient and successful research work. The modern strains package better and more uniformly.

But—how much attention has been paid to what happened to the vitamin content of the plant in the course of selecting for all those other characteristics? Maybe the new super-wilt-resistant strain resists disease because it doesn't produce a vitamin the attacking organism needs to survive?

I do know this: The Indios of Central America suffered for unrecorded centuries from a malnutrition disease known as "kwash," caused by the lack of one of the essential amino acids required to build proteins in the body. About a third of their babies died of it, and those who survived were permanently weakened.

The trouble was, the dominant

staple of their diet was corn—which is a fine food indeed, except that it supplies only about a tenth of that amino acid needed. There were a number of plants that could be grown there, that would supply an adequate amino acid intake—soybeans, for one. But the natives had dietary traditions; they would *not* accept those alien and unfamiliar foods that had to be prepared in an unfamiliar way. (So you wouldn't accept the Chinese delicacy of well-aged eggs—and the Chinese think cheese is rotten milk.)

The anthropologists, dieticians, public health people, and all other efforts at persuasion failed totally.

The botanists solved it; they developed a strain of corn with a different metabolism; it *does* produce the required amino acid—and the natives will accept it because it looks like corn, grows like corn, tastes like corn, and can be prepared by traditional methods. It just doesn't digest the same!

Speaking of malnourished natives brings up another FDA ruling. Some while back, a chemical engineer developed a commercially practicable process for producing a dehydrated fish-protein powder at very low cost—so cheap that it could be supplied in quantities to the malnourished people of the world at practical prices.

The FDA ruled the product "unfit for human consumption," be-

continued on page 178

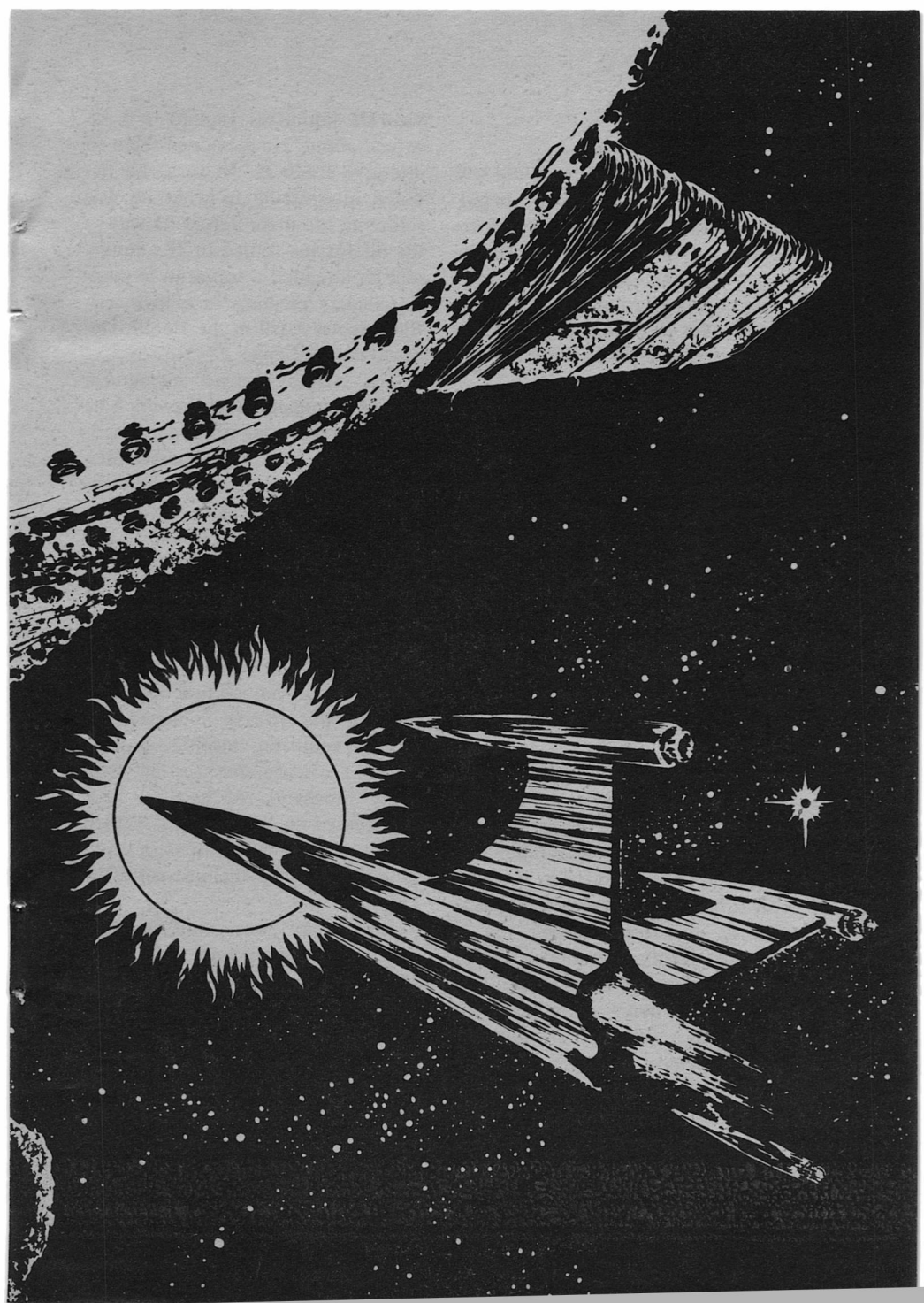
Quarantine World

Usually a planet with a medical problem is most happy to get the help of one of the Med Service's very special doctors. But this time Med Service's Dr. Calhoun found nothing but the most furious and fanatic opposition!

MURRAY LEINSTER

Illustrated by Kelly Freas





There wasn't a thing he could put his finger on, but from the beginning Calhoun didn't feel comfortable about the public-health situation on Lanke. There wasn't anything really wrong about it, of course. Not anything. But Calhoun felt that it was just a little bit too good to be true.

He and Murgatroyd the *tormal* had arrived in the little Med Ship *Esclipus Twenty*. They'd been greeted with effusive cordiality. Health Department officials opened everything to Calhoun's examination, with a smoothness and speed that almost looked like the planetary authorities were anxious for him to finish his job and get away from there. The Health Minister practically jumped through hoops to provide all the information he could ask for.

The communicable diseases appeared to be well in hand. The average age-at-death for the planet was the fraction of a decimal-point low, but it was accounted for by a microscopic rise in the accidental-death reports. Calhoun couldn't find a thing to justify the feeling that a cover-up job was being done. If it was, it was being done perfectly. But he was a little bit irritated by his own suspicions.

Still, he went through the routine for three sunny days plus evenings. He had some new developments in the art of medicine that Med Ser-

vice Headquarters wanted to have spread about. He explained them to attentive listeners. In turn, he listened interestedly to what he was told, and the night before he was to lift off for his return to Headquarters he attended a top-drawer medical-society meeting in a high-ceilinged lecture hall in the Health Department Building.

The Health Minister introduced him in a typical speech in which he expressed the value of modern medical science in strictly businessman terms. He mentioned that absenteeism due to sickness was at the lowest figure ever known in the industries of Lanke, and the fact added not less than so many hundreds of millions of credits to the gross annual product of Lanke. The extension of hormone-balance checkups, with other preventive practices, had reduced the overall incidence of sickness requiring hospitalization to the point where in the past ten years many thousands of hospital beds had ceased to be required. Which added many other millions of credits every year to the prosperity of Lanke.

And there was another item which nobody thought about, but was perhaps the most valuable of all the achievements of medical science. He referred to the fact that epidemics were now substantially impossible. It was not necessary to calculate what an actual epidemic might cost. One could think simply of what the danger alone might be,

and see what medical science added to the planetary wealth. In interstellar trade alone, the simple threat of a dangerous plague on Lanke would mean the quarantining of the planet, and that would mean a financial panic, the closing of factories whose products could not be sold, widespread unemployment, appalling drops in the values of securities, and it could mean runs on banks, the abandonment of construction projects and even curtailment of agricultural production! The wealth that modern medical science contributed to the economy was the true great achievement of the medical profession! Much of this achievement was due to Lanke physicians alone, but the Interstellar Medical Service had made its contributions, too, and he was happy to present to them Dr. Calhoun of that Service, whom many of them had met and talked to in the past few days.

Calhoun's speech, of course, was anticlimactic. He said the normal thing for such occasions. It amounted to polite congratulations to the doctors of Lanke for doing what doctors were supposed to do. He did feel, and definitely, that something was being hidden from him, but he hadn't the evidence to justify saying so. He made a speech in no wise remarkable, and sat down to wait for the end of the meeting.

He'd much rather have been

aboard the Med Ship. Murgatroyd was much better company than the Health Minister beside him. Murgatroyd didn't think of every possible human activity in terms of the money it made or saved. Murgatroyd had enjoyed his stay on Lanke. Calhoun hadn't.

Murgatroyd didn't have to pretend interest while people made dull speeches. Murgatroyd was a small, furry, cordial animal who liked humans and was liked by them. Aground, in human society, he made friends and charmed people and managed to get much petting and quantities of the sweet cakes and coffee he adored. Murgatroyd had fun. There'd been no call for use of the special talent that only *tormals* in all the galaxy possess, and he'd had a happy time. Calhoun looked forward to the restfulness of being back in the Med Ship with him, unbothered by the conviction that something was being put over that he couldn't spot.

Then, suddenly, there were shoutings in another part of the building. A blaster rasped savagely. More shouts. More blasters went off in a storm of fire. Then there was dead silence.

In the lecture hall there was absolute stillness as startled men listened for more of those decidedly unusual sounds.

They didn't come, but a man in police uniform did enter the back of the hall. He wore a look of most un-police-like terror on his face.

He spoke to the first doctor he came to inside that door. The doctor's face went gray. He went unsteadily out. Someone asked a question of the policeman. He answered and went out also, as if reluctantly. Others at the meeting moved to ask what had happened and what the policeman said.

The news—whatever it was—went about the hall with extraordinary dispatch. As each man heard, he paled. Some seemed near to fainting. There began, immediately, a universal attempt to leave the lecture hall without attracting attention.

"Dear me!" said the Health Minister, sitting on the speakers' platform beside Calhoun. "What can be the matter? Wait here and I'll find out."

He moved away. He stopped someone and asked a question. He was startled. He asked more questions. He came back to Calhoun in something like panic.

"What was it?" asked Calhoun.

"A . . . a burglar," said the Health Minister. His teeth seemed to be trying to chatter. "Just a burglar. There've been . . . robberies. We try to keep down crime, you know. It's an economic waste. Terrible! But this man . . . was trying to commit a burglary in . . . this building. He was discovered and he . . . jumped or fell from a window." The Health Minister wiped beads of sweat from his forehead. "He's dead. A . . . a shocking

thing, of course. But not important. Not important at all. Not worth mentioning . . ."

Calhoun didn't believe him. The Health Minister was scared. But there was no danger here! He was afraid of something a politician might be afraid of. It was that sort of terror. It wasn't too likely, but it might be linked to whatever had been covered up so Calhoun couldn't discover it. The policeman who'd come in had been frightened, too. Why? And then Calhoun looked at the medical society members in the lecture hall. The meeting had been ended by whatever word passed from man to man. The members of the society were leaving. They tried to be dignified, but also they tried to hurry. There was something very wrong, and the Health Minister had lied about it. Obviously, more questions would only produce more lies. So Calhoun shrugged.

"Anyhow," he observed, "the meeting's over. It's breaking up. I'll get back to the spaceport."

His actual intentions were somewhat different.

"Yes. Yes. Of course," said the Health Minister, shivering. He didn't seem to think of escorting Calhoun out.

Calhoun joined those leaving the hall and the building. They crowded down the stairs, not waiting for a slower lift. Many of them looked white and sick. Calhoun reached the

outer air. Only yards from the exit there was a half-circle of burning flares, stuck in the ground. They bathed the ground and the side of the Health Department Building with a pitiless glare.

There was a dead man on the ground, obviously fallen from a height. None of the eminent physicians streaming out of the building so much as glanced at him. They hastened away in the darkness. Only Calhoun approached the flares. A policeman on watch—badly frightened—warned him back. Calhoun considered coldly. Then he stepped into the light past the protesting officer.

The dead man's mouth was open in a gruesome fashion. While the policeman continued to protest, Calhoun made a brisk, superficial examination. The dead man had lost teeth by dental caries, which was remarkable. He had other cavities filled with metal—a process abandoned for centuries. His garments were not made of normal materials, but of some fiber Calhoun did not recognize. There was a scar on his cheek. Calhoun, bending over, saw that tissues on either side of his nose were swollen and pigmented. The appearance was abnormal.

He picked up a bit of cloth, torn in the dead man's fall down the side of the building. As he examined it, a voice gasped:

"Calhoun! What are you doing?" It was the Health Minister, leaving

the building of his cabinet department. He trembled uncontrollably. "Stop it! Drop it!"

"I was looking at this man," said Calhoun. "It's queer—"

"Come away!" cried the Health Minister hysterically. "You don't know what you're do—" He stopped. He mopped his face, shaking. Then he said, desperately attempting a normal tone: "I'm sorry. But it would be a good idea for you to get back to your ship. This man was a criminal. Some of his confederates may be about. The police are going to make a thorough search. We . . . we civilians should get out of the way."

"But I'd like to look him over!" protested Calhoun. "There's scar tissue on his face! See it? Since when have doctors allowed scar tissue to form in healing wounds? And he's lost some teeth and there's a cavity in one of his incisors! How often have you seen dental caries? They simply don't happen any more!"

The Health Minister swallowed audibly.

"Yes. Yes . . . now that you point it out, I see what you mean. We'll have to do an autopsy. Yes. We'll do an autopsy in the morning. But right now, to cooperate with the police—"

Calhoun looked again at the limp, crumpled figure on the ground. Then he turned away. The last of the medical society members came out of the building.

They melted away into the night. Calhoun could almost smell panic in the air.

The Health Minister vanished. Calhoun hailed a skimmer-cab and got into it. On the way to the spaceport he considered darkly. He'd evidently seen something he wasn't supposed to see. It might well be connected with what he hadn't been able to put a finger on. He'd told the Health Minister that he was going back to the spaceport, but that hadn't been his intention. He'd meant to find a tavern and buy drinks for its habitués until somebody's tongue got loosened; news of a man killed by the police would set tongues wagging in certain kinds of society on any planet.

But he'd changed his intention. He had a scrap of cloth in his pocket from the dead man's clothing. There was a bit of blood on it. It was extraordinary. The dead man was extraordinary. He'd frightened everybody who seemed to know something he, Calhoun, was not supposed to discover. Considering all he did know, he planned to find out a few things more from that cloth-sample.

The skimmer-cab reached the spaceport gate. The guards waved it on. It reached the Med Ship and settled to a stop. Calhoun paid the driver and went into the Med Ship, to be greeted with extravagant enthusiasm by Murgatroyd, who explained with many shrill "*Chee-*

chees" that he did not like to be left alone when Calhoun went elsewhere.

Calhoun said: "Hold it, Murgatroyd! Don't touch me!"

He put the sample of cloth with its few specks of blood into a sterile bottle. He snapped the elastic cover in place.

Murgatroyd said: "*Chee?*"

"I've just seen a pack of thoroughly scared men," said Calhoun dryly, "and I've got to see if they were right to be scared."

He washed his hands with some care, and then extended his precautions—he felt absurd about it—to an entire change of clothing. The terror of the dead man puzzled and bothered him.

"*Chee-chee-chee!*" said Murgatroyd reproachfully.

"I know!" said Calhoun. "You want coffee. I'll make it. But I'm worried!"

Murgatroyd frisked. It was Calhoun's habit to talk to him as if he were a human being. He'd mentioned coffee, and Murgatroyd could recognize that word. He waited for the drink to be made and served. Frowning, Calhoun made it, thinking hard the while. Presently he passed over the little cup that fitted Murgatroyd's tiny paws.

"There you are. Now listen!" Calhoun spoke vexedly. "I've felt all along that there was something wrong here. And tonight something happened. It could be told in

a dozen words. It was—but not to me. A man died and it terrified two policemen, an entire medical society and the Health Minister of the planet. It wasn't the death of the man which did all this. It was something his death, or his presence, meant. But I wasn't told. I was lied to. Lied to! What did they want me to keep on not knowing?"

Murgatroyd sipped at his cup. He said profoundly: "*Chee?*"

"I suspect the same thing," said Calhoun, again with vexation. "Generally speaking, facts are hidden only from people whose job it would be to act on them. Facts have been hidden from me. What sort of facts is it my job to act on, Murgatroyd?"

Murgatroyd seemed to consider. He sipped again, reflectively. Then he said with decision: "*Chee-chee!*"

"I'm very much afraid you're right," Calhoun told him. "The local medical profession has repressed, but screaming, meemies. The Health Minister has a very vivid picture in his mind of what could happen to the economy and the prosperity of Lanke if even the suspicion of an epidemic went about. In short, Murgatroyd, it looks like a thing has been covered up so carefully that it shows. And, when as much terror as I saw is felt by anybody, I'd better get to work!"

He put part of the cloth-sample—including the small bloodstains—

in a culture medium. A fiber or two, though, he examined under a microscope. He shook his head.

"Odd! It's a natural fiber, Murgatroyd! It wasn't made. It grew! They certainly don't grow fibers on Lanke! This man isn't a native son of this planet! Quaint, eh?"

It was quaint. Synthetic fibers were better than natural ones. Nobody used natural fibers any more. Nobody!

He waited impatiently on the culture from the cloth. While it was still much too early to expect any very specific results, his impatience got the best of him. He filled a vivislide for the culture microscope which would let him watch the behavior of living microorganisms as they grew. He was startled, when he looked at the microscope screen. There were perfectly commonplace microbes in the culture broth even so early. But there was one variety that was astonishing.

A curious, dancing, spherical, pigmented organism leaped and darted madly. It visibly multiplied at a prodigious rate. When Calhoun added the Daflos reagent to the contents of the slide, certain highly specific color-effects appeared. The Daflos pathogenicity test was not infallible, but it wasn't meaningless, either. It said that the dancing, spherical microbes should be highly toxic. They produced a toxin the reagent reacted to. The rate of reproduction was astounding. It should, then, be

highly infectious and probably lethal.

Calhoun frowned over the facts. The implications were matters a businessman on Lanke would want hidden; suppressed. A businessman would lie about them, desperately, until the last possible instant. A businessman's government might very well demand of the medical profession that it take precautions without causing undue alarm. Calhoun knew why the medical men at the meeting looked scared and sick.

From the clothing or the blood of a dead man Calhoun had extracted a microbe which was probably that of a deadly plague—so said the Daflos reagents—of enormous infectivity and which the clothing, teeth, and scar tissue of a dead man suggested had come from some other world. Which was enough to worry anybody. But on Lanke—any physician who caused the danger to be realized, the facts to be known, and a planetary quarantine slapped on Lanke—such a physician would instantly be discredited and subjected to merciless hostility by his government. He'd be ruined professionally, financially and socially, and his family would share in his disgrace and ruin. The terror of the doctors had reason. Until the dead man was found, they'd had no reason for unease. When he was found, they knew instantly what the culture microscope had just told Cal-

houn. The doctors of Lanke were in a very bad fix. The government would not—would definitely not—permit a planetary quarantine if they could help it. It would be based on the automatic assumption that a financial panic and an industrial collapse must be avoided whatever else had to be allowed. But—it would be very bad!

Calhoun began to see this with a bitter clarity. A curious flicker of light behind him made him turn. The outside-field detector-light was glowing on the control board. Normally it lighted only to report that the force fields of a landing grid touched the Med Ship when the ship was to be brought to ground, or else when it was to be lifted off to a distance at which a Lawlor drive could be used. But there was no reason for it to come on now!

Then the G.C.—General Communication—speaker said:

"Calling Med Ship Esclipus Twenty! Calling Med Ship Esclipus Twenty! Spaceport control office calling Med Ship Esclipus Twenty!"

Calhoun threw the answer switch.

"Esclipus Twenty here," he said shortly. *"What's the matter?"*

"Checking, sir," said the voice detachedly. *"Are you sealed up?"*

Calhoun glanced at the air lock. Aground, of course, it could be opened like the two sets of doors of a vestibule, with direct communication between the inside of the

ship and the outside air. But without thinking particularly about it, Calhoun had left the Med ship with its own air-renewal system operating.

"Yes," said Calhoun. "I'm sealed up. Why?"

"*Message for you, sir,*" said the voice.

There was immediately the voice of the Health Minister, racked and upset, coming out of the speaker.

"*You are requested to leave Lanke at once,*" it said agitatedly. "*Complaint will be made to the Med Service that you attempted to interfere with police measures against crime. Your ship will be lifted off as of now, and you are forbidden to return.*"

Calhoun said angrily: "The devil you say! I declare a quarantine—"

The communicator clicked. The Health Minister had cut off.

The detached control-office voice said woodenly: "*I'm lifting you off, sir, as ordered. Lift-off coming—*"

Calhoun's mouth opened, to swear. Instantly he saw very many more things it had not been the intention of the Health Minister to tell him. He clenched his hands. This wasn't good!

But then the Med Ship stirred, and instantly thereafter seemed to fall toward the sky. Calhoun angrily flipped on the outside vision plates and his sensations and the statements of the control office voice agreed. The Med Ship was being lifted off. Below it, the lights of

the spaceport receded. Then the street-lights of Lanke's capital city were coming into view from behind tall buildings. They winked into sight from farther toward the dark horizon. The small spaceship went up and up.

The smaller, fainter lights of another city appeared. A little while later, the lights of still another. The capital city's pattern of streets grew ever smaller. More city-glow appeared and seemed at once to dwindle and to drift toward and under the rising Med Ship. There was nothing to be seen anywhere except those minute, diminishing speckles of light.

Presently the ship went into cloud-cover and for seconds the vision screens were blank. Then it reached clear air again and there was nothing but the star-lit cloud-cover below, and ten thousand million stars above.

The Med Ship was being lifted by the spaceport's landing grid. Eventually the stars crept downward, and seemed to draw together, and the world of Lanke became only an ensmalling circular patch of darkness against the galaxy's all-surrounding suns.

The indifferent communicator-speaker spoke again: "*Calling Med Ship Esclipus Twenty! Calling Esclip—*"

"*Esclipus here,*" said Calhoun coldly.

"*You are now five diameters out,*" said the unemotional voice,

"and I am about to release you. Check?"

"Check," said Calhoun sardonically.

He flipped off the G.C. transmitter. He felt the new freedom of the Med Ship. He spoke in an even more sardonic tone to Murgatroyd:

"This is a first, Murgatroyd! It's the first time a Med Ship man has ever been thrown off a planet because he found out too much!" Then he added with a definite grimness: "It happens that throwing us off the planet verifies what I was only partly guessing and requires what I want to do."

His tone disturbed Murgatroyd, who, of course, could not understand what had happened. But he was upset because Calhoun was. Murgatroyd said shrilly: "*Cheer-chee!*"

"We're going back to Headquarters," said Calhoun sourly. "We can take our news there quicker than we can send it, and anyhow they'll need more than you and me on Lanke to handle a plague—especially if it's a bad one. But I don't like it!"

He was angry. But it wasn't unprecedented for planetary governments to try to cover up things that would be bad for business. There'd been attempts before now to conceal outbreaks of disease. Some had probably succeeded. Those that failed turned out very badly

indeed. Minor epidemics had become major plagues when a prompt call for Med Service help would have kept them minor and wiped them out. The Med Service had big ships, half a mile long and longer, with laboratories and equipment and personnel that could handle emergencies of planetary size. But very, very many lives had been lost because of governments subordinating everything but business to business. They'd tried to prevent business crises and financial panics and industrial collapse. They'd only delayed them—at incalculable costs in lives.

There was another factor, too. If a planetary government once concealed an emergency of this sort, it would never dare admit it later. A certain world in Cygnus had concealed a serious epidemic in order to protect its interstellar trade. Later the fact was learned by Med Service. It made a check of the public health status of that reckless world, in view of its just-learned medical history. It discovered and announced an imminent second epidemic—a perfectly accurate statement of fact. The first epidemic had not been cleaned up properly by the local physicians. The epidemic was cyclic—with a normal period of high-incidence after every so many years. So the Med Service quarantined that world—justly—and took stringent measures—wisely—and there was consequently no second plague.

But there were many hard-boiled businessmen who fumed that the Med Service had no reason for its action; that it had been punishing the Cygnus world for violating a primary rule for galactic public health. The planet had concealed a disease that might but hadn't been passed on to its customers. Businessmen believed the quarantine a penalty.

So Calhoun knew grimly that if there'd been a hidden plague on Lanke in the past, it would never be admitted now. Never! And any doctor who revealed the historical fact. . . . The reason for the silence of Lanke's doctors was abundantly clear.

But this situation wasn't as simple as the Cygnus affair. The dead man Calhoun had partly examined wasn't a native of Lanke. Yet the doctors of Lanke knew all about him and the plague of which he was probably dying when blaster bolts drove him to a quicker death. He didn't belong on Lanke. Worse, he didn't belong anywhere else. His state of civilization wasn't appropriate anywhere in the galaxy. But he was positively a man. Calhoun had seen drama tapes about lost colonies and villages of castaways, and even elaborate hiding places for refugees from the laws of planets. But he didn't believe them.

"Still," he said irritably, "where did he come from?"

He felt that there were too many questions already. But there was

something definite to do. Several things. For the first of them he swung the Med Ship about and aimed it at the small, remote star cluster where Sector Headquarters was established. He punched the computer keys. He said: "Overdrive coming, Murgatroyd! Five . . . four . . . three . . . two . . . one . . ."

There was a sudden intolerable giddiness and an instant's insupportable nausea, and the sensation of a spiral fall to nowhere. Then, abruptly, everything was quite all right. The Med Ship was in overdrive; surrounded by a cocoon of stressed space which changed its own position many times faster than the speed of light, and carried the little Med Ship with it.

Calhoun paced up and down the control room, scowling. The background tape began to make its unobtrusive sounds. In overdrive, of course, the Med Ship was wholly isolated from the normal universe of galaxies and stars. There was, in theory, only one conceivable way in which it could be affected by anything outside its own overdrive field, and that had never happened yet. So there could have been a sepulchral, nerve-racking silence in the small spacecraft but for such sounds as the background tape provided.

They were trivial, those sounds. One had to pay close attention to hear them. There was the sound

of rain, and of traffic, and of wind in treetops and voices too faint for the words to be distinguished, and almost inaudible music—and sometimes laughter. The background tape carried no information; only the assurance that there were still worlds with clouds and people and creatures moving about on them.

But sensory assurance of the existence of a real cosmos is as essential to a man's subjective health as hormones and enzymes to his body. Calhoun would have suffered from the lack of such noises if they'd stopped, but he paid no attention to them when they began.

"That man," said Calhoun abruptly, "wasn't a normal inhabitant of Lanke, Murgatroyd! He didn't grow up on it! He carried microscopic flora and fauna with him—as don't we all?—but they were very probably as alien to Lanke as the man himself! The doctors knew about it, and they were afraid. Afraid! But where did he come from?"

Murgatroyd had retreated to his little cubbyhole in the control room. He was curled up there with his furry tail draped across his nose. He blinked at Calhoun. It is a characteristic of *tormals* that they imitate the actions of humans as parrots imitate human speech. When Calhoun talked conversationally, Murgatroyd adored pretending that he discussed abstruse subjects with him. But now Calhoun really talked to himself. Murgatroyd realized it.

He said, "*Chee*" and prepared to take a nap.

Presently Calhoun began an angry, systematic search through the Med Ship's microfilm library. It was a remarkable storage system for facts. It reduced a page of text to the size of a printed period, and the *Esclipus Twenty* was able to carry more reference material for a Med Service man's needs than most national libraries contained. The data-retrieval system was one of the great technical achievements of the previous century. Calhoun had at his fingertips more information on medical subjects than earlier times could have imagined.

But the library had nothing to say about a plague which produced—doubtless among other symptoms—enlarged and stiffened and pigmented tissues on either side of a man's nose. Nor did it have any record of a microorganism exactly matching the one he'd got from the cloth of the dead man's garments—or the specks of blood included—and suspected of the water he'd washed in.

The really basic question remained: Where had the inexplicable dead man come from?

Calhoun checked the progress of his cultures. All thrived.

Calhoun set up an imaginary globe in space, with Lanke as its center. He set the data-retrieval unit to find a habitable world, not known to be colonized, in that volume of emptiness. An abortive at-

tempt at colonization might have left some castaways behind. That would raise almost as many questions as it answered. But it seemed the most likely approach to the problem.

There was no habitable uncolonized world in the Stellar Directory portion of the ship's microfilm records. He tried a larger volume of space. Then a still larger one. Nothing.

He tried for less than a habitability-one world. Individual survival might be possible where a colony could not live. He set the search-unit to work again. It found a world which was airless. A gas-giant world with intolerable gravity. Another which had an equatorial temperature of minus sixty degrees at noon. Another . . .

Ultimately one turned up which looked plausible. It was the third-orbit planet of a Type G sun. It was not unduly remote from Lanke. It was listed under the name Delhi. Shallow, marshy seas. A single continent. Temperature, not unbearable. Life-types not unduly dangerous. Atmosphere typical of third-orbit planets but with .04% of a complex methane-derivative gas, apparently harmless. This data had been sent up from an exploring spaceboat, later lost. There were what were believed to be the ruins of a human settlement, photographed from space. Classed as habitability zero because no ship had ever returned to its home

spaceport after landing on it. The inimical factor was assumed to exist in the atmosphere, but was not known.

Here was material for guesses, but nothing more. It threw no light on where the dead man with bad teeth had come from. Calhoun went over all the other reports. No other was even as promising as this.

He had been seven hours in overdrive when the projected letters of the microfilm material separated into twins. Every letter doubled. The reading-matter became unreadable. With one eye covered, reading was just barely possible, but he could see nothing with real clarity.

He took his temperature. He felt perfectly well, but he had a high fever and his eyes grew progressively worse. He said grimly to Murgatroyd:

"I begin to see some excuse for the doctors on Lanke. Whatever they were afraid of getting, I've got! It's highly infectious, all right!"

Ten hours out from Lanke, his vision cleared again. He could fuse the images from both eyes. He continued to feel perfectly well, but his temperature was half a degree higher than three hours earlier.

"This," he told Murgatroyd, "is not according to the rules! I may have to call on you as a member of the medical profession!"

He gave himself as thorough a physical examination as one can

give himself. He used the culture microscope on his saliva, his blood—on every body fluid. Each of them showed a minute, perfectly spherical pigmented microorganism in appalling numbers. As he regarded them on the screen of the culture microscope they broke into halves, became small spheres, grew swiftly and prepared to divide again. Meanwhile they danced and darted and whirled frantically. And the reaction to the Daflos reagents indicated the presence of a deadly toxin.

“And I took precautions!” Calhoun said rather dizzily. “I washed and showered. I could almost have operated with no more attempt at a sterile environment!” He shook his head. “I think I can go a little longer. That dead man was farther along than this. I’ve time enough to call on you, Murgatroyd.”

He looked at himself in the mirror. The curious enlargement of the flesh beside his nose had appeared. He began to get out his equipment. Something occurred to him.

“The Health Minister,” he said sardonically, “didn’t quarantine me. He sent me off. And he had no fear of my reporting anything to Headquarters! I should be dead before breakout, and you couldn’t run the ship to Headquarters and it would never be found!” Then he said: “Let’s prevent such an unpleasant fate, Murgatroyd!”

He drew a small sample of blood from his arm. He injected it into Murgatroyd where a small patch of skin on the *tormal’s* flank had been desensitized almost as soon as he was born. Murgatroyd made no objection.

It was the remarkable talent of *tormals*—all *tormals*—that they could not be infected by any microorganism. They could not ordinarily contract any ailment at all. Their digestive systems rejected any substance that would impair their health, and they had a dynamic reaction to infective material. When their normal defenses were bypassed and pathogenic material was put into their bloodstream, they produced antibodies at an almost explosive rate, sufficient to rout any known harmful virus or microbe. They were valued by the Med Service because after a *tormal* had produced antibodies, their structure could be determined and they could be synthesized in any desired quantity. So whatever infection a new planet might offer, it could be brought under control.

Murgatroyd went back to his cubbyhole, yawning. He crawled in to doze. Calhoun made a mental note to check his pulse and breathing in half an hour. He, himself, felt feverish. His head seemed to rock a little. His eyes went bad again. He saw double. Murgatroyd dozed peacefully. Calhoun doggedly waited for him to react to the microscopic spheres. His heartbeat

should go up four or five counts a minute. He might run a degree of fever. He would be sleepy for two hours, or three, or even four. Then he'd wake up and his blood would contain antibodies against the material with which he'd been inoculated. He'd be back in robust health, and able to share it with Calhoun.

But it didn't work out that way. When Calhoun went to check his pulse rate in half an hour, Murgatroyd came wide awake. He said, "Chee!" in an inquiring tone. He scrambled out of his nest, filled with vim and zest for whatever the hour might bring forth. His pulse was normal. His temperature was equally correct.

Calhoun stared at him. Murgatroyd couldn't have looked healthier. He showed no sign of having needed to produce antibodies.

He hadn't. There are some diseases, contagious among animals, to which human beings are immune. There are some from which humans suffer, to which animals are not subject. More than once medical research has been halted while a hunt was made for an experimental animal in which a particular strain of microbes or viruses could live.

The plague of which Lanke was terrified and Calhoun a victim happened to be a plague to which Murgatroyd did not need to form antibodies. He was immune to it by

the simple normal chemistry of his body, and there was nothing that Calhoun could do about it. He considered that he would unquestionably die within a certain short number of days or hours. The Med Ship would drive on, to break out somewhere within a light-year more or less of its destination. From there it should make a shorter overdrive hop of no more than a million miles or two; then it should use Lawlor drive within the solar system on whose second planet the Interstellar Medical Service had its headquarters.

But if Calhoun was dead nothing of the sort would happen. The Med Ship would break out. Murgatroyd might still be alive. But he could do nothing. Eventually he would die, bewildered. And the Med Ship would never, never be found so long as time ran on. And Lanke . . .

"Murgatroyd," said Calhoun, "this is a bad business! And you're right in it. I know what I'm up against, but what am I going to do for you?"

Murgatroyd said confidently: "Chee-chee-chee!"

"I'm seeing better," said Calhoun suddenly. "It seems to come in waves of better and worse. Intermittent."

He put his hand to his face to feel the now-marked unresilient, stiffened flesh beside his nose. Murgatroyd looked hopefully at the coffeepot. He said "Chee?" There

was nothing to indicate the possibility of anything not to be anticipated. There was no reason for anything to happen.

But then, abruptly, everything changed. The *Esclipus Twenty* was in overdrive and there was only one thing which even in theory could affect her from outside. It was said that, if a ship were in overdrive and all the cosmos exploded and everything in all the galaxies ceased to be, the people in a ship in overdrive would not know of the disaster and would not hear the last trumpet until breakout-time came.

But here, at this moment, Calhoun felt a familiar and monstrous dizziness, and an equally familiar and intolerable nausea, and then all the sensations of a whirling, spinning fall toward nothingness. Simultaneously the little ship's vision screens lighted, the *Esclipus Twenty* broke out of overdrive and lay floating in space surrounded by a myriad stars, and a small but bright red light flashed luridly on the control board.

II

Murgatroyd made the first comment. It was an indignant, protesting: "*Chee-chee! Chee-chee!*"

He was accustomed to the sensations of going into overdrive and out of it again. He didn't like them. Nobody did. But Murgatroyd endured them for the sake of being where Calhoun was, being petted

by Calhoun, drinking coffee with Calhoun, and on occasion engaging in long, leisurely discussions to which Murgatroyd contributed his shrill voice and a fine conviction that he was conversing.

Now, though, he protested. Before breakout there was normally an hour-off warning, then a five-minute warning, and then a solemn *tick-tock-tick-tock* until a gong sounded and then a voice counted down to zero. Murgatroyd had learned that this was the routine for breakout. But just now the extremely unpleasant sensations had happened with no warning whatever. It was upsetting. It was a violation of the accepted order of things. He said, "*Chee-chee! Chee-chee!*" even more indignantly.

Calhoun stared at the star-speckled screens. He was entirely incredulous. The red light on the control board was notice of something solid nearby in space. But that was impossible! The Med Ship was in between-the-stars, light-years from Lanke. In between-the-stars there is nothing more solid than starlight. Solidity in this emptiness would be even more unlikely than a ship breaking out of overdrive strictly on its own decision. But the limit of improbability was reached when not only a ship broke out of itself, but the near-object warning flashed simultaneously.

Calhoun stared at the screens. It didn't make sense, unless a highly theoretic happening had occurred.

In theory, two overdrive fields might affect each other. Nothing else could. For extremely abstract reasons, it had been determined that *if* two ships passed close to each other, and *if* they were of nearly the same size, and *if* both overdrive-field units were nearly of the same strength—either or both fields could blow out. For this reason a circuit breaker was included in all overdrive designs. But the odds against such a thing were ten-plus-a-handful-of-zeroes to one. It had never before been known to happen. But now it had.

Calhoun slipped into the pilot's chair. He threw switches. Overdrive off. It had gone off by itself. Circuit checker on. A special instrument verified all contacts and connections. This instrument stuttered for an instant and then flashed the signal, "Go." A circuit breaker had operated, but it was now reset. It was the one in the overdrive circuit. Calhoun barely noticed that the G.C. speaker had come on also and now relayed the crackling and hissing noises that would-be poets call the small-talk of the stars. But Calhoun found himself gazing unbelievably at the screens.

A second-magnitude star winked out and back to brightness. A less-brilliant nearby star followed. Calhoun swung the radar and looked incredulously at what it reported. There was something in between-the-stars no more than four hundred miles away. With hundreds

of thousands of cubic light-years of space to move about in, something in overdrive had passed within four hundred miles of the *Esclipus Twenty*, and two circuit breakers had operated, and—there they were! The radar blip said the other object was a trifle smaller than the Med Ship, and it appeared to be practically motionless, moving only enough to occult two nearby stars within a few seconds.

Murgatroyd said yet again, and even more indignantly: "*Chee!! Chee!!!*"

"I didn't do it, Murgatroyd," said Calhoun abstractedly. "Quiet for a minute!"

He threw another switch and the electron-telescope came on. He searched with it. He made fine adjustments for focus. Then his face expressed blank disbelief.

The telescope screen showed another ship floating in the starlight. It was not much like any other ship Calhoun had ever seen. At first it seemed a freak; not alien but eccentric—something made by men who'd never seen a real spaceship. And there was a pipelike object sticking out of its bow.

He pressed the G.C. call-button. But first he cut off the lens that would transmit a picture of himself. He called.

"General Call!" he snapped, "General Call! Med Ship *Esclipus Twenty* making general call! What ship's that?"

There was no answer. He frowned. Only minutes since he'd discovered himself very definitely condemned to death by an unfamiliar plague germ. A little earlier he'd been thrown off the planet Lanke for discovering too much. Before that he'd seen a dead man who couldn't come from anywhere. This extremely unusual ship couldn't come from anywhere, either.

He suddenly heard murmuring voices. There seemed to be several persons speaking in low tones near an open microphone. They were in disagreement. One voice raised itself above the others, but the words were still indistinct.

"Hello!" said Calhoun sharply. "I hear your voices! Who the devil are you and what's going on?"

It occurred to him as odd that, with a plague on him and an end to all his responsibilities drawing near, he still spoke authoritatively as a Med Service man and a citizen of the galaxy to persons whose actions required an explanation. He repeated sternly:

"What's going on?"

The other ship was incredible. It was patched with patches on top of patches. It was preposterous. The electron telescope could not give the finer details in mere starlight, but it was rusty and misshapen and no spaceport would ever lift it off the ground! Yet here it was.

A voice rasped from the G.C. speaker overhead: "*Look! What do you think you're doing?*" As Cal-

houn blinked, it said pugnaciously: "*What d'you think you're doing to us? You know what I mean!*"

Calhoun said coldly: "This is Med Ship *Esclipus Twenty*. Who are you?"

"*Med ship?*" snapped the angry voice. "*Wha-*"

The voice stopped abruptly, as if a hand had been clapped over someone's mouth. There were more murmurings.

Calhoun grimaced. He didn't understand this other ship. He'd cut off his own vision lens because he didn't want anybody to see him with the marks of the plague on him. But whoever spoke from the patched-up other spacecraft didn't want to be seen, either. The murmurings came to an end. The harsh voice snapped:

"*Never mind that! What'd you do to us? We were going about our business when—whango! Something hit us. And we're here instead of where we were going! What'd you do?*"

Calhoun saw a stirring of the radar blip. The other craft was moving toward the Med Ship. Then he felt the edges of everything becoming twinned. His eyes were going bad again. But he didn't want to mention his own situation. Nothing could be done for him, and dying is a strictly private matter. He felt concern for Murgatroyd, but he was a Med Ship man and there was a certain way he should act. He was impatient. Whoever was pilot-

ing the other ship knew nothing about his work. Calhoun felt the indignation of a professional with an inept amateur.

The rasping voice said truculently: "*I'm asking what you did!*"

"We did something to each other," said Calhoun coldly. "We came too close to each other. Our overdrive units got overloaded. Our circuit breakers cut them off. Do you want more information than that?"

"*What other information have you got?*" demanded the voice.

Calhoun felt feverish. The symptoms of this plague were evidently intermittent. They came and they went. They'd probably grow more and more severe until he died of them. But—

"I take it," he said coldly, "that you don't know what you're doing or why, because you don't know what's happened. Do you know where you are, or how to get to where you want to go? In other words, do you want help?"

"*What kind of help?*" The question was asked with suspicion.

"First off," said Calhoun, "you broke out of overdrive. Have you checked your circuit breaker?"

"*We don't call it that,*" said the voice. "*What is it?*"

Calhoun could have sworn. Instead, he closed his eyes. He felt a diminishment of his sense of balance. He was annoyed at the prospective loss of dignity, but he said:

"A circuit breaker—" Then with his eyes closed he told what a circuit breaker was; where it would be in a power line. There should be an indicator saying "*Off.*" There had to be a circuit breaker or the other ship would be full of smoke from burned-out insulation.

It occurred to him how the other ship came to be what it was. It was a salvage job. It had been found somewhere and cobbled back to precarious operation by men who had to guess at the functions of what they repaired. They'd lifted off to space with it, probably by rocket. It was hair-raising to think of it!

All he could do was give them advice and possibly a course and drive-time so they wouldn't overshoot. For now—

"When you find the circuit breaker, turn off the overdrive switch in the control board," he said. "Then—not before!—throw the circuit breaker back on. Then you can go into overdrive again. How about your fuel? This is a repaired spaceboat, isn't it?"

A strained silence, and then a suspicious assent.

Calhoun had them report on the fuel, the air pressure and the air-renewal apparatus. His sense of balance began to come back. He called for more and more instrument readings.

"You haven't too much fuel," he said briefly, "but you can get to a

nearby spaceport. That's all! Where do you want to go?"

"That's our business!"

"You've only so many possible destinations," Calhoun told them. "Wait a minute."

He worked the computer and the data-retrieval device. He got courses from here to the nearest inhabited planets. There were four that they could reach handily. Calhoun named them and the time in overdrive required to get reasonably close to them—to a distance the Lawlor drive could traverse in a practicable interval. But one of the four was Lanke, and Calhoun frankly advised against taking the agglomeration of patches that was the strange ship, to Lanke. His reason was the considerable likelihood that there was a plague on Lanke now.

"I've written down the courses and drive-times," he observed. "You write them down as I dictate."

He dictated them. Murmurings. Discussion in the background of the other spacecraft. The harsh voice said:

"Those drive-times are pretty long. There's a yellow sun that looks close."

"It's Delhi," said Calhoun, from memory. "It has an Earth-type planet and there may have been a colony on it once. But there's nothing there now! There's something wrong with it and no ship is known to have got back to its home spaceport after landing on it." He

added conscientiously: "It's near enough. The drive-time's only—" he gave the drive-time and the course. "But I advise you to go to one of the other nearby worlds, go into orbit around it, and call down. They'll land you somehow. And when they get you down to ground, stay there!"

His eyes were better. He looked at the screens. The freakish, patched-up boat was very, very close—not more than a score or two of miles away. He opened his mouth to protest indignantly. But he was practically a dead man. At the moment, to be sure, he felt only feverish. Otherwise nothing serious seemed to be wrong. But he knew that a mirror would show him with the plague marks he'd seen on a dead man back on Lanke.

"Meanwhile," he added, "you'd better not come closer to me."

There was no answer. There were, though, murmurings near the microphone in the other ship. Someone protested against something. The rasping voice growled. There was a click, and the murmuring stopped. The other microphone had been cut off.

Calhoun's eyes improved still more. He looked at the electron-telescope image of the other ship. It was turning to face him directly. The pipe at its bow bore exactly.

Suddenly there was a mad, violent swirling of vapor or gases from the tube at the other ship's bow. Emptiness snatched at it;

grasped it; separated it to atoms and threw them away.

The Med Ship was alone. But something minute remained where the preposterous other spacecraft had been. It was very, very small. It was only a moving speck of reflected starlight. Then the electron telescope screen showed it clearly. It was bright metal, it was torpedo-shaped, and it moved with a certain high, fixed velocity toward the *Esclipus Twenty*.

Calhoun stared at it. He knew at once what it was, of course, but his reaction was modified by the situation he found himself in. Normally he'd have been angered by the sending of a missile, probably charged with chemical explosive, to destroy the Med Ship after the other vessel vanished in overdrive. But he was acutely aware that he happened to be in one of the remission-periods of the plague which undoubtedly would kill him. If he'd thought of the future as one usually does, he'd have been angry that somebody had tried to rob him of time to live and move and be in. But now he had no future to be robbed of. If this shell shattered the Med Ship, it wouldn't be doing very much. It would deprive him of one—two—maybe three days of diminishing satisfactions, in which he could accomplish nothing whatever.

It didn't seem to matter. He found himself smiling wryly at the

thing that came swiftly to destroy him. But suddenly he changed his mind. He threw the Lawlor-drive switch and the Med Ship moved. When the explosive missile passed through the spot the ship had occupied, and went sturdily on and on to nowhere, he grimaced a little.

"I dodged that on your account," he told Murgatroyd. "But for you, I'd have no reason to bother. I can't live to reach Headquarters, though with warning they could receive me without danger and soothe my final hours. I can't land on a nearer, colonized planet without introducing a plague and being a murderer. So I'll compromise and put you down where you just barely may have a sporting chance of surviving—where, if you die, it won't be by starving in this ship. Then I'll do whatever futile things my condition permits."

He began to set up a course and drive-time on the ship's automatic pilot. A little later he said: "Overdrive coming, Murgatroyd!"

And then there came the intolerable accompaniments to going into overdrive. Vertigo and nausea and all the sensation of an unconscionable, spinning plunge toward oblivion. But Calhoun endured them doggedly. He was convinced that presently his eyes wouldn't work again and he'd probably have to crawl to move about on the ship. Anticipation of such undignified behavior was much more annoying

than a mere attempt to kill him. He didn't bother to be angry about the missile.

While he felt relatively himself, though, he readied a meal for Murgatroyd and ate what he could. He viewed with a certain detached amusement the idea that since he couldn't live to reach Headquarters, and couldn't land anywhere else without introducing the plague, he was using all the splendid technical equipment of a Med Ship, representing tens of millions of credits and the life-achievements of very many scientists and inventors, to put a small furry creature aground on an uninhabited world rather than leave him alone in an undirected spaceship.

"This," he told Murgatroyd while the little *tormal* zestfully ate the food he'd set out, "is too ridiculous! You'll be left alone anyhow and I've no idea how you'll make out. But—"

He shrugged. It would be absurd to make a dramatic production out of the business of dying.

"I'm going to put you aground and you'll have to fend for yourself. You'll probably think I'm unkind. You can't imagine my being unable to take care of you. But that's the fact. It's typical. I haven't done anything in particular."

Murgatroyd said cheerfully: "*Chee-chee!*" and finished his plate.

The *Esclipus Twenty* drove on. Presently Calhoun's eyes went bad again. Later he lost all ability to dis-

tinguish up from down, or sidewise from either. He sat grimly in the pilot's chair, with a cord self-knotted to keep him from falling out, which for some reason he considered necessary.

He probably slept. He waked, and he was horribly thirsty. He loosened the cord and let himself fall to the floor. With all his senses assuring him that the ship revolved, he made his way on all-fours—with several topplings—to where there was drinking water. He drew a glass, and then solemnly poured it out on the way to his lips—which was response to the feeling that he had to turn it to hold it from spilling as the Med Ship turned. But the ship didn't turn and the water was wasted.

Finally he wedged himself against the wall and refused to believe anything but his eyes. He watched the surface of the water and denied all other evidence. He drank. He drank again and again and again.

Abruptly, he slept. Then he waked, and acute nausea was just past, but dizziness had not waked him, and the feeling of spinning fall was only slightly different from the feelings he had had all along. But Murgatroyd was plucking at him and chattering agitatedly:

"*Chee! Chee-chee! Chee!*"

Then he knew that breakout had come, and the vision screens were lighted, and he looked and saw a blazing yellow sun and innumerable stars. The ceiling speaker crackled and whispered as in normal space.

So the Med Ship had arrived at the solar system of Delhi, where there was an Earth-type planet from which no ship had ever returned to its home spaceport.

There was a planet to be found—a world mostly of marshy sea with but a single continent and the ruins of an abandoned, depopulated human settlement. He would present Murgatroyd with that planet and that continent and those ruins, to make what he could of them. Because he, Calhoun, was shortly to be released from all obligations and could no longer take care of Murgatroyd.

When he was back in the pilot's chair he realized how weak he'd become—obviously the effect of the plague nearing its terminal stage. He heard someone talking. It was himself, and he paid no attention. He searched for a planet—the planet that was of no use to anybody and from which no ship returned. He found it. It was astonishingly near. And one part of his brain labored gravely with the computer and inexpertly made observations while another part talked nonsense. Which he resented.

There followed a period of very great confusion. There seemed to be two of him, as there appeared to be two Murgatroyds and two electron-telescope screens and two control boards. One part of his mind considered this improper, but another part gleefully took note that he had two right hands and two

lefts, and watched with charmed attention as those hands simultaneously operated twin controls, and something gigantic grew more huge as the *Esclipus Twenty* approached it. He was absurdly surprised when it became a monstrous black hole in the universe of stars. That was when the Med Ship had swung around to its night-side in an orbit Calhoun's then-disregarded sane brain-fraction had contrived. He seemed to sleep, and to wake again, and he was extremely thirsty. But suddenly the sane part of his mind exclaimed loudly that there was the settlement! It showed on the electron-telescope screen! And then the part of his brain that was angry with the fevered part forcibly took charge.

The confusion he experienced did not lessen, to be sure. But the part of a man which is his total consciousness—the part that uses brain cells to store memories and present data for judgment—the part that uses brain cells to control his body—the part which surveys the phenomenon of consciousness—that part still functioned. One's brain can become an unreliable instrument, from fever or alcohol or whatnot, but there is an ego, an id, a something which struggles to make sane use of it. There were moments when he knew that he was singing and that his body was behaving in a fashion totally irrelevant to his situation and his purpose. There were other moments when he seemed to

control his body, which was astonishingly feeble, and he was clearly aware that he had turned on the Med Ship's emergency rockets and that it was balancing on a pencil-thin, blue-white flame in mid-air.

Confusion came again. He was lecturing Murgatroyd on medical ethics. While he lectured, the Med Ship and all its contents turned somersaults, as did the planet outside it. But Calhoun knew that proper planets do not turn somersaults in their own skies, so he treated this behavior with the dignified contempt it deserved.

More chaotic sensations, so bewildering that they ceased to be impressions. But suddenly there was a distinct thump, and he was shocked into rationality. He realized that the Med Ship had touched ground. He had cut off the rockets. He stared at the scene the vision screen showed.

The *Esclipus Twenty* had landed in a swampy valley-bottom among not extravagantly high mountains, and there was vegetation outside which swayed gently in an obvious breeze. On higher ground he saw white, manmade walls with empty window openings and treetops showing where there should have been roofs. Close to the Med Ship there was swamp; marsh; stagnant puddles. And appropriate growing things.

Murgatroyd said "*Chee-chee!*" in an anxious tone. Calhoun was weary past belief, but he roused.

"All right, Murgatroyd," he said

dizzily, "I've done a very silly thing, and maybe I've done you no good at all. But, if you'll follow me, I'll finish it."

With an overwhelming lassitude making his arms and legs seem to weigh tons, he left the chair by the control board. He stayed on his feet almost half the way to the air lock, by leaning heavily against the wall. But then his knees buckled under him and the rest of the way he crawled. At the inner air-lock door he reached up and by pure habit pushed the succession of buttons which opened both the inner and the outer doors. They rumbled wide, unsealing themselves. Air came in. There was the smell of mud and vegetation and unfamiliar life. There was also one particular odor which should have been unpleasing, but it was so faint it seemed only strange.

"There!" said Calhoun. He waved his hand feebly. "There you are, Murgatroyd! There's a world for you. You'll be lonely, and maybe you'll die or be killed by some local predator, and maybe I'm doing you a dirty trick. But my intentions are of the best. Shoo! Get out so I can close the ports again."

Murgatroyd said: "*Chee!*" in a bewildered tone. It was not customary for Calhoun to crawl on his hands and knees and urge him out the air lock. Calhoun was behaving strangely. Murgatroyd looked at him apprehensively.

"*Chee!*" he said. "*Chee-chee!*"

Calhoun did not answer. He felt himself slipping down to the Med Ship's floor. He was intolerably weary and weak. He was wholly confused. The same part of his consciousness relaxed. He'd finished the task he'd set himself. If he rested, maybe he'd get back enough strength to close the air-lock door. But it didn't really matter. It was annoying that he hadn't been able to get word of the Lanke situation to Headquarters, but the plague had been on Lanke before. The doctors knew it. They were terrified by it, but maybe . . . maybe . . .

Wryly, at the moment he believed his moment of death, Calhoun conceded to himself that he'd done the best he could. But it wasn't good enough.

III

When Calhoun waked, or at any rate regained consciousness, Murgatroyd was saying, "*Chee-chee! Chee-chee!*" in his high-pitched voice. He sounded unhappy. There were smells in the air. Calhoun was not on the floor, but in his bunk. He heard footsteps and the sound of wind blowing. There were cracklings which were the sounds of the G. C. speaker reporting normal short-wave broadcasts from a nearby sun. There were other and unidentifiable sounds.

Calhoun opened his eyes. But then his instant, instinctive effort to sit up achieved nothing whatever.

He was almost wholly without strength. But he did manage to make a croaking sound, and someone came to the door of his sleeping cabin. He didn't even see clearly, just now, but he said in a fretful tone and with extreme exertion:

"This is the devil! I've got a plague of some kind, and it's horribly infectious! You've got to set up some sort of quarantine around me. Get a doctor to the air lock—don't let him come in!—and I'll tell him about it."

A voice—a girl's voice—said evenly: "That's all right. We know about the plague. This is Delhi. We should know, shouldn't we?"

Murgatroyd hopped up on the bunk on which Calhoun inexplicably lay. He said agitatedly: "*Chee! Chee-chee!*"

Calhoun found his voice improved. He said as fretfully as before: "No doubt. No doubt. But—this is the devil!"

A surpassing bitterness filled him. There were people where he'd landed. Inhabitants. And he was a Med Ship man and he'd brought plague here! Quite automatically, he assumed that in some moment of unrealized confusion he must have set up the wrong course and drive-time in the Med Ship's automatic-pilot. He'd had four courses and timings at hand to give to the other ship encountered in space. He must blindly have used the wrong one when setting course for Delhi.

But the girl's voice had said this

was Delhi! But it couldn't be! No ship had ever got home from Delhi! It couldn't be colonized! It had been tried, and there were ruins to prove it, but there was something wrong with it, something yet unknown but fatal. No ship had ever returned—

But he couldn't stop to think of such things now. He'd brought the plague here!

"Get a doctor to the air-lock door," he commanded as fiercely as his weakness would allow. "Quick! I've got to tell him—"

"We haven't any doctors," said the girl's voice, as evenly as before, "and you don't need one. This is Delhi. There's no use in having doctors on Delhi! Not for the plague! You're all right!"

He saw, with clearing eyes, that a figure bent over him. It was a girl with dark brown eyes. She lifted his head and gave him to drink from a cup.

"We heard your rockets, Rob and I," she said in a tone from which all warmth had been removed. "We could tell you were landing. We hurried, and we got here before anybody else. We found you halfway out the air lock with a tame little animal crying to you to wake up. So we brought you inside and Rob's watching now to see if anybody else heard you land. You can hope nobody did."

Calhoun decided that he was delirious again. He struggled to clear his brain. Murgatroyd said anxiously: "*Chee-chee?*"

"I suppose so," said Calhoun drearily. Then he said more loudly. "There has to be a quarantine! I'm carrying contagion . . ."

The girl did not answer. Murgatroyd chattered at him. It sounded as if, relieved now, he were scolding Calhoun for not having paid attention to him before.

Calhoun fell—tumbled—dropped back into slumber.

It was a very deep sleep—a dreamless sleep. He came out of it an indefinite time later, when he could not tell whether it was day or night. There was silence, now, except for the tiny background-noises from the tape. The air-lock door was evidently closed. Murgatroyd was a warm spot touching Calhoun's leg through the bed-covering. Calhoun noted that his brain was clear. His fever was gone. Which could mean either that it was burned out or that he was. In the latter case he was experiencing that clear-headedness sometimes granted to people just about to die.

He heard a peculiar small sound. Someone—a girl—was weeping while trying not to make a noise. Calhoun blinked. He must have moved in some other fashion, too, because Murgatroyd waked instantly and asked:

"*Chee-chee? Chee-chee-chee?*"

There was a stirring in the control room. The girl who'd given him to drink came in. She looked as if she'd been crying.

Calhoun said: "I feel very much

better. Thanks. Can you tell me where I am and what's happened?"

The girl tried to smile, not very successfully. She said: "You're on Delhi—to stay. We've locked the air-lock door and nobody can get in. They've only banged and called, so far. Rob's looking over the ship now, trying to find out how to smash it so it can't possibly be repaired. But he says you can't lift anyhow. The ground here is swamp. Your landing feet have sunk in the mud and you can't possibly get clear. So that's all right for the time being."

Calhoun stared at her. He ignored the statement that the Med Ship was permanently aground.

"Delhi—locked doors—" he said incredulously. "Look! Delhi's not inhabited. Its air is wrong—or something! No ship that's ever landed on Delhi has ever got home again! Delhi doesn't have people—"

"There are a good two thousand of them outside just now," said the girl as detachedly as before. "And every one of them will tear this ship apart with his bare hands rather than let you leave without taking him. But the swamp has taken care of that." Then she said abruptly, "I'll get you something to eat."

She went out and Calhoun groped for meaning in this addition to the improbabilities that had started on Lanke. They'd begun with a dead man who apparently came from nowhere, and the terror he evoked in the medical profession of Lanke. There'd been the plague Calhoun

contracted from the most tentative of examinations of that dead man, and the patched-up lifeboat quite impossibly encountered in space. It also couldn't have come from anywhere. And above all there was the plague, which on Lanke was horribly dreaded but which this girl disregarded. And now there were two thousand inhabitants on the uninhabited planet Delhi who wouldn't let the ship leave without them, and there was somebody named Rob who intended to wreck the Med Ship so it couldn't leave at all.

The sum of all this was bewilderment. For example, the plague. He didn't have it any more. It was a spontaneous recovery? If its victims recovered, why the terror on Lanke? And why two thousand people who wanted to leave Delhi, and somebody named Rob who didn't want anybody to leave—not even Calhoun?

He puzzled furiously while he waited for the girl to return. He heard movements. Somebody came up into the control room from the storage decks below. He heard voices. If that was Rob, he'd reason to be uneasy. He called. A tall, broad young man of about his own age looked in the door.

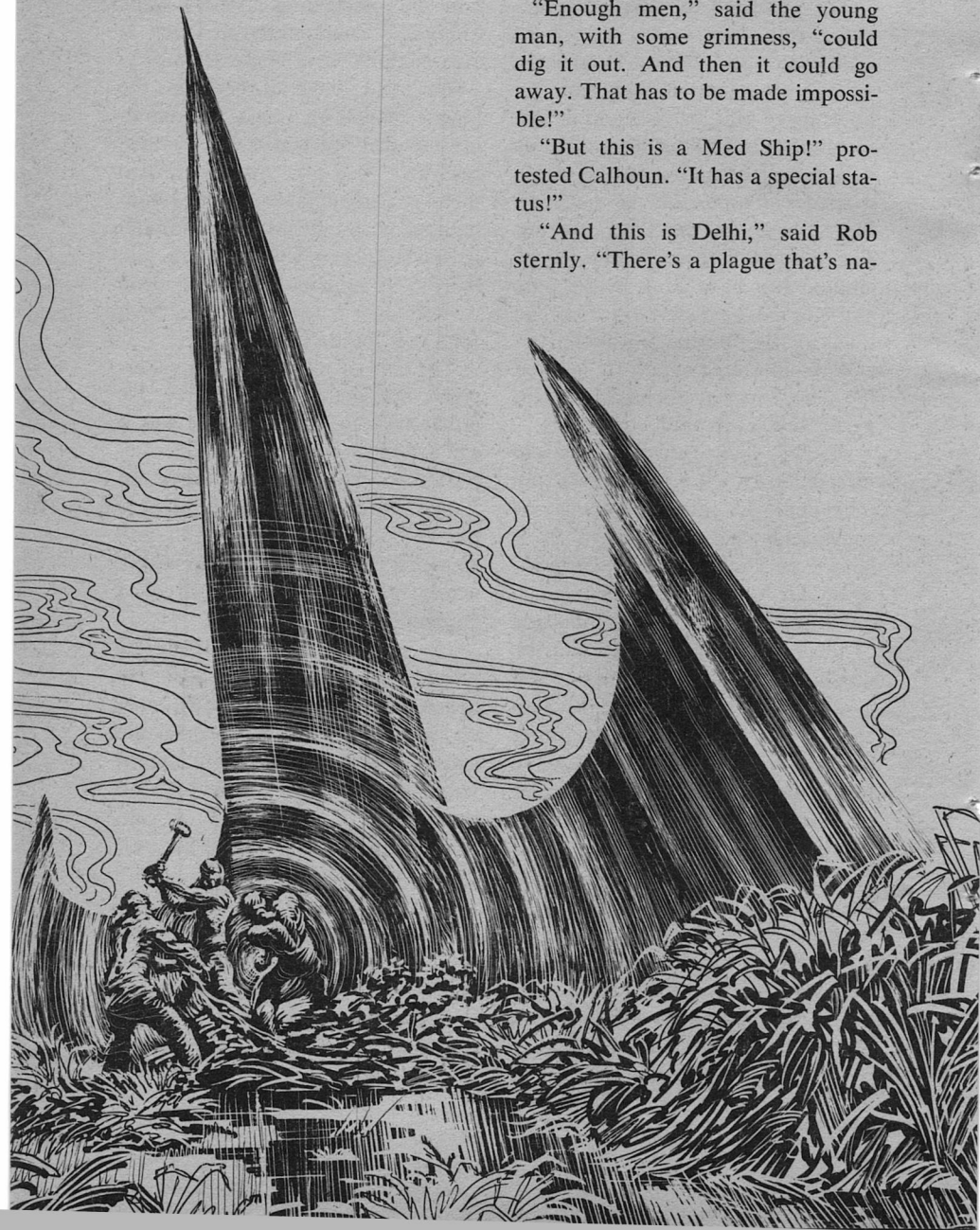
"You're Rob," said Calhoun politely. His voice was stronger than he'd expected. "Would you mind telling me why you want to wreck my ship? I'm told that it's hopelessly bogged down in marshy ground

now. Why add to the disaster by wrecking it?"

"Enough men," said the young man, with some grimness, "could dig it out. And then it could go away. That has to be made impossible!"

"But this is a Med Ship!" protested Calhoun. "It has a special status!"

"And this is Delhi," said Rob sternly. "There's a plague that's na-



tive to this planet. We who live here don't have it. If someone comes here with it, he recovers. But if we leave, we develop it, and if anyone from here landed on another world—he'd die of it with the people he took it to. So nobody must leave!"

Calhoun considered for a moment.

"But somebody has. Not long ago. In fact, I caught the plague from him."

He couldn't have proved the connection of the dead man on Lanke with the freakish spaceship and that with Delhi, but he believed the connection was there. The man named Rob proved it by grinding his teeth.

"A crime!" he said fiercely. "And maybe we'll be bombed for it! It's another reason this ship has to be wrecked! We're quarantined. We have to be! The quarantine mustn't be broken!"

Calhoun considered again. There were people on Delhi, not less than two thousand of them, who would seize this ship if they could, take aboard as many as could crowd into it, and go on to other worlds where—obviously—they did not believe the plague would appear. On the other hand, there were people who knew that they'd die of the plague if they ever landed on any other world,—and the plague would

spread from them. The two views were contradictory, and Calhoun was for the moment in between them. He was sure the plague could be spread, though. He'd caught it. But those who wanted to risk everything to leave Delhi and escape whatever they hated here—they wouldn't listen to argument or look at evidence. Such states of mind are standard with a certain proportion of any population.

Calhoun rubbed his nose reflectively:

"This plague and this quarantine haven't been reported to the Med Service," he observed. "When did it start, and why?"

"Delhi's been quarantined since the first ship landed," said Rob, grimly. "A ship came by and sent a lifeboat down to explore. It reported valuable minerals. The ship went back to Lanke—it hadn't landed—for equipment and supplies while the spaceboat explored further. They didn't know about the plague."

"It hadn't appeared?"

"No. The ship came back to Delhi and landed with machinery and supplies. They opened one mine. They built a settlement. They loaded the ship with ore. It went back to Lanke."

He paused dramatically.

Calhoun said: "And—?"

"It never got there! It simply never arrived! Months later an automatic distress-call was picked up from far out beyond the Lanke so-

lar system. A ship went out to investigate. It was the ship from Delhi, floating where it had broken out of overdrive. There was no living creature aboard. Everybody was dead. It was the plague, but they didn't understand. They towed the ship to port and unloaded it—and plague spread over the whole planet. They had to burn down cities to get rid of it! So Delhi has been quarantined ever since—more than a hundred years!”

“The Med Service should have been told,” said Calhoun annoyedly. “Something would have been done about it!”

There was a sudden metallic clanging. It was a blow of something heavy against the Med Ship's exterior air-lock door. There was another blow, and another, and another. Rob listened for a moment and shrugged.

“Sometimes,” he said, “there's somebody dropped to us by parachute. They have the plague. They recover. They tell us what other worlds are like, now. They don't often get reconciled to staying here!”

The clanging continued. The girl came in from the control room. She said in the same detached voice:

“They're trying to break in with sledgehammers. But some of them are cutting down trees and trimming them.” She looked at Calhoun. “We can help you into the other room if you want to see.”

Calhoun found himself struggling

to rise. The tall man helped him. The girl said:

“Rob has one thing wrong. Not all the people who're parachuted down to us have the plague!”

Rob made a deprecating sound. Calhoun began to move toward the cabin door. He was stronger than he'd thought, once he was up. With the help of Rob on one side and the wall on the other, he made his way into the control room. Rob helped him into the pilot's chair at the control board.

He stared at the vision screens. The *Esclipus Twenty* had landed in a marshy, meadowlike level space with mountains all around it. He could see the white walls of what had been a settlement on a mountainside, but it was plainly abandoned. There were only walls. Trees grew all the way down into the valley-bottom, and men swung axes among them. As he looked, a tree toppled. Others had already been felled. He swung an outside pickup to look down the Med Ship's side. A brawny, red-headed man was swinging a sledgehammer against the sealing-strip of the door. The impacts rang through the ship. Calhoun could see, too, where the flat parts of the landing fins had pressed into the soggy soil. They'd sunk a good two yards below the surface and mud had flowed in over them. They were well buried.

“I'd guess,” said Calhoun, “that they're cutting down the trees to make shears from which they can

swing a battering ram. I doubt that a sledgehammer can break the airlock door. But a heavy enough log, swung hard enough, might do it. There are a lot of people here!"

The valley floor was black with human figures. There were at least two thousand of them, staring at the Med Ship or moving about restlessly, or standing in groups on the ground that might support a man but not a spacecraft standing upright and heavy. Still others labored at the cutting and trimming of trees. There was somehow an air of tenseness, of impassioned feeling among the figures. Calhoun flipped on the outside microphones and the noise they made became audible. There was a growling, hurried murmur of voices. Sometimes there were shouts. It was not a group of curiosity-seekers, here to look at a spaceship come to ground where spaceships never came. It was a mob. It made the sound of a mob.

"Don't they know there's somebody alive in here?" asked Calhoun.

Rob said hesitantly:

"I wanted to disable the ship. I thought it might take some time. So when we found they were coming we closed the air lock and didn't answer the calls or their bangings on the hull. I think they've decided that somebody landed and then died."

The girl said detachedly:

"Not long ago they finished mending a lifeboat that was wrecked here generations ago. They went to Lanke, and they came back.

One man didn't return. They'd hidden their ship under water. Maybe he couldn't find it after he found what he was looking for. They thought he was dead. Now they may think that maybe he managed to steal this ship from the spaceport and has just got here. It could have been. He could have been wounded. He could have landed the ship and died."

"Only he didn't," said Calhoun with some dryness. "He didn't get at the spaceport. He developed the plague instead. He gave it to me. And I met the lifeboat, too. I think I was of some service to them."

He didn't mention that for payment the freak spaceboat had fired a missile at the Med Ship. But even that was reasonable as things became clearer. If Delhi was a quarantined world, with not enough of a population to maintain a modern civilization, it would have to go back toward the primitive and the savage. The desperation of its inhabitants would be absolute. If they could manage to cobble a long-wrecked spaceboat so it could take to space, and if because of the plague all nearby planets were its enemies, astronauts from Delhi would feel justified in destroying the Med Ship to keep their secret from becoming known. They'd do it in the hope of going on to a successful breaking of the quarantine that held them on this intolerable world. Yet the plague made that quarantine necessary.

"It must smell pretty bad out there, with all those people moving about," said the girl abruptly.

Calhoun turned his head. "Why?"

"It's marsh," said the girl. "It smells when it's stirred up. It's strong! They say that on other worlds it isn't bad. Here it is. When new people are parachuted down to us, they hate it. We're used to the regular smell of things, I suppose. We don't notice. But we don't like to stir things up. Then we notice!"

Calhoun said: "Marsh . . . How about water?"

"At worst we boil it," she said evenly. "It isn't as bad, then, as un-boiled. Sometimes we filter it through fresh charcoal. That's better. And there's a dam with electric generators that were installed for the mine. Some of us run that to electrolyze water into gases that we burn back together again. The flame destroys the cause of the smell, and then we condense the steam the flame combines to. That's the best, but it's a luxury and we can't afford luxuries." She looked at the vision screen. "There are charcoal breathing-masks for working when you have to stir things up. But making charcoal isn't fun, and it has to be fresh, or it doesn't work. There aren't many masks out there. It must be pretty bad."

Calhoun looked at her for long seconds. "Have you tried my drinking water?"

She shook her head. He made a gesture. She drew water from the

spigot by the food-reader. Her expression changed.

"Water tastes like this? All the time?"

She pressed a glass on Rob. He tasted it and handed back the glass.

"That," she said fiercely, "is enough to want to leave Delhi for! I'll never taste water again without thinking of this!"

Calhoun said suddenly: "You speak of new people parachuted down. Why are they sent here?"

Her lips compressed. "Some have the plague. Not many. A case turns up now and then, they say. Left-over infection, maybe, from the plague they had on Lanke. From the other planets—"

"Yes," said Calhoun. "The other planets! Which ones?"

She named three, besides Lanke. They were the three whose names and courses he'd offered to the cobbled spaceboat he'd encountered in space. They were the three colonized worlds closest to Lanke. If they sent unwilling colonists to Delhi, which they could not ever hope to leave, it was simple enough to understand that the men in the freakish ship wouldn't accept Calhoun's suggestion to them for destinations.

"How'd they get into the picture. It was Lanke that had the plague, wasn't it? And hid it?"

The girl shrugged.

"People sent here later, from the other planets—they say that the government of Lanke got fright-

ened, years and years ago, that another nearby planet might try to colonize Delhi as they'd tried to do. And it might get the plague, and it might re-infect Lanke. So as a state secret it told the nearest planets why they mustn't explore Delhi. They checked on it. One of them sent a research-team to try to make Delhi usable, because there are minerals here. But they couldn't do anything—and they couldn't go home. So for a while supplies were dropped to them. They lived all right, but they couldn't leave. And presently it occurred to somebody that Delhi would be a good place to send life prisoners—criminals. So they did. Then they sent political offenders—it was very discreetly done. Now—”

“Now what?”

“It's said that the crime rate on the four planets is very low,” she told him bitterly, “because professional criminals disappear. It saves the cost of some prisons and guards and the expense of a free criminal class to the others. So we're the sweepings of the four planets. And some of us were accused of having the plague when—we didn't. Naturally, it's all very secret!”

She looked at him defiantly. Calhoun nodded.

“That's quite possible,” he admitted. “In any case it would be told—and the people who told it would believe it.”

The girl looked at him with angry eyes and compressed lips.

“Some of us,” said Rob severely,

“accept the facts. We aren't all wrapped up in our own tragedies. Some of us think of our inevitable obligation to humanity at large. So we won't try to leave—and spread the plague!”

Rob frowned portentously. There was friction between these two. The girl clenched her hands. The sledgehammer struck again, and again, and again. There was likely to be a quarrel between the man and the girl who between them had quite probably saved Calhoun's life. So he said dryly:

“Swinging that sledge must be fatiguing. In fact the whole situation outside seems unfortunate. I'll change it.”

He moved certain switches. He adjusted a dial. He pressed a button.

A pencil-thin flame shot down from between the Med Ship's landing fins. It was pure, blue-white incandescence. It was the ship's emergency rocket, on which it had landed and by which it would have to take off again. For an instant the flame splashed out between the fins, and it was so bright that the daylight nearby seemed darkened by contrast. But then the flame bored down. In solid stone the *Esclipus Twenty's* rockets could melt and boil away bedrock to a depth of eighty feet. Here, in saturated meadow soil, enormous clouds of steam and smoke arose. Steam-loosened mud flew about. It looked as if the Med Ship squatted on a monstrous

arc flame which was blasting away the marsh on which it rested.

But the flame cut off. It had burned for ten seconds or less, developing—under control from the pilot's chair—something less than one-eighth of its maximum power. The ship hadn't stirred.

"I suspect," said Calhoun, "that they think I tried to lift off then and couldn't. But maybe they'll think I could make a battering-ram crew very uncomfortable, close to the ship as they'd have to work."

He watched the running figures below. There was no longer a crowd gathered about the Med Ship. Those nearest were in headlong flight. The red-headed man who'd been swinging the sledge crashed a way through those fleeing ahead of him. But the roar of the rockets had stopped. Some fleeing men began to glance around them as they ran.

Then the mob ceased to flee. It formed a circle three hundred yards across—two thousand human beings facing inward. Some of them shook clenched fists. The outside microphones brought in a babbling, yapping noise that was not great in volume but appalling in its fury.

"They're not thinking straight," said Calhoun. "There are two thousand of them. Even if they could land somewhere and not die of the plague or carry it—even if they could—how many would this ship carry? How many could its air-renewer supply?" Then he said in a different tone to the girl: "You said

that not everybody who's parachuted down to Delhi has the plague. Why else should they be dropped here?"

She said fiercely:

"It's a way to get rid of people! It's politics! It's crookedness! Anybody can be accused of having the plague. Sometimes they do have it. But sometimes they haven't. My father didn't have it, and he was sent here. Rob's grandfather didn't, and he was, too. There are others!"

Calhoun nodded. He said thoughtfully:

"That may be true, because there was opportunity for it. But, true or not, people would believe it. And I guess, too, that you tell each other that the plague's worn itself out. Nobody has it here. Nobody who's landed here ever gets it. If they have it when they come, they're cured immediately. I was! So how could they give it to anybody else?"

"Yes!" said the girl passionately. "That's it! How could we? Rob says we have to stay here! Here where the food has no taste, and the water . . . Where we're made nauseated when we plough the ground to grow food! Where . . . Rob says we shouldn't marry and shouldn't have children because they'd be doomed in advance to become savages! He says . . ."

Rob said unhappily: "I think that's true, Elna."

"How could it be true? How could a disease that nobody can have be carried by anybody?"

Calhoun stirred in the pilot's chair.

"I think," he said apologetically, "that I have to get back to my cabin. The plague I had has made me ridiculously weak. But I have to admit, Elna, that I caught the plague from a man who left Delhi and went to Lanke and immediately developed the plague. Rob is right. Nobody must leave Delhi—but me. I have to get some help from Med Service Headquarters. But nobody else must leave. Nobody!"

Rob helped him into his cabin again. He sank gratefully down on his bunk. The girl Elna came in minutes later with another bowl of broth. Her expression was equal parts rebellion and despair. Calhoun was suddenly so sleepy that the spoon fell from his fingers. But Rob supported him while Elna fed him, spoonful by spoonful. He was totally asleep the instant she'd finished.

Elna waked him by shaking his shoulder, he didn't know how long afterward. Murgatroyd made shrill protests. But Calhoun waked easily and completely, and on the instant he knew that a surprising amount of strength had come back to him. With less than a desperate effort he actually sat up. He swung his feet over the side of the bunk. He became confident that he could walk, if in a wobbly fashion. But he still wasn't up to rough-and-tumble exercise.

"Rob's gone down," said Elna desperately, "to start smashing up the ship's drive so it can't possibly be repaired!"

"Go tell him," said Calhoun, "that the drive-units from the lifeboat just back from Lanke can be used in this ship. They'll smash the quarantine. Wrecking my drive won't stop them. Anyhow the crowd outside will tear us all to small bits—including you and including Rob—if they break in and find the ship's been smashed after landing. Tell him to come up and I'll give him better instructions."

She searched his face briefly and hurried away. He heard her footsteps clattering down the metal stair to the lower parts of the Med Ship.

Murgatroyd said: "*Chee?*"

"Of course not!" said Calhoun severely. "We are members of the Interstellar Medical Service! We can't let a situation like this keep on! I should be able to stand up, now, and do something about it. Let's try!"

He found a handhold, and with arms and legs working together he got to a standing position. He was still uncertain in his steps, and his expression went wry. But he got across the cabin. He opened a closet and found a robe. He put it on. He made his way unsteadily into the control room. He opened another cupboard and brought out a blaster—almost a miniature—for the pocket. He adjusted the strength of

its bolt and put it in his robe. He went dizzily to the pilot's seat at the control board. He threw the G.C. switch.

"General Call!" he said into the transmitter. "General Call! Med Ship *Esclipus Twenty* calling repaired spaceboat, or any other ship. General Call!"

He waited, blinking at the vision screens. There were still very many people outside. A good proportion seemed to be laboring where the trees of the nearby mountainside ceased to grow—where the ground was too marshy for their kind. He saw a disturbance. A chopped-through tree trunk fell.

"General Call," he repeated patiently. "General Call. Med Ship *Esclipus Twenty* calling repaired spaceboat . . ."

A rasping voice interrupted. It was a familiar voice to Calhoun. He'd heard it during that improbable encounter of two ships in between-the-stars. Now it said unpleasantly:

"*You followed us, eh? What for?*"

"Clinical information," said Calhoun. "One man of your crew didn't come back to Delhi with you. He had the plague. In fact, I got it from him. He's dead now, by the way. Why didn't the rest of you get it?"

The voice growled: "*What're you asking me for?*"

"I'm landed on Delhi, in a swamp," said Calhoun. "It looks

like I can't lift off, because I'm mired here. There's a crowd—a mob—outside, trying to contrive a way to break into my ship so they can take it over, dig it out, and lift off for somewhere else. After they break in I'm not likely to get much information. Information that tells me you hid your boat under water while somebody went to figure out the chances of seizing a ship there by surprise and getting aloft on emergency rockets. That was the idea, wasn't it?"

The harsh voice was very harsh when it demanded: "*Who told you that?*"

"Never mind," said Calhoun. "But you didn't send only one man! How many?"

A pause. The other voice said cagily: "*There were two. But one began to see double and came back.*"

"Which," Calhoun observed, "was proof that when people from Delhi land on another planet they develop the plague. You'd stopped believing in that. But it was so. It pretty well killed the idea of seizing a ship without warning, picking up a crew on Delhi and moving on to seize yet other ships and break the quarantine to small and quivering bits. Right?"

The voice grated: "*What are you driving at?*"

"I'd like some cooperation," said Calhoun. "You know you can't work that scheme now! But you've prom-

ised to break the quarantine by force. Now you're afraid to admit it can't be done. Right?"

"What . . . are . . . you . . . driving . . . at?" rasped the voice.

"I'm Med Service," said Calhoun. "Tell me what you know about the plague; tell your followers to leave my ship alone and to gather the information and biological specimens I ask for. Then we'll have the Med Service taking over as it should have done a hundred years ago. And shortly there'll be no more plague and no more quarantine."

Silence. What Calhoun proposed was sound sense, but it was not the sort of sound sense that people would accept. The Med Service was not a reality to the people of Delhi, and the quarantine was, and was moreover the deliberate act of the nearby occupied worlds. They were imprisoned on a world which stank, and when its surface was disturbed it reeked, and even drinking water had to be boiled before it could be drunk. They could have no modern tools, lest they contrive some way to damage enemies. They could have no science, because they had to be kept imprisoned. But men will not endure such conditions, necessary or not. They won't endure them!

Calhoun said evenly: "I know I'm asking a lot. There's a mob outside my ship now, contriving some way to break into it and seize

it, so they can raid a spaceport somewhere and seize other ships to repeat and spread their revolt—and the plague! But you know it won't work! You can leave Delhi a thousand times over, but if you take the plague with you . . . It's no good!"

Silence. Calhoun, waiting, shook his head to himself. Delhi had had a century of isolation and hopelessness, and the arrival of other hopeless prisoners only reminded them of the intolerable nature of the lives they lived. Under such conditions men forget what they don't want to remember, and somehow come to believe everything they wish to be true. They'd developed a blind, irrational belief that their imprisonment was unnecessary. They'd developed an unreasoned, impassioned faith in possible escape. They'd rebuilt a shattered spaceboat, learning the functions of the apparatus they rebuilt as they rebuilt it. They'd set out to accomplish the impossible.

Calhoun was asking them to abandon all efforts to help themselves, and depend on a Med Service of which most of them had not even ever heard. They couldn't do it. Especially not with the *Esclipus Twenty* around and needing only to be overwhelmed and then extracted from the marsh for their most desperate beliefs to seem possible. They'd only been told of the plague. They didn't have it. They didn't see it—and they were im-

prisoned because of it. Few of them really believed in it, as Rob did.

So Calhoun was not surprised when the rasping voice cursed him horribly and cut off communication without bothering to reply. It was a refusal.

His expression was rueful as he said to Murgatroyd:

"He's a disappointed man, Murgatroyd. That's why he's suspicious and angry. But I'm disappointed, too. I think he could have found out things for me that I'll have trouble learning myself."

Extra movement in a vision screen drew his eyes to it. A felled and trimmed tree trunk moved from its place toward the Med Ship. It was carried by not less than fifty men, holding to short ropes passed under it. The people of Delhi had no wheeled vehicles to carry so great a load. If they'd owned them, the marsh would have made them useless. But they did have arms and muscles. By pure brute strength, sweating in their toil, they brought the log slowly down into the valley. Calhoun had never before seen the physical strength of fifty men applied to a single effort. Men used engines or machines for such work. This was like those legendary achievements of barbaric kings and pharaohs. Had they been moving stones, and had there been whips cracking to urge them on, he'd have felt that he saw the process of the building of the pyramids of

Earth, which were still mentioned in primary-grade school texts all over the galaxy.

Then he heard the girl Elna and the man Rob coming up from below. Rob said in icy fury:

"You're a woman and I'd have had to hurt you to keep you from interfering. But it's because you've been listening to him! He persuaded you, but millions would die if this ship lifted off and went to another world! So I'm going to stop his persuading! Sick or well, if I have to hurt him—"

"But, Rob!" protested the girl. "Think, if it's true! Think! If there's a Med Service and if it can end the plague for always—think of us! You wouldn't feel that we mustn't marry! You wouldn't think there should be no children to become savages! And we could be so happy—"

Calhoun raised his eyebrows. Murgatroyd said: "*Chee!*" in what happened to seem a very cynical tone.

The heads of the man and girl appeared at the top of the stairwell. Rob's eyes were hot and accusing.

"You!" he cried furiously at sight of Calhoun. "This ship in the hands of the fools outside could mean all the human race wiped out! Don't you see it? Nobody must leave Delhi! Nobody! And as a beginning—"

They reached the floor of the control room. Rob's hands

clenched and unclenched. He moved slowly toward Calhoun, glaring in a very dramatic fashion.

"You display a very noble character, Rob," said Calhoun with some irony. "Self-sacrificing, too! It must be very satisfying to feel that way! But I almost agree with you. It's true that nobody must leave Delhi. Nobody but me. And if you can't agree to that—we'll have to settle it right now."

He drew the pocket-blaster from under his robe.

IV

The settlement was necessarily on Calhoun's terms. Calhoun had a weapon. Rob didn't. Calhoun wanted to do something. Rob wanted to keep something from being done. Calhoun was an essentially simple person, inclined to think of objective results in completely matter-of-fact terms. Rob reasoned emotionally, with much attention to noble ideals he was unable to compare with reality. Calhoun considered that he had a job to do. So the matter had to be settled as he decided. But Rob had a very fine stock of invective and a splendid equipment of scorn. He made use of both in what he obviously considered an especially fine opportunity for stinging speech. But it was speech. Calhoun listened unmoved.

"All right," he said presently, with some grimness, "that'll be

enough. You've got it off your chest. What do you do now? Play along, or sulk over it? I have to leave this place, for Med Headquarters. I need, right now, some mud from the swamp outside for what should be obvious reasons. You can get it. Will you?"

Rob ground his teeth. He refused, eloquently. Calhoun shrugged.

Elna said: "I'll get it."

She did, while Rob glowered. It was only a matter of cracking the air-lock door and reaching down with a long ladle, while Calhoun watched the vision screens for signs of mob action. He literally wasn't up to the physical effort of getting a mud-sample. There were infuriated shoutings from the mob outside. Men hunted for stones to throw. There weren't any, on the surface of a semi-swamp. Elna brought up a ladleful of black stuff with evil-smelling water on top of it. She silently gave it to Calhoun. He put the mud into a centrifuge to separate the solid matter from the water that saturated it. He sat down, to rest while the centrifuge ran. Rob glared at him in the extremely unhappy state of a man with impassioned convictions he couldn't act on. He was doubtless quite capable of dying for the sake of an abstract humanity. But the high drama of such an action would certainly help him do it.

The centrifuge delivered pellets of damp soil and a considerable

amount of brownish, malodorous water. It had been stirred and—as Elna had mentioned—it smelled very badly. The air in the ship was Delhi air, now, and doubtless it reeked, also, but not so strongly that one couldn't get used to it. But getting used to the smell of stirred swamp water was another matter.

Calhoun roused himself. He filled a culture slide almost full of the unpleasant stuff. He put it in the culture microscope which would let him watch living microbes in action. A six-inch screen beside it showed the magnified image. He watched.

Without electronic amplification of the image, it was not possible to watch living microscopic creatures at high magnification. For genuinely high optical power, much light would be required on the slide. Beyond a certain point, that light would be lethal to microbes. But electronic amplification made a sharp, clear image of everything in the culture slide with only tolerable brightness on the microbes. He saw the equivalent of an amoeba. He noted that it seemed furry. He saw the equivalent of rotifers. They spun madly for a certain time, and then stopped and spun as madly in an opposite direction.

Then he saw the spherical, pigmented microscopic spheres he was looking for.

But these microbes did not dance. They did not fission feverishly. They moved, but very slowly.

Doubtless they did multiply, but Calhoun saw no example of it. Save for lack of activity, though, they were twins of the plague organism.

"Ever hear of ecology, Elna?" asked Calhoun. "I think I'm observing a microecological system at work."

The girl shook her head. She looked at Rob. He sat with his arms grandly folded. Calhoun didn't notice. He said pleasedly:

"Microbes adjust to their environment, like larger things. And like larger things, their numbers in nature depend on very complicated processes. Small animals multiply fast, because they're eaten by larger things. Larger things multiply slowly, because if they multiply too fast they wipe out their food supply and starve. There are some very curious causes for the limitation of animal populations so they won't all starve to death. *If* this bug I'm looking at is what I think it may be, it's a most interesting example."

The girl did not seem to hear him. She looked at Rob. He ignored her, with conscious tragic dignity. She'd helped Calhoun.

"Here," said Calhoun, "are what look like plague microbes in their normal Delhian environment. They're sluggish and practically comatose. Phagocytes could take care of an invasion of them into a human body. But here"—he touched a culture bottle in which he had

thriving plague microbes growing, cultured from a scrap of a dead man's clothing—"I have what may be the same bug in a Lanke environment. This bug is wildly active. It could cause the devil of a plague—on Lanke. I'm going to see what it would do on Delhi."

He looked up for an expression of interest. The girl looked unhappily at Rob. Calhoun stared, and frowned, and shrugged. He took up a pipette which might have been made for the smallest of dolls to use. He introduced dancing, swarming, preposterously proliferating microbes from the Lanke culture into the slide of Delhi swamp water.

Rob said harshly: "They're bringing a log to be a battering ram, since the sledgehammer didn't work."

Calhoun looked at the outside vision screen. The log was moving slowly across the marshy ground on fifty pairs of feet. It looked like a monstrous creeping insect.

"They're stumbling," said Calhoun. "They can't batter while they're stumbling."

He turned back to the culture microscope. The half-drop of liquid from the pipette had contained thousands and thousands of the dark, round microscopic spheres. They showed on the screen, now: dancing, swarming, dividing into half-globes and growing back to full spheres again. Their activity was more than feverish. It was frantic.

But in minutes it diminished. The dancings and dartings slowed. The infinitesimal objects ceased their headlong multiplication. They became languid. Gradually, they seemed to sleep. But now and again they made trivial, un-energetic motions. They were not dead. They were not spores. But they were no longer active.

Calhoun regarded them with satisfaction. He said: "Ah-h-h!"

It was a most gratifying development. It couldn't have been observed on Lanke, because there was no Delhian material to show it. It couldn't have been seen on Delhi. There were no superactive specimens on Delhi. Only a Med Ship man could have made the observation, in a Med Ship, with Med Ship equipment—and after a visit to Lanke followed by going to ground on Delhi. Calhoun looked triumphantly about. But Elna still looked unhappily at Rob, and Rob still wore an air compounded equally of fury and of martyrdom.

"Murgatroyd," said Calhoun, "at least you'll be interested! Things are looking up!"

"*Chee?*" said Murgatroyd.

He padded across the floor and swung up to the lab table unfolded from the wall. What Calhoun was doing meant nothing to Murgatroyd, of course, but Calhoun had invited him to conversation. Murgatroyd peered at the microscope screen as if it meant something to him.

"Chee-chee! Chee-chee!" he said.

"Exactly!" said Calhoun. "This bug is comatose on Delhi, where there is no plague. It's wildly active on Lanke, where there has been, can be, and probably already is plague. We'll return these bugs to a Lanke environment."

He made it; distilled water and a nutrient substance for them to feed on. It was practically the environment of Lanke. He returned the just-made-comatose microbes to the sort of environment in which plague germs thrive. And these microbes regained all the enthusiasm of multiplication and dancing and—doubtless—the production of deadly toxins they'd shown before.

"Something on Delhi," said Calhoun, "slows down their activity and reduces their breeding rate as something on other worlds keeps the bigger predators from getting too numerous. Something here keeps their numbers down, and that something doesn't, on Lanke. What would you guess, Murgatroyd?"

Murgatroyd said, "Chee!" He moved about the lab table, with a very fine air of someone checking the various bits of equipment there. He picked up a culture slide. He sniffed at it and said: "Chee-chee!" in a very disapproving manner. He dropped it, and swamp water spilled. The odor was actively unpleasant. Murgatroyd sneezed, and retreated from it. He said: "Chee!" and rubbed his nose vigorously.

Calhoun shrugged. He mopped up the spilled half-spoonful. He had visions of living on a world where soil and swamp water stank when disturbed, and where even sea water might do the same. Where one at least boiled water before drinking it, not to make it germ-free but to drive out most of the taste. Elna had tasted normal water and had told Rob bitterly that she'd never drink water again without remembering how that pure water tasted.

He looked at the vision screens. There were fluffy white clouds in the bluest of blue skies. All oxygen-atmosphere planets have blue skies, and those with habitability-one temperatures have winds and jet streams and storm patterns of strictly standard types. On all the worlds with vegetation there are the equivalents of trees and brushwood and grass. The look of Delhi was not repellent, but if one could only get used to the smell of the atmosphere, and not of the soil—if the reek of the swamp was simply an exaggeration of what everything smelled like and one could never fail to notice it . . . The passionate desire of its people to leave it could be understood.

The first log was almost at the Med Ship. A second was on the way. Smaller groups were bringing shorter logs. There were men coming with coils of rope.

Calhoun regarded them detachedly. He saw a man stumble and

fall, and get up and be sick because of the stench of the mud he'd disturbed.

Calhoun went back to his work. He set out infinitesimal samples of swamp water, and added infinitesimal dosages of reagents to each, and then still more minute quantities of the Lanke-environment, frantically active culture. Then a check to see what substance—or what groups of substances—removed by a reagent would allow the spheres to thrive in swamp water.

It could almost have been predicted that the elaborate setup for research would be useless, and something insanely simple would give the answer. A strip of filter paper, wetted with the active culture and in a stoppered bottle with a trace of swamp fluid—that showed the active culture stopped dead. It did not touch swamp water. It was exposed only to the reek, the stench, the effluvium of the swamp.

Calhoun said: "The devil!"

Painstakingly, he repeated the test. He wanted to talk about it, to explain it for his own hearing so that he'd know if his reasoning made sense. He said: "Murgatroyd!"

Murgatroyd said with an air of charmed interest: "*Chee?*"

"I've got it," said Calhoun. "There is something in the swamp water that slows up the plague germs in multiplying and, of course, in producing toxin to kill us hu-

mans. It's an inhibitive factor like the factors that on different worlds make large carnivores breed slowly, because if they bred fast they'd wipe out their own food supply and die of starvation. In the microecology of germs on Delhi, there's something that holds down plague germs so nobody can get the plague. But on Lanke that inhibitive factor's missing."

Murgatroyd said: "*Chee!*" and, beady-eyed, watched Calhoun's face.

"I'll bet you a hogshead of coffee to a cookie," said Calhoun exuberantly, "that it's nothing but the smell, the reek, the stink of that—Ha!" He referred to the Stellar Directory. He found Delhi. "Here it is! There's a methane derivative of point oh four per cent in the planet's air—about the same as carbon dioxide! Maybe there's a bug in the ocean that produces it. Maybe . . . oh, anything! There are microbes that can't live where there's oxygen and others that can't live where it isn't. This is a microbe that can just barely live where there's point oh four per cent of this stinking stuff. But it goes wild where there's none! You see, Murgatroyd? A ship from here, with Delhi air, could go to Lanke and nobody'd have the plague. But a man from it would develop the plague when he got out into Lanke air which hasn't the methane that holds the plague germ back! But a ship from Lanke that left Delhi without Delhi air in its

reserve tanks . . . Everybody aboard would die of the plague on the way home! You see?"

Murgatroyd said: "Chee!"

The girl Elna said uneasily: "They're setting up some sort of . . . thing made out of the logs."

Calhoun looked. There was no battering-ram support being erected. There were two short logs upright, and heavy logs crosswise, and a very long log with numerous crosspieces fastened to it lying in the disturbed ground. Men were working with ropes. It wouldn't make an effective battering ram. But Calhoun was too much elated to give thought to the engineering feat in progress outside. He wanted to verify what was at once plausible and lacking proof. Proof would be finding a highly volatile liquid or a condensable gas in solution in the swamp water. And he most preposterously had the equipment for seeking it. He used his swamp-water sample recklessly. He used a reduced-pressure fractionating still which could take a full tablespoonful of swamp water. By precise control of the temperature and pressure he drew off dissolved air, dissolved carbon dioxide, dissolved—

He got enough of a condensable vapor to be visible under the microscope. With the beautifully exact temperature-control he had, he found its boiling point by watching that infinitesimal droplet disappear as vapor and re-condense as a fluid

as he sent the temperature up and down—watching through a microscope.

Elna said uneasily: "They're getting ready to do something . . ."

Calhoun looked at the screen. Men swarmed about an area twenty or thirty feet from the Med Ship's outer plating. They had ropes fastened here and there. They were arranging themselves in long rows about the ropes. There were hundreds of them preparing to do something with the logs. Away over at the edge of the slanting ground, there was much smoke. Men worked at something involving fire. Men shook their fists at the Med Ship, ready to grasp and haul on the ropes they'd brought and placed.

Calhoun blinked. Then he said:

"Clever! That's really a beautiful trick! They're sure we can't lift off, so they're going to take the ship with the minimum of damage. That's really brilliant!"

Rob said fiercely: "When are you going to start smashing the ship?"

"I've much more important things to do," said Calhoun. "Much more important!"

Almost hilariously, he threw the G.C. switch and began to call:

"General Call! General Call! Especially to repaired lifeboat. Med Ship *Esclipus Twenty* calling repaired lifeboat! Top emergency! Come in, repaired lifeboat!"

As he called, he regarded the work outside, which now ap-

proached a climax of activity. Men were making sure that ropes lying on the marshy ground were exactly laid to be pulled on. Other men were lining up to haul on those ropes. Leaders arranged them exactly to get the maximum of traction in exactly the proper directions-of-pull. A group of men were bringing something which gave off a thick white smoke. They kept out of the smoke.

"Calling repaired lifeboat! This is urgent! I've found out how the plague works! Calling repaired lifeboat—"

A voice said in icy rage: "*Well?*"

"The plague," said Calhoun, "is a spherical microbe which can't be anything but sluggish in Delhian air, sea, ground, or swamp land, because there's some sort of methane-derived compound which inhibits its growth. The compound that makes soil reek when it's disturbed, that you drive out partly when you boil water—that's the stuff that keeps the plague germ inactive. It was in the air you breathed when you went to Lanke. It was in the air you breathed when you kept your boat hidden under water while two men tried to make it to the spaceport. Do you understand?"

The rasping voice said suspiciously: "*What're you telling me for?*"

"Because when your two men tried to make it to the spaceport on Lanke, they were breathing air that didn't smell, and didn't hold back the plague germs from multi-

plying. One man went back when he saw double. Back in your ship the air stopped the germs from multiplying and he got over the plague. When I breathed Delhi air, I got over it. But one man panicked when he found he had the plague. He went to the Health Department and tried to give himself up as a plague victim. He hoped to be carried back to Delhi and to life. But they killed him."

There was a growling sound from the G.C. speaker.

Calhoun said: "The Med Service can handle this, but I've got to get to Headquarters. There's a mob outside my ship, getting ready to break in. It'll be wrecked! I need somebody to stop the mob from breaking in and wrecking this ship—which is needed to take these facts to Med Service Headquarters. As a matter of common sense, you'd better come here and stop them."

A pause. Then a growled: "*We'll be there!*"

Calhoun grinned.

Murgatroyd said shrilly: "*Chee-chee-chee!*"

Ordinarily, when Calhoun held conversations over the General Communication phone, it meant that the Med Ship would shortly go aground and people would pet Murgatroyd and feed him sweet cakes and coffee until he almost burst. His small brain made that association again. He began to lick his

whiskers and otherwise make himself tidy and irresistible.

Rob said contemptuously: "Are you fool enough to expect him to protect this ship and let you go away in it? He'll never do that! Never!"

"I don't expect him to," said Calhoun mildly. "But he really shouldn't make trips like those to Lanke. It's dangerous! There may be a plague on Lanke now because of it. I expect him to try to get the ship for his own ideas."

"But he's coming—"

"Yes," said Calhoun.

He turned to the vision plates again. There were at least eight hundred men lined up beside ropes. There were shoutings and orders and cursings. Under exact instructions, the ropes tightened. Men heaved at the ends of the short logs. They rose. They stood up at an angle of forty-five degrees. More shoutings. Enormous, straining efforts . . .

The long log, the heaviest log, the one with the crosspieces fastened to it, stirred. The shorter logs transformed the strictly flat drag of the ropes to a slanting-downward cable, so that the long log went wavering up from the ground. Men with ropes spreading out in every direction balanced it to a strictly vertical position. It stood on end, nearly forty feet long, with crosspieces by which it could be climbed to its very top.

And now Calhoun observed the

spike at its end. It was inches thick and six feet long. It pointed toward the Med Ship. The men with the smoking stuff were halfway across the marsh, now. They kept carefully out of the white vapor the thing they were carrying gave off.

Shoutings, making sure that everything was right.

"What . . ." That was Elna. Rob scowled, but he did not grasp the picture even yet.

The tall pole with the horizontal spike at its end wavered a little, back and forth. A voice roared . . .

Half the men at the ropes—those that kept the spiked log from falling toward the ship—let go. The other half dragged frantically at the ropes to make it fall on the Med Ship.

It was very well handled. The log crashed into the small ship's plating. The spike went through, as no battering ram could possibly do. Then there were men swarming up the crosspieces. Those who'd been bringing the smoking stuff ran desperately, to arrive at the earliest possible instant. Containers of the source of strangling white smoke went up.

"Clever!" said Calhoun.

He sniffed. There was an uproar of triumph outside. The citizens of Delhi howled in triumph, and in their movements they stirred up the swampy pools and many were nauseated.

But Calhoun sniffed again, and nodded.

"Sulfur," he finally commented. "They're blowing sulfur smoke in the hole they punched in our hull. In theory, we'll have to open the air-lock doors to get out, or strangle. And when we go out they'll come in. Clever!"

The smell of burning sulfur became distinct. It grew strong. Calhoun adjusted a control governing the barometric pressure inside the ship. If by a rise in temperature, or for other reasons, the pressure in the ship went up, a pump would relieve the extra pressure by compressing air into one of the large air tanks which carried fourteen times the air volume of the Med Ship. Calhoun and Murgatroyd could live for a long time on stored air if the air-renewal system failed.

But now Calhoun had raised the pressure control. The control called for a pressure of twenty pounds to the square inch instead of fourteen point seven. The tanks poured out vast volumes of air from the reserves. The pressure inside the ship went up. The sulfur-smoke being pumped into the punctured hull went out again. Expanding air in the ship turned cold. An icy blast poured out on the sweating men atop the log. The burning sulfur itself was blown about . . .

The men on the log went down. And the tumult of outcries outside the Med Ship was purest frenzied rage.

Calhoun restored the pressure control to normal. Elna shivered. The air in the ship was cold.

"What . . . what happens now?" she asked forlornly.

"I'm waiting for the spaceboat that went to Lanke," said Calhoun. "He's going to come here. Object—to take over the Med Ship."

The ceiling G.C. speaker rasped: "*Med ship! You think you're smart, eh? Come out of that ship and leave the air lock open, or we'll kill you!*"

Calhoun said politely: "Hadn't we better talk it over? I should get to Med Headquarters . . ."

"*We've a cannon,*" said the harsh voice. "*If we have to use it—we can rebuild what it breaks.*"

Calhoun did not reply. Instead, he carefully inspected the dials and the switches of the control board.

Rob said savagely: "Here comes the boat! If they fire an explosive shell into us, it'll destroy us!"

"And the Med Ship, too," said Calhoun encouragingly. "Which is what you want. But they're not used to gunnery near a planet, which makes straight-line trajectories into parabolas."

He saw the lifeboat; patches on patches; dents and lumps in its hull; the very picture of makeshifts piled on each other to the point of lunacy. It landed, on what must have been a flat place on a mountain flank.

The voice came again: "*Come out and leave the air lock open.*"

Rob said as if reluctantly: "You should let Elna go out before they kill us."

Calhoun said: "I was just waiting for that ship. It really shouldn't go traveling about. Nobody should leave Delhi but me."

"But you're mired! You're stuck here! Your rockets can't lift you."

"I'm not counting on rocket thrust," said Calhoun cheerfully. "I'm going to use steam."

He pressed a button. And as had happened once before in this place, a slender blue-white flame appeared under the sternmost part of the Med Ship's hull. It was the emergency rocket, by which the ship had landed. Now the ship was held fast by mud. It would have required a pull, or push, of many times the Med Ship's weight to break the suction of the mud. The rockets, as rockets, could not conceivably have pushed the spacecraft clear.

But the rocket flame bored deep down into the ground. It vaporized the water beneath it. It volatilized the ground. For eighty feet down in the valley-bottom's water-saturated soil, the flame bored its way. Steam pressure developed. Steam bubbles of enormous size came up. Steam broke surface, heaving up masses of semisolid valley-bottom and escaping at the jagged edges of the cracks between masses. The Med Ship ceased to rest upon an adhesive mass of muck, packed over the feet at the bottom of the

landing fins. The Med ship actually floated on a mixture of solidities and semi-solidities and steam. It wasn't using the propulsive power of its rockets, at all. It used their steam-generating capacity.

It shot upward before the spaceboat could fire a shell at her. It went up three thousand feet before Calhoun cut down on the rocket power. Then he peered carefully, tilted the ship and let it drop. The valley-bottom seemed to leap up. The spaceboat spouted rocket flame already aloft in pursuit. Calhoun dashed at it, seeming to intend a crashing collision in mid-air. He missed it by feet. He swooped and circled and dashed in at it again. The spaceboat dodged frantically.

"I'm doing this in atmosphere," said Calhoun, with an air of apology, "because they made a leak in the hull."

The spaceboat fired a cannon shell. It went wholly wide. Calhoun swept in, flipped the Med Ship end for end, and his rocket flame would have cut the spaceboat in two had he swung one of his controls the quarter of an inch. He didn't. Instead he flung the Med Ship about until it was borne in upon the crew of the spaceboat that they had run up against a professional in spacecraft handling. He literally drove the spaceboat down and down and down—and he could have destroyed it a dozen times over—until at the last it made a panicky land-

ing and figures leaped out and fled.

And Calhoun made the Med Ship hover above it, fifty feet high, with that deadly star-temperature flame of the rockets drilling through the hull, and through the patches, and into the interior.

It was only when flames burst out of cracks and crevices all over the grounded, freakish spacecraft that he lifted the Med Ship and headed away over the horizon.

He landed once more on Delhi. He was very tired, and ordered Rob and Elna out of the ship.

"Nobody should leave Delhi but me," he repeated politely. "So you get out. There'll be a hospital ship here within a week—two at the outside. Are you two going to be married?"

Rob said with dignity: "Not unless the plague is defeated and we can go where we please. Not if our children would have to stay on Delhi and become savages."

"I'll send you a wedding present by the hospital ship," promised Calhoun. "You did me a great favor. Thanks."

He closed the air lock. He looked at a dial. The reserve tanks of the Med Ship had been emptied, in blowing sulfur smoke out of the single puncture in its hull. He had been pumping them up to normal reserve pressure again. And this was Delhi air. Anybody who got the plague had only to stay in Delhi air and he would be cured. But

there was work for the Med Service to do to arrange that he not relapse when he went out of Delhi air again. Nor give the plague to anybody else.

Calhoun sealed the hull-puncture with a quick-setting plastic. He sealed off the compartment whose wall had been pierced. He went down to the control room. He blinked as he set the rockets to roaring again and the Med Ship climbed for the sky.

An hour later he was intolerably tired. He aimed the Med ship for that far-off small star cluster which was its home. With extra care, because of his weariness, he verified what he'd done. Then he said: "Overdrive coming, Murgatroyd. Five . . . four . . . three . . . two . . . one . . ."

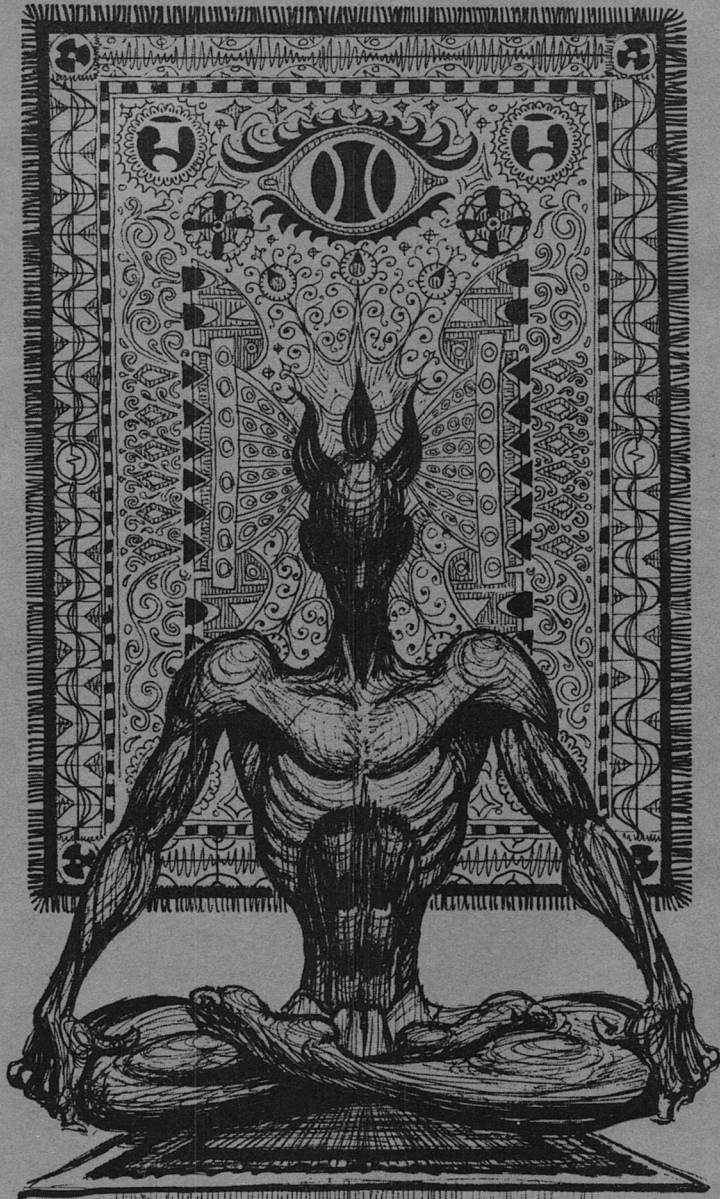
There was a revolting dizziness and an appalling nausea and then the feel of a spinning drop to nowhere. Then the Med Ship was in overdrive. It felt solid as a rock. There was no sound but that of the background-tape producing almost inaudible noises of traffic, and rain, and surf, and music, and human voices. There was even faint laughter.

Calhoun yawned. "Murgatroyd?"

"*Chee-chee!*" said Murgatroyd shrilly. "*Chee?*"

"Take over the ship," commanded Calhoun. "If any emergencies turn up, you take care of them. I'm going to bed!"

And he did. ■



Facts To Fit The Theory

CHRISTOPHER ANVIL

*A "sensible report" is one that fits your theory of
How Things Are and What Can Happen.*

*The man on the spot merely has fact and observational data
and should not be allowed to mislead you
by reporting untheoretical things; he must be made to turn in
a "sensible report" no matter what happened.*

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Operation Persuasion
Sir:

It is my duty to report that we have had no success whatever persuading the human colonists on Cyrene IV to join the Federation. We've told them what will happen if the Ursoids land on their planet. So far as it's possible to put it into words, we've told them what will happen if the Stath land on their planet. We've warned them that an unidentified scout ship of suspected Stath origin has been detected and backtracked to their solar system, and that the logical next step is a Stath occupation force, which can

be thwarted if the colonists join the Federation. We've explained all about the Triracial Mutual Non-aggression Pact. The colonists, however, talk mystic gibberish about mind-states and self-control, and refuse to sign the treaty.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Extreme Persuasion
Sir:

In view of the glaring realities of the situation, the colonists must be brought, by whatever means are necessary, to join the Federation.

I hereby specifically authorize you to use force to compel the signing of the Treaty. An agreement

made under duress will be held perfectly valid by either the Stath or the Ursoids, who use force whenever it appears profitable.

Any disciplinary action resulting from this will fall, not upon you, but upon me. I take entire responsibility.

By "force" I specifically refer to any and all methods of compulsion, including the taking of hostages, torture, and summary infliction of the death penalty.

These actions, however brutal, are precisely what the inhabitants of Cyrene IV will experience daily if the Stath take over their planet.

The need for speed is urgent.

A force of twenty-eight Stath ships, including transports, passed our watch-ship at Breakpoint Secoy at 0811 yesterday, and is expected in the vicinity of Cyrene IV sometime tomorrow.

From: G. L. Park, 1st Lt., TSFR

To: All Unit Leaders

Subject: Operation Persuasion

Sirs:

Because all methods of ordinary persuasion have failed to induce the colonists to join the Federation, and because a Stath invasion force is now en route, the signing of the treaty will be carried out by compulsion.

Seize immediately the elders of each community, and compel them to straightway sign the document of agreement.

Avoid unnecessary brutality. But

where force is necessary, you must use it.

The Stath are expected tomorrow.

From: Sam Smith, 2nd Lt., TSFR

To: G. L. Park, 1st Lt., TSFR

Subject: Difficulties

Sir:

I am prepared to use whatever force is necessary to prevent the Stath getting control of this planet, but unfortunately all the elders in my district have vanished.

From: G. L. Park, 1st Lt., TSFR

To: Sam Smith, 2nd Lt., TSFR

Subject: Signing of Treaty

Sir:

If you can't get the elders, seize anyone available, appoint him assistant elder, knock him over the head if necessary, and guide his hand across the page. The important thing is to get the papers signed.

From: Sol Abel, S/Sgt., TSFR

To: G. L. Park, 1st Lt., TSFR

Subject: Operation Persuasion

Sir:

Following your orders, I had four of the elders in my district seized for the purpose of signing the treaty. The elders, however, explained why they could not sign, and at the time it somehow seemed reasonable. We could not bring ourselves to force them, and they walked out. The papers are not signed. I request to be relieved of command of this unit.

From: G. L. Park, 1st Lt., TSFR
To: Sol Abel, S/Sgt., TSFR
Subject: Difficulty with Elders
Sir:

Forge the names of the elders on the proper lines of the documents. I will take responsibility. Have four different men sign so there is no unusual similarity of handwriting. Your request to be relieved of command is refused.

From: J. Hunt Rollo, 2nd Lt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Illegal Orders
Sir:

Operation Persuasion is an improvisation. The procedures, down to the smallest details, are irregular. Your latest order is completely unacceptable.

The Procedure of Federation, Section 21, Paragraph G, states: "No compulsion or extraordinary methods of persuasion shall be used."

It is my duty as an officer to uphold the honor of the Service.

I hereby notify you of my intent to report this infraction to H. James Rollo, the Inspector General of the Space Force, if you do not immediately rescind it.

From: G. L. Park, 1st Lt., TSFR
To: J. Hunt Rollo, 2nd Lt., TSF
Subject: Disobedience to Orders
Sir:

You are hereby removed from command of Unit I.

You are under arrest.

You are ordered to report to the command ship by 1400 TST, or you will be considered AWOL.

Any attempt to use any communicator or other means to send any message off this planet, directly or indirectly, will be construed as insubordination, and dealt with accordingly.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Difficulties
Sir:

I transmit herewith communications relevant to incorporation of Cyrene IV into the Federation. Any suggestions will be deeply appreciated.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Suggestions
Sir:

H. James Rollo, I seem to remember, has an only son named J. Hunt Rollo. The family is rich and influential. I think you are within your rights, but what will happen if Rollo's family goes to work on you, I do not know. They are what is known as an "Old Service Family." My advice is to show young Rollo my original order, do everything you can to conciliate him, give him a job as your special assistant, or whatever else he wants, within reason. As long as it doesn't interfere with your mission, handle the young heir with kid gloves whenever you can.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Progress So Far
Sir:

I am happy to report that we have now, by various methods that it is not necessary to go into here, got quite a few signatures on the Treaty. The papers are made up in proper legal form with necessary seals, signatures of witnesses, et cetera, all duly affixed. I am sending copies of the photostats to you by facsimile. These you can show to the Stath commander, so I guess that takes care of the problem of Cyrene IV.

As for Lieutenant Rollo, I have tried the things you suggested, without success. He insists that I rescind the order, destroy the treaty papers, and, if necessary, turn the planet over to the wringnecks when they get here.

He gives me one hour to comply with his demands.

Left to my own devices, I know what I would do.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Insubordination
Sir:

2nd Lt. J. Hunt Rollo is to be shackled and placed in the smallest compartment aboard your ship to await trial. He is to be fed, given water, and allowed the use of sanitary facilities. He may not communicate.

Two blasted careers are a small price to save a planet.

Have your communications tech-

nician check your facsimile machine. All we get up here are lines of segregated large and small letters, bits of what appears to be handwriting broken into its component parts, lines of dots, and other gibberish.

From: G. L. Park 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Facsimile Error
Sir:

The communications technicians tell me there is nothing wrong on our end, and say the effect you describe would be possible only if the electromagnetic wave-trains were somehow altered en route, so as to arrive at your machine in a different sequence from that in which they left ours. This, the technicians say, is impossible in the circumstances.

Incidentally, I am unable to comply immediately with your order concerning Lt. Rollo. Your message reached me after the expiration of the hour's grace allowed by the lieutenant, who immediately went to the long-range communicator in my command room. The communicator just happened to be under repair at the moment, and a heavy electrical charge was delivered to the lieutenant as he switched it on.

He is now in sick bay.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Transmission Trouble
Sir:

We are still getting a mishmash

on the fax. My technicians assure me there is nothing wrong on this end. I must have the necessary papers here when the Stath fleet shows up, so kindly get this matter straightened out.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Psychic Sabotage
Sir:

We have checked everything we can think of, and have run test transmissions using pages of regulations, maps, handwriting, and photos of pin-up girls. Everything goes through but the treaty. Your people transmitted to us the faulty copy you've been receiving. We received it, however, as perfect reproductions of the photostats.

One of the colonists told T/3 Berensen that the treaty cannot be transmitted, because we are trying to manipulate the colony against its will, and the elders are, therefore, psychically jamming the transmission.

That is as good an explanation as I have heard yet.

All I can suggest is that I call you on the communicator, and hold the treaty up to the screen while your men take photographs of it.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Communicator Trouble
Sir:

Something out of the ordinary is going on here.

All we could see on the screen was the same gibberish we get on the fax. Everything else on the screen came through, but not the treaty.

I would have my men run up a completely fake treaty, save for one thing: The Stath have a perfect right to send a ship down and demand to see the original. If you have the copy, and I have the original, it is going to look peculiar. A little heavy persuasion to get the treaty signed will never bother the Stath, since they would do the same themselves. But a completely *fake* treaty is something else again. To the Stath, only weaklings use fakery, and they despise weaklings. They would split this end of the universe wide open if they spot us at that.

I want to have a copy of some kind to give them when they show up. Read the treaty aloud over the communicator, and we will record it at this end. I will then give a copy of the record spool to the Stath, explaining that my facsimile machine is out of order.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Voice Recording
Sir:

T/3 Berensen *was* reading the treaty as written. Every one of us in the room heard him, and when I took the paper and read it, the others heard me. Moreover, when the recordings you took were played back, we all heard them clearly as

first Berensen's voice, then mine. It was all perfectly intelligible to us.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Bad Transmission
Sir:

All we got on this end was gobble. I don't know who is bewitched, or where the trouble takes place. But I am not going to give this spool of gibberish to the Stath.

Instead, I will tell them that the treaty has been signed, but owing to freak communications troubles, I have no copy.

The trouble with this is, my say-so is not enough to keep them off the planet. Their whole landing force will probably go down, and there is no predicting what will happen.

Their landing force will outnumber you by at least ten-to-one, so you had better call in your outlying units, take over the most formidable piece of terrain you can find, sink your command and scout ships in mutually-supporting positions, arm yourselves to the teeth, and then act punctiliously correct when their high officers show up to inspect the treaty.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Change in Plans
Sir:

I am now fortifying myself in exceptionally rugged country, and expect no trouble from the Stath.

But as for showing them the trea-

ty, a hitch has now developed. The safe in which the treaty was put is stuck shut.

We had half-a-dozen copies around, that might do temporarily in a pinch. The one on the fax, however, adhered to a part of the machine in a way I have never seen or heard of before, and peeled off in a long narrow strip with fuzzy edges, out of which it is impossible to reconstruct anything. The copy we tried to send you by communicator was inside the procedures manual we used as transmission check, and when we opened up the manual to take out the copy, the pages on either side stuck to it, so we had to use a knife to open them up. We then found that the paper had split down the middle edgewise so that there was nothing to be seen but two blank pages.

Another of the treaty copies was in the control room, but the cook accidentally set a tray of hot coffee on the treaty, and when he went out the treaty clung to the bottom of the tray. The cook then rammed the tray into the washer, and after the high-pressure steam nozzles got through with it, that copy wasn't worth thinking about, either. There were two copies together atop the safe, but after we landed here, an animal like a beaver ambled up the ramp into the command ship, walked down the corridor, went through the doorway as someone stepped out, and at this moment both copies blew off the top of the

call simply "self-control." They claim to be able to control their "internal mental state" with great accuracy.

Their argument against joining the Federation was that by voluntarily agreeing to take up our system of technological development—a standard provision of the treaty—they would open themselves to mental distractions. This, they said, appeared more serious than a Stath invasion, which would involve no moral obligation.

Any attempt to get across various unpleasant aspects of Stath occupation was met by the comment: "Do you fear it will cause us to lose our self-control?"

This seemed pathetic. But after this business with the treaty, we keep thinking of a comment of the elders, which I quote as nearly as I can remember it:

"Self-control is a tool which may be used within as well as without. When the emotions are stilled, and consciousness focused, and all the powers of a man leashed at his command, do you think this man is less for his diligence and effort within than if he had spent the same diligence and effort without? If ten thousand years of the combined labors of men suffice to disclose in the outer world such things as electricity, do you suppose that ten thousand years of inner search will disclose nothing?"

I think this answers your question. The chief industry of Cyrene

IV appears to be the development of a philosophy of self-control.

I just remembered another of their comments: "Are man's external means to become ever greater and more dangerous without, and man himself to become no greater and more self-controlled within?"

From: Myron Baker, Capt., TSF

To: G. L. Park, 1st Lt., TSFR

Subject: Stath Occupation

Sir:

The Stath are, of course, now in effective command of the planet. I have obtained for you and your force permission to remain on the planet for the time being.

Let me know how the Stath occupation is proceeding.

From G. L. Park, 1st Lt., TSFR

To: Myron Baker, Capt., TSF

Subject: Atrocities

Sir:

The Stath occupation is proceeding just as you might expect.

We put camouflaged receptors in various places when we pulled back, and we now have a better view than we like.

The first attack was met by a concerted outpouring of smiling women and children who put wreaths of flowers around the necks of the dumbfounded soldiers. Before the soldiers could recover, the colonist men came out beaming and carrying big platters of food. The Stath, of course, are always hungry, and this broke up the invasion.

The Stath Invasion Force Commander, a long thin weasel with sharp teeth and shrewd eyes, immediately got in touch with us on the screen, and in the name of the Tri-racial Mutual Nonaggression Pact demanded to know what the colonists were up to. I tried to explain that the colonists were religious and probably were just giving the feast out of good fellowship. The Stath said, "In that case, we'll settle it soon enough."

About ten minutes later, fresh Stath troops marched up, fired into the colonists and feasting soldiers, and the invasion got back into the usual swing of things.

I am sending up some representative viewer reels by simultran.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Atrocities
Sir:

This is horrible.

Keep your defenses strong.

There is a peculiar phenomenon on this Reel #2 you sent up. In the sequence at the beach where the soldiers are charging the women with bayonets, the colonist men are in the background standing close together, faces blank and grim, and a dust devil sweeps across the beach to develop into a sandstorm and obscure nearly everything in sight. The way this happened is odd. Was this an actual sandstorm, or is there some defect in the film?

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Strange Phenomena
Sir:

The sandstorm was, so far as we can tell, perfectly real. The buffeting of the grains of blown sand and grit was so severe that it ground the lens and clouded reception from that receptor in subsequent transmissions.

This was by no means the only unusual phenomenon.

I am sending up several more reels, one of which, you will notice, gives a view of a very large water-spout, which disrupted a boatload of Stath soldiers on their way out to ransack a village on an island.

One thing worth mentioning is that we have seen none of these striking phenomena when an elder has been around. You will note on Reel #10, the Stath soldiers who somehow wound up on a tiny ledge about fifty feet up the side of a cliff. There was no elder around at the time, but only some of the younger colonists. How the Stath got up there is a good question.

One of the elders stopped by here a little while ago. He looked very self-contained, as usual. He said that the basic cause of the trouble is the Stath philosophy, which divides all things into *krang* and *blogl*, *krang* being those things that can protect themselves, and *blogl* those things which cannot protect themselves, and the Stath's basic law of nature being that anything which

can protect itself will protect itself.

The catch in this, said the elder, is that there are various ways of protecting oneself, and various motives apart from attack and defense. Earth's apparently most helpless and naturally unarmed creature is man, actually the planet's deadliest predator. Moreover, attack and defense are not man's chief motive; man's chief motive is, roughly, *control of self and environment*. But this motive makes man very dangerous when provoked.

We said there would be provocation enough now. The elder said, yes, and now we would see how much control the self-satisfied younger colonists really have.

If it were not for whatever slight comfort our presence may give the colonists, I'd want to leave now. To watch this idly is almost too much to bear. And in a few days, the Stath overlordship ceremony of *kranolol* takes place, in which choice young specimens of the conquered race are publicly cooked and eaten, as symbolic of absorption of the planet into the Stath Confederacy.

Do we have to stay for this?

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Your Presence on Cyrene IV
Sir:

Stay, but don't watch the viewers. Before it starts, knock off watching the viewers for six hours or so, then take it up again, viewing

only from the recorders. When you get to the start of this hideous ceremony, skip it and return to the viewers. I think this period would be a good time to keep the men busy with the ship's defenses, and preparing for take-off.

You ought to stay during this ceremony, because if anyone comes seeking sanctuary, he will be likely to need it more at this time than at any other. Afterwards, the colonists will be stunned, just so many vegetables. Then will be the time to leave. It won't matter then.

This is a horrible thing, but remember, we tried to save them. We did everything we could. I don't think we ought to start an interstellar war over this now when all they'd have had to do a few days ago was to sign a paper we were begging them to sign, and then just let us show it to the Stath.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Departure
Sir:

We are now entering the period when the ceremony of *kranolol* is to be celebrated. There is a peculiar feeling in the atmosphere, as if everything were a little bit smaller and brighter than usual. The air is very still. There is enough breeze to move the leaves, but looking out at them directly, it still seems as if we are seeing them on a screen with the sound shut off.

I am following your suggestions

for viewing, and have the men busy on details of departure.

Lt. Rollo, who was going to report us to the Inspector General for illegality in trying to keep the Stath off the planet, escaped from sick bay a little while ago, and tried to get at the communicator. Several of the men grabbed him, and he is now the only man on the ship who will have the opportunity to watch *kranolol* as it takes place.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Ceremony
Sir:

For the benefit of our records, and of the next arms appropriation bill, I hope you are getting as much of the ceremony on film as possible; and for reference purposes, I hope all the films are synchrotimed as they come in.

From G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Films
Sir:

We are getting everything we can on film. It is all being synchrotimed.

The ceremony started about ten minutes ago.

Lt. Rollo got loose from the viewer and went around like a madman, shouting for volunteers to go out with him and kill Stath. I was afraid the whole crew might volunteer, so I laid him out with a wrench that happened to be handy, and he is now back in sick bay.

The weather has been getting rapidly worse. In ten minutes it has deteriorated from a cloudy day to a whole gale.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Seismic Activity
Sir:

Volcanic activity has broken out on the far side of Cyrene IV from your base.

Be prepared to leave the planet at once.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Seismic Activity
Sir:

Heavy earthquakes and volcanic eruptions are in progress in our section of the planet.

The winds here were clocked at a hundred and fifty miles an hour till the anemometer blew away.

We can't take off in these winds. We would be smashed to bits before we could gain altitude.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Survival
Sir:

I am still trying to reach you by every possible means of communication.

Reply when able.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Survival

Sir:

We are getting things put back together again.

We are all present and accounted for except Lt. Rollo, who came to in the middle of the hurricane and charged out to kill Stath.

In going out, he opened up the main hatch, and as he was blown away in no time, he was unable to shut it. Naturally, he had not set it on automatic-close, and he did not remember to shut the inner air-lock door, either.

The ship, of course, is airtight, and we had not opened it up since the rapid drop in atmospheric pressure began. It also happened that the hurricane was blowing crosswise of the hatch opening, which treated us to a Venturi effect. The result is that we are now suffering from a number of popped eardrums, burst containers, sprung bulkheads and jammed hatches.

I hope you will check and let me know definitely whether Lt. Rollo is really a member of an "Old Service Family," as I am getting tired of handling him with kid gloves.

As soon as we have things straightened out here, we will go out and do whatever we possibly can for the colonists.

From: Myron Baker, Capt., TSF

To: G. L. Park, 1st Lt., TSFR

Subject: Aid to Colonists

Sir:

By all means do what you can for the colonists.

I have checked on Rollo and he is, unfortunately, actually a member of an Old Service Family. I didn't mean to imply that he can, therefore, get away with anything. You will find, however, if you incur the family's enmity, that funny little things will happen from time to time, and they will always be to your disadvantage.

I will see what backing we can get on this from higher up.

From: Myron Baker, Capt., TSF

To: T. Moley Lammer, Major, TSF

Subject: Personal and Private

Sir:

I am sending correspondence on a matter concerning which I would value your advice.

From: T. Moley Lammer, Major, TSF

To: Myron Baker, Capt., TSF

Subject: Personal and Private

Sir:

Good God, do you have any idea what you're doing? That is you-know-who's son. Don't try to drag me into this.

From: Myron Baker, Capt., TSF

To: G. L. Park, 1st Lt., TSFR

Subject: Disciplinary Action

Sir:

I'm afraid we will have to go it alone on this. But somebody simply has to stick his neck out occasionally.

How are your rescue operations coming?

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Rescue Operations
Sir:

We found Lt. Rollo wrapped around a tree at the bottom of a nearby gully. He is now back in sick bay mouthing threats. If this is what Old Service Families come to after a few generations, it's a sorry commentary.

We are now over the site of the former Stath main headquarters base. As you see from the view tapes we are sending up, the base is completely demolished, the ships strewn in all directions.

You will note in the close view a mass of seaweed, a number of giant crabs, and an enormous squid with half-a-dozen arms wrapped around the Stath ships. These sea creatures came in on a tidal wave. You can probably hear on the audio the grinding, popping noises, and the Stath screams. When we get through rescuing colonists, we will come back here and see what we can do.

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Rescue of Stath
Sir:

Don't burn out any bearings in the rush.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Cleaning-Up Operations
Sir:

Lt. Rollo, all of whose ravings I

have gotten down in quintuplicate, on tape, has suddenly decided to forget about his various charges. In view of the fact that he has been almost electrocuted, hit over the head with a wrench, blown away in a hurricane, and this morning—while trying to get to a communicator—got himself wound up in a bandage-fabricating machine, I am inclined to let it go at that.

The Stath are just about wiped out. One small scout ship of theirs streaked out of here at a flat angle with its tubes white and the whole nose section cherry red. The remaining Stath survivors are hysterical. The mere sight of a colonist throws them into terror.

The colonists, meanwhile, are having a disagreement. I am sending you spools of what is going on between the elders and the other male colonists. The elders point to the huge heaps of seaweed, mud, tangles of uprooted trees, smashed houses, strewn wreckage from spaceships, tongues of lava thrust out into the steaming ocean, dead fish, feeding giant crabs, dead Stath, and demand, "Do you call this self-control?"

The colonists insist that the elders remember what the Stath were doing at the time. The elders say, "We don't approve of their depravity. But what did *you* do?"

The colonists hang their heads and mumble. The elders say, "Did you have to use a sledgehammer to squash a gnat? Don't you know

what you can do with small measures rightly timed? How long do you think it's going to take to straighten out this mess? Where was all this vaunted self-control we've heard about?"

In accordance with standard procedure, I have sent in my final signed report on this situation by facsimile, one copy to you, and four copies to Major T. Moley Lammer for transmittal through channels to Sector HQ, Colonization Council, et cetera. The report was strictly factual, but I have already gotten a long reply from which I quote the following:

“. . . Without definitely saying so, this report raises the clear implication that the natural disturbances on Cyrene IV were somehow caused by the colonists and their odd religious cult. I cannot initial this report as it stands. My communications technicians assure me that the phenomena connected with the attempted treaty transmission are not possible in the present state of the art . . . I will excuse this first report because of the extreme nervous strain you have experienced in the last few days. But, if you insist upon these hallucinations, I will find it my duty to report you for rest, rehabilitation, and, of course, psychiatric examination . . .”

All I have done is to factually report what happened. I have the proofs here in front of me, and they support every statement. Lammer knows nothing about it, has not been

here, has seen nothing, but does not hesitate to state that it is all a hallucination. Now what? Am I supposed to lie to please him, and thereby misinform higher authority?

From: Myron Baker, Capt., TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Report
Sir:

Congratulations that the Rollo mess is out of the way.

As for your report, I am afraid there is a little gimmick you will have to become acquainted with. It is known as “Occam’s Razor.” It is expressed as follows: “*Essentia non sunt multiplicanda praeter necessitatem*,” which means, roughly, “Root causes should not be multiplied without necessity.” As usually applied, it really means, “without dire necessity.”

In other words, you are to be extremely careful about introducing new basic concepts into any discussion of physical facts. Occam’s Razor is necessary to save us from getting overwhelmed with Vital Essences, Natural Tendencies, Mutual Affinities, and so on, to the point where they clog the mental machinery.

Now, Occam’s Razor has one disadvantage. Rather than change any basic concept, we tend to introduce a host of corrections and refinements to existing concepts. The resulting mental picture of reality is like the Ptolemaic picture of the universe. The picture becomes ex-

tremely complex, for want of changing a basic concept.

The Copernican picture, by contrast, is comparatively simple and easy to understand, because a change was made in the basic concept. But note that Copernicus did not publish his system till just before he died. The authorities, except in rare cases, are wholeheartedly in favor of Occam's Razor.

In fact, they often carry it further, knock off the last couple of words, and change it to Occam's Procrustian Bed: "Root causes should not be multiplied." Any fact or occurrence that does not fit present theories either gets stretched out or chopped off, to make it fit.

Your report introduces the concept that it is possible to affect the physical universe by some other process than the familiar "desire-intent-muscular contraction" process. This is a basic change of concept.

It seems to me, you will have to somehow make your report fit the present accepted concepts, in order to even get it into the records.

Be careful you don't change the facts. But do your best to dredge up some interpretation that appears to fit accepted concepts.

From: T. Moley Lammer, Major,
TSF
To: G. L. Park, 1st Lt., TSFR
Subject: Report
Sir:

I am being pressed by higher authority for your report and full sup-

porting documents on the Cyrene IV situation. Kindly send these as soon as possible.

Let me again warn you that an incoherent, fantastic, or unscientific report will be considered evidence of the necessity for your immediate removal from command responsibility.

Send me at once a brief précis of the situation, in *comprehensible form*, that I may forward in reply to urgent queries.

From: G. L. Park, 1st Lt., TSFR
To: Myron Baker, Capt., TSF
Subject: Further developments
Sir:

From recent conversations with these elders, it appears to me that they are well aware of having us in a bind. We disbelieve their theories, but, somehow or other, we now have to explain what happened. How can we possibly do that without getting some enlightenment jammed into our skulls whether we like it or not?

It appears to me that the elders have worked things so that we, the Stath, and their own overconfident younger colonists, have all gotten a stiff jolt to the midsection out of this. Maybe this self-control stuff has something to it after all.

Anyway, I hope your advice about the report is right, as I have just received an urgent demand from the major.

Wish me luck. I see I have got to fabricate a *scientific* explanation for what happened here.

From: G. L. Park, 1st Lt., TSFR
To: T. Moley Lammer, Major, TSF
Subject: Report
Sir:

Permit me to express my gratitude for your understanding and consideration.

Pursuant to your request for a précis covering developments in the situation, I enclose the following:

"On March 2, 2416, at 0817 hrs., TGT, Temporary Scouting and Reconnaissance Detachment 4662, consisting of four T6J scout ships, five T7 scout ships, and one T7A scout ship converted to command ship, carrying a total force of one hundred eighty-three men and four commissioned officers, 1st Lt. Gene L. Park, TSFR, Cmdg., landed on the day side of the planet Cyrene IV. Our mission was to: 1) warn the colonists of the imminent possibility of Stath or Ursoid occupation; and 2) if possible, persuade the colonists to join the Federation of Humanity.

"Due to the theological resistance of the colonists to Federation, the signing of the treaty was delayed until word of the imminent arrival of a Stath Invasion Fleet, consisting of twenty-eight ships, including transports. The completed treaty was obtained only at the last moment, and by dint of very strong and insistent urging.

"There now occurred an additional delay, which may be satisfactorily explained only in the light of subsequent developments. Trans-

mission of the completed treaty to the watch ship overhead was garbled repeatedly. Thus when the Stath Invasion Fleet arrived it proved impossible to present them with the required certified copy of the treaty. We were now also notified by a representative of the colonists that the latter wished us not to transmit the treaty to the watch ship, as they considered it to be invalid, owing to their aforementioned religious scruples.

"The Stath Invasion Fleet then landed on the planet. The colonists attempted to welcome them with feasts and flowers, but violence broke out almost immediately.

"The colonists having destroyed our case by repudiating the treaty, the Stath immediately invoked the Triracial Mutual Nonaggression Pact to assure our noninterference in the affairs of the occupation, but granted us permission, for the time being, to remain on the planet.

"The Stath occupation proceeded with its customary violence and brutality, until celebration of the Stath ceremony of *kranolol* was begun on March 26, 2416, at 0916 TGT.

"Prior to this time, there had occurred a number of minor but unusual meteorological disturbances, including severe winds, sandstorms, waterspouts, and local storms of unusual character.

"There now occurred a major seismological disturbance, culminating in near worldwide volcanic activity. Storms of hurricane force,

coupled with earthquakes, tidal waves, and an uprising of the enslaved colonists, terminated the Stath occupation in a wave of catastrophe and bloodshed from which only one Stath ship is known to have escaped. No casualties to Temp. S. and R. Det. 4662 resulted from this storm.

"The colonists attribute their deliverance to a form of divine intervention.

"The failure of transmission, carefully investigated without satisfactory result at the time, may now be attributed to high-level electromagnetic disturbances in the atmosphere, contingent upon the extraordinary meteorological conditions obtaining at the time.

"Following relief and rescue operations on the planet Cyrene IV,

Temporary Scout and Reconnaissance Detachment 4662 is continuing its efforts to persuade the colonists to join the Federation of Humanity."

From: T. Moley Lammer, Major, TSF

To: G. L. Park, 1st Lt., TSFR

Subject: Report

Sir:

I am forwarding your brief report immediately.

Let me congratulate you on the clarity, brevity, and soundness of this new communication. In contrast to your previous message, this explanation of the difficulties on Cyrene IV is truly scientific.

Kindly hasten your full report concerning the situation on Cyrene IV. ■

THE ANALYTICAL LABORATORY *The necessity for negative feedback in controlling any process is pretty well recognized in technology generally, now. The An Lab here is the negative feedback link between author and reader—and makes Analog a two-way communication channel.*

Your votes sent in on cards, as notes, as part of a letter, do two things: 1: They inform author and editor as to what stories you like best and what types of story. 2: They have a "pleasure-stimulus" effect on authors. If the readers' votes put a story in first place the author gets a thirty-three percent bonus—as well as the very real pleasure-stimulus of having taken first place. Second place gets a sixteen percent bonus (actually a half-cent a word).

Of course, if you don't vote no negative feedback. We—both author and editor—appreciate your letters.

AUGUST 1966

| PLACE | STORY | AUTHOR | POINTS |
|-------|----------------------------|-----------------|--------|
| 1. | Too Many Magicians (Pt. 1) | Randall Garrett | 1.92 |
| 2. | Something To Say | John Berryman | 2.46 |
| 3. | Spirits of '76 | Joe Poyer | 3.73 |
| 4. | Technicality | Norman Spinrad | 3.80 |
| 5. | Light of Other Days | Bob Shaw | 4.00 |
| 6. | By the Book | Frank Herbert | 4.38 |

THE EDITOR

A cold wind pierced the night, and a wolf howled at the city gate. A mummy stood, disapproving, in a corner of the shuttered room. His face corpse-like in the flickering green light from the black candle, the student pored over the pages of the orichalcum-bound book before him—the “Book of Power,” stolen from the demon-haunted vaults below the lost temple of Elektros in nighted Physi.

“Construct thou a rhombus,” he read. “Let its length be as the weight of a virgin of Daraf. And let it be wide, as thrice the depth of the cursed well in the city of Ssuag. And let it be deep, to a depth of seven times the span of the fabled iron sword of Yrneh.”

A woman screamed in the street, and the mummy stirred, but the student read on. “Construct thee now, by the black arts of Nivlek,

a square in size like unto the rhombus. And when this ye have done, exorcise three sides of the square, and the mystery will be revealed unto you. But, if you value your life and very soul, touch not the earth as thou perform the exorcism!”

It was another night, and the student was an older man. Years and toil and unknown terrors had taken their toll, in the perilous quest for the raw materials for the spell. (Virgins from Daraf had been particularly hard to come by.) But now the square was graved by secret arts on the paven floor, and the student braced himself against the iron door of the chamber as he spoke the awful words of power that would exorcise all but one of the sides of the square. Again the mummy gloomed in the corner, and the green flickering light of the candle cast ominous crimson shadows on the wall.

He spoke the words slowly, as one, then two of the sides vanished. As the third faded and dimmed, the fourth took on a waxing bluish glow, and he felt the hair rise on his head, and he was aware of an odor he

by John D. Clark, Ph.D.

had known before—after a thunderstorm on the high plains of Hoy. The glow burgeoned and brightened—and he spoke the last word of the spell.

A shattering crash rocked the ancient building, and midnight was turned to high noon, and the charred and riven body of the student, stricken by the levin-bolt, sank to the floor.

The mummy laughed out loud. That had been one hell of a big electric charge the student had conjured up, and the damned fool had

forgotten that the iron door was grounded!

“What goes on here?” Really, it’s all very simple and perfectly logical. You multiply a force—weight—by a length and by another length. (The student constructing his rhombus.) Then you take the square root of that. (Exorcising three sides of the square.) And what you have left is electricity. Nothing to it. Any competent thaumaturge can do the job.

Huh?

Well, you see it was this way. Everybody meant well—it’s just that things got a little out of hand. It all started around the beginning of the last century, when Karl Friedrich Gauss, that greatest of mathemati-

Dimensions, Anyone ?

The basic dimensions of our science are Length, Mass and Time—but these are purely arbitrary postulates. We have no proof that any one of them is real or basic. And—as Dr. Clark shows—there’re lots of reasons to suspect they aren’t. And—most interesting for interstellar travel!—distance may not exist at all!

cians, showed that all mechanical quantities or phenomena could be expressed in terms of just three fundamental entities: mass, M; Length, L; and time, T. Thus velocity could be described as L/T or LT^{-1} , energy as ML^2/T^2 or ML^2T^{-2} , and so on. In this sense, force could be said to have the *dimensions* of MLT^{-2} . If you were involved with things that went round and round, and had to talk about torque and moment of inertia and that sort of thing, you had to bring in another fundamental, plane angle, Θ . Each of these fundamentals had a unit; gram for mass, meter for length, second for time, and radian for angle. (All a unit is, really, is a fixed quantity of some sort that you can compare with another quantity of the same sort, so that you can hang a figure on the latter. The figure on the unit, as you might guess, is "one.")

Fourier, in 1822, elaborated on this, and pointed out that any physical equation, to make sense, had to have exactly the same dimensions on both sides of the equality sign. If you had mass times velocity on one side, and energy on the other, you were in trouble. But if you had mass times velocity *squared* on one side, and energy on the other, you were at least making sense. You might not be telling the truth, in your particular case, but you weren't gibbering.

And that's how Dimensional Analysis was invented. And Dimen-

sional Analysis is what this article is all about. As mathematics is a branch of logic, which is designed to keep you from contradicting yourself, so dimensional analysis is a branch of semantics, the science of "Exactly what the hell *are* you talking about—if anything?" And its object is to restrain you from adding up apples and oysters, and thus making yourself "a figure of fun, and a subject of innocent merriment" to your peers and conferees.

Dimensional analysis handled mechanics very nicely, but the question of temperature was a puzzling one. Heat could be equated with energy, and was, but what were the dimensions of temperature? Finally, in 1848, that year of revolutions, William Thomson, later Baron, Lord Kelvin, boldly proposed the introduction, as another fundamental entity, of thermodynamic or absolute temperature, T° , with its unit, the degree Celsius, and within three years the whole works was tied together and modern thermodynamics was off and running. The combustion temperature in a modern rocket is measured in degrees Kelvin.

And then, just as everybody was heaving a sigh of relief and saying "Thank God *that's* settled!" all hell broke loose. For William Thomson (him again!) in 1861 talked the British Association (for the Advancement of Science) into ap-

pointing a committee to devise a set of absolute units for electrical and magnetic quantities, and to relate these to the mechanical units of mass and length and time.

Gauss and Weber, some years earlier, had suggested a way of doing this, and the committee unfortunately followed their advice. This is how they proceeded. Two electric charges attract (or repel) each other with a force which is proportional to the product of the charges divided by the square of the distance between them. Like so. $F=Q_1Q_2/dr^2$, where F is the force, Q_1 and Q_2 the charges, r the distance between them, and d is a constant (the dielectric constant or permittivity of the medium between and surrounding the charges.) A similar rule holds for magnetic poles, with pole strength replacing charge, and μ , the magnetic permeability of the medium, replacing d . So, to define a unit charge (or pole) you merely have to state that when separated from an identical entity by a unit distance it is repelled by a unit force.

Well, the first question that came up was the definition of a unit distance and a unit force. Since force has the dimensions of MLT^{-2} , that meant that the committee would have to decide on the unit of mass, length, and time. Fortunately, everybody agreed on the second for time. But one group wanted to use the millimeter and the milligram for length and mass, and another

wanted the meter and the gram. Thomson (everywhere you look in nineteenth century physics, there he is!) with his British talent for compromise, suggested that they split the difference and adopt the centimeter and the gram. Everybody agreed in a spirit of "Let's get on with it, chaps!" and they started in. So the newly invented absolute unit of force was the gram times the centimeter divided by the second squared. They called it the dyne.

That preliminary out of the way, they set to work. Two unit charges separated by a distance of one centimeter repel each other with a force of one dyne. Set it down— $MLT^{-2}=Q^2L^{-2}d^{-1}$. What to do about d ? Apparently they said, in effect, "We'll do the measuring in a vacuum, and call the dielectric constant of a vacuum "one," so it won't bother our arithmetic." "Fine, throw out the d , and then solve for Q , and we'll see what are the dimensions of electricity." So they did it. As below.

$Q^2 = ML^3T^{-2}$, or Q is the square root of the product of a force times a length times another length. And *that* is how the weight of the virgin of Daraf got into the act.

The committee plunged ahead, and from charge they derived the dimensions of all the other electromagnetic quantities. For if you have the dimensions of charge, those of current are obviously these divided by time. And magnetic field can be derived from current, and so on.

And they did exactly the same thing starting from pole strength.

The results were appalling. The whole list was cluttered up with expressions like $M^{1/2}L^{3/2}T^{-1}$, which, to the naked eye at least, make no sense at all. What, in the name of reason, is the square root of mass? Or the 3/2 power of length? And when the expressions, for a change, weren't decorated with a gingerbread of fractional exponents, they just looked ridiculous. For instance, capacitance came out with the dimensions of length. Period. Try using three and a quarter inches for a capacitor sometime, and see how your circuit works. (It just might, at that, in an Hieronymus Machine!)

But that wasn't the worst of it. For when the dimensions of a quantity were derived starting from charge, they didn't come out the same way as when they were derived from pole strength. Or, to put it the other way around, a given dimensional formula doesn't mean the same thing when you've de-

rived things magnetically as it does when you've derived them from the electrostatic point of view. Table 1 lists a few grisly examples of dimensional formulae and what they represent—from either point of view.

Obviously, this way madness lies. Charge is charge, and it can't be two contradictory things at the same time—or at least we hope it can't. Sometimes I suspect that the Reverend Charles Dodgson had infiltrated the committee, and was amusing himself between chapters of "Alice in Wonderland."

The overalls got into the chowder when the committee suppressed *d* and *u*, just calling them "one" or "Unity" and then brushing them under the rug. Sir Charles Rucker pointed out some years later (1889) that you just can't *do* that and get away with it or even hope to make sense. Since we *are* introducing new concepts (*d* and *u*) and do not know their dimensions in terms of *M*, *L*, and *T*, we are forced to consider *u* or *d* (but not both at the

TABLE 1

| ELECTROSTATIC DERIVATION | DIMENSIONAL FORMULA | ELECTROMAGNETIC DERIVATION |
|--------------------------|------------------------|----------------------------|
| Electrical charge | $M^{1/2}L^{3/2}T^{-1}$ | Magnetic pole strength |
| Magnetic pole strength | $M^{1/2}L^{1/2}$ | Electrical charge |
| Electrical potential | $M^{1/2}L^{1/2}T^{-1}$ | Magnetic potential |
| Magnetic potential | $M^{1/2}L^{3/2}T^{-2}$ | Electrical potential |
| Capacitance | <i>L</i> | Inductance |
| Inductance | $L^{-1}T^2$ | Capacitance |

same time, for a reason I'll get to in a minute) as a basic, ranking with the mechanical quantities.

Why not both at the same time? Well, for some time it had been noticed that the electrostatic unit of a quantity (derived from unit charge) differed from the electromagnetic unit (derived from unit magnetic pole) by a factor that was very close to 3×10^{10} , or, in some cases by 9×10^{20} . And when you divided one dimensional formula of a property by the other, you always came out with L/T (velocity) or velocity squared. So in 1873 James Clerk Maxwell put his not inconsiderable reputation on the line by stating that this velocity was that of the propagation of electromagnetic disturbances and that it would be found to be identical with that of

light. He was right, of course, and this velocity of light, c , ties the permittivity and the permeability of space together by the simple equation, $d_0 u_0 c^2 = 1$. So they are not independent of each other, and you can't use them both at the same time along with M L, and T. (And from Maxwell's equations came Hertz, and from Hertz came Marconi, and from Marconi came radio, and that led to TV and so you can blame Maxwell for "The Secret Storm" and "Bonanza" and "The Beverly Hillbillies.")

But you *could* use either one at your convenience, and derive two independent sets of dimensional formulae, and then everything made sense. Well, maybe it made sense. Judge for yourself in Table 2.

In the opinion of many people it

TABLE 2

| QUANTITY | ELECTROSTATIC SYSTEM | ELECTROMAGNETIC SYSTEM |
|-------------------------|------------------------------------|------------------------------------|
| Charge, E. Flux | $d^{1/2} M^{1/2} L^{3/2} T^{-1}$ | $u^{-1/2} M^{1/2} L^{1/2}$ |
| Pole, M. Flux | $d^{-1/2} M^{1/2} L^{1/2}$ | $u^{1/2} M^{1/2} L^{3/2} T^{-1}$ |
| Electric Flux Density | $d^{1/2} M^{1/2} L^{-1/2} T^{-1}$ | $u^{-1/2} M^{1/2} L^{-3/2}$ |
| Magnetic Flux Density | $d^{-1/2} M^{1/2} L^{-3/2}$ | $u^{1/2} M^{1/2} L^{-1/2} T^{-1}$ |
| Permittivity | d | $u^{-1} L^{-2} T^2$ |
| Permeability | $d^{-1} L^{-2} T^2$ | u |
| Electric Field Strength | $d^{-1/2} M^{1/2} L^{-1/2} T^{-1}$ | $u^{1/2} M^{1/2} L^{1/2} T^{-2}$ |
| Magnetic Field Strength | $d^{1/2} M^{1/2} L^{1/2} T^{-2}$ | $u^{-1/2} M^{1/2} L^{-1/2} T^{-1}$ |
| Electrical Potential | $d^{-1/2} M^{1/2} L^{1/2} T^{-1}$ | $u^{1/2} M^{1/2} L^{3/2} T^{-2}$ |
| Magnetic Potential | $d^{1/2} M^{1/2} L^{3/2} T^{-2}$ | $u^{-1/2} M^{1/2} L^{1/2} T^{-1}$ |
| Capacitance | dL | $u^{-1} L^{-1} T^2$ |
| Inductance | $d^{-1} L^{-1} T^2$ | uL |
| Resistance | $d^{-1} L^{-1} T$ | uLT^{-1} |

did *not* make sense. In the first place, the system was still cluttered up with all those fractional exponents, and the whole thing was inelegant and remarkably ugly. And a scientist tends to regard an inelegant theory with as much suspicion as an engineer regards an ugly suspension bridge. And for the same reason—they'll both probably fall on their silly faces. And in the second place, why should there be *two* equally valid systems? Of course, that came from treating *d* and *u* as basic concepts, but if a new concept *had* to be introduced to account for electrical quantities, and apparently it had, what was so sacred about either *d* or *u*? Why not another one—and what could be more basic to electricity than electricity itself—charge? If we call charge "Q", Table 3 shows what happens.

Well, that's a relief. All those fractional exponents down the drain, anyway, leaving a simple, neat, and understandable system, known as the meter, kilogram, second, coulomb practical set of dimensional quantities. Very widely used, as is the closely related meter, kilogram, second, ampere *Système International*. (To change to this set substitute IT, current \times time, for Q wherever the latter shows up in Table 3.)

But do I hear an indignant voice paraphrasing General Custer, and demanding to know "Where did all those—verbally qualified—thetas come from?" They come, simply,

from the fact that all magnetic quantities involve electrical charge in revolution. For instance, magnetic field intensity can be measured in ampere-turns per meter. No turns, no field. And since all the magnetic qualities are related, Θ appears in all of them. The same sort of thing shows up in mechanics. Torque is frequently expressed in ergs, which have the dimensions of energy, ML^2T^{-2} . But torque is *not* energy, and should properly be expressed in ergs *per radian*, since an erg of work has not been performed until your shaft or whatever has turned through an angle of one radian. I didn't bring this up earlier because I didn't care to confuse the issue—any more than comes naturally—by talking about too many things at once.

But—and it's a big but—the units on which these systems are based are parochial, to say the least. Radian is a natural and logical unit for plane angle, but the units for mass, length, time, et cetera, are something else again. For instance, what is a meter? Officially, that is.

The meter is the length of exactly 1,650,763.73 wavelengths of the radiation in vacuum corresponding to the unperturbed transition between the levels $2p_{10}$ and $5d_5$ of the atom of Krypton 86, the orange-red line. (Until quite recently it was defined as the distance between two grooves engraved on a bar of platinum-iridium alloy resting in a vault in Sèvres, France.)

TABLE 3

| FUNDAMENTAL QUANTITIES | DIMENSIONAL FORMULA |
|-------------------------|---------------------------------|
| Angle | Θ |
| Charge | Q |
| Mass | M |
| Length | L |
| Time | T |
| Temperature | T° |
| MECHANICAL QUANTITIES | DIMENSIONAL FORMULA |
| Velocity | LT^{-1} |
| Acceleration | LT^{-2} |
| Angular Velocity | ΘT^{-1} |
| Angular Acceleration | ΘT^{-2} |
| Momentum | MLT^{-1} |
| Force | MLT^{-2} |
| Action | ML^2T^{-1} |
| Energy | ML^2T^{-2} |
| Power | ML^2T^{-3} |
| Angular Momentum | $\Theta^{-1}ML^2T^{-1}$ |
| Moment of Inertia | $\Theta^{-2}ML^2$ |
| Torque | $\Theta^{-1}ML^2T^{-2}$ |
| THERMAL QUANTITIES | DIMENSIONAL FORMULA |
| Heat | ML^2T^{-2} |
| Entropy | $ML^2T^{-2}T^{\circ-1}$ |
| ELECTRICAL QUANTITIES | DIMENSIONAL FORMULA |
| Charge, Electric Flux | Q |
| Pole, Magnetic Flux | $\Theta^{-1}Q^{-1}ML^2T^{-1}$ |
| Electric Flux Density | QL^{-2} |
| Magnetic Flux Density | $\Theta^{-1}Q^{-1}MT^{-1}$ |
| Permittivity | $Q^2M^{-1}L^{-3}T^2$ |
| Permeability | $\Theta^{-2}Q^{-2}ML$ |
| Electric Field Strength | $Q^{-1}MLT^{-2}$ |
| Magnetic Field Strength | $\Theta QL^{-1}T^{-1}$ |
| Electrical Potential | $Q^{-1}ML^2T^{-2}$ |
| Magnetic Potential | ΘQT^{-1} |
| Capacitance | $\Theta^{-1}Q^2M^{-1}L^{-2}T^2$ |
| Inductance | $\Theta^{-1}Q^{-2}ML^2$ |
| Resistance | $Q^{-2}ML^2T^{-1}$ |

The kilogram is the mass of a particular cylinder of the same alloy, living in that same hole in the ground.

The second is exactly 1/31,556,925.9747 of the tropical year 1900, January, 0 days, 12 hours ephemeris time. Honest to God—I'm not kidding!

The degree Kelvin (or Celsius—they're the same size) is 1/273.16 of the difference in temperature between absolute zero and the triple point of water. (Not the melting point, remember. And they didn't specify the isotopic content of the water.)

And a coulomb is that quantity of electricity which will deposit 0.00118 grams of silver from a neutral solution of silver nitrate, under carefully and minutely specified conditions.

Well, how parochial can you get? Try to define a kilogram to a visitor

from Arcturus. Or a second to anybody. It seems to me that if we presume to try to describe the universe, the terms in which we describe it should be those of the universe itself—certainly not those of a hole in the ground in a small country on a minor planet of a commonplace G type star on the outskirts of one completely unremarkable galaxy. I am thus led to proclaim Clark's First Law of Dimensional Analysis:

"A fundamental unit must be a universal natural constant."

Let's take a look at these universal natural constants, and see what can be done with them. Here they are, as listed on page F-129 of the "Chemical Rubber Handbook," 46th edition, 1965-66, with the addition of d_0 and u_0 .

- e The electronic charge.
- m The rest-mass of the electron.
- c The velocity of light in a vacuum.

TABLE 4
h, G, d, u System

| QUANTITY | DIMENSIONAL FORMULA |
|----------------------|------------------------------------|
| Mass | $h^{1/2}G^{-1/2}d^{-1/4}u^{-1/4}$ |
| Length | $h^{1/2}G^{1/2}d^{3/4}u^{3/4}$ |
| Time | $h^{1/2}G^{1/2}d^{5/4}u^{5/4}$ |
| Electrical charge | $h d^{1/2}u^{-1/2}$ |
| Velocity | $d^{-1/2}u^{-1/2}$ |
| Momentum | $h^{1/2}G^{-1/2}d^{-3/4}u^{-3/4}$ |
| Force | $G^{-1}d^0u^{-2}$ |
| Energy | $h^{1/2}G^{-1/2}d^{-5/4}u^{-5/4}$ |
| Electrical potential | $h^{-1/2}G^{-1/2}d^{-7/2}u^{-3/4}$ |
| Capacitance | $h^{1/2}G^{1/2}d^{7/4}u^{3/4}$ |

- h Planck's constant of action.
- k Boltzmann's constant of heat capacity.
- G_0 The universal gravitational constant.
- d_0 The permittivity of a vacuum.
- u_0 The permeability of a vacuum.

And now we're in *real* trouble, with more "universal constants" than we need, or can use. Leaving Boltzmann's constant aside for the moment, as a likely candidate for defining temperature, we have seven constants from which to derive four units. From first principles, we need use only four of the constants

—and there are thirty-five possible combinations of four items selected from seven. Fortunately, some of them are impossible. In the first place, as I mentioned some time back, d_0 and u_0 are related through c , so we can't use any combination including d_0 , u_0 , and c . That eliminates four combinations. And it is an experimental fact that $e^2/hcd_0 = 0.00116135$, so we can't use e, h, c, d_0 or e, h, c, u_0 . And it is also an experimental fact that $m^2G_0/hc = 2.785 \times 10^{-46}$, so m, h, c, G_0 is out. But there are still twenty-eight candidate combina-

TABLE 5

| FUNDAMENTALS | DIMENSIONS AND NATURAL UNIT |
|-----------------------|---------------------------------|
| Angle | θ , the radian |
| Charge | e , the electronic charge |
| Mass | m , the electron's rest-mass. |
| Velocity | c , the velocity of light |
| Action | h , Planck's Constant |
| Entropy | k , Boltzmann's Constant |
| MECHANICAL QUANTITIES | DIMENSIONS AND NATURAL UNIT |
| Length | $m^{-1}c^{-1}h$ |
| Angle | θ |
| Time | $m^{-1}c^{-2}h$ |
| Velocity | c |
| Angular Velocity | θmc^2h^{-1} |
| Acceleration | mc^3h^{-1} |
| Angular Acceleration | $\theta m^2c^4h^{-2}$ |
| Mass | m |
| Moment of Inertia | $\theta^{-2}m^{-1}c^{-2}h^2$ |
| Momentum | mc |
| Angular Momentum | $\theta^{-1}h$ |
| Force | $m^2c^3h^{-1}$ |
| Torque | $\theta^{-1}mc^2$ |

tions, which is entirely too much of a good thing. So let's look at the quantities separately, and see which are superfluous.

We have already learned that when you use d_0 or u_0 , electrical quantities become horribly complicated. The same thing happens to mechanical quantities when you use G_0 . As an exercise in masochistic curiosity, I conceived of a system using all three of them, plus h , the latter being picked more or less at random, and worked out the dimensions of a few quantities in *that* system. The results, in all their hor-

ror, are shown in Table 4.

This appalling mess is the result of what I suspect may well be the worst possible set which could have been selected from the "universal constants." Which leads me to a faint suspicion that these constants may not be of equal rank. Certainly we don't need them all if some of them can be expressed in terms of others, as $d_0 = 1/0.001161385 \times e^2/hc$. So I am impelled to proclaim Clark's Second Law of Dimensional Analysis:

"Fractional exponents do not appear in the dimensions of quantities

| | |
|-------------------------|------------------------------------|
| Action | h |
| Energy | mc^2 |
| Power | $m^2c^4h^{-1}$ |
| Gravitation | $m^{-2}ch$ |
| <hr/> | |
| THERMAL QUANTITIES | DIMENSIONS AND NATURAL UNIT |
| <hr/> | |
| Heat | mc^2 |
| Temperature | mc^2k^{-1} |
| Entropy, Heat Capacity | k |
| <hr/> | |
| ELECTRICAL QUANTITIES | DIMENSIONS AND NATURAL UNIT |
| <hr/> | |
| Charge, Electric Flux | e |
| Pole, Magnetic Flux | $\theta^{-1}e^{-1}h$ |
| Electric Flux Density | $em^{-2}c^{-2}h^2$ |
| Magnetic Flux Density | $\theta^{-1}e^{-1}m^2c^2h^{-1}$ |
| Permittivity | $e^2c^{-1}h^{-1}$ |
| Permeability | $\theta^{-2}e^{-2}c^{-1}h$ |
| Electric Field Strength | $e^{-1}m^2c^3h^{-1}$ |
| Magnetic Field Strength | $\theta em^2c^3h^{-2}$ |
| Electric Potential | $e^{-1}mc^2$ |
| Magnetic Potential | θemc^2h^{-1} |
| Capacitance | $\theta^{-1}e^2m^{-1}c^{-2}$ |
| Inductance | $\theta^{-1}e^{-2}m^{-1}c^{-2}h^2$ |
| Resistance | $e^{-2}h$ |

derived solely from fundamental natural constants.”

This is something of an aesthetic judgment, but I believe that it can be justified on other grounds. After all, it's awfully difficult to conceive of a fundamental property of the universe appearing to the $-5/4$ power in any concept as simple as energy! Shortly, some universal constants, like pigg, are much more equal than others. From this point of view, d_0 , u_0 , and G_0 are not fundamental to the universe, although e , h , m , c , and k are, and it's up to the field theory boys to find out why, in this particular universe, $G_0 = 2.785 \times 10^{-46}hc/m^2$. And I wish them luck at the job. They're going to need it.

So now we have five real Universal Constants left, e , m , c , h , and k , from which to concoct natural units for Q , M , L , T , and T° . A most satisfactory situation. Let's make the most of it.

Obviously, e is the natural unit of charge, Q . A little small for a practical unit in the macroscopic world, perhaps (1.602095×10^{-19} coulombs), but if you multiply it by 10^{20} you get a very convenient and handy practical unit amounting to a little more than sixteen coulombs.

M , of course, is the natural unit of mass. Again, it's a little small for everyday use in the grocery store ($9.10904 \times 10^{-28}gm$) but multiplied by 10^{30} it amounts to some 0.91 kilograms, very close to two pounds.

The natural unit of length, L , is h/mc . It is also, incidentally, the Compton wavelength of the electron, 2.426206×10^{-10} em. Multiply it by 10^{10} to get a convenient practical unit, 2.426 cm, very much like an inch.

The natural unit of time, T , is that time which is required for a photon to travel the natural unit of length, or h/mc^2 . This isn't a long time to wait, being 0.809295×10^{-20} seconds, but multiplying it by 10^{20} yields a handy unit of time, about 0.81 seconds long. We could call it the scientific, as contrasted with the civil, or payroll second, which would presumably vary from planet to planet.

Temperature? Well, Boltzmann's constant is energy divided by temperature. Energy has the dimensions of mass times velocity squared, and its natural unit is mc^2 , which was to be expected but is gratifying anyway. And so the natural unit of temperature is mc^2/k . This temperature would be an interesting one, even in the inside of a supernova, amounting as it does to 5.93019×10^9 , or almost six billion degrees Kelvin, but dividing it by 10^{10} yields a more tractable unit of $0.593^\circ K$, about the size of a Fahrenheit degree.

There you are. Our five basic concepts have been firmly attached to five Universal Constants. And all done by kindness. So what if somebody swipes the standard kilogram? Or if the planet gets blown up? Our

physics can still be understood from here to the edge of the universe.

But there's another question. I can think of fields (quantum mechanics for one) where it would be less convenient to work on a Q, M, L, T, T° basis than to work directly with the fundamental universal constants, e, m, c, h, k. Table 5 gives the dimensional formulae and the natural units of a variety of quantities on this basis.

Here you don't even think of length, or time, or temperature as being fundamental, or even very interesting. Certainly when I'm considering the Bohr Magneton, I'm not interested in some weird quantity with the dimensions of coulombs times meters squared and all divided by seconds. (QL²T⁻¹) I'm interested in eh/2πm, which is what the thing *is*. And the first radiation constant makes more sense as 8πhc than it does as energy times length. And atomic specific heat looks better as h/k than it does as seconds times degrees Kelvin. In short, when you're considering the real insides of things like atoms or supernovae, you're probably well advised to stick to e, m, c, h, k, and to

forget meters and seconds and degrees Kelvin. You can always convert when you're through—if you want to. And when you stop trying to slice Nature against the grain, the improvement in dimensional simplicity can sometimes be spectacular. An—admittedly extreme—example is the thermoelectric effect, usually expressed as millivolts per degree. I'm going to set down its dimensional formula in four different systems in Table 6, so you can see for yourself.

So now we have two usable and sensible systems: Q, M, L, T, T°; and e, m, c, h, k; and you use whichever one appears to be the most convenient for the problem at hand. And everything is settled and all is well in the best of all possible worlds.

I don't know of any subject, except possibly cosmology and politics, which is more rife with controversy, not to mention fraught with violence. My letter file on the subject is a foot thick. There's, for instance, the question of plane angle, and its unit the radian. Is it to be considered a full-fledged dimensional entity, to be noted explicitly

TABLE 6

THERMOELECTRIC EFFECT

| | |
|------------------------|--|
| Electromagnetic system | $u^{1/2}M^{1/2}L^3/2T^{-2}T^0^{-1}$ |
| Electrostatic system | $d^{-1/2}M^{1/2}L^{1/2}T^{-1}T^0^{-1}$ |
| Q M L T T° system | $Q^{-1}ML^2T^{-2}T^0^{-1}$ |
| e m c h k system | $e^{-1}k$ |

in dimensional formulae, or is it to be considered dimensionless and ignored? The feeling of some students, including myself, is that it should appear explicitly in every electromagnetic quantity, and in such mechanical quantities as torque, moment of inertia, and angular momentum. Many other students are convinced that such a belief qualifies one for immediate admission to the violent ward. They would say that magnetic permeability should be written as h/e^2c . I would write it $h/e^2c\theta^2$, and would say that $d_0u_0c^2\theta^2=1$, rather than the conventional $d_0u_0c^2=1$, which appeared earlier in the article. (Here as it does in Table 5, the lower case θ stands for the *unit* of plane angle, the radian.)

And there's a similar argument going on about solid angle, with its unit the steradian. Many people use it in their definitions of electrical and magnetic flux, flux density, and field intensity. My contention is that it is being used there merely as a numeric—just a number without any dimensions—to convert one area—the square of a radius—to another area—the surface of a sphere with that radius. It's anybody's bet who wins the argument.

But let's suppose that I'm right—a contrary assumption is, of course, inconceivable—and see what we have in the way of fundamental quantities. We have m , c , and h to take care of mechanical properties and phenomena. With e and k we

can describe thermal and electrical phenomena, and θ rounds out the whole picture.

Well, six is a nice number, famous in song and story, and a favorite of the Pythagoreans, but is it the right number for fundamental quantities? The only possible answer is that we just don't know. An entirely new *kind* of phenomenon might be discovered tomorrow, which would make it necessary to introduce another fundamental. It's not likely, but it's happened before, and could happen again.

And there's another haunting question. Do we have some imposters in the crowd, among $\theta e m c h k$? They seem to be independent of each other—but are they? Might mass, for instance, be merely a property of electrical charge? Is it significant that only the particles without charge, the photon and the neutrino, are without rest-mass, and that only charged particles possess it? (Don't pull the neutron on me—it has *both* positive and negative charge.) Again, we just don't know.

And WHY do there exist apparently redundant natural "universal" constants like G_0 ? I hesitate between two conclusions. Either:

- a. Nature has some peculiarly dirty trick up her sleeve, or,
- b. It's a hell of a way to run a Universe.

$m \quad c \quad h$
 $e \quad k$
 θ

Letter From A Higher Critic

It is completely clear to any scholar of folktales that these tales of the Lost History period of the Twentieth Century are purely legends . . .

STEWART ROBB



Kelly Freas

May 5, 2415

Mark Livingstone,
25 The Standards,
Verneville, Alassippi
Dear Mark:

In your last letter you made one palpable hit, but only one: I admit that the atomic wars of the Twenty-first Century and the cataclysms of the Twenty-second Century destroyed so much of our cultural inheritance, including nearly all our Nineteenth and Twentieth Century history, that there is very little we can turn to of those times that is authentic. Apparently that is the only point we will be able to agree on.

I cannot possibly believe, for instance, as you do, that there ever did exist an Abraham Lincoln as so glowingly portrayed by our two or three surviving "history" digests; nor can I believe that there ever was a World War II, at least such as they describe. Wars, yes—there have always been wars, and a World War II may have occurred—but certainly not with such incredible concomitants.

In short, your "history" is much too fictional for me.

So pardon me if I prove my point by doing a hatchet job on this medley of stuff you seem so sure of, this "history" which is about as reliable and as imaginatively romantic as the Bible myths. My method of demolition will be identical to that of those commendably clear-headed iconoclasts of earlier days, the

Higher Critics. What they did to the Bible, including the Moses and Christ legends, I shall do with our nearly equally revered American history, so called, and perhaps more thoroughly.

Let me begin my act of demolition by making an analogy, one that is possible thanks to the fortunate survival of that now famous Lord Chumley collection of Old English plays. In browsing through some of the playwrights of the Elizabethan, Restoration and even later periods I noticed that they had a cute habit of giving names to their characters that fitted the parts they played in the plots. For instance, Sir Giles Overreach was overreaching, Abhorson was a nasty fellow, Sir Fopling Flutter was an effeminate dandy, Wellborn was a fine young gentleman, and so on.

Now it is precisely this fictional method of applying names that dismays me when I see the obvious evidences of it in our so-called American history, and thus I am led to the inescapable conclusion that what so many of us regard as history is not history at all but pure romancing by flag-waving minstrels, though it has come down to us as sober fact. Not that this legend-building is anything new. The Song of Roland and the deeds of Arthur and the Knights of the Grail were all once considered historical. Those romances, with a little history mixed in, were simply the troubadours', skalds' or minstrels' exploitation and

exaltation of their respective heroes and lands.

Now let me get down to brass tacks with my higher criticism and start in with "World War II." This terrific conflict, so the story goes, resulted in the victory of right over wrong, of decency over tyranny, of the Anglo-Saxon peoples (mainly) over the wicked Teutons! There was a big bad wolf in this fairytale named Adolph Hitler, a German ogre who burned people alive in ovens by the millions and who nearly conquered the world! Now don't you think that whoever made up this part of the yarn knew that the name Adolph in Old High German means Wolf Prince? And isn't it a coincidence that he descended like a wolf on the fold on the innocent sheep nations of Poland, Czechoslovakia and other helpless countries? This name is a fancy of the poets, surely!

Let us proceed. The great nation France is beaten to its knees by the mighty marauder, whereupon a folk-hero named De Gaulle arises who fights on against all odds, and later, with the coming of peace, assumes rule over a united Gaul. His name was beautifully tailored for his part. Note that it means "Of France" or "Of the French," indicating that he was a true patriot, French of the French.

The names of the Russian leaders in this war also indicate the poet's imaginative pen. The Wolf Prince met with real resistance in his inva-

sion of Russia, because the opposition here was headed by Stalin, which means Steel, and his high henchman Molotov, which signifies Hammer. (Probably the names also represented the Hammer and Sickle, symbols of the Communist cause.)

This mythical invasion of Russia by the German tyrant is no doubt simply a furbishing up of the earlier yarn of the invasion of this same land by the equally fabulous Napoleon, that is, Apollyon, the Destroyer, which the name means in Greek. Both conquerors invade with mighty multitudes, and both conquerors are trounced. Justice must triumph!

Now across the Channel, at the outset of the Great War, so the story goes on, the British Empire was ruled by a mere servant-leader, fittingly named Chamberlain. But so desperate did the danger of the Wolf Prince's invasion become that the chamberlain was forced to give way to the Master Defender of the British Isles, Churchill, the Church on the Hill, of course, representing the staunch, unshakable faith of the stubborn bulldog British. This name was clearly chosen for its positive, spiritual sound.

And across the Atlantic, where the Giant Ally of the Church on the Hill was preparing for war, the names of the protagonists were equally descriptive of their functions. As America was one of the *good* nations the names were se-

lected for their affirmative sound. The great wartime President was Roosevelt, which is Dutch for Field of Roses. A name of excellent odor! Fabled to have written the President's wartime and other speeches was Rosenman, that is, the Rose Man, the gardener who takes care of the flowers of speech of the Field of Roses. And the Secretary of the Treasury, the man who had had charge of the finances that kept the nation functioning was Morgenthau, symbolizing that he supplied the refreshing morning dew for the roses. And the Secretary of State, that is, the ship of state, was of course good old Hull.

Well, I could go on and on, for our romancing historians enjoyed the creation of such curious coincidences. Here's another obvious one: Just as they had dusted off the Napoleon Apollyon legend to re-apply it to the Wolf Prince, so in like manner they borrowed a still earlier so-called historical event, reversed it to disguise the source, and applied it to the Great War. In 1066, so it was fabled and generally believed, Normandy invaded England. At the head of the invading troops, so the minstrels reported, was a minstrel-warrior named Taillefer, a hero who struck the first blow of the war. So our latter-day minstrels fabled that just as Normandy invaded England, England and the Allies now invaded Normandy. And to the leader of the conquering forces the poet historians gave that same name

of Taillefer, only this time they translated it first into German, Eisenhower. Both names, you are aware, mean Iron-Hewer, a most fitting epithet for men of war!

Now let me ask a rhetorical question. Do you really believe that these names: Adolph Hitler, De Gaulle, Molótov, Stalin, Chamberlain, Churchill, Roosevelt, Rosenman, Morgenthau, Hull and Eisenhower could have sprung up by chance? And yet if they are real historical names chance and chance alone must have operated in their selection. Therefore, I say that this history, that you and so many others credit as true history, is as legendary as the Bible stories, and for similar reasons. True history is meaningless and springs by happenstance from a meaningless world.

I note that you also mention in your letters, and frequently, that American folk-hero, Abraham Lincoln, and you actually seem to be convinced there was such a man. I, too, should certainly like to be able to believe the human race capable of producing so noble a being, but here is just another instance where the facts firmly forbid me to do so. As usual, let us first analyze the name. Abraham was well-chosen. It immediately suggests Father Abraham, the Bible patriarch. The name is Hebrew and means Father of a Multitude. All this Lincoln was. He loomed above the Civil War like a colossus, holding the nation together and keeping it one and indivisible.

Preserver of the nation, saviour of his people, he was veritably the father figure of a multitude, was he not? And a father figure on which the conspirators could vent their malice.

Notice, too, how so frequently he is likened to the Saviour of Man-

kind. Ponder that beautiful surviving pen and ink drawing, so well portraying America's conception of a vast, compassionate, Christ-like figure. Ah, that Lincoln! One of the most beautiful creations of our dreaming skalds. Would that I could accept him! Our poet-patriots made

ANSWER

for the Cookie-Crumb Phenomenon

When a small particle, such as a cookie crumb, is suspended in free space in a weightless condition inside a space capsule, it rapidly attains thermal equilibrium with its surroundings, both by radiation and conduction. However, if it is near a window facing cold and empty space, it rapidly becomes thermally unbalanced. It gets cooler on the side towards the window, and warmer on the other sides, because of the infrared radiation—peaked at about ten microns—it receives from the walls of the cabin. Gas molecules are constantly bombarding the crumb on all sides, as in the well-known Brownian movement. A cool gas molecule that hits a warm surface itself becomes warmer, and so leaves at a higher velocity. This gives a small but finite momentum, or recoil kick, in the opposite direction to the heating surface.

This last phenomenon can also be seen readily in the well-known radiometer toy, which consists of a sort of paddlewheel suspended in a partial vacuum in a glass bulb. The blades of the paddlewheel are shiny and metallic on one side, blackened on the other. When the radiometer is put in the sunshine, the paddlewheel spins merrily around, away from the blackened sides and towards the shiny and reflective sides. Here also, the blackened sides absorb infrared, get warmer, and gas molecules recoil from this side with increased velocity.

It may also be that a somewhat moist crumb would tend to give off water vapor as it dries out. In such an event, it would give off vapor more rapidly and energetically on the warm side, more slowly on the cool side, and the final result would be the same as above.

Moral: people who live in glass houses should dust frequently.

up a perfect parallel between him and the solar myth saviour of mankind. As follows:

Christ was a martyr.

Lincoln was a martyr.

Christ was slain on Good Friday.

Lincoln was slain on Good Friday!

So Lincoln joins the crucified saviours of mankind.

Now whatever this story is, it is not history. It could not possibly be. It stands to reason the assassins of Lincoln would not have likened him to the All Good Man, so they could not have martyred him on the one and only day that would in the minds of mankind ineffaceably symbolize him as a type of Christ. Understand the story for what it was, a sentimental, Bible-type legend, and the creation of such a parallel is poetically, beautifully justifiable—though, of course, extremely far-fetched even for fiction.

No, sir, Abraham Lincoln is to be added to Moses and Christ as another myth!

Now, in conclusion, let me take care of some more wishful thinking on your part—what you believe to be the actual name of our country. Admittedly, many people still believe as you do, that there was a colorful adventurer named Amerigo Vespucci and that he gave his name to our land; but this is simply another instance of history being written to fit the fiction required. You say the name Amerigo derives

from Amelric, the first Gothic king of Seville. Very neat, because if that can be proved then the literal root-meaning of the name of our land is Kingdom of Heaven, Amel-Ric and Himmel-Reich being identical. Or, alternatively, if Amel be taken as the name of the chief god of the Goths, Amel-Ric means God's Country. Either way you would win. I wish I could believe this, because I do love this wonderful land. But sentiment and reason are generally mutually exclusive, and so here.

You see, friend, a great deal of what has survived of our American history, is in my opinion pure legend, created by very human poet-patriots, whose burning desire was to show our nation in the most favorable light possible. This feigning was always typical of the minstrels of whatever realm. And so for you this land is the golden land where the Kingdom of Heaven—or God's Country!—is to be realized on earth. Such bosh warms my heart but it splits my head. It's beyond reason. Why, if I could be persuaded to believe this fragrant nonsense I would have to admit that in these latter days—as you call them—history is falling into some predetermined, divine plan: "towards which the whole creation moves."

But that, alas, I can never believe.

As ever,

Your friend,
Frazer Boughton

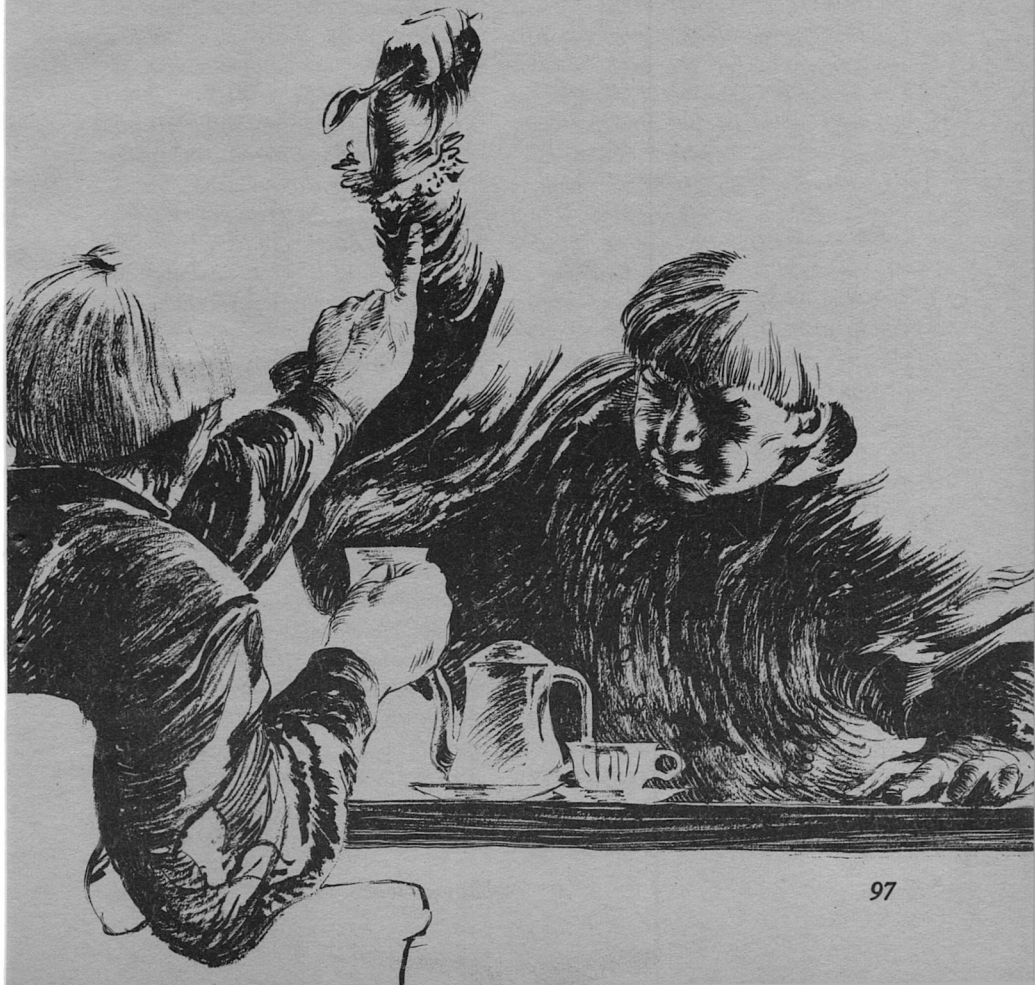
TOO MANY MAGICIANS

Conclusion.

*Lord Quetzal could find the Black Master magician—
but being able to find such a man
does not by any means imply that you can stop him!*

RANDALL GARRETT

Illustrated by John Schoenherr



LORD DARCY, Chief Investigator for the Duchy of Normandy, found himself involved in a problem that concerned more than simple murder. His friend and Chief Forensic Sorcerer, MASTER SEAN O LOCHLAINN, was across the Channel, locked up in the Tower of London on suspicion of murder.

On the morning of Tuesday, October 25, 1966, in a cheap rooming house in Cherbourg, a man named GEORGES BARBOUR was stabbed to death in his room. The first man to see the body, COMMANDER LORD ASHLEY, a special agent of the Naval Intelligence Corps, reported the discovery to the local Armsmen and to his superior at Cherbourg Naval Base. BARBOUR was a double agent who, while pretending to work for the Secret Service of the King of Poland, Casimir IX, was actually reporting to the Anglo-French, to a man known only as ZED.

Because of the importance of the crime, the local authorities contact LORD DARCY in Rouen via telex. Since COMMANDER LORD ASHLEY had to go to London to carry information to the Chief of Naval Intelligence, LORD DARCY asked him to take a message to MASTER SEAN, who is attending the Sorcerers' Convention at the Royal Steward Arms in London.

The history of LORD DARCY's world is different from that of our own. Instead of dying from a cross-

bow-bolt wound in 1199, King Richard the Lion-Hearted survived, and his bout with fever from the infected wound brought about a personality change which made him settle down to become a wise and good ruler. When he died in 1219, he was succeeded, not by the infamous Prince John, who had by then been dead for three years, but by his nephew, Arthur of Brittany, who at thirty-three, became King of an empire that included England, Ireland, Scotland, and more than half of France. He has gone down in history as Good King Arthur, and is often confused in the popular mind with Arthur Pendragon of Camelot, founder of the Round Table.

Since then, the House of Plantagenet has ruled the Anglo-French Empire, which now includes the original Angevin inheritance, plus the rest of France and the New World—including both the northern continent of New England and the southern one, New France.

Late in the Thirteenth Century, a brilliant monk discovered and formulated the Laws of Magic. Thus thaumaturgical science, rather than physical science, has become the guiding field of knowledge in LORD DARCY's world.

The morning after the murder of BARBOUR, on Wednesday, October 26th, MASTER SEAN had an appointment with MASTER SIR JAMES ZWINGE, Chief Forensic Sorcerer for the City of London. After brief conversations with SIR

LYON GANDOLPHUS GREY, Grand Master of the Sorcerers' Guild, LORD JOHN QUETZAL, a journeyman sorcerer from Mechi-coe, and MASTER EWEN MACALISTER, an oily and obnoxious specimen, MASTER SEAN went to keep his appointment. At precisely 9:30 a.m., he rapped on MASTER SIR JAMES' door. Inside, he heard SIR JAMES scream "Master Sean! Help!"—followed by the sound of a falling body. The door was locked. Help was sent for and, by chance, LORD BONTRIOMPHE, Chief Investigator for the City of London, was on hand.

BONTRIOMPHE took an ax and cut through the door. SIR JAMES was found on the floor in the middle of the room in a fresh pool of blood. There was no one else in the room. SIR JAMES' own knife and a large brass key which was the only one capable of unlocking the door were found near the body. Investigation has shown that there is no way in or out of the room. It is a sealed room murder in the classical sense. The obvious conclusion is that the killing was done by Black Magic, and MASTER SEAN, who was known to have quarreled with SIR JAMES on the previous day, is the obvious suspect.

COMMANDER LORD ASHLEY, who was with LORD BONTRIOMPHE at the time MASTER SIR JAMES died, delivered LORD DARCY's message to MASTER SEAN—which instructed MAS-

TER SEAN to come to Cherbourg immediately to help solve the BARBOUR killing—and then went directly to the Admiralty Building to report to his superior. The message was of little use to MASTER SEAN; he was taken into custody and put in a comfortable cell in the Tower of London.

LORD DARCY, notified of this development by his cousin, the MARQUIS OF LONDON, is in London by that evening. He goes directly to the Palace du Marquis where he finds the MARQUIS and LORD BONTRIOMPHE waiting for him.

The MARQUIS is a huge man—an inch or so shorter than LORD DARCY but weighing some two hundred eighty pounds. His own brilliance as a deductive logician is on a par with LORD DARCY's, but he is lazy and rarely uses his deductive faculties unless forced to do so. LORD BONTRIOMPHE, while a competent investigator, has by no means the genius of the other two men. LORD DARCY realizes that the MARQUIS is using MASTER SEAN as a lever to force LORD DARCY to solve the case, thereby saving himself the trouble of having to do so—and, incidentally, saving himself having to pay LORD DARCY's salary, since DARCY will be forced to solve the murder on his own time in order to get MASTER SEAN out of the Tower.

DARCY goes to the Tower of

London to see MASTER SEAN. The tubby little Irish sorcerer has already, by magical means, retrieved his carpetbag of thaumaturgical tools and could at any time leave the Tower, but he is staying put in the sure knowledge that LORD DARCY will get him out legally.

When LORD DARCY prepares to leave the Tower he sees that a dense fog has covered the City. The Warder at the gate is starting to call a cab for LORD DARCY when a carriage bearing the arms of the Duchy of Cumberland pulls into the courtyard. Inside it is an old friend, MARY, DOWAGER DUCHESS OF CUMBERLAND, a beautiful woman somewhat younger than LORD DARCY. She is also a journeyman sorceress. She offers LORD DARCY transportation.

As the carriage moves through the fog-shrouded streets of London, she tells LORD DARCY that she has information for him concerning the murder of MASTER SIR JAMES ZWINGE.

Her room at the Royal Steward is directly across the hall from SIR JAMES' room. At ten minutes of eight that morning she had seen a small, very beautiful girl, wearing the dress of an apprentice sorceress, leaving SIR JAMES' room after what seemed to be a heated argument. MARY DE CUMBERLAND had thought nothing of it until after MASTER SEAN was arrested. She had then made a deter-

mined effort to discover the girl's identity. The girl, she found, was a DEMOISELLE TIA EINZIG, who had been born within the borders of the Polish Hegemony. Not long ago she had left her home and spent some time in northern Italy, and finally had come to the Duchy of Dauphine in the Anglo-French Empire. But the Italians were seeking her on a criminal charge of Black Magic and she had barely escaped extradition.

MARY DE CUMBERLAND insists that LORD DARCY stay at her home in London, Carlyle House, which is already nearly filled with guests—Sorcerers and Healers who are attending the Convention. Each guest, of course, has a room at the Royal Steward, but it is expected that he will spend at least four nights of Convention Week at Carlyle House. Among these guests are: SIR LYON GREY, Grand Master of the Sorcerers Guild; SIR THOMAS LESEAUX, the renowned theoretical thaumaturgist; LORD JOHN QUETZAL, the journeyman sorcerer who is a younger son of the Duke of Mechicoe; FATHER PATRIQUE, a Benedictine Healer; and MASTER SEAN O LOCHLAINN, temporarily a resident at the Tower of London.

In a conversation that evening with SIR THOMAS and LORD JOHN QUETZAL, LORD DARCY learns two sets of facts which might or might not be significant. First: SIR THOMAS LESEAUX

(who does not have the Talent; he is a mathematician, not a practicing sorcerer) is acquainted with the DEMOISELLE TIA, and—an observation which strikes LORD DARCY profoundly—is apparently in love with her. Second: LORD JOHN QUETZAL is a witchsmeller—that is, he can detect the presence of a practitioner of Black Magic; further, LORD DARCY has reason to believe that LORD JOHN QUETZAL has detected a black sorcerer at the Convention, but, being uncertain of himself, refuses to make any statement about him or divulge his name.

In spite of these interesting developments LORD DARCY goes to bed that night still firm in his resolution that as soon as he gets MASTER SEAN out of the Tower, he will go back to Normandy, to attend to his own business, and let the MARQUIS OF LONDON and LORD BONTRIOMPHE solve the Zwinge murder by themselves.

But the next morning a King's messenger arrives at Carlyle House to inform him that His Majesty, KING JOHN IV, wishes to see him immediately at Westminster Palace. Furthermore, a secret personal message from the King tells LORD DARCY to come armed with a pistol. This is a singular and unique honor. Only the Great Lords of State are permitted to be armed in the King's Presence, and even then only with swords.

At Westminster Palace LORD

DARCY is met by COMMANDER LORD ASHLEY, the Naval Intelligence agent who reported the discovery of GEORGES BARBOUR's body in Cherbourg. This does not come as a surprise to LORD DARCY, who has already deduced that the two cases are connected. The Commander escorts LORD DARCY to a conference room in Westminster Palace. The other members of the conference have already arrived: SIR LYON GREY; PETER DE VALERA AP SMITH, Lord High Admiral of the Imperial Navy; CAPTAIN PERCY SMOLLETT, Chief of Naval Intelligence; and LORD BONTRIOMPHE. The conference is presided over by no less than the King himself, His Most Dread and Sovereign Majesty, JOHN IV.

The KING explains that a new device has been perfected—a magical device known as the "confusion projector." A demonstration of this device is given, with SIR LYON at the controls of the projector and with LORD DARCY as the subject. LORD DARCY, who is an expert with firearms, is given the simple task of loading a pistol with a single cartridge and firing it at a certain spot, but while the confusion projector is aimed at him he finds it almost impossible to load his pistol, and is unable to hit an easy target once the pistol has been loaded.

The device has primarily been designed for use against enemy naval vessels; it will prevent Navy

crews from loading and firing the big naval guns aboard a battleship.

The LORD HIGH ADMIRAL explains the problem at hand. The Navy's double agent, GEORGES BARBOUR, had been dealing with an unidentified person known only as FitzJEAN, who was trying to sell the secret of the confusion projector to the Poles at a price of five thousand golden sovereigns—the equivalent of a quarter of a million dollars. BARBOUR had, however, reported this to Imperial Naval Intelligence through his immediate superior, ZED, and an attempt was made to lay a trap which would expose FitzJEAN. An agreement was made between BARBOUR and FitzJEAN that the latter would prove his ability to deliver the secret of the confusion projector and BARBOUR would pay him one hundred golden sovereigns. COMMANDER LORD ASHLEY was to deliver the money to BARBOUR, but BARBOUR had been killed before the transaction could be completed. The LORD HIGH ADMIRAL then reveals that MASTER SIR JAMES ZWINGE, who was murdered some twenty-four hours later in London, was actually BARBOUR's superior, the mysterious ZED.

LORD DARCY, by King's Appointment, now finds himself in charge of the case. For this he needs the assistance of MASTER SEAN O LOCHLAINN—which means that MASTER SEAN must

be got out of the Tower of London. He goes directly to the MARQUIS OF LONDON and shows him how the evidence can be used to indicate that LORD BONTRIOMPHE himself is guilty of the murder—although LORD DARCY is well aware that BONTRIOMPHE is innocent. The MARQUIS, confronted by evidence and a theory which he knows to be as strong as that which he used to incarcerate MASTER SEAN, yields the point. He signs a paper releasing MASTER SEAN from the Tower.

LORD DARCY, LORD BONTRIOMPHE, and MASTER SEAN go directly to the Royal Steward, and look over the scene of the crime, which has been kept static by a preservative spell. The body of SIR JAMES still lies where it fell.

It is established that no one, not even a magician, could have killed SIR JAMES inside the room and escaped without being seen. Nor could the door have been locked from the outside and the key slipped under the door, for the heavy brass key is much too large to be pushed through the narrow clearance between the bottom of the door and the floor. The only edged instrument in the room is a knife belonging to the dead man, a knife with a blade of pure silver, a knife which is normally used for magical purposes.

LORD DARCY also reveals that a letter which arrived for him that morning, tells him that his assistant,

SIR ELIOT MEREDITH, who is working on the BARBOUR murder in Cherbourg, has shown that there was no one in the room when BARBOUR was stabbed, which indicates an apparent similarity in method between the two murders. There is one further clue which LORD DARCY apparently deems important: inside the room, on the rug just below the doorknob, and some four inches from the door itself, is a small half-moon stain with the flat edge parallel to the door. It may or may not be blood; that will have to await MASTER SEAN's analysis.

MASTER SEAN asks LORD DARCY for his permission to use LORD JOHN QUETZEL as an assistant in searching out the thaumaturgical evidence. The permission is granted; LORD DARCY and LORD BONTRIOMPHE leave MASTER SEAN to his work.

LORD DARCY asked MARY de CUMBERLAND to try to get as much information as she can from the DEMOISELLE TIA; then he and LORD BONTRIOMPHE go downstairs to interview the hotel's manager, GOODMAN LEWIE BOLMER.

DARCY and BONTRIOMPHE are given an office for the use of the Armsmen and Investigators, an office normally assigned to the night manager of the hotel. Since the entire hotel is reserved for the Convention, a register has been kept of the arrival and departure of those

who are not members of the Convention. LORD DARCY asks to see it. Among the entries for the previous day LORD DARCY notes that the mail was delivered at 6:30 a.m., that COMMANDER LORD ASHLEY had come in (at 8:48) with a message for MASTER SEAN, that LORD BONTRIOMPHE has arrived (at 9:02) on a personal errand for the MARQUIS—and then his eye falls on another entry: 2:54; COMMANDER LORD ASHLEY; official business with MANAGER BOLMER.

When LORD DARCY inquires as to the nature of this business, he is told only that it concerns the night manager, PAUL NICHOLS, and that GOODMAN LEWIE has been forbidden by the Navy to say anything more. LORD DARCY immediately realizes that CAPTAIN SMOLLETT is withholding information, and he and LORD BONTRIOMPHE go directly to SMOLLETT's office.

In a discussion with SMOLLETT and LORD ASHLEY, they discover that PAUL NICHOLS, the night manager of the Royal Steward, has not been seen since he got off duty at nine o'clock Wednesday morning. SIR JAMES ZWINGE had sent a message to Naval Intelligence at 7:45 saying that he had important information for them and that he wanted a special courier to come around and pick it up, and that the envelope would be waiting in the hotel safe. Because of the impor-

tance of ZWINGE's murder, the notification was overlooked until after two o'clock, at which time CAPTAIN SMOLLETT sent LORD ASHLEY to the hotel to get the packet. There was no trace of any such packet in the hotel safe at that time, and PAUL NICHOLS has not been located.

While LORD BONTRIOMPHE alerts the Armsmen to search for PAUL NICHOLS, and LORD DARCY and LORD ASHLEY go through the Naval records of the case, MASTER SEAN and LORD JOHN QUETZAL analyze the thaumaturgical evidence in the murder room. MASTER SEAN establishes two important facts: in the first place, there had been no one in the room except SIR JAMES since approximately eight o'clock; in the second place, to quote MASTER SEAN:

"Two psychic shocks occurred while our late colleague was alone in this room. They were separated in time by half an hour. The first occurred when he was killed; the second when he died."

Meanwhile, MARY, Dowager Duchess of Cumberland, has found an opportunity to talk to DEMOISELLE TIA, by taking her to the hotel's saloon bar for a few relaxing drinks. Unburdening herself, TIA explains that she has a Talent for healing, but that, since she was born and brought up in southern central Europe, a part of the Polish Hegemony, she has never had a chance

to get formal training. Her uncle, Neapeler Einzig, a businessman who had spent some time in the Anglo-French Empire, and who also had a touch of the Talent, taught her as best he could. For reasons which she will not disclose, she fled the Polish Hegemony to northern Italy and then to southern France. SIR THOMAS LESEAUX had brought her to England after the extradition hearing and had persuaded the ARCHBISHOP of YORK to accept her as an apprentice in the Sorcerers Guild.

While the two women are talking, a waiter informs TIA that there is someone to see her, a gentleman waiting at the bar. She speaks to him briefly and then comes back to MARY in a singularly jubilant yet angry mood. The two women go up to TIA's room to change into their evening dress. A note has been shoved under TIA's door. She reads it and throws it into a wastebasket, and then, feigning a headache, asks MARY to leave. But the DUCHESS MARY has filched the discarded note and leaves TIA's room in search of LORD DARCY.

LORD DARCY and LORD ASHLEY have finished their examination of the Navy files and return to the Royal Steward. As they are discussing the case with His Grace the ARCHBISHOP of YORK, MARY de CUMBERLAND comes in and shows LORD DARCY the note, which is in Polish, a language she does not understand. LORD

DARCY reads the unsigned note and sees that it instructs *DEMOISELLE TIA* to meet the unknown sender in a nearby pub called the Hound and Hare.

He and *LORD ASHLEY* go through the fog-laden night immediately to check on this mysterious meeting. They see *TIA* talking to a man wearing a cloak and a hood which hides his face. *TIA* accuses the hooded man of murdering *SIR JAMES*, and the conversation indicates that the hooded man is in the pay of the Polish Secret Service.

TIA threatens to denounce him to the Imperial authorities, when the hooded man makes a hidden gesture and *TIA*'s expression suddenly becomes blank. Without another word she and the hooded man leave the Hound and Hare, followed by *LORD DARCY* and *LORD ASHLEY*. The two investigators cannot see their quarry in the fog, but *DEMOISELLE TIA*'s high heels, clicking on the pavement, permit them to follow her.

TIA and the hooded man, with *LORD DARCY* and *LORD ASHLEY* close behind them, but hidden by the fog, start to cross the Thames River on Somerset Bridge. Not quite halfway across, the two investigators hear the hooded man's voice telling *TIA* to climb up on the balustrade of the bridge. The two men charge forward but they are too late; *TIA* has already been pushed into the river. The hooded man and *LORD ASHLEY* draw swords.

LORD DARCY, in an attempt to save the girl, dives into the blackness below.

LORD ASHLEY, although a better swordsman than the hooded man, is at first almost paralyzed to find that the hooded man's sword has a spell upon it which keeps *LORD ASHLEY* from looking directly at it. But the *COMMANDER* has a slight prescient ability which, in moments of stress, allows him to see a few seconds or minutes into the future; this Talent enables him to know—not where the sword is—but where it will be, thus enabling him to beat off the hooded sorcerer's attack. *LORD ASHLEY* is ready to subdue and arrest the hooded sorcerer when, at the last minute, his prescient ability fails him. He loses his footing and the sorcerer turns and flees into the fog.

Fortunately, *LORD ASHLEY* has caught a glimpse of the hooded man's face, and recognizes him as *MASTER EWEN MacALISTER*.

LORD ASHLEY rushes to the side of the bridge and shouts for *LORD DARCY*. There is no answer. An Armsman appears out of the fog and *LORD ASHLEY* tells him what has happened. A search is begun for the missing investigator.

At the Royal Steward Hotel, *MARY de CUMBERLAND* is informed that *LORD DARCY* is missing, and she, too, sets out to search.

The question is: What has happened to *LORD DARCY*?

There was a chilling shock as Lord Darcy's body cut into the inky waters of the Thames. For long seconds it seemed as if he would keep on going down until he buried himself in the mud and muck at the bottom; then he was fighting his way up again, tearing off his jacket. His head broke the surface, he took one deep breath, and then doubled over to pull off his boots.

And all the while Lord Darcy was telling himself that he was a fool—a bloody, stupid, harebrained fool. The girl had allowed herself to be pushed in without a struggle, and she had fallen without a sound. What chance was there of finding her in a world of darkness and watery death, better than a hundred yards from the nearest bank? A heaviness at his hip reminded him of something else. He could have drawn his pistol, but he would never have shot a man armed only with a sword, and the time it would have taken to force the man to drop his weapon and then turn him over to Ashley would have been precious seconds wasted. His chances of finding the girl were small now; they would have been infinitesimal if there had been any delay.

At least, he told himself, he could have drawn his gun and dropped it on the bridge as he had his cloak. Its added weight now was only a hindrance. Regretfully he drew it from its holster and consigned it forever

to the muddy depths of the mighty river. He surfaced again and looked around. It was not as dark as he had thought. Dimly, he could still see the lights on the bridge.

"Tia!" he shouted. "Tia Einzig! Where are you? Can you hear me?"

She should have been borne downstream, beneath Somerset Bridge, but how far beneath the surface? Had she already taken her last gasp and filled her lungs with water?

And then he heard a noise.

There was a soft, spluttering, sobbing sound and a faint splash.

"Tia Einzig!" he shouted again. "Say something! Where are you?"

There was no answer except that faint sound again, coming from upstream, between himself and the bridge. His sprint across the bridge and his long dive had put him downstream from her, as he had hoped.

Lord Darcy swam toward the sound, his powerful arms fighting against the current of the Thames. The sound came closer, a sort of mewling sob that hardly sounded human.

And then he touched her.

She was struggling, but not much. Just enough, apparently, to keep her head above water. He put his left arm around her, holding them both up with powerful strokes of his right, and her struggles stopped. Her cloak, he noticed, was gone—probably torn off when she struck the water. The whimpering sounds had ceased, and her body was com-

pletely relaxed, but she was still breathing. He kept her face above water and began swimming toward the right bank, towing her through the chilling water. Thank God she was small and light, he thought. She didn't weigh more than seven stone, sopping wet.

The joke struck him as funny but he couldn't waste his breath now in laughing. *It would be like laughing at my own funeral*, he thought, and this second joke was grim enough to preclude any desire to laugh.

Where was the damned bank, anyway? How long does it take to cover a hundred-odd yards of water? He felt as though he had been swimming for hours, and the muscles of his right shoulder were beginning to feel the strain. Treading water, carefully holding the girl's head above the surface, he changed about, letting his right arm keep her up, and swimming with his left.

Hours more seemed to pass, and now there was nothing but blackness around him. The lights of the bridge had long since faded away, and the lights on the river bank—if there *was* any river bank!—were not yet visible.

Had he lost his bearings? Was he swimming downstream instead of across it? There was no way of knowing; his body was moving with the water and there was nothing visible to judge by.

Then, as he reached out for another in a seemingly endless series of strokes, his fingers slammed into

something hard and sent a stinging pain into his hand and wrist. He reached out again, more carefully this time.

It was a shelf of stone, one of the steps leading down to the water's edge from the bank above. He levered the girl's body up onto the step, then climbed out of the water himself. She was all right, as far as he could tell; she was still breathing.

He realized suddenly that he was too weak and exhausted even to climb the steps to the embankment by himself, much less carry the girl up. But he couldn't just let her lie there on the cold stone. He lifted her up and held her in his arms, trying to warm her body with his, and then for a long time he just sat there—motionless, cold, and wet, his mind almost as blank as the endless darkness that surrounded them.

After what might have been minutes or hours of mental and physical numbness, a slight, almost imperceptible change in Lord Darcy's surroundings forced his sluggish mind to function again.

What was it that was different? Something to his left. Something he could see out of the corner of his eye. He turned his head to look. It was nothing; just a light—a dim glow in the distance that seemed to shift back and forth a little and grow steadily brighter. No, not just one light, there were two . . . three . . .

Then a voice said, "Halloo . . .

Lord Darcy! Can you hear us, my lord?"

Lord Darcy's mind snapped into full wakefulness. The fog must have thinned somewhat, he realized. He could tell from the voice that they were still some distance away, but the lights were easily visible. "Halloo," he shouted. His voice sounded weak, even to his own ears. He tried again. "Halloo."

"Who's that?" called the voice.

Lord Darcy grinned in spite of his weariness. "Lord Darcy here," he shouted. "You were calling me, I believe?"

Then somebody yelled: "We've found him; he's here!" Somebody else blew on a whistle. Lord Darcy felt himself beginning to shiver.

Reaction, he thought, trying to keep his teeth from chattering. *I feel weak as a kitten*. His muscles felt as though they had been jelled by the cold; the only warm spot in his body was his chest, against which he had been holding Tia. She was still breathing—quietly, regularly. But she was limp in his arms, completely relaxed; she wasn't even shivering. *That's all right*, Lord Darcy thought, *I'm shivering enough for both of us*. There were more whistles and more lights and footfalls all over the place. He wondered vaguely whether they had decided to call out the Army. And then a Man-at-Arms with a lantern was beside him, saying, "Are you all right, Lord Darcy?"

"I'm all right, just cold."

"Good Heavens, my lord, you've got the girl." He shouted up the embankment, "He's got the girl!"

But Lord Darcy hardly heard the words. The light from the man's lantern was shining directly into Tia's face, and her eyes were wide open, staring blankly, unseeingly, into nothing. He would have thought her dead, but the dead do not breathe.

There were more men around him now.

"Give his lordship more light."

"Let me help you up, my lord."

Then: "Darcy! Thank Heaven you're safe! And the girl, too! It's a miracle!"

"Hullo, Ashley," said Darcy. "Thanks for calling out the troops."

Lord Ashley grinned. "Here's your cloak. You shouldn't go around leaving things on bridges." And then he was taking off his own cloak to wrap it around Tia. He took her from Darcy's arms and carried her up the steps, carefully, tenderly.

Lord Darcy wrapped his cloak tightly around himself, but it didn't help the shivering.

"We'll have to get you some place warm, my lord, or you'll catch your death of dampness," said an Armsman.

Lord Darcy started up the steps. Then a voice from the top said, "Did you find him?"

"We found both of them, Your Grace," said another Armsman.

Darcy said, "Mary. What the deuce are you doing here?"

"As I told you last night," she said, "when you asked that same question, I came to fetch you."

"This time," Lord Darcy said, "I believe you."

When he reached the top and had climbed over the retaining wall, he saw Lord Ashley standing solidly, holding Tia in his arms. Several Armsmen were shining their lanterns on her, and Mary, not a Duchess now but a trained nurse, was looking at the girl and touching her with her Sensitive's fingers.

"How is she?" he asked. "What's the matter with her?"

"You're shivering," said Mary without looking up. "There's brandy in the coach, go get yourself some." She looked up at Lord Ashley. "Put her in the coach. We'll take her directly to Carlyle House. Father Patrique is there; she couldn't get better care in a hospital."

Two good swallows of brandy had calmed Lord Darcy's shivering. "What's the matter with her?" he asked again.

"Shock and cold, of course," she said. "There may be some internal injuries. Nothing serious. But she's under a spell, one I can't break. We'll have to get her to Father Patrique as soon as possible."

They stretched the girl out on one of the coach seats.

"Will she be all right?" asked Lord Ashley.

"I think so," said the Duchess.

Then Lord Ashley said, "Lord

Darcy, may I speak to you a moment?"

"Surely; what is it?"

They stepped out of earshot of the others.

"The man on the bridge," Lord Ashley began.

"Oh, yes," said Lord Darcy. "I should have asked about him. I see you're not hurt. I hope you didn't have to kill him."

"No, I'm ashamed to say I didn't even capture him. My foot slipped on the pavement and he got away. But I got a good look at his face."

"Did you recognize him?"

"Yes. It was our oily friend, Master Ewen MacAlister."

Lord Darcy nodded. "I thought I recognized something familiar in his voice when he told Tia to climb up on the balustrade. He had her under a spell, as Her Grace just said."

"That wasn't the only Black Magic the little swine was working," Lord Ashley said. He told Lord Darcy about the ensorcelled sword.

"Then you need not apologize for letting him escape," Darcy said. "I am thankful that you're still alive."

"So am I," said Lord Ashley. "Look here; there's not going to be room for all of us in that coach with Tia taking up one whole seat. And I shan't be needed any more tonight anyway. You two go ahead." He stepped back. "Petty Officer Hosquins," he called. "Her Grace and Lord Darcy are going to Carlyle House. One of the Armsmen will get a cab to take me home."

"Very well, My Lord Commander," answered Hosquins.

"Thank you," said Lord Darcy. "Would you do me one favor? Would you go to the Royal Steward and report everything to Lord Bontriomphe? If Master Ewen knows you recognized him, he won't show up at the hotel, of course. Tell Lord Bontriomphe to notify Sir Lyon. All right?"

"Certainly. I'll get down there right away. Good night, my lord. Good night, Your Grace," he said, raising his voice.

Lord Darcy opened the door of the coach. "To Carlyle House, Hosquins," he said, and climbed in.

It was more than an hour later before Lord Darcy really felt good again. A hot bath had taken the smell of the Thames from him, and some of the chill out of his blood. A short session with Father Patrique had removed any susceptibility to catching cold. Mary de Cumberland and the good Father had both insisted that he go to bed, so now he found himself in his silken night clothes, propped up on four or five pillows, with a couple of warm woolen blankets over his legs, a heavy shawl around his shoulders, a hot water bottle at his feet, and two bowlsful of hot, nourishing soup inside him.

The door opened and Mary de Cumberland came in, bearing a large steaming mug on a tray. "How do you feel?" she asked.

"Quite fit, really. How is Tia?"

"Father Patrique says she'll be all right. He put her to sleep. He says that she won't be able to talk to anyone until tomorrow." She put the mug down on the bedside table. "Here, this is for you."

"What is it?" Lord Darcy asked, eyeing the mug suspiciously.

"Medicine. It's good for what ails you."

"What's in it?"

"If you must know, it contains brandy, Oporto, honey, hot water, and a couple of herbs that Father Patrique prescribed."

"Humph," said Lord Darcy. "You made it sound good until you mentioned that last." He picked up the mug and sipped. "Not bad at all," he admitted.

"Do you feel strong enough to see visitors?" she asked solicitously.

"No," he said. "I'm on my deathbed. I'm in a coma. My breathing is shallow, my pulse weak and threadlike. Who wants to see me?"

"Well, Sir Thomas wanted to see you; he just wanted to thank you for saving Tia's life, but the poor man seems on the verge of collapse himself and I told him he could thank you tomorrow. Lord John Quetzal said that he could wait to speak to you until tomorrow, too. But Sir Lyon Grey arrived just a few minutes ago, and I strongly suggest that you see him."

"And where, may I ask, is Master Sean?"

"I have no doubt that he would

be here, my lord, if anyone had thought to tell him of your desire for an invigorating cold bath. He is still at the morgue."

"Poor chap," said Darcy, "he's had a hard day's work."

"And what have *you* been doing?" said Her Grace. "Tatting?"

Lord Darcy ignored her. "I presume that he is making absolutely sure, one way or another, whether drugs or poisons were administered," he said thoughtfully. "I am strongly inclined to doubt that they were, but when Sean has finished with his work we shall know for certain."

"Yes," agreed Her Grace. "Will you see Sir Lyon?"

"Of course, of course. Show him in, will you?"

The Dowager Duchess of Cumberland went out and returned a minute later accompanied by the tall, stately, silver-bearded figure of Sir Lyon Gandolphus Grey. "I understand you have had quite an adventurous evening, my lord," he said gravely.

"All in the day's work for an Officer of the King's Justice, Sir Lyon. Pray be seated."

"Thank you," said Sir Lyon. Then, as the Duchess started to leave the room, "Please, Your Grace—if you would be so good as to remain? This concerns every member of the Guild, as well as the King's Officers."

"Certainly, Grand Master."

Sir Lyon looked back at Lord Darcy. "Commander Lord Ashley has informed me of his identification of Master Ewen MacAlister. He and Lord Bontrionphe have sent out word to the Armsmen all over the city to be on the watch for him. I have sent out every available Master Sorcerer in London to accompany the Armsmen, to make certain that he does not use his Art to escape."

"Very good," said Lord Darcy.

"Lord Ashley's unsupported word," continued the Grand Master, "would not be sufficient in itself to bring charges against Master Ewen before the Special Executive Commission of the Guild. But it was enough to make us take immediate action to procure further evidence."

"Indeed?" said Lord Darcy with interest. "You have found this evidence, of course."

Sir Lyon nodded gravely. "We have. You are perhaps aware that a sorcerer casts certain protective and precautionary spells upon the bag in which he carries the tools of his trade?"

"I am," said Lord Darcy, remembering how easily Master Sean had regained possession of his own symbol-decorated carpetbag.

"Then you will understand why we asked Lord Bontrionphe to procure a search warrant from a magistrate immediately, and then went directly to Master Ewen's room. He, too, had put a special spell on the lock, as Sir James had done, but

we solved it within fifteen minutes. Then we solved and removed the protective spells from his bag. The evidence was there—a bottle of graveyard dirt, two mummified bats, human bones, fire powder containing sulphur—and other things which no sorcerer should have in his possession without a special research permit from the Guild and special authority from the Church.”

Lord Darcy nodded. “‘Black Magic is a matter of symbolism and intent,’ ” he quoted.

“Precisely,” said Sir Lyon. “Then, in addition, I have Father Patrique’s testimony concerning the black spell that Ewen cast upon Tia this evening. We have, then, my lord, quite sufficient evidence to convict him of Black Magic. Whether or not you can obtain enough evidence to convict him of his other crimes is, of course, another matter. But rest assured that the Guild will do everything in its power to help you obtain it. You have but to ask, my lord.”

“I thank you, Sir Lyon. A question, merely to satisfy my curiosity: Lord Ashley told you, did he not, of the swordplay on Somerset Bridge?”

“He did.”

“Am I correct in assuming that the spell Master Ewen had cast upon his own blade was in some manner a utilization of the Tarnhelm Effect?”

“It was indeed,” Sir Lyon said with a rather puzzled smile. “It was astute of you to recognize it from Lord Ashley’s description alone.”

“Not at all,” Lord Darcy said. “It is simply that Sean is an excellent teacher.”

“It’s more than astute, Grand Master,” said the Dowager Duchess. “To me, it’s irritating. I know what the Tarnhelm Effect is, of course, since I have come across mention of it in my studies, but its utilization and theory are quite beyond me.”

“You should not find it irritating, but gratifying,” Sir Lyon said in a firm voice. “One of the troubles with the world is that so few laymen take an interest in science. If more people were like Lord Darcy, we could eliminate the superstitions that still cling to the minds of ninety-nine people out of a hundred.” He smiled. “I realize you spoke in jest, but it behooves all of us to educate the layman whenever we can. It is only because of ignorance and superstition that hedge magicians and witches and other unlicensed practitioners can operate. It is only because of ignorance and superstition that so many people believe that only Black Magic can overcome Black Magic, that the only way to destroy evil is by using more evil. It is only because of ignorance and superstition that quacks and mountebanks who have no trace of the Talent can peddle their useless medallions and charms.”

He sighed then, and Lord Darcy thought he looked somehow older and wearier. “Of course, education

of that kind will not eliminate the Master Ewens of this world. Modern science has given us an advantage over earlier ages, in that it has enabled us to keep our government, our Church and our courts more nearly uncorrupt and incorruptible than was ever before possible. But not even science is infallible. There are still quirks in the human mind that we cannot detect until it is too late, and Ewen MacAlister is a perfect example of our failure to do so."

"Sir Lyon," said Lord Darcy, "I should like to suggest that Master Ewen is more than that. In our own history, and in certain countries even today, we find organizations that attempt to hide and gloss over the wrongdoings of their own members. There was a time when the Church, the Government, and the Courts would ignore or conceal the peculations of a priest, a governor, or a judge rather than admit to the public that they were not infallible. Any group which makes a claim to infallibility must be very careful not to make any mistakes, and the mistakes that will inevitably occur must be kept secret or explained away—by lies, subterfuges and distortions. And that will eventually cause the collapse of the entire edifice. Any one who has power in the Empire today—be it spiritual, temporal, or thaumaturgical—is trusted by the little man who has no power, precisely because he knows that we do our best to uncover the occasional

Master Ewen and remove his power, rather than hiding him and pretending he does not exist. Master Ewen then becomes in himself the embodiment of the failure which may be converted to a symbol of success."

"Of course," said Sir Lyon. "But it is still unpleasant when it does happen. The last time was back in '39, when Sir Edward Elmer was Grand Master. I was on the Special Executive Commission then, and I had rather hoped it would not happen again in my lifetime. However, we shall do what must be done."

He rose. "Is there anything further I can do for you?"

"I think not, Sir Lyon, not at the moment. Thank you very much for your information.

"Oh, yes. One thing. Would you tell the sorcerers who are searching for him that if Master Ewen is taken during the night I am to be notified immediately, no matter what o'clock it is. I have several questions which I wish to put to him."

"I have already given such instructions in regard to myself," said Sir Lyon. "I shall see that you are notified. Good night, my lord. Good night, Your Grace. I shall be in my room if there is any word."

When the silvery-bearded old sorcerer had left, the Dowager Duchess said, "Well, I hope they don't catch him until morning; you need a good night's sleep. But at least this horrible mess is almost over."

"Don't be too optimistic," said Lord Darcy. "There are far too

many questions which remain unanswered. As you implied, they have not yet caught Master Ewen, and Paul Nichols has managed to remain hidden wherever he is for more than thirty-six hours. We still do not have the results of Master Sean's Herculean labors. There are still too many knots in this tangled string to say that the end is in sight."

He looked down at his empty mug. "Would you mind bringing me another one of those? Without the good Father's additional flavorings this time, if you please."

"Certainly."

But when she returned, Lord Darcy was fast asleep, and the hot mug became her own nightcap instead of his.

XVIII

"I trust you are feeling fit, my lord."

The always punctilious Geffri put the caffè urn and the cup on the bedside table.

"Quite fit, Geffri; thank you," said Lord Darcy. "Ah! the caffè smells delicious. Brewed by your own hand as usual, I trust? Carlyle House is, except for my own home, the only place in the Empire where one can get one's morning caffè at exactly the right temperature and brewed to perfection."

"It is most gratifying to hear you say so, my lord," said Geffri, pouring the caffè. "By the bye, I have taken the liberty, my lord, of bring-

ing up this morning's *Courier*. There is, however, another communication which your lordship might prefer to peruse previous to perusal of the news." He produced an envelope, ten inches wide by fourteen long. Lord Darcy immediately recognized Master Sean's personal seal upon the flap.

"Master Sean," said Geffri, "arrived late last night—after your lordship had retired. He requested that I deliver this to your lordship immediately upon your lordship's awakening."

Lord Darcy took the envelope. It was quite obviously the report on the tubby little Irish sorcerer's thaumaturgical investigation and the autopsy report on the body of Sir James Zwinge.

Lord Darcy glanced at his watch on the bedside table. "Thank you, Geffri. Would you be so good as to waken Master Sean in forty-five minutes and tell him that I should like to have him join me for breakfast at ten o'clock?"

"Of course, my lord. Is there anything else, my lord?"

"Not at the moment, I think."

"It is a pleasure to serve you, my lord," said Geffri. Then he was gone.

By the time an hour had passed, Lord Darcy had read both Master Sean's report and the *London Courier*, and was awaiting the knock on the door that came at precisely ten o'clock. By that time, Lord Darcy was dressed and ready for the day's

work, and the hot breakfast for two had been brought in and laid out on the table in the sitting room.

"Come in, my good Sean," Lord Darcy said. "The bacon and eggs are waiting."

The sorcerer entered with a smile on his face, but it was quite evident to Lord Darcy that the smile was rather forced.

"Good morning, my lord," he said pleasantly. "You've read my report?" He seated himself at the table.

"I have," Lord Darcy said, "but I see nothing in it to account for that dour look. We'll discuss it after breakfast. Have you seen this morning's *Courier*?"

"No, my lord, I have not." Master Sean seated himself and began to dig into the bacon and eggs. "Is there something of interest there?"

"Not particularly," said Lord Darcy. "Except for some rather flattering references to myself, and some even more flattering references to you, there is little of interest. You may peruse it at your leisure. The only offering of any consequence is the fact that there will be no fog tonight."

The next quarter of an hour was spent in relative silence. Master Sean, usually quite loquacious, seemed to have little to say.

Finally, with some irritation, Lord Darcy pushed his plate aside and said: "All pleasantries aside, Master Sean, you are not your usual

ebullient self. If there is anything I should know besides what is contained in your report, I'd like to hear it."

Master Sean smiled across his caffè cup. "Oh, no, it's all there. I have nothing to add to it. Don't mean to disturb you. Perhaps I'm a bit sleepy."

Lord Darcy frowned, reached over, picked up the carefully written report and flipped it open. "Very well. I do have a question or two, merely as a matter of clarification. First, as to the wound."

"Yes, my lord?"

"According to your report, the blade entered the chest vertically, between the third and fourth ribs, making a wound some five inches deep. It nicked the wall of the pulmonary aorta and made a small gash in the heart itself, and this wound was definitely the cause of death?"

"Definitely, my lord."

"Very well." He stood up. "If you will, Master Sean, take that spoon and assume that it is a knife. Yes. Now, would you be so good as to stab me at the precise angle which would cause exactly such a wound as you discovered in Sir James's chest."

Master Sean grasped the handle of the spoon, lifted it high over his head, and brought it down slowly in a long arc to touch his lordship's chest. "Very good, Master Sean, thank you. The wound, if extended, then, would have gone well down into the bowels?"

"Well, my lord, if a bullet had entered at that angle, it would have come out the small of the back."

Lord Darcy nodded, and looked back down at the report. "And," he mused, "as could be surmised from the exterior aspect of the wound, the blade actually did slice into the ribs above and below the cut itself."

He looked up from the report. "Master Sean, if you were going to stab a man, how would you do it?"

Master Sean reversed the spoon in his hand so that his thumb was pointing toward the bowl. He moved his hand forward to touch Lord Darcy. "This way, of course, my lord."

Lord Darcy nodded. "And in that position, the flat of the knife is parallel to the ribs instead of perpendicular to them."

"Well, of course, my lord," said Master Sean. "With the blade up and down you're likely to get your blade stuck between the ribs."

"Precisely," Lord Darcy agreed. "Now, according to the autopsy report which Sir Eliot sent us yesterday from Cherbourg, Goodman Georges Barbour was stabbed in the efficient manner you have just demonstrated, and yet Sir James was stabbed in a manner which no efficient knifeman would use."

"That's true, my lord. Nobody who knew how to use a knife would come in with a high overhand stab like that."

"Why should the same man stab with two such completely different techniques?"

"If it *was* the same man, my lord."

"Very well, assuming that there were two different killers, which is the Navy's hypothesis, the blow that killed Sir James was still inefficient, was it not? Would a professional hired killer have deliberately used a thrust like that?"

Master Sean chuckled. "Well, if it were up to me to hire him, my lord, I don't think he'd pass my employment specifications."

"Neatly put," Lord Darcy said with a smile. "And by the way, did you examine the knife closely?"

"Sir James's contact cutter? I did."

"So did I, when it was on the floor of Sir James's hotel room yesterday. I should like to call your attention to the peculiar condition of that knife."

Master Sean frowned. "But . . . there was nothing peculiar about the condition of that knife."

"Precisely. That was the peculiar condition."

While Master Sean thought that over, Lord Darcy said: "Now to another matter." He sat down and turned over a page of the report. Master Sean settled himself in his chair and put the spoon back on his plate.

"You say here that Sir James died between 9:25 and 9:35, eh?"

"That's according to the surgical and thaumaturgical evidence. Since I meself heard him cry out at precisely half past nine—give or take half a minute—I can say that Sir James died between 9:30 and 9:35."

"Very well," Lord Darcy said. "But he was stabbed at approximately five minutes of nine. Now, as I understand it, the psychic patterns show both the time of the stabbing and the time of death." He flipped over a page of the report. "And the death thrust cut down and into the wall of the pulmonic aorta, but did not actually open that great blood vessel itself. There was a thin integument of the arterial wall still intact. The wound was, however, severe enough to cause him to fall into shock. He was mortally wounded, then, at that time."

"Well, my lord," Master Sean said. "It might not have been a mortal wound. It is possible that a good healer, if he had arrived in time, might have saved Sir James's life."

"Because the pulmonic aorta was not actually cut into, eh?"

"That's right. If that artery had actually been severed at that time, Master Sir James would have been dead before he struck the floor. When that artery is cut open the drop in blood pressure and the loss of blood cause unconsciousness in a fraction of a second. The heart goes into fibrillation and death occurs very shortly thereafter."

Lord Darcy nodded. "I see. But

the wall was not breached. It was cut almost through but not completely. Then, after lying on the floor for half an hour or better, Sir James heard your knock, which brought him out of his shock-induced stupor. He tried to lift himself from the floor, grabbing at his desk, upon which lay, among other things, his key." He paused and frowned. "Obviously his shout to you was a shout for help, and he wanted to get his key to unlock the door for you." He tapped a finger on the report. "This exertion caused the final rupture of the aorta wall. His life's blood gushed forth upon the floor, he dropped the key, and died. Is that your interpretation of it, Master Sean?"

Master Sean nodded. "That's the way it seems to me, my lord. Both the thaumaturgical and the surgical evidence corroborate each other."

"I agree completely, Master Sean," Lord Darcy said. He flipped over a few more pages. "No drugs or poisons, then."

"Not unless somebody used a substance that is unknown to the Official Pharmacopoeia. I performed a test for every one of 'em, and unless God Himself has repealed the Law of Similarity, Master Sir James was neither poisoned nor drugged."

Lord Darcy flipped over another page. "And the brain and skull were both undamaged . . . no bruises . . . no fractures . . . yes." He

turned to another section of the report. "Now, we come to the thaumaturgical section. According to your tests, all the blood in the room was Master Sir James's?"

"It was, my lord."

"And what of that curious half-moon stain near the door?"

"It was definitely Sir James's blood."

Lord Darcy nodded. "As I suspected," he said. "Now, according to the thaumaturgical tests, there was no one in the room except Sir James at the time he was stabbed. This corresponds to the information on Georges Barbour that we have from Cherbourg." He smiled. "Sean, I well understand that you can only put scientifically provable facts in a report like this, but do you have any suggestion, any guess, anything that will help me?"

"I shall try, my lord," said Master Sean slowly. "Well, as I told you yesterday, I should be able to detect the operation of a black sorcerer. As you are aware, the *ankh* is almost infallible as a detector of evil." He took a deep breath. "And now that we know the culpability of Master Ewen MacAlister, his operations should be easy to detect."

Then Master Sean pointed at the sheaf of paper in front of Lord Darcy. "But I will not—I cannot—go back on what I said there." He took another deep breath. "My lord, I can find no trace of any kind of magic—black or white—associated with the murder of Master Sir

James Zwinge. There was no . . ."

He was interrupted by a rap on the door. "Yes," Lord Darcy said with a touch of impatience in his voice, "who is it?"

"Father Patrique," came the voice from the other side of the door.

Lord Darcy's irritation vanished. "Ah, come in, Reverend Sir."

The door opened and a tall, rather pale man in Benedictine habit entered the room. "Good morning, my lord; good morning, Master Sean," he said with a smile. "I see you are well this morning, my lord."

"In your hands, Reverend Father, how could I be otherwise? Can I be of service to you?"

"I believe you can—and be of service to yourself at the same time, if I may say so."

"In what way, Father?"

The priest looked gravely thoughtful. "Under ordinary conditions," he said carefully, "I cannot, as you know, discuss a penitent's confession with anyone. But in this case I have been specifically requested by the penitent to speak to you."

"The Demoiselle Tia, I presume," said Lord Darcy.

"Of course. She has told her story twice—once to me, and once to Sir Thomas Leseaux." He looked at Master Sean, who was solemnly nodding his head up and down. "Ah, you follow me, Master Sorcerer."

"Oh, certainly, Your Reverence. The classic trilogy. Once to the Church, once to the loved one, and"—he gestured respectfully toward Lord Darcy—"once to the temporal authorities."

"Exactly," said the priest. "It will complete the Healing." He looked back at Lord Darcy, who had already risen from his chair. "I will give you no further details, my lord; it is best that you hear them for yourself. But she is well aware that it was you who saved her life last night, and you must understand that you must not deprecate your part in the matter."

"I think I understand, Reverend Father. May I ask you a couple of questions before we go in?"

"Certainly. As long as they do not require me to violate my vows, I shall answer them."

"They have merely to do with the spell that was cast over her last evening. Does she remember anything that happened after Master Ewen cast his black enchantment upon her?"

Father Patrique shook his head. "She does not. She will explain to you."

"Yes, but what bothers me, Reverend Father, is the speed and ease with which it was done. I was watching. One moment she was coherent, in full possession of her senses, the next she was an automaton, obeying his every word. I was not aware that sorcerers had such power over others."

"Oh, good Heavens, it can't be done that quickly," said Master Sean. "Not at *all*, my lord! Not even the most powerful of black sorcerers could take over another's mind just by waving his hand that way."

"Not even Satan himself can take over a human mind without some preparation, my lord," said Father Patrique. "Master Ewen must have prepared preliminary spells before that time. He would have had to, for the spell to have been as effective as it was."

"I seem to recall," said Lord Darcy, "that at the last Triennial Convention, a footpad made the foolish mistake of attacking a Master Sorcerer on the street during the last night of the Convention. The sorcerer informed the Armsmen shortly thereafter what had happened. He himself was unharmed, but the footpad was paralyzed from the neck down, completely unable to move. It was a brilliant piece of work, I admit; the spell was such that it could not be removed until the criminal made a full and complete confession of his crime—which meant, of course, that the sorcerer need not appear in Court against him. But that spell must have been cast in a matter of seconds."

"That is a somewhat different matter, my lord," said Father Patrique. "In that case, when there is evil intent on the part of the attacker, the evil itself can be reflected

back upon its generator to cause the paralysis you spoke of. Any Master Sorcerer can use that as a defensive technique. But to cast a spell over a human being who has no evil intent requires the use of the sorcerer's own power; he cannot use the psychic force of his attacker, since he is not being attacked. Therefore, his own spells require much more time to be set up and to become effective."

"I see. Thank you, Father," Lord Darcy said. "That clears up the matter. Well, let's get along then and see the young lady."

"With your permission, my lord," said Master Sean, "I'll go on to the Royal Steward. Likely Lord Bontrionphe will be wanting to take a look at my report."

Lord Darcy smiled. "And likely you'd be wanting to get back to the Convention, eh?"

Master Sean grinned back. "Well, yes, my lord, I would."

"All right. I'll be along later."

Sir Thomas Leseaux, tall, lean and grim-faced, was standing outside the Gardenia Suite, which the Duchess of Cumberland had given to Tia Einzig. "Good morning, my lord," he said. "I . . . I want to thank you for what you did last night, but I know of no way to do so."

"My dear Sir Thomas, I did nothing that you would not have done had you been there. And there is no need for the grim look."

"Grim?" Sir Thomas forced a smile. "Was I grim?"

"Of course you were grim, Sir Thomas. Why shouldn't you be? You have heard Tia's story and you are greatly afraid that I shall arrest her on a charge of espionage."

Sir Thomas blinked and said nothing.

"Come, come, my dear fellow," said Lord Darcy. "She cannot have betrayed the Empire to any great extent, else you would be as eager for her arrest as anyone. You are not a man to allow love to blind you. Further, may I remind you the laws concerning King's Evidence. Ah, that's better, Sir Thomas, now your smile looks more genuine. And now, if you gentlemen will excuse me, I shall allow you to pace this hallway at your leisure." He opened the door and went in.

Lord Darcy walked through the sitting room of the Gardenia Suite toward the bedroom, and halfway there heard a girl's voice.

"My Lord Darcy? Is that you?"

Lord Darcy went to the bedroom door. "Yes, Demoiselle, I am Lord Darcy."

She was in bed, covered by warm blankets up to her shoulders. Her lips curved in a soft smile. "You are handsome, my lord. I am very glad. I don't think I should care to owe my life to an ugly man."

"My dear Tia, so long as beauty such as yours has been saved, the beauty of he who saved it is imma-

terial." He walked over and sat down in the chair by her bed.

"I won't ask you how you came to be there when you were so sorely needed, my lord," she said softly. "I merely want to say again that I am glad you were."

"So am I, Demoiselle. But the question, as you have said, does not concern how *I* happened to be upon that bridge, but how *you* did. Tell me about Master Ewen MacAlister."

For a moment her mouth was set in grim, hard lines; then she smiled again. "I'll have to go back a little; back to my home in Banat."

The story she told him was essentially the same as the one she had told Mary of Cumberland—with added details. Her Uncle Neapeler had been denounced for practicing his Healing Art by a business rival, and because his political sympathies were already suspect, the Secret Police of King Casimir IX had come to their home to arrest them both. But Neapeler Einzig had been prepared for just such an eventuality, and his strong—although untrained—Talent had warned him in time. Only a few minutes ahead of the dread Secret Police, they had both headed toward the Italian border. But the Secret Police, too, had sources of sorcery, and the fleeing pair had almost been caught in a trap, less than a hundred yards from the frontier. Neapeler had told his niece to run while he stood off the Secret Police.

And that was the last she had seen of him.

The story she told of her movements through Italy and of her extradition hearing in Dauphine was a familiar one to Lord Darcy, but he listened with care. Then she came to the part he had been waiting for.

"I thought I was safe when Sir Thomas brought me here to England," she said, "and then Master Ewen came to me. I didn't know who he was then; he didn't tell me his name. But he told me that Uncle Neapeler had been captured and imprisoned by the Polish Secret Police. My uncle was being treated well, he said, but his continued well-being would depend entirely upon my cooperation.

"Master Ewen told me that Sir Thomas knew the secret of a weapon that had been developed for the Angevin Imperial Navy. He didn't know what the weapon was, but the Polish Secret Service had somehow discovered its existence and knew that Sir Thomas had highly valuable information concerning it. Since he knew that Sir Thomas trusted me, he asked me to get this information for him. He threatened to torture—to kill—Uncle Neapeler unless I did as he asked." She turned her head back suddenly and looked straight at Lord Darcy. "But I didn't. You must understand that I *didn't*. Sir Thomas will tell you, I never once asked him about any of his secret work—*never!*"

Lord Darcy thought of Sir Thom-

as's face as he had last seen it. "I believe you, Demoiselle. Go on."

"I didn't know what to do. I didn't want to tell them anything, and I didn't want to betray Sir Thomas, either. I told them that I was trying. I told them that I was working my way into his confidence. I told them"—she paused for a moment, biting at her lower lip—"I told Master Ewen anything and everything I could to keep my uncle alive."

"Of course," said Lord Darcy gently. "No one can blame you for that."

"And then came the Convention," she said. "MacAlister said I had to attend, that I had to be there. I tried to stay away. I pointed out to him that even though I had been admitted to the Guild as an apprentice, the Convention does not normally accept apprentices as members. But he said that I had influence—with Sir Thomas, with His Grace the Archbishop—and that if I did not do my best to get in, he would see that I was sent one of Uncle Neapeler's fingers for every day of the Convention I missed. I had to do something, you understand that, don't you, my lord?"

"I understand," said Lord Darcy.

"Ewen MacAlister," she went on, "had warned me specifically to stay away from Master Sir James Zwinge. He said that Sir James was a top counterspy, that he was head of the Imperial Intelligence apparatus for Europe. So I thought per-

haps Sir James could help me. I went to his room Wednesday morning. I met him just as he was leaving the lobby, and asked if I could speak to him. I told him that I had important information for him." She smiled a little. "He was very grouchy, but he asked me to come to his room. I told him everything—about my uncle, about Master Ewen—everything.

"And he just *sat* there!

"I told him *surely* the Imperial agents could get my uncle out of a Polish prison.

"He told me that he knew nothing about spy work, that he was merely a forensic sorcerer, working for the Marquis de London. He said he knew no way of getting my uncle out of a Polish prison or any other prison for that matter.

"I was furious. I don't really know what I said to him but it was—vicious. I wish now that I had not said it. I left his room and he locked the door after me. I may have been the last person to see Sir James Zwinge alive." Then she added hurriedly, "That is, aside from his murderer."

"Demoiselle Tia," said Lord Darcy in his most gentle voice, "at this point I must tell you something, and I must ask you to reveal it to no one else until I give you leave. Agreed?"

"Agreed, of course, my lord."

"It is this. I believe that you *were* the last person to see him alive. The evidence I have thus far indicates

that. But I want you to know that I do not believe you are in any way responsible for his death."

"Thank you, my lord," she said, and suddenly there were tears in her eyes.

Lord Darcy took her hand. "Come, my dear, this is a poor time to cry. Come now, no more tears."

She smiled in spite of her tears. "You're very kind, my lord."

"Oh, no, my dear Tia, I'm not kind at all. I am cruel and vicious and I have ulterior motives."

She laughed. "Most men do."

"I didn't mean it quite that way," said Lord Darcy dryly. "What I intended to convey was that I *do* have another question to ask."

She brushed tears from her eyes with one hand, and gave him her impish smile. "No ulterior motives, then. That's a shame." Then she became serious again. "What is the question?"

"Why did Master Ewen decide to kill you?" Lord Darcy was quite certain that he knew the answer, but he did not want to disclose to the girl how he knew it.

This time her smile had the same cold, vengeful quality that he had seen the night before. "Because I learned the truth," she said. "Yesterday evening I was approached by a friend of my uncle's—a Goodman Colin MacDavid—a Manxman whom I remembered from when I was a very little girl. Goodman Colin told me the truth.

"My Uncle Neapeler escaped from the trap that I told you of. Goodman Colin helped him escape, and my uncle has been working with him on the Isle of Man ever since. He is safe. But he has been in hiding all this time, because he is afraid the Poles will kill him. He thought I was dead—until he saw my name in the London *Courier* that I was attending the Convention; then he sent Goodman Colin straight away to find me.

"But Goodman Colin also explained that when my uncle escaped he left behind evidence indicating that he had been killed. He did this to protect me. All the time Master Ewen was using my uncle's life as a weapon against me, he and the Polish Secret Police actually thought he was dead. Do you wonder that I was furious when I finally found out the truth?"

"Of course not," said Lord Darcy. "That was yesterday evening."

"Yes," she said. "Then I got a note from Master Ewen telling me to meet him in a pub called the *Hound and Hare*. Do you know of it?"

"I know where it is," said Lord Darcy. "Go on."

"I suppose I lost my temper again," she said. "I suppose I said the wrong things, just as I did with Sir James." Her eyes hardened. "But I'm not sorry for what I said to Master Ewen! I told him what I thought of him, I told him I would report everything to the Imperial authori-

ties, I told him I wanted to see him hanged, I—" She stopped suddenly and gave Lord Darcy a puzzled frown. "I'm not quite sure what happened after that. He raised his hand," she said slowly, "and traced a symbol in the air, and . . . and after that I remember nothing, that is . . . nothing until this morning, when I woke up here and saw Father Patrique."

She reached out suddenly and grasped Lord Darcy's right hand in both of her own. "I know I have done wrong, my lord. Will I . . . will I have to appear before His Majesty's Court of High Justice?"

Lord Darcy smiled and stood up. "I rather think that you will, my dear—you will be our most important witness against Master Ewen MacAlister. I think I can assure you that you will not appear before the Court in any other capacity."

The girl was still holding Lord Darcy's hand. With a sudden movement she brought it to her lips, kissed it and then let it go.

"Thank you, my lord," she said.

"It is I who must thank you," said Lord Darcy with a bow. "If I may do you any further service, Demoiselle, you have but to ask."

He went out the door of the Gardenia Suite expecting to see two men waiting for him in the hall. Instead, there were three. Father Patrique and Sir Thomas looked at him as he closed the door behind him.

"How is she?" asked Father Patrique.

"Quite well, I think." Then he glanced at the third man, a uniformed Sergeant-at-Arms.

"Sergeant Peter has news for you," Father Patrique said, "but I would not allow him to interrupt. Now, if you'll excuse me, I'll see my patient." The door closed behind him as he went into the Gardenia Suite.

Lord Darcy smiled at Sir Thomas. "All is well, my friend. Neither of you has anything to fear."

Then he looked back at the Sergeant-at-Arms. "You have information for me, Sergeant?"

"Yes, my lord. Lord Bontrionphe said it was most important. We have found Goodman Paul Nichols."

"Oh, indeed?" said Lord Darcy. "Where did you find him? Has he anything to say for himself?"

"I'm afraid not," said Sergeant Peter. "He was found in a lumber room at the hotel. And he was dead, my lord. Quite dead."

XIX

Lord Darcy strode across the lobby of the Royal Steward Hotel, closely followed by the Sergeant-at-Arms. He went down the hallway, past the offices, toward the rear door. Sergeant Peter had already told him where the room in question was, but the information proved unnecessary, since there were two Armsmen on guard before it. It led off to the left from the narrow hallway, about halfway between the

temporary headquarters office and the rear door. The room was a workshop, set up for furniture repair. There were worktables and tools around the walls, and several pieces of half-finished furniture scattered about. Towards the rear of the room was an open door, beyond which Lord Darcy could see only darkness.

Near the door stood Lord Bontrionphe and Master Sean O Lochlainn. They both looked around as Lord Darcy walked across the room toward them.

"Hullo, Darcy," said Lord Bontrionphe. "We've got another one." He gestured past the open door which, Lord Darcy now saw, opened into a small closet filled with odds and ends of wood and pieces of broken furniture. Beyond the door, just inside the closet, lay a man's body.

It was not a pleasant sight. The face was blackened and the tongue protruded. Around the throat, set deep into the flesh, was a knotted cord.

Lord Darcy looked at Lord Bontrionphe. "What happened?"

Lord Bontrionphe did not take his eyes off the corpse. "I think I shall go out and beat my head against a wall. I've been looking for this man ever since yesterday afternoon. I've combed London for him. I've asked every employee in this hotel every question I could think of." Then he looked up at Lord Darcy. "I had finally arrived at what I thought was the ridiculous con-

clusion that Goodman Paul Nichols had never left the hotel." He gave Lord Darcy a rather lopsided smile. "And then, half an hour ago, one of the hotel's employees, a joiner and carpenter whose job it is to keep the hotel's furniture in repair, came in here and opened that door." He gestured toward the closet. "He needed a piece of wood. He found—*that*. He came running out into the hall in a screaming fit. Fortunately I was in the office. Master Sean had just shown up, so we came back to take a look."

"He has definitely been identified as Paul Nichols?" Lord Darcy asked.

"Oh, yes, no question of that."

Lord Darcy looked at Master Sean. "There is no rest for the weary, eh, Master Sean? What do you find?"

Master Sean sighed. "Well, I won't know for sure until after the surgeon has performed the autopsy, but it's my opinion the man's been dead for at least forty-eight hours. There's a bruise on his right temple—hard to see because of the coagulation of the blood in the face, but it's there all right—which indicates that he was knocked unconscious before he was killed. Someone hit him on the side of the head, and then took that bit of upholsterer's cord and tightened it around his throat to strangle him."

"Forty-eight hours," said Lord Darcy thoughtfully. He looked at his watch. "That would be, give or take an hour or so, at approximately the

same time Master Sir James was killed. Interesting.”

“There’s one thing, my lord,” said Master Sean, “which you might find even more interesting.” He knelt down and pointed at some bits of material lying on the corpse’s shirt front. “What does that look like to you?”

Lord Darcy knelt and looked. “Sealing wax,” he said softly. “Bits of blue sealing wax.”

Master Sean nodded. “That’s what they looked like to me, my lord.”

Lord Darcy stood up. “I hate to put you through another session of such grueling work, Sean, but it must be done. I must know the time of his death, and—”

Master Sean took one more look at the dead man’s shirt front, and then stood up himself. “And something more about those bits of blue sealing wax, eh, my lord?”

“Exactly.”

“Well,” said Lord Bontrionphe, “at least this time we know who killed him.”

“Yes, I know *who* killed him, all right,” Lord Darcy said. “What I don’t understand is *why*.”

“You mean, the motive?” Lord Bontrionphe asked.

“Oh, I know the motive. What I want to know is the motive behind the motive, if you follow me.”

Lord Bontrionphe didn’t.

Another half hour of meticulous investigation revealed nothing of

further interest. The murder of Paul Nichols appeared to be as simple as that of Sir James had been complex. There was no locked door, no indication of Black Magic, no question as to the method of death. By the time he had finished looking the area over, Lord Darcy was convinced that his mental reconstruction of the murder was reasonably accurate. Paul Nichols had been enticed into the workshop, knocked unconscious, strangled with a handy piece of upholsterer’s cord, and dumped into the small lumber room. Exactly what had happened after that was not quite as clear, but Lord Darcy felt that subsequent data would not drastically change his hypothesis.

Satisfied, Lord Darcy left the remainder of the investigation to Lord Bontrionphe and Master Sean. *Now*, he thought to himself, *what to do next?* Go to the Palace du Marquis first and pick up a gun, he decided. He had mentioned to Lord Bontrionphe that he had lost his own weapon in the Thames, and Bontrionphe had said, “I have another in my desk, a Heron .36. You can use that if you want; it’s a good weapon.” Lord Darcy decided that one good stiff drink would probably stand him in good stead before he took a cab to the Palace du Marquis. He went to the Sword Room and ordered a brandy and soda.

There was still a state of tension in the hotel, and the Convention seemed to have been held in abeyance. Of all the sorcerers he had

seen that morning, with the exception of Master Sean himself, not one had been wearing the silver slashes of a Master. Lord Darcy saw a familiar face further down the bar, a young man who was giving his full attention to a pint of good English beer. With a slight frown, Lord Darcy picked up his glass and walked down to where the other man was sitting.

"Good morning, my lord," he said. "I should have thought you would be out on the chase."

Journeyman Sorcerer Lord John Quetzal looked up, a little startled. "Lord Darcy! I've been wanting to talk to you," he said. The smile on his face looked a little sad. "They didn't ask me to help find Master Ewen," he said. "They're afraid a journeyman couldn't hold his own against a Master."

"And you think you could?" Lord Darcy asked.

"No!" Lord John Quetzal said excitedly. "That's not the point, don't you see? Master Ewen may be a more powerful sorcerer than I am, I don't argue with that. But *I* don't have to face him down. If he uses magic when he's cornered, another, more powerful sorcerer can take care of him then. The point is that I can *find* Master Ewen. I can find out where he is. But nobody listens to a journeyman sorcerer."

Lord Darcy looked at him. "Now let me understand you," he said carefully. "You think you can find where Master Ewen is hiding now?"

"Not just *think*; I *know*! I am positive I can find him. When you brought the Demoiselle Tia in last night, she stank to high Heaven of Black Magic." He looked apologetic. "I don't mean a real smell, you understand, not the way you'd smell tobacco smoke or"—he gestured towards Lord Darcy's glass—"brandy, or something like that."

"I understand," said Lord Darcy. "It is merely a psychic analogy to the physical sense which it most nearly resembles. That is why people with your particular kind of Talent are called witch-smellers."

"Yes, my lord; exactly. And any given act of black sorcery has its characteristic 'aroma'—a stink that identifies the sorcerer who performed it. You asked me Wednesday night if I suspected anyone, and I refused to tell you. But it was Master Ewen. I could detect the taint on him even then. But now, with an example of his work to go on, I could smell him out anywhere in London."

He smiled rather sheepishly. "I was just sitting here trying to make up my mind whether I should go out on my own or not."

"You could detect the stink of Black Magic on the Demoiselle Tia," Lord Darcy said. "How did you know that it was not she who was practicing the Black Art?"

"My lord," said Lord John Quetzal, "there is a great deal of difference between a dirty finger and a dirty finger-mark."

Lord Darcy contemplated his drink in silence for a full minute. Then he picked it up and finished it in two swallows.

"My Lord John Quetzal," he said briskly. "Lord Bontrionphe and his Armsmen are searching for Master Ewen. So are Sir Lyon and the Masters of the Guild. So are Commander Lord Ashley and the Naval Intelligence Corps. And do you know what?"

"No, my lord," said Lord John Quetzal, putting down his empty beer mug, "what?"

"You and I are going to make them all look foolish. Come with me. We must fetch a cab. First to the Palace du Marquis, and then, my lord—wherever your nose leads us."

XX

It took hours.

In a little pub far to the north of the river, Journeyman Sorcerer Lord John Quetzal stared blankly at a mug of beer that he had no intention of drinking.

"I think I have him, my lord," he said dully. "I think I have him."

"Very good," said Lord Darcy.

He dared say nothing further. During all this time he had followed Lord John Quetzal's leads, making marks on the map as the young Mechicain witch-smeller came ever closer to the black sorcerer who was his prey.

"It's not as easy as I thought," said Lord John Quetzal.

Lord Darcy nodded grimly. Witch-smelling—the detection of psychic evil—was not the same as clairvoyance, but even so the privacy spells in London had dimmed the young Mechicain's perceptions.

"Not easy, perhaps," he said, "but just as certain, just as sure." His lordship realized that the young journeyman had not yet perfected his innate ability to its utmost. That, of course, would come with time and with further training. "Let's go through it again. Tell me the clues as you picked them up."

"Yes, my lord," said the young Mechicain. After a moment he began: "He's surrounded by those who will help him—Master Ewen is, I mean. But they will not risk their own lives for him."

"There is a tremendous amount of psychic tension surrounding him," Lord John Quetzal continued, "but it has nothing to do with him personally. They don't know that he exists."

"I understand, my lord," said Lord Darcy. "From the descriptions you have given me, it appears to me that Master Ewen is surrounded by generally un-Talented people who are attempting to use the Talent." He spread his map of London out on the table. "Now, let's see if we can get a fix." He tapped a spot on the map. "From here"—he moved his finger—"in that direction, eh?"

"Yes, my lord," said Lord John Quetzal.

"Now," Lord Darcy moved his finger further down the map. "From here"—he moved his finger again—"to there. Eh?"

"Yes."

Lord John Quetzal knew direction and magnitude, but he seemed unable to give any further information. Time after time Lord Darcy had gone through this same routine—so many times that it seemed monotonous, repetitive.

And yet, each time, more information came to the fore. At last, Lord Darcy was able to draw a circle on the map of London, and tap it with the point of his pencil.

"He is somewhere within that area. There is no other possible answer." Then he reached out and put his hand on the young journeyman's shoulder. "I know you're tired. Fatigue is the normal condition of an Investigator for the King."

Lord John Quetzal straightened his shoulders and looked up suddenly. "I know. But"—he tapped the spot that Lord Darcy had circled—"that's quite a bit of area. I thought that I could locate him precisely, exactly." He took a deep breath. "And now I find that . . ."

"Oh, come," Lord Darcy said. "You give in too easily. We have him located; it is simply that you do not realize how closely we have surrounded our quarry. We know the general area, but we do not have the exact description of his immediate surroundings."

"But there I cannot help," Lord

John Quetzal said, the dullness coming back into his voice.

"I think you can," said Lord Darcy. "I ask you to put your attention upon the symbols surrounding Master Ewen MacAlister—not his actual physical surroundings but his symbolic surroundings."

And then Lord Darcy waited.

Suddenly Lord John Quetzal looked up. "I have an intuition. I see . . ." Lord John Quetzal began again. "It is the blazon of a coat of arms, my lord: *Argent, in saltire, five fusils gules.*"

"Go on," said Lord Darcy urgently, making a rapid notation on the margin of the map.

Lord John Quetzal looked out into nothing. "*Argent,*" he said, "*in pale, three trefoils sable, the lowermost inverted.*"

Lord Darcy made another note, and then put his hand very carefully on the top of the table, palm down. "I ask you to give me one more, my lord—just one more."

"*Argent,*" said Lord John Quetzal, "*a heart gules.*"

Lord Darcy leaned back in the booth, took a deep breath and said, "We have it, my lord, we have it. Thanks to you. Come, we must get back to Carlyle House."

Half an hour after that, Her Grace, Mary, the Dowager Duchess of Cumberland, was looking at the same map. "Yes, yes, of course," she said. She looked at the young Mechicain. "Of course. *Argent, in saltire,*

five fusils gules." She looked up at Lord Darcy. "The five of diamonds."

"Right," said Lord Darcy.

"And the second is the three of clubs. And the third, the ace of hearts."

"Exactly. Do you doubt now that Master Ewen is hiding there?"

She looked back down at the map. "No, of course not. Of course he's there." She looked up at him. "You went no further, my lord?" Then she glanced at Lord John Quetzal and corrected herself. "My lords?"

"Was there any need?" Lord Darcy asked. "My Lord du Moqtessuma has assured me that if Master Ewen leaves his hiding place he shall know it. Right, my lord?"

"Right." Then he added, "That is, I cannot guarantee his future movements, but if he should go very far from there I should know it."

"One thing I do not understand," Her Grace said frankly, "is why my lord John Quetzal did not immediately recognize the symbolism." She looked at the young Mechicain nobleman with a smile. "I do not mean this as a reflection upon your abilities. You *did* visualize the symbols—and yet you translated them in terms of heraldry rather than in terms of playing cards. Undoubtedly you could explain why, but with your permission I should like to know how Lord Darcy knew."

"It was information you did not have," Lord Darcy said with a smile. "The night before last when we were discussing Mechicoe, while you were

dressing, we had a short discussion of gambling and recreation in Mechicoe. I observed that not once did Lord John Quetzal mention playing cards—from which I gathered that they are very little used."

"In Mechicoe," said Lord John Quetzal, "a deck of cards is generally considered to be a fortune-telling device, used by unlicensed wizards and black sorcerers. I am not familiar with the card deck as a gambling device, although I have heard, of course, that it can be used as such."

"Of course," said Lord Darcy. "Therefore, you translated the symbols you saw in terms of heraldry, a field of knowledge with which you are familiar. But your description is quite clear." He looked at the Duchess. "And, therefore, we came to you." He smiled. "If anyone knows the gambling clubs of London, it is you."

She looked back down at the map. "Yes," she said. "There's only one such club in that area. He must be there. It's the *Manzana de Oro*."

"Ah," said Lord Darcy. "The *Golden Apple*, eh? What do you know of it?"

"It is owned by a Moor from Granada."

"Indeed?" said Lord Darcy. "Describe him to me."

"Oh, he's an absolutely fascinating creature," said Her Grace. "He's tall—as tall as you are—and quite devilishly handsome. He has dark skin—almost black—flashing

eyes, and a small pointed beard. He dresses magnificently in the Oriental fashion. There's an enormous emerald on his left ring finger, and a great ruby—or perhaps it is a spinel—in his *turban*. He carries at his waist a jewelled Persian dagger that is probably worth a fortune. For all I know he is an unmitigated scoundrel, but in his manners and bearing he is unquestionably a gentleman. He calls himself the Sidi al-Nasir."

Lord Darcy leaned back and laughed.

"May I ask," the Duchess said acidly, "what is so funny, my lord?"

"My apologies," said Lord Darcy, smothering his laughter. "I wasn't trying to be funny. You must credit it to our Moorish friend. 'Sidi al-Nasir' indeed! How lovely. I have a feeling I shall like this gentleman."

"Would it be too much," Her Grace said pleasantly, "for you to let us in on the joke?"

"It is the felicitous choice of name and title," Lord Darcy said. "Translating broadly, *Sidi al-Nasir* means 'My Lord the Winner.' How magnificently he has informed the upper class gamblers of London that the advantage is with the house. Yes, indeed, I think I shall like My Lord al-Nasir." He looked at the Duchess. "Do you have entry into his club?"

"You know I do," she said. "You would never have mentioned it to me otherwise."

"True," said Lord Darcy blandly. "But now that you are in on our

little trap, I shall not deny you the further enjoyment of helping us close it solidly upon our quarry." He looked at Lord John Quetzal. "My lord," he said, "the quarry is cornered. We now have but to devise the trap itself."

Lord John Quetzal nodded smilingly. "Indeed, my lord. Oh, yes indeed. Now, to begin with . . ."

The night was clear. Each star in the sky above shone like a separate brilliant jewel in the black velvet of the heavens. A magnificent carriage bearing the Cumberland arms pulled up in front of the *Manzana de Oro*, the footman opened and bowed low before the polychrome and gilt door, and four people descended. The first to alight was no less than Her Grace the Dowager of Cumberland. She was followed by a tall, lean, handsome man in impeccable evening clothes. The third passenger was equally tall—a dark-faced man wearing the arms of the ducal house of Moqtessuma. All three bowed low as the fourth passenger stepped out.

His Highness the Prince of Vladistov was a short, round gentleman, with a dark, bushy, heavy beard and an eyeglass screwed into his right eye. He descended from the coach in silence with great dignity, and acknowledged his companions' bows with a patronizing tilt of his head.

Her Grace of Cumberland nodded to the brace of doormen who

stood at rigid attention at either side of the entrance to the *Manzana de Oro*, and the four of them marched inside. At the inner door, Her Grace's escort spoke to the majordomo. "You may announce to My Lord al-Nasir—Her Grace, Mary, Dowager Duchess of Cumberland; His Highness John Quetzal du Moqtessuma, Lord of Mechicoe; His Most Serene Highness, Jehan, Prince of Vladistov; and myself, the Lord of Arcy."

The majordomo bowed low before this magnificent company and said, "His lordship shall be so informed." Then he glanced at the Dowager Duchess. "Your pardon . . . uh . . . Your Grace vouches for these gentlemen?"

"Of course, Goodman Abdul," said Her Grace imperiously, and the party of four swept across the threshold.

Lord Darcy held back and, as Lord John Quetzal caught up with him, whispered, "Is he here?"

"He's here," said Lord John Quetzal. "I can place him within ten feet now."

"Good. Keep smiling and follow my lead. But if he moves, let me know immediately."

They followed Her Grace and the magnificently attired Prince of Vladistov into the interior.

The anteroom was large—some thirty feet broad by twenty feet deep—and gave no hint that the *Manzana de Oro* was a gambling club. The decor was Moorish, and—to

Lord Darcy, who had seen Southern Spain, North Africa, and Arabia—far too Moorish. The decor was not that of a public place in the Islamic countries, but that of the *hareem*. The walls were hung with cloth-of-gold—or what passed for it; the archways which led off it were—embroidered was the only word—embroidered with quotations from the *Qu'ran*—quotations which, while very decorative because of the Arabic script, were essentially meaningless in the context.

The floor was inlaid with Moorish tile, and exotic flowers set in brazen pots of earth were tastefully placed around the walls. In the center of the room, a golden fountain played. The water moved in fantastic patterns, always shifting, never repeating, forming weird and unusual shapes in the air. The fountain was lined with lights whose colors changed and moved with the waving patterns. The water flowed down over a series of baffles that produced a shifting musical note in the air.

Well-dressed people in evening clothes stood around exchanging pleasantries.

Lord John Quetzal tapped Lord Darcy on the shoulder. "Do you notice the quiet gentleman in the blue *turban*, my lord?" he said softly.

"Over near the far corner? Of course. What about him?"

"A sorcerer of, I should judge, about journeyman third grade. He is the one who is keeping that fountain flowing."

"I see," said Lord Darcy, softly.

Her Grace turned and smiled. "Shall we go to the gaming rooms, gentle sirs?"

The Prince of Vladistov glanced at Lord Darcy. Lord Darcy said, "Of course, Your Grace."

She gestured toward one of the side doors that led off the anteroom and said, "Will you accompany me?" and led them through the arched doorway to their right. The gaming room was even more flamboyant than the anteroom. The hangings were of gold, embroidered with purple and red, decorated with scenes from ancient Islamic myth. But their beauty formed only a background to the Oriental magnificence of the room itself, and the brilliant evening dress of the people who played at the gaming tables stood out glitteringly against that background.

A number of sharp-eyed men moved unobtrusively among the gaming tables, observing the play. Lord Darcy knew they were journeymen sorcerers hired to spot any player's attempt to use a trained Talent to affect his chances. Their job was not to overcome any such magic, but merely to report it and expel the offender. The effect of any untrained Talent present in the players could be expected to cancel out.

The Prince of Vladistov smiled broadly at Lord Darcy and said, in a very low tone, "I've twigged to Master Ewen meself, my lord—thanks to Lord John Quetzal's aid.

Sure and we have him now. He's in the room to the right, just beyond that arch with the purple scribblings about it."

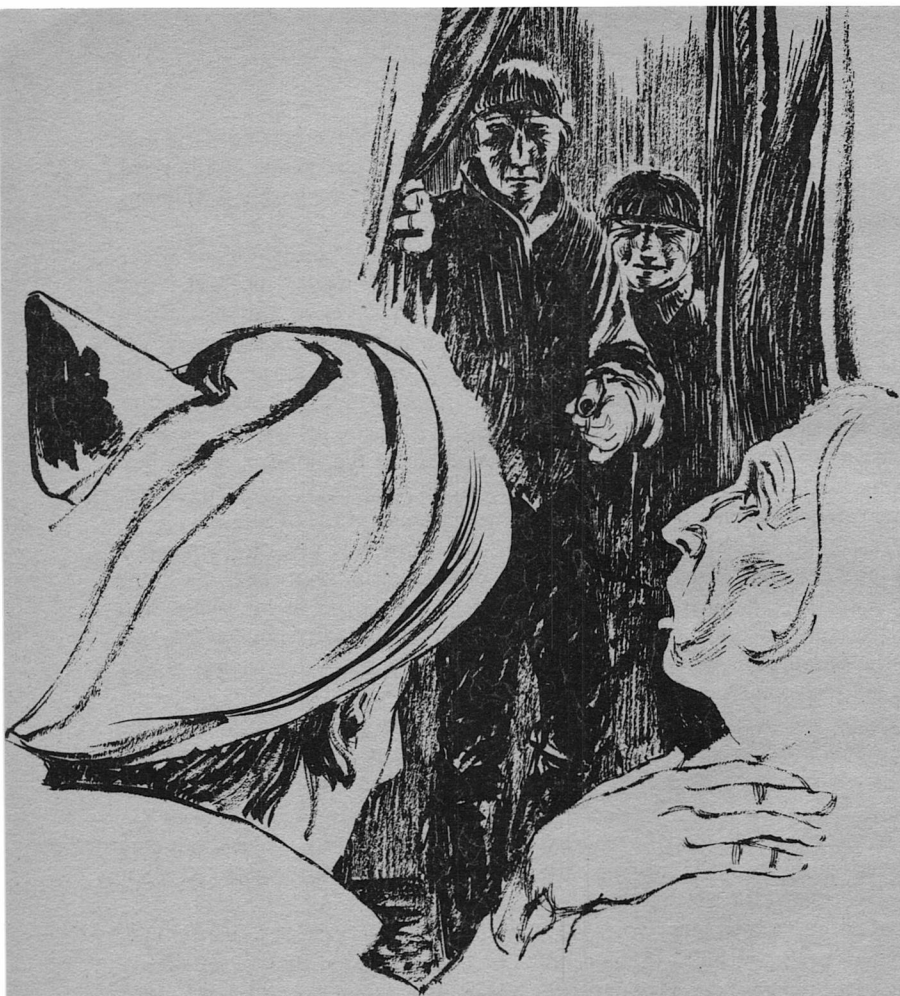
Lord Darcy bowed. "Your Highness is most astute," he said. "But where the Devil is Sidi al-Nasir?" It was a rhetorical question to which he did not expect an answer. Mary of Cumberland had assured him that al-Nasir invariably greeted members of the nobility when they came to his club, and yet there had been no sign of the Moor.

The Prince of Vladistov answered Lord Darcy's rhetorical question. "He seems to be in his office. We can't be sure, Lord John Quetzal and I, but we both agree that that's where he seems to be."

Lord Darcy nodded. "All right, we'll work it that way." He moved up and smiled at the Dowager Duchess of Cumberland. "Your Grace," he said very softly, "I observe that the gentleman who was at the door has followed us in."

She did not turn her head. "Goodman Abdul? Yes. By this time he is probably wondering why we have not gone to the gaming tables."

"A good question, from his point of view. We shall take advantage of it. Go over and ask him where Sidi al-Nasir is. Insist upon speaking to the Sidi. You have brought, after all, a most important guest, the Prince of the distant Russian principality of Vladistov, and you see no reason why el Sidi should not greet him as he deserves. Pour it on thick. But



make sure his back is toward us.”

She nodded and moved across the room toward el Sidi's minion, leaving her three companions clustered in a group around the door that was their target.

As soon as the Duchess had distracted Abdul's attention, Lord Darcy whispered, "All right. This is it. Move in."

Lord John Quetzal turned and faced the crowd, watching every movement. Lord Darcy and the Prince of Vladistov moved toward the door.

"No spell on the lock," said the short, round man with the beard. "Too many people moving in and out."

"Very good." Lord Darcy

reached out, turned the knob, pulled open the door, and within the space of half a second he and his companion were inside, the door closed behind them.

Sidi al-Nasir conformed precisely to the description that the Duchess had given them. When he saw the two strangers enter his office, one hand reached for a drawer—then stopped. His black eyes looked down the equally black muzzle of the Heron .36 that stared at him. Then they lifted to the face of the man who carried the weapon. “With your permission, my lord,” he said coolly, “I shall put my empty hand back on top of my desk.”

“I suggest that you do so,” said Lord Darcy. He glanced at the man who sat across from Sidi al-Nasir’s desk. “Good evening, my lord. I see that you are here before me.”

Commander Lord Ashley smiled calmly. “It was inevitable,” he said in a cool, constrained voice. “I am glad to see you.” He looked toward Sidi al-Nasir. “My Lord al-Nasir,” he said, “has just proposed that I go to work for the Government of Poland.”

Lord Darcy looked at the dark-complexioned man. “Have you now, My Lord the Winner?”

Sidi al-Nasir spread his hands on the surface of the desk and smiled. “Ah, then you understand Arabic, most noble lord?” he said in that language.

“While I do not, perhaps, have your liquid fluency in the Tongue of Tongues,” Lord Darcy said in return, “my poor knowledge of the language of the Prophet is adequate for most purposes.”

Sidi al-Nasir’s finely-chiseled lips wreathed in a smile. “I am not one to contradict, most noble,” he said. “But, except that your enunciation betrays the fact that your mentor was a subject of the Shah of Shahs, your command of the speech of the *Qu’ran* is most flowing.”

Lord Darcy allowed a half-smile to touch his lips. “It is true that my instructor in the noble language of the Prophet of Islam came from the Court of the Shadow of God on Earth, the Shah of Persia, but—would you prefer that I spoke in the debased fashion of Northwest Africa and Southern Spain?”

The sudden shift in Lord Darcy's accent made Sidi al-Nasir blink. Then he raised his eyebrows and his smile broadened even further. "Ah, most wise one, your knowledge betrays you. But few people of your Frankish Empire have such a command of the Tongue of Tongues. You are, then, the renowned Sidi of Arcy. It is indeed a pleasure to meet you, my lord."

"I hope that events may prove that it was a pleasure to meet you, my lord," said Lord Darcy. Then, shifting, "But you have guests, my lord. Shall we continue in Anglo-French?"

"Of course," said Sidi al-Nasir. He glanced at Lord Ashley. "So it was all a trap then?"

Lord Ashley nodded. "All a trap, my dear al-Nasir."

"A poor one, I think," said Sidi al-Nasir with a smile. "Poorly planned and poorly executed." He chuckled softly. "I need not even deny the truth."

"Well, we shall see," said Lord Darcy. "What is the truth?"

Sidi al-Nasir's smile did not vanish. He merely looked at Commander Lord Ashley.

Lord Ashley gave him one glance and then looked up at Lord Darcy with a smile. "Sorry to have pulled this on you. Didn't know you'd be here. We have long suspected that the *Manzana de Oro* was the headquarters of a spy ring working for His Slavonic Majesty. In order to prove our case I ran up a debt here

of . . ." He looked at Sidi al-Nasir.

The Moor, still smiling, sighed. "Of some one hundred and fifty golden sovereigns, my lord. More than you could earn in a year."

Lord Ashley nodded calmly. "Exactly. And tonight you offered me two alternatives. You would either report my debt to the Admiralty, in which case—so you assumed—I would be ruined, or I could become a spy for His Slavonic Majesty."

Sidi al-Nasir's smile broadened. "That was why I said the trap was poorly laid, My Lord Commander. I deny that I made you any such offer, and you have no witnesses to prove it."

Lord Darcy, still holding his pistol level, allowed a smile to come over his own face. "My Lord al-Nasir," he said, "for your information, I shall say that I am quite confident that you *have* just made such an offer to my lord the Commander."

Sidi al-Nasir showed his white teeth in a broad smile. "Ah, my lord, *you* may be certain." He laughed. "Perhaps even *I* am certain, no? And of course Commander Lord Ashley is certain. But"—he spread his hands—"is this evidence? Would it stand up in court?" He looked suddenly very sad. "Ah, you might, of course, deport me. The evidence of my lord Ashley may be strong enough for that. There is, certainly, enough suspicion here to force me to return to my native Spain. I must close down the *Manzana de Oro*.

What a pity it will be to leave the chill and fog of London for the warmth, the color, the beauty of Granada . . ." Then he directed his smile at Lord Darcy. "But I am afraid that you cannot imprison me."

"As to that," said Lord Darcy, "possibly you are right. But we shall see."

"Is it necessary, my lord, that you keep the muzzle of that weapon pointing at me?" said Sidi-al-Nasir. "I find it distinctly ungentlemanly."

"Of course, my lord," said Lord Darcy, not deviating the aim of his weapon one iota. "If you would be so good as to remove—no! no! . . . not just the gun . . . the whole drawer from your desk. There may be more than one gun in it."

Sidi al-Nasir very carefully pulled out the drawer and placed it on the desk top. "Only one, my lord, and I shouldn't think of touching it in your presence."

Lord Darcy looked at the weapon that lay by itself in the drawer. "Ah," he said, "a Toledo .39. A very good weapon, my lord. I shall see to it that it is returned to you, if the law so allows."

The Sidi al-Nasir's obsidian eyes suddenly flickered as his gaze moved across Lord Darcy's face. In that instant he realized that Darcy's information covered a great deal more territory than a mere suspicion of espionage. The Sidi knew that this trap was more dangerous than it had at first appeared.

"It is possible, my lord," he said smoothly, "that Lord Ashley's losses were due to the machinations of a certain Master Sorcerer, whom I have decided to release from my employ. The Commander's winnings up until a short time ago were considerable. The Master Sorcerer of whom I spoke may have decided to correct that. If so, of course, I am not personally responsible . . ."

"Ah," said Lord Darcy. "So Commander Lord Ashley's slight precognitive ability was overcome by Master Ewen." He addressed the Commander without taking his eyes off Sidi al-Nasir. "What did you usually play, Ashley?"

"Rouge-et-Or," said the Commander.

"I see. Then the precognition would be of little use at that game if a Master Sorcerer were working against you. If you made a bet on any given number, the sorcerer could almost always make certain that the little ivory ball did not land in the proper slot—even if he were operating from another room."

His eyes gazed directly at those of Sidi al-Nasir. "A deliberate plot, then," he said. "You tried to enlist the Commander by having your sorcerer force the game to go against him."

"We suspected something of the sort," Lord Ashley said cheerfully, "so we decided to let Sidi al-Nasir run it as he would and see what developed."

The Sidi al-Nasir shrugged, still

keeping his hands well above the table. "Whatever may have happened," he said, "I assure you that this sorcerer is no longer in my employ. However, my information leads me to believe that you are rather anxious to locate him. It is possible I may be of some assistance to you in your search. I might be in a position to inform you as to Master Ewen's present whereabouts. After all, we are all of us reasonable men, are we not?"

"I am afraid your information is superfluous, my lord . . ." Lord Darcy began.

At that point the door of the office was flung open and Lord John Quetzal burst in. "Look out! He's moving! He knows he's being betrayed!" he shouted.

Even as he spoke, the rear door was swinging open. Master Ewen MacAlister ran out, heading for the door that led to freedom. Only Lord John Quetzal stood between him and that door. The black sorcerer gestured with one hand toward the young Mechicain.

Lord John Quetzal threw up his hand to ward off the spell that had been cast, but his journeyman's powers were not the equal of those of a Master. His own shielding spell softened the blow, but could not completely stop it. He staggered and fell to his knees. He did not collapse, but his eyes glazed over and he remained in his kneeling position, unmoving.

But his moment of resistance, slight though it was, was enough to slow Master Ewen's flight. The bogus Prince of Vladistov was already in action. Master Sean O Lochlainn ripped off his false beard and allowed his eyeglass to drop to the floor.

Lord Darcy did not move. It took every ounce of his self-control to keep his pistol fixed firmly on the Sidi al-Nasir. The Moor also remained motionless. He did not even glance away from the muzzle of Lord Darcy's pistol.

The black sorcerer spun around to face Master Sean and gestured with one hand, describing an intricate symbol in the air with a flourish of his fingers, his features contorted in strained grimace.

Lord Darcy and everyone else in the room felt the psychic blast of that hastily conjured spell. Master Ewen's hours in hiding had obviously been spent in conjuring up the spells he would need to defend himself when the time came.

Master Sean O Lochlainn, toward whom the spell was directed, seemed to freeze for perhaps half a second. But he, too, had prepared himself, and he had the further advantage of having known the identity of his prey, while Master Ewen had no way of knowing—except by conjecture—who would come after him.

Master Sean's hand moved, creating a symbol in the air.

Master Ewen blinked, gritted his teeth and, from somewhere beneath

his cloak, drew a long white wand.

No one else in the room, not even Lord Darcy, could move. They held their positions partly because of the psychic tension in the air around them, partly because they wanted to see the outcome of this duel between two master magicians, but primarily because the undirected corona effects of the spells themselves held them enthralled.

Except for Master Sean, no one there recognized the white wand that Master Ewen drew. But Master Sean saw it, recognized it as having been made from a human thigh bone, and in an instant had prepared a counterspell. The thighbone-wand was thrust out, and Master Ewen's lips moved malevolently.

The corona effect of the spell went beyond the immediate area. Outside in the gaming rooms, the players seemed to freeze for a moment. Then, for no apparent reason, the heavy bettors put their money on odds-on bets. One young scion of a wealthy family put fifty golden sovereigns on a bet that would have netted him a single silver sovereign if he had won.

And in al-Nasir's office, Lord John Quetzal suddenly blinked his eyes and looked away, Lord Ashley started to draw his sword, Sidi al-Nasir himself moved groggily away from his desk; and Lord Darcy's hand quivered on the grip of the Heron .36, keeping it aligned on the Sidi, but not firing.

But Master Sean had warded off

the effectiveness of even that spell, which was designed to make him take a stupid chance.

With great determination, he stalked toward Master Ewen, and his voice was hard and cold as he said, "In the Name of the Guild, Master Ewen—*yield!* Otherwise I shall not be responsible for what happens."

Master Ewen's reply contained three words—words which were furious, foul and filthy.

Again that whitened thighbone-wand stabbed out.

And again Master Sean stood the brunt of that terrible psychic shock. Without a wand, without anything save his own hand, Master Sean made the final effective gesture of the battle.

But not the final gesture, for Master Ewen repeated himself. He stepped forward, and again jabbed with his chalk-white wand.

Then he stepped forward once more.

Another jab.

Another step.

Another jab.

Another step.

Master Sean moved to one side, watching Master Ewen.

The jabs of the black sorcerer's wand were no longer directed toward the tubby little Irish sorcerer but toward the point in space where he had been.

Master Sean took a deep breath. "I'd better catch him before he runs into the wall."

Lord Darcy did not move the muzzle of his weapon from Sidi al-Nasir. "What is he doing?" he asked.

"He's trapped in a time cycle, my lord. I've tied his thought processes in a knot. They go round and round through their contortions and end up where they started. He'll keep repeating the same useless notions again and again until I pull him out of it."

In spite of Master Ewen MacAlister's apparently thaumaturgical gestures, everyone could feel that the corona effect was gone. Whatever was going on in the repeating cycle inside Master Ewen's mind, it had no magical effect.

"How is Lord John Quetzal?" Lord Darcy asked.

"Oh, he'll be all right as soon as I release him from that daze spell."

"Magnificently done, Master Sean," said Lord Darcy. "My Lord Ashley," he said to the Naval Commander, "will you be so good as to go to the nearest window, identify yourself, and shout for help? The place is completely surrounded by the Armsmen of London."

XXI

Sir Frederique Bruleur, the senechal of the Palace du Marquis, brought three cups of caffè into my lord de London's office. The first was placed on the center of My Lord Marquis's desk, the second on the center of Lord Bontrionphe's desk, the third on the corner of Lord

Bontrionphe's desk near the red leather chair where Lord Darcy was seated. Then Sir Frederique withdrew silently.

My Lord Marquis sipped at his cup, then glowered at Lord Darcy. "You insist upon this confrontation, my lord cousin?"

"Can you see any other way of getting the evidence we need?" Lord Darcy asked blandly. He had wanted to discuss the problem earlier with the Marquis of London, but the Marquis insisted that no business should be discussed during dinner.

The Marquis took another sip at his cup. "No, I suppose not," he agreed. He focused his gaze upon Lord Bontrionphe. "You now have Master Ewen locked up. Securely, I presume?"

"We have three Master Sorcerers keeping an eye on him," Lord Bontrionphe said. "Master Sean has put a spell on him that will keep him in a total daze until we get around to taking it off. I don't know what more you want."

The Marquis of London snorted. "I want to make certain he doesn't get away, of course." He glanced at the clock on the wall. "It has now been three hours since you made your arrests at the *Manzana de Oro*. If Master Ewen is still in his cell I will concede that you have him properly guarded. Now: What information did you get?"

Lord Bontrionphe turned a hand palm up. "Master Ewen admits almost everything." He knows we

have him on an espionage charge; he knows that we have him on a charge of Black Magic; he knows that we have him on a charge of thaumaturgical assault and attempted murder against the person of the Demoiselle Tia Einzig.

"He admits to all that, but refuses to admit to a charge of murder. Until Master Sean put him under a quieting spell, he was talking his head off—admitting everything, as long as it would not put his neck in a noose."

"*Pah!* Naturally he would attempt to save his miserable skin. Very well. What happened? I have your reports and My Lord Darcy's reports. From the facts, the conclusions are obvious. What do you say?" He looked straight into Bontriomphe's eyes.

Lord Bontriomphe shrugged. "I'm not the genius around here. I'll tell you what Chief Hennely thinks. I'll give you *his* theory for what it's worth. But mind you, I don't consider that it is accurate in every detail. But Chief Master-at-Arms Hennely has discussed this with Commander Lord Ashley and with Captain Smollett, so I give you their theory for what *it's* worth."

The Marquis glanced at Lord Darcy, then looked back at Lord Bontriomphe. "Very well. Proceed."

"All right. To begin with, we needn't worry about the murder in Cherbourg. It was committed by a Polish agent detailed for the purpose, simply because they discovered that Barbour was a double

agent—and our chances of finding the killer are small.

"The killer of Master Sir James is another matter. Here, we know who the killer is, and we know the tool he used.

"We know that the Demoiselle Tia was being blackmailed, that Master Ewen threatened to have her uncle tortured and killed if she did not obey orders. Defying those orders, she went to Sir James Zwinge, and told him everything—including everything she knew about Master Ewen. Naturally, MacAlister had to dispose of Sir James, even though that would mean that a new head of the European Intelligence network would be appointed, and that the Poles would have to repeat all the work of discovering the identity of his successor as soon as the Navy appointed one."

He looked over at Lord Darcy. "As to *how* it was done, the important clue was that half-moon bloodstain that you pointed out to me." He looked back at the Marquis. "You see that, don't you? It was a heel print. And there was only one pair of shoes in the hotel that could have made such a print—the high-heeled shoes of Tia Einzig.

"Look at the evidence. We know, from Master Sean O Lochlainn's report, that Master Sir James was stabbed—not at 9:30 when he screamed—but at approximately nine o'clock, half an hour before. The wound was not immediately fatal."

He glanced back at Lord Darcy. "Sir James lay there, unconscious, for half an hour—and then, when he heard Master Sean's knock, he came out of his coma long enough to shout to Master Sean for help. He lifted himself up, but this last effort finished him. He dropped and died. Do you agree?"

"Most certainly," said Lord Darcy. "It could not have happened in any other way. He was stabbed at nine—or thereabouts—but did not die until half past.

"The chirurgical evidence of the blood, and the thaumaturgical evidence of the time of psychic shock demonstrate that clearly.

"But you have yet to explain how he was stabbed inside a locked room at nine o'clock—or at any other time. The evidence shows that there was no one else in that room when he was stabbed. What is your explanation for that?"

"I hate to say it," said Lord Bontrionphe, "but it appears to me that Master Sean's testimony is faulty. With another master sorcerer at work here, the evidence could have been fudged. Here's what happened: Master Ewen, knowing that he had to get rid of Mistress Tia, decided to use her to get rid of Master Sir James at the same time. He put her under a spell. She talked her way into Master Sir James's room, used his own knife on him when he least suspected it, and walked out, leaving that half-moon heel print near the door."

Lord Bontrionphe leaned back in his chair. "As a matter of cold fact, if it were not for that heel print, I would say that Master Ewen put Master Sir James under a spell which forced him to stab himself with that contact cutter.

"Naturally, he would fumble the job. Even under the most powerful magic spell it is difficult to force anyone to commit suicide."

He glanced at Lord Darcy. "As you yourself noticed with the Demoiselle Tia, my lord; although she was induced to jump off the bridge, she nevertheless fought to keep herself afloat after she struck the water."

"Yes, she did," Lord Darcy agreed. "Go on."

"As I said," Lord Bontrionphe continued, "if it weren't for that heel print, I would say that Sir James was forced to suicide by Black Magic." He shrugged. "That still may be possible, but I'd like to account for that heel print. So, I say that the Demoiselle Tia stabbed him and walked out, and that Master Ewen used sorcery to relock the door from the room above. I don't say that she is technically guilty of murder, but certainly she was a tool in Master Ewen's hands."

The Marquis of London snorted loudly and opened his mouth to say something, but Lord Darcy held up a warning hand. "Please, my lord cousin," he said mildly. "I think it incumbent upon us to listen to the

rest of Lord Bontrionphe's theories. Pray continue, my lord," he said, addressing the London investigator.

Lord Bontrionphe looked at him bitterly. "All right; so you two geniuses have worked everything out. I am just a legman; I've never claimed to be anything else. But—if you don't like those theories, here's another."

He took a deep breath and went on. "We arrested Master Sean in the first place on the rather flimsy evidence that he and Sir James had both worked out a way to manipulate a knife by thaumaturgical means. Now suppose that was done? Suppose that is the way Sir James was killed? Who could have done it?" He spread a hand.

"I won't say Sir James did—although he could have. But, to assume that he took such a roundabout way of committing suicide would be, in the words of my lord the Marquis, fatuous. To think that it happened by accident would be even more fatuous.

"Or my lord may think of another adjective; I won't quibble.

"We know that Master Sean did not do it, because it would have taken at least three quarters of an hour to prepare the spell, and, according to Grand Master Sir Lyon, there could not be more than one wall, or other material barrier, between the sorcerer and his victim—and certainly Master Sean could not have stood out in that hall, going through an intricate spell like that

for half an hour or more, without being noticed. Besides, he wasn't even in that hall at that time." He waved a hand. "Forget Master Sean."

"Good of you," murmured Lord Darcy.

"Who is left? Nobody that we know of. But couldn't Master Ewen have figured out the process? After all, if two Master magicians can figure it out separately, why not a third? Or maybe he stole it; I don't know. But isn't it possible that Master Ewen forced the weapon into Master Sir James's chest?"

Lord Darcy started to say something, but this time it was the Marquis of London who interrupted.

"Great God!" he rumbled. "And it was I who trained this man!" He swiveled his massive head and looked at Lord Bontrionphe. "And pray, would you explain what happened to the weapon? Where did it disappear to?"

Lord Bontrionphe blinked, said nothing, and turned his eyes to Lord Darcy.

"Surely you see," said Lord Darcy calmly, "that the contact cutter which lay beside Sir James's body—and which, by the bye, was the only edged weapon in the room—could not possibly have been the murder weapon. You *did* read the autopsy report, did you not?"

"Why, yes, but—"

"Then surely you see that a blade in the shape of an isosceles triangle—two inches wide at the base, and

five inches long—could not have made a stab wound five inches deep if the cut it made was less than an inch wide.

“Even more important—as I pointed out to Master Sean earlier today—a knife of pure silver, while harder than pure gold, is softer than pure lead. Its edges would certainly have been noticeably blunted if it had cut into two ribs. And yet, the knife retained its razor edge.

“It follows that Master Sir James was not killed by his own contact cutter—further, that the weapon which killed him was not in the room in which he died.”

Lord Bontrionphe stared at Lord Darcy for a long second, then he turned and looked at the Marquis of London. “All right. As I said, I didn’t like those hypotheses, because they don’t explain away the heel print—and now they don’t explain the missing knife. So I’ll stick to my original theory, with one small change: Tia brought her own knife and took it away with her.”

The Marquis of London did not even bother to look up from his desk. “Most unsatisfactory, my lord,” he said, “most unsatisfactory.” Then he glanced at Lord Bontrionphe. “And you intend to put the blame on the Demoiselle Tia? Hah! Upon what evidence?”

“Why—upon the evidence of her heel print.” Lord Bontrionphe leaned forward. “It was Master Sir James’s blood, wasn’t it? And how

could she have got it on her heel except after Master Sir James bled all over the middle of the floor?”

The Marquis of London looked up toward the ceiling. “Were I a lesser man,” he said ponderously, “this would be more than I could bear. Your deductions would be perfectly correct, Bontrionphe—if that were the Demoiselle Tia’s heel print. But, of course, it was not.”

“Whose else could it have been?” Bontrionphe snapped. “Who else could have made a half-moon print in blood like that?”

My lord the Marquis closed his eyes and, obviously addressing Lord Darcy, said: “I intend to discuss this no further. I shall be perfectly happy to preside over this evening’s discussion—especially since we have obtained official permission for it. I shall return when our guests arrive.” He rose and headed toward the rear door, then he stopped and turned. “In the meantime, would you be so good as to dispel Lord Bontrionphe’s fantasy about the Demoiselle Tia’s heel print?” And then he was gone.

Lord Bontrionphe took a deep breath and held it. It seemed a good three minutes before he let it out again—slowly.

“All right,” he said at last, “I told you I wasn’t the genius around here. Obviously you have observed a great deal more in this case than I have. We’ll do as my lord of London has agreed. We’ll get them all up here and talk to them.”

Then, abruptly, he slammed the flat of his hand down upon the top of his desk. "But—by *Heaven*, there's one thing I want to know before we go on with this! Why do you say that that heel print did not belong to the Demoiselle Tia?"

"Because, my dear Bontrionphe," said Lord Darcy carefully, "it was not a heel print." He paused.

"If it had been, the weight of the person wearing the heel would have pressed the blood down into the fiber of the rug; and yet—you will agree that it did not? That the blood touched only the top of the fibers, and soaked only a little way down?"

Lord Bontrionphe closed his eyes and let his exceptional memory bring up a mental picture of the bloodstain. Then he opened his eyes. "All right. So I was wrong. The bloodstain was not a heel print. Then where did I make my mistake?"

"Your error lay in assuming that it was a bloodstain," said Lord Darcy.

Lord Bontrionphe's scowl grew deeper. "Don't tell me it *wasn't* a bloodstain!"

"Not exactly," said Lord Darcy. "It was only *half* a bloodstain."

XXII

There were nine guests in the office of my lord the Marquis of London that night. Sir Frederique Bruleur had brought in enough of the yellow chairs to seat eight. Lord

Bontrionphe and the Marquis sat behind their desks. Lord Darcy sat to the left of Bontrionphe's desk, in the red leather chair, which had been swiveled around to face the rest of the company. From left to right, Lord Darcy saw, in the first row, Grand Master Sir Lyon Gandolphus Grey, Mary Dowager Duchess of Cumberland, Captain Percy Smollett, and Commander Lord Ashley. And in the second row, Sir Thomas Leseaux, Lord John Quetzal, Father Patrique, and Master Sean O Lochlainn. Behind them, near the door, stood Chief Master-at-Arms Hennely Grayme, who had told Sir Frederique that he preferred to stand.

Sir Frederique had served drinks all around, then had quietly retired.

My Lord the Marquis of London looked them all over once and then said: "My lords, Your Grace, gentlemen." He paused and looked them all over once again. "I will not say that it was very good of you to come. You are not here by invitation, but by fiat. Nonetheless, all but one of you have been asked merely as witnesses to help us discover the truth, and all but that one may consider yourselves my guests." He paused again, took a deep breath, and let it out slowly. "It is my duty to inform you that you are all here to answer questions if they are put to you—not simply because I, as Lord of London, have requested your cooperation, but, more im-

portant, because you are here by order of our Most Dread Sovereign, His Majesty the King. Is that understood?"

Nine heads nodded silently.

"This is, then," my lord Marquis continued, "a Court of Inquiry, presided over by myself as Justice of the King's Court. Lord Bontrionphe is here as Clerk of the King's Court. This may seem irregular but it is quite in accord with the law. Is all of *that* understood?" Again, there were nine silent nods of assent. "Very well. I hardly think I need say—although by law I must—that anything anyone of you says here will be taken down by Lord Bontrionphe in writing, and may be used in evidence.

"The Reverend Father Patrique, O.B.S., is here in the official capacity of *amicus curia*, as a registered Sensitive of Holy Mother Church.

"As official Sergeant-at-Arms, we have Chief Master-At-Arms Hen-nely Grayme of this City.

"Presenting the case for the Crown is Lord Darcy, at present of Rouen, Chief Investigator for His Royal Highness, Prince Richard, Duke of Normandy.

"Although this Court has the power to make a recommendation, it is understood that anyone accused may appeal without prejudice, and may be represented in such Court as our Most Dread Sovereign His Majesty the King may appoint, by any counsel such accused may choose."

My lord Marquis took another deep breath and cleared his throat. "Is all of *that* quite clear? You will answer by voice." And a ragged chorus of voices said, "Yes, my lord."

"Very well." He heaved his massive bulk up from his chair, and everyone else stood. "Will you administer the oath, Reverend Father," he said to the Benedictine. When the oath had been administered to everyone there, my lord the Marquis sat down again with a sigh of comfort. "Now, before we proceed, are there any questions?"

There were none.

The Marquis of London lifted his head a fraction of an inch and looked at Lord Darcy from beneath his brows. "Very well, my Lord Advocate. You may proceed."

Lord Darcy stood up from the red leather Moorish chair, bowed in the direction of the Court, and said, "Thank you, my Lord Justice. Do I have the Court's permission to be seated during the presentation of the Crown's case?"

"You do, my lord. Pray be seated."

"Thank you, my lord." Lord Darcy settled himself again in the red leather chair.

His eyes searched each of the nine in turn, then he said, "We are faced here with a case of treason and murder.

"Although I am aware that most of you know the facts, legally I

must assume that you do not. Therefore, I shall have to discuss each of those facts in turn. You must understand that the evidence proving these facts will be produced after my preliminary presentation.

"Three days ago, shortly before eleven o'clock on the morning of Tuesday, October 25, Anno Domini One Thousand Nine Hundred and Sixty-Six, a man named Georges Barbour was stabbed to death in a cheap rooming house in Cherbourg. Evidence which will be produced before this Court will show that Goodman Georges was a double agent; that is, he was a man who, while pretending to work for the Secret Service of His Slavonic Majesty King Casimir IX, was also in the pay of our own Naval Intelligence, and was, as far as the evidence shows, loyal to the Empire. Will you testify to that, Captain Smollett?" he asked, looking at the second chair from his right.

"I will, m'lud Advocate."

"Very shortly after he was killed," Lord Darcy went on, "Commander Lord Ashley of the Naval Intelligence Corps reported the discovery of Goodman Georges' body to the Armsmen of Cherbourg. He also reported that he had been ordered to give one hundred golden sovereigns to Goodman Georges because the double agent in question needed it to pay off a certain Goodman Fitz-Jean."

Bit by bit, item by item, Lord Darcy outlined the case to those

present, omitting no detail except the precise nature and function of the confusion projector. Lord Darcy described it simply as a "highly important Naval secret."

He described the discovery of the murder of Sir James Zwinge, the attack upon the Demoiselle Tia, the fight upon the bridge, the Demoiselle Tia's statement, the discovery of the body of Goodman Paul Nichols, and the search for and arrest of Master Ewen MacAlister.

"The questions before this Court," Lord Darcy said, "are: Who killed those three men: And why? It is the contention of the Crown that one person, and one only, is responsible for all three deaths."

He looked over the nine faces before him, trying to assess the expressions on their faces. Not one betrayed any sign of guilt, not even the one whom Lord Darcy knew was guilty.

"I see you have a question, Captain Smollett. Would you ask it, please? No, don't bother to rise."

Captain Smollett cleared his throat. "M'lud." He paused, cleared his throat again. "Since we already have the guilty man under arrest, may I ask why this inquiry is necessary?"

"Because we do not have the guilty man under arrest, Captain. Master Ewen, no matter what his actual crimes, is not guilty of a single murder—much less a triple one."

Captain Smollett said "Um," and nothing more.

"You have before you, my lords, Your Grace, gentlemen, every bit of pertinent evidence. It is now the duty of myself as Advocate of the Crown to link up that evidence into a coherent chain. First, let us dismiss the theory that Master Ewen MacAlister was more than remotely connected with these murders. Master Ewen was, it is true, an agent of His Slavonic Majesty, working with the owner of the *Manzana de Oro*, the Sidi al-Nasir. This evidence can be produced later; let us merely accept these facts as true."

He turned to the Chief of Naval Intelligence. "Captain Smollett."

"Yes, m'lud?"

"I wish to put to you a hypothetical question, and for the sake of security let us keep it hypothetical. *If . . . I say, if . . . you were aware of the identity of the Polish Chief of Intelligence for France and the British Isles, would you order him assassinated?*"

Captain Smollett's eyes narrowed. "No, m'lud, never."

"Why not, Captain?"

"It would be stupid, m'lud. Yes. As long as we know who he is . . . uh . . . if we knew who he was . . . it would be much more to our advantage to keep an eye on him, to watch him; to see to it, in fact, that he got the information that we wanted him to have, rather than the information he wants. Also, our knowing the Chief of Polish Intelligence would lead us to his agents. It is much easier to keep the body

under surveillance when one can identify the head, m'lud."

"Then would you say, Captain, that it would be very stupid of Polish Intelligence to have murdered Master Sir James Zwinge?"

"Very stupid, m'lud. Wouldn't be at all good Intelligence tactics. Not at all." For a moment, Captain Smollett blinked solemnly, digesting this new thought.

"Not even if Master Sir James had discovered that Master Ewen was working for the Poles?" Lord Darcy asked.

"Hm-m-m. Probably not. Much better to pull Master Ewen out, move him to another post, give him a new identity."

"Thank you, Captain Smollett."

"Now. As you have seen," his words took in the entire company, "there is some question about whether Master Ewen could have committed this crime by Black Magic, and so skillfully hidden the evidence thereof that his complicity in the crime was undetectable. I put it to you, my lords, Your Grace, gentlemen, that he could not.

"Father Patrique." He looked at the Benedictine.

The priest bowed his head. "Yes, my lord?"

"You have examined Master Ewen since his arrest, Reverend Father?"

"I have, my lord."

"Is Master Ewen's Talent as strong, as powerful, as effective as

that of Master Sean O Lochlainn?"

"My lord Advocate . . ." The good father then turned his attention to my lord of London. ". . . And may it please the Court . . ."

"Proceed, Reverend Sir," said my lord the Marquis.

". . . I feel that, while my own testimony is adequate, it is not the best. In answer to your direct question, my lord, I must say that Master Ewen's Talent is weaker, far poorer, than that of Master Sean O Lochlainn.

"But I put it to you, my lords, that this is not the best evidence. Observe, if you will, the relative ease with which Master Sean conquered Master Ewen in the battle of wills at the *Manzana de Oro*. Observe how very simple it was to break the spells on Master Ewen's room lock and upon the carpetbag in which he carried his tools. I beg your pardon, my lord Advocate, if I am out of order."

"Not at all, Reverend Sir," said Lord Darcy. "But I will ask you once more. Will you testify that Master Sean's Talent is much more powerful than Master Ewen's?"

"It is, my lord."

Lord Darcy looked at Grand Master Sir Lyon Gandolphus Grey.

"Have you anything to add to this, Grand Master?"

Sir Lyon nodded. "If it please the Court, I should like to put a question to Commander Lord Ashley."

"Permission granted," rumbled de London. "Ask your question."

"My lord Commander," said Sir Lyon. "You have described to the investigators the use by Master Ewen of the Tarnhelm Effect upon his smallsword. Would you—"

"One moment," said Lord Darcy. "I should like my lord Commander to testify directly. If you would, Lord Ashley?"

"Of course, my lord."

Lord Darcy looked at Sir Lyon. "You want a description of the battle on Somerset Bridge, Sir Lyon?"

"Yes, if you please, my lord."

Lord Darcy looked at Lord Ashley. "If you will, my lord Commander."

Lord Ashley described exactly the sword fight on the bridge.

Then Sir Lyon said, "With the Court's permission I should like to ask the witness a question or two."

"Granted," said my lord de London.

"My lord Commander," said Sir Lyon, "what kind of sword was Master Ewen using?"

"A smallsword, Grand Master. A sword with a triangular cross section—no edge—about two and a half feet in length—very sharp point."

Sir Lyon nodded. "You saw it. Then, when he began to use it, it disappeared?"

"Not exactly disappeared, Sir Lyon," Lord Ashley said. "It . . . it flickered. I . . . I find it difficult to explain. It is simply that I couldn't keep my eyes on it. But I knew it was there."

"Thank you, Commander," said

Sir Lyon. "Now, if the Court will permit, I will give my testimony. A really powerful sorcerer, such as Master Sir James or Master Sean O Lochlainn—"

"Or yourself?" Lord Darcy asked suddenly.

Sir Lyon smiled. ". . . Or myself, if you insist, my lord Advocate. Any powerful sorcerer could have made his sword so completely invisible as to be totally undetectable."

"Thank you," said Lord Darcy. "The question I wish to put before the Court is this: Is it possible that a man of Master Ewen's limited Talent—even though it was of Master grade—could have acted out a rite of Black Magic and then covered it up to such an extent that neither Master Sean O Lochlainn nor the combined Talents of the other Masters of the Guild at the Convention could have failed to discover what he had done?"

"Absolutely impossible, my lord," said Sir Lyon firmly.

Lord Darcy glanced back at the Benedictine priest. "What say you, Reverend Father?"

"I agree completely with Grand Master Sir Lyon," Father Patrique said quietly.

Lord Darcy turned to look at the Marquis of London. "Is there any need at this point, my lord, to call to the Court's attention the testimony of Master Sean O Lochlainn, Master Sorcerer, that he could detect no Black Magic involved in the

murder of Master Sir James Zwinge?"

"You may proceed, my lord. If such evidence becomes necessary, Master Sean's testimony will be called for if and when it is needed."

"Thank you, my lord. We have"—Lord Darcy paused and looked the group over again—"then the evidence before us that Sir James Zwinge was killed by ordinary physical means. There was no Black Magic involved in the murder of Sir James Zwinge, and yet the evidence shows that he was alone in his room when he was stabbed at approximately nine o'clock and when he died half an hour later. Now, how could that be?"

"I put it to you that we are far too prone to accept a magical explanation, when a simply material explanation will do."

He leaned back in his chair, but before he could say anything, Sir Thomas Leseaux raised his hand. "If I may, my lord, I should like to say that any theory of this murder which includes thaumaturgical processes would be mathematically impossible—but I do not see how a man could have been killed in the middle of a locked room by ordinary material means."

"That is why I must explain the Crown's case," said Lord Darcy. "Although, I repeat, the evidence is all before you."

"The point we have all tended to overlook is that a man need not be in the same room with another in

order to kill him. There was no one else in Goodman Georges Barbour's room when he was stabbed, true—and yet he fell so near the door that it is not quite possible but very probable that someone standing in the hall stabbed him.”

“Come now,” said Commander George Ashley, “that may be possible with Goodman Georges, but it certainly does not apply to Master Sir James.”

“Oh, but it does, my lord Commander,” Lord Darcy said. “Given the proper implement, Master Sir James might easily have been stabbed from the hallway outside his room.”

“But—through a locked door?” asked Lord John Quetzal.

“Why not?” asked Lord Darcy. “Locked doors are not impermeable. The doors to the rooms in the Royal Steward are very old—couple of centuries or more. Look at the size of the key required to open them. And then look at the size of the keyhole required to admit such a large, heavy key. Although the door to Sir James's room was locked, its keyhole was easily large enough to admit a one-inch wide blade.”

Lord Darcy looked at Master Sean O Lochlainn. “You have a question, Master Sean?”

“That I do, my lord. I agree with you that the blade that stabbed Master Sir James came in through the keyhole. At your suggestion, I took scrapings from the keyhole and found traces of Sir James's blood.

But”—he smiled a little—“if your lordship will pardon me, I suggest a demonstration of how a man could be given a high downward stab through a keyhole.”

“I agree,” said Lord Darcy. “First, I must direct the Court's attention to the peculiar bloodstain near the door. A full description of that bloodstain appears in the written record.”

My lord the Marquis nodded. “It does. Proceed, my lord Advocate.”

Lord Darcy turned and looked to his right at Lord Bontrionphe. “Would you ask Sir Frederique to bring in the door?”

Lord Bontrionphe reached behind him and pulled a cord. The rear door opened and Sir Frederique Bruleur, followed by an assistant, brought in a heavy oaken door. They placed it in the center of the room between the area of yellow chairs and the Marquis's desk, and held it upright.

“This demonstration is necessary,” said Lord Darcy. “This door is exactly similar to the one on Sir James's room. It is taken from another room of the Royal Steward Hotel. Can all of you see both sides of it? Good.”

“Master Sean, would you do me the favor of playing the part of your late colleague?”

“Of course, my lord.”

“Excellent. Now, you will stand on”—he gestured—“*that* side of the door, so that the door handle



and keyhole are on your *left*. For the purposes of this demonstration, I shall play the part of the murderer." He picked up a sheet of paper from Lord Bontrionphe's desk. "Now, let's see. Lord Ashley, might I borrow your sword?"

Without a word, Commander Ashley drew his narrow-bladed Naval sword from its sheath and presented it to Lord Darcy.

"Thank you, Commander. You have been most helpful throughout this entire investigation.

"Now, Master Sean, if you will take your place, we shall enact this small play. You must all assume that what you are about to see actually occurred, but you must not assume that the words I use were those that were actually used. There may have been slight variations."

Master Sean stood on one side of the door. Lord Darcy walked up to the other and rapped.

"Who is there?" said Master Sean.

"Special courier from the Admiralty," said Lord Darcy in a high-pitched voice that did not sound like his own.

"You were supposed to pick up the envelope at the desk," said Master Sean.

"I know, Sir James," said Lord Darcy in the same high-pitched voice, "but this is a special message from Captain Smollett."

"Oh, very well," said Master Sean, "just push it under the door."

"I am to deliver it only into your hands," said Lord Darcy, and with

that he inserted the tip of the sword blade into the keyhole.

"Just push it under," said Master Sean, "and I'll take it. It will have been delivered into my hand."

"Very well, Sir James," said Lord Darcy. He knelt and, still keeping the tip of the sword blade in the keyhole, he pushed the paper underneath the door.

Master Sean, on the other side, bent over to pick it up.

And, at that point, Lord Darcy thrust forward with the sword.

There was a metallic scrape as the sword point touched Master Sean's chest.

Immediately Lord Darcy pulled the sword back. Master Sean gasped realistically, staggered back several feet, then fell to the floor. Lord Darcy pulled the paper from beneath the door and stood up.

"Master Sean," he said, "happens to be wearing an excellent shirt of chain mail—which, unfortunately, Master Sir James was not.

"You see, then, what happened. Master Sir James, bending over to pick up the proffered envelope, presented his left breast to the keyhole.

"The sword came through and stabbed him. A single drop of his blood fell—half of it falling upon the carpet, the other half upon the presumed message. The blade itself would stop the flow of blood until it was withdrawn and Master Sir James staggered back away from the door.

"He collapsed in a state of shock.

His wound, though deep, was not immediately dangerous, since the blade had not severed any of the larger blood vessels, nor pierced the lung. There was some bleeding, but not a great deal. He lay there for approximately half an hour.

"The weapon had, however, cut the wall of the great pulmonic aorta to such an extent that there was only a thin layer of tissue keeping it intact.

"At half past nine, Master Sean, who had an appointment with him at that time, rapped on the door.

"The noise of the knocking roused Master Sir James from his stupor. He must have known that time had passed; he must have been aware that it was Master Sean at the door. Lifting himself from the floor, he grabbed at his desk, upon which were lying the key to his room and his silver-bladed contact cutter. He cried out to Master Sean for help.

"But this increased strain was too much for the thin layer of tissue which had thus far held the walls of the pulmonic aorta together. The increased pressure burst the walls of the blood vessel, spurting forth Sir James's life blood. Sir James collapsed again to the floor, dropping the knife and his key. He died within seconds."

Master Sean arose from the floor, carefully brushing off his magician's robe. Sir Frederique and his assistant removed the door.

"If it please the Court," the Irish sorcerer said, "the angle at which

my lord Darcy's thrust struck my chest would account exactly for the wound in Sir James's body."

Lord Darcy carefully put the sword he was holding on Lord Bontrionphe's desk. "You see, then," he said, "how Master James was killed, and how he died.

"Now, as to what happened:

"We must go back to the mysterious Goodman FitzJean. That Tuesday morning, he had discovered that Goodman Georges was a double agent. It became necessary to kill him. He walked up to Goodman Georges' room and knocked on the door. When Goodman Georges opened the door, FitzJean thrust forward with a knife and killed him. Naturally, there was no evidence that anyone was in the room with Georges Barbour, simply because there wasn't. FitzJean was standing in the hallway.

"Barbour had already discovered FitzJean's identity and, earlier that morning, had sent a letter to Zed—Sir James Zwing. FitzJean, in order to keep his identity from being discovered, came here to London. Then he managed to get hold of a communication, which—so he believed—reported his identity to the Admiralty. It was, he thought, a letter to the Admiralty reporting the information from Barbour which disclosed FitzJean's identity. He immediately went up to Sir James's room, and, using that same envelope, which, of course, would identify it

as an Admiralty message, tricked Sir James into bending over near the keyhole"—Lord Darcy gestured with one hand—"with the results which Master Sean and I have just displayed to you."

His eyes moved over the silent group before him. "By this time, of course, you all realize who the killer is. But, fortunately, we have further proof. You see, he failed to see the possibility of an error in his assumptions. He assumed that a letter sent by Barbour on the morning of Tuesday, October 25th, would arrive very early in the morning of Wednesday, the 26th, the following day. He further assumed that Barbour would have sent the letter to the Royal Steward Hotel, and that Barbour's letter, plus his own communication, was what was contained in the envelope addressed to the Admiralty by Sir James Zwinge.

"But, he failed to realize that Barbour might not have known that Sir James was at the Royal Steward, that indeed it was far more probable, from that point of view, for Barbour to address the letter to Sir James here at the Palace du Marquis."

He rose from his chair and walked to the desk of the Marquis. "May I have the envelope, my lord Justice?" he asked.

Without a word, the Marquis de London handed Lord Darcy a pale blue envelope.

Lord Darcy looked at it. "This is postmarked Cherbourg. Tuesday

October 25, is marked as the posting date, and is marked as having been received on Wednesday morning, the 26th. It is addressed to Sir James Zwinge."

He turned back toward the group, and noted with approval that Chief Master-at-Arms Hennely Grayme had moved up directly behind one man.

"There was one peculiarity about these communications," he continued blandly. "Master Sir James had given to his agents special paper and ink, a special blue sealing wax, and a special seal. These had been magically treated so that unless the envelope was opened by either Master Sir James himself or by Captain Smollett, the paper within would be blank. Am I correct, Captain Smollett?"

"Yes, m'lud."

Lord Darcy looked at the envelope in his hand. "That is why this envelope has not been opened. Only *you* can open it, Captain, and we have reason to believe that it will disclose to you the identity of the so-called Goodman FitzJean—Sir James's murderer. Would you be so good as to open it?"

The Naval officer took the envelope, broke the blue seal, lifted the flap, and took out a sheet of paper. "Addressed to Sir James," he said. "Barbour's handwriting; I recognize it."

He did not read the entire letter. When he was halfway through, his head turned to his left. "You!" he

said, in a low, angry, shocked voice.

Commander Lord Ashley rose to his feet and his right hand reached toward his sword scabbard.

And then he suddenly realized it was empty, that the sword was halfway across the room, on Lord Bontrionphe's desk. At the moment of that realization, he recognized one other thing—that there was something pressed against his back.

Chief Master-at-Arms Hennely Grayme, holding his pistol steady, said, "Don't try anything, my lord. You've killed enough as it is."

"Have you anything, to say, Commander?" Lord Darcy asked.

Ashley opened his mouth, closed it, swallowed, then opened it again to speak. His eyes seemed to be focused upon something in the far distance.

"You have me, my lords," he said hoarsely. "I'm sorry I had to kill anybody, but . . . but, you would have thought me a traitor, you see. I needed the money, but I would never have betrayed the Empire. I didn't know the secret." He stopped again and put his left hand over his eyes. "I knew that Barbour was a Polish agent. I didn't know he was a double agent. I thought I could get some money from him. But I . . . I wouldn't have betrayed my King. I was just afraid someone would think I had, after that."

He stopped, took his hand down. "My lords," his voice quivered as he tried to keep it even, "I should like

to make my confession to Father Patrique. After that, I should like to make my confession to the Court."

The Marquis de London nodded at Lord Darcy. He nodded back at the Marquis. "You have the Crown's permission, my lord," said Lord Darcy, "but I must ask you to leave behind your scabbard and your jacket."

Without a word, Commander Lord Ashley dropped his sword belt on the chair behind him, removed his jacket and put it on top of it.

"Chief Hennely," the Marquis de London said, "I charge you to take this man prisoner upon his own admission. Take him to the outer room, where the Reverend Father may hear his sacramental confession. You will observe the laws pertaining thereto."

"Yes, my lord," said Chief Hennely, and the three of them left the room.

"And now, my lord Advocate," said the Marquis. "Would you kindly report the full story to the Court and the witnesses present."

Lord Darcy bowed. "I shall, my lord.

"I first began to suspect Ashley when I saw that, according to the register, he had come into the hotel at 8:48 on Wednesday, giving as his business there the delivery of a message for Master Sean—and yet *he had not even attempted to locate Master Sean until 9:25*, when he spoke to Lord Bontrionphe. But

that is neither here nor there, my lord. Here is what happened.

"As he told us, Ashley needed money. I will explain why in a few moments. He attempted to sell a secret he did not have and could not prove he had. Finally he was reduced to accepting a payment of one hundred golden sovereigns from Georges Barbour merely to identify himself.

"On Monday night when he arrived in Cherbourg, he went to Barbour to identify himself and was told that he would be paid the following morning. Then, Tuesday morning, Commander Ashley was told to take the hundred sovereigns to Goodman Georges.

"At that point, he panicked—not as you or I might think of panic, but cold, frightened panic, for that is the way Ashley's mind works.

"He knew that once he took the money to Barbour in his own *persona*, Barbour would recognize him. Besides, he knew that his scheme had fallen through, since Barbour was a double agent. So he went up to Barbour's room, and, when Barbour opened the door, Ashley stabbed him, using a cheap knife he had bought for the purpose.

"Then he reported the murder, assisted by the fact that the concierge of Barbour's rooming house had, fortunately for him, been out for a few minutes before Lord Ashley arrived. But he also found that, in the meantime, the information as to his identity had already been

sent to Zed. Therefore, he had to cut off that information; he had to prevent it from reaching the Admiralty."

Lord Darcy took a deep breath. "In a way," he said, "you might say that I assisted him. Naturally, I did not know at that time that Ashley was a killer. Therefore, I made a request that he transmit a message to Master Sean. That enabled him to get into the Royal Steward Hotel.

"At 6:30 Wednesday morning, the mail from Cherbourg was delivered to the Royal Steward. Master Sir James picked up his at 7:00. Then, having decoded the messages he received, he went down to the desk and asked a man whom he trusted, Goodman Paul Nichols, to hold an envelope for an Admiralty courier, and at the same time he sent one of the hotel boys to the Admiralty with a message for Smollett to pick up the packet.

"Sir James returned to his room, followed by the Demoiselle Tia. There followed the discussion and argument which all of you have heard of. When Tia left, Master Sir James locked his door for the last time. At 8:48 Lord Ashley arrived, ostensibly looking for Master Sean. He walked up to the registration desk and started to ask for Master Sean. But Paul Nichols immediately assumed that he was the courier from the Admiralty."

Lord Darcy gestured with an open hand. "This can't be proved, of course, but it fits in precisely.

Nichols must have said something like this: 'Ah, Commander, you are the courier from the Admiralty to pick up Sir James's packet? And what could Lord Ashley do? He said, 'Yes.' He took the packet. Sir James's room number was on the outside of that envelope, and Lord Ashley went directly to that room.

"Then he and Sir James played out some version of the little act that Master Sean and I enacted."

He made a slight gesture with one hand. "And there I should like to point out a peculiar thing. Murderers are quite often—more often than we like to think—very lucky. It is quite possible that sheer luck could have allowed an ordinary person to kill Sir James in the precise manner in which he *was* killed. An ordinary person, if luck were with him, could have made that thrust through the door after having decoyed Sir James into just the right position, and the results would have been the same as they actually were.

"But that was not the way that Commander Ashley operated. The Commander has one advantage: Occasionally, in times of emotional stress, he is able to see a short time into the future.

"I call your attention again to that keyhole. The door is thick. The keyhole, though large enough to admit the blade of a Naval sword, allows very little play for it. There is no way to aim that blade except in the direction the keyhole guides it.

"Even when Sir James was maneuvered into position by the Commander's use of the letter under the door, the odds against Sir James's being in precisely the right position were formidable.

"Just think of the positions it is possible to take to pull a piece of paper from under a door.

"The attitude which Sir James actually assumed is the most likely one, but would any reasonably intelligent murderer depend upon it? I think not.

"This, then, was another of the many clues which led me to identify Commander Lord Ashley as the murderer. Because of the emotional tension he was undergoing, his prophetic ability allowed him to *know*—knew beyond any shadow of a doubt—precisely where Sir James would be and when he would be there. And he knew exactly what he would have to do to get Sir James into that position.

"Sir James would not allow Commander Ashley in the room; he would not unlock the door for him. Therefore, Ashley had to kill him by the only means available. And because of his touch of the Talent, he was able to do so.

"The sword went through the key hole in a straight line. A single drop of blood fell—half of it on the carpet, the other half on the envelope.

"I think that is perfectly clear. Lord Ashley then returned the envelope to his pocket and his sword to his sheath. That is why I asked

him to leave both jacket and scabbard."

He gestured toward the chair where the Commander had left his sword belt and jacket. Master Sean had already looked the jacket over.

"You were right, my lord," he said, "there's a smear on the inside of his jacket pocket, and I have no doubt that there'll be another inside the scabbard."

"Nor do I," agreed Lord Darcy. "Let me continue. At that point, Lord Ashley realized something else. He realized that one man—and *one* man only—knew that he had picked up that packet.

"I don't know exactly how Paul Nichols died, but I respectfully suggest to the Court that it was something like this:

"Commander Lord Ashley arrived back in the lobby just at 9:00 and saw Nichols leaving. The hallway toward the back door is easily visible from the lobby; he must have seen Nichols leaving his own office.

"He went back and told Nichols some kind of story, and lured him into the furniture room. A quick blow to the head and a rope around the neck"—Lord Darcy snapped his fingers—"and Goodman Paul Nichols was eliminated as a witness.

"Then, I think, panic must have struck Lord Ashley again. Standing there in that closet, over the body of a man he had just strangled, he wanted to see what was in that packet. He tore it open, scattering pieces

of blue sealing wax over the body of the man he had just killed.

"And, of course, he saw nothing, for the papers came out a total blank. I presume he burnt those papers later. It would have been the intelligent thing to do.

"But he still had one more thing to do. He had to relay my message to Master Sean.

"He found Lord Bontrionphe in the lobby and—well, you all know what happened after that.

"However, I'd like to point out in passing that Lord Ashley actually *returned* to the lobby around 9:10, although he did not speak to Bontrionphe until 9:25. The obvious assumption is that he was afraid to speak to any sorcerer for fear that his emotional state would give him away, and that not until he saw Lord Bontrionphe could he find the courage to speak to anyone."

Captain Smollett raised his right hand and the golden stripes of rank at his cuff gleamed in the gaslight. "A question, m'lud, if I may." His normal hearty complexion now seemed somewhat grayed. It is not easy for the head of an Intelligence operation to discover that one of his most trusted men has betrayed him.

"Of course, Captain. What is it?"

"I think I understand what the Commander did and how he did it. What I don't understand is *why*. D'you have any idea, my lord?"

"Until just a few hours ago, Captain, that was the main thing that bothered me. His motive was a de-

sire for money. As a matter of fact, a conversation I had with him yesterday at the Admiralty showed that he could only think of betrayal in terms of money. Every motive that he attributed to other possible suspects had a monetary basis.

"But, until the raid at the *Manzana de Oro* I did not understand the motive behind the motive. I did not know why he needed money so badly.

"Master Ewen MacAlister has made a full confession, and since this is merely a Court of Inquiry I can tell you what it contained without bringing him here as a witness." He paused and smiled. "At the moment, I am afraid that Master Ewen is in no condition to appear as a witness."

He placed the tips of his fingers together and looked down at the toes of his boots. "Master Sorcerer Ewen MacAlister, in the pay of the Polish Government, was working with the Sidi al-Nasir of the *Manzana de Oro* to obtain Commander Lord Ashley's services as a Polish agent by blackmailing him.

"When the wheel spins—when the card turns—when the dice tumble—a gambler feels a momentary surge of psychic tension. That is why the gambler gambles—because of the thrill. Lord Ashley's advantage was that when these surges of tension came, he was occasionally able to see what the winning play would be.

"Not often, mind you; the ten-

sion was not that great. But it gave the Commander what gamblers call an 'edge.' The odds in his favor were increased. The Commander won when he played—not always, and not spectacularly, but regularly.

"The Commander's rare ability, of course, is not detectable by the sorcerers who work in any gambling club. It cannot even be detected by a Master Sorcerer." He looked at Sir Thomas Leseaux. "Am I correct, Sir Thomas?"

The theoretical thaumaturgist nodded. "You are correct, my lord. That particular form of the Talent, since it deals with time, and since it is passive rather than active—that is, observational in nature—is undetectable. Unlike the clairvoyant, whose Talent allows him to see through space, and, occasionally, into the past, the precognitive sense which operates into the future, is almost impossible to predict, train, or control."

Sir Thomas Leseaux shrugged slightly. "Perhaps one day a greater mathematician than I will solve the problem of the asymmetry of time. Until then . . ." He shrugged again, and left his sentence hanging.

"Thank you, Sir Thomas," said Lord Darcy. "However, it is possible for a sorcerer to thwart, under certain circumstances, the precognitive sense. Master Ewen MacAlister proceeded to act upon the gambling devices at the *Manzana de Oro* when, and only when, Commander Lord Ashley was playing.

"The Commander began to lose. Before he knew it, he was deeply in debt—and because of that he did what he did."

Lord Darcy smiled. "By the way—and this is something that Master Ewen made a great point of in his confession—I should like all of you to think for a moment of Master Ewen's position on Somerset Bridge last night, when he suddenly realized he was faced by a man who was predicting his every action. However, that is by the bye.

"Actually, My Lord Commander was able to perpetrate his crimes because of fantastic good luck. He did not plot his actions; he merely acted on impulse and managed to commit one of the most baffling crimes it has ever been my good fortune to investigate.

"And then by an equally fantastic stroke of *bad* luck, he was betrayed. He is an adroit and cool man when faced with danger; he can act or he can lie with equal facility. Excellent attributes in an Intelligence agent, I must admit. But the lie he told in Sidi al-Nasir's office simply did not hold water. Yesterday afternoon, when we were looking for Paul Nichols, I asked you, Captain, if you had any notion of where he might be hiding, of where the headquarters of this Polish espionage ring might be. And you said you had no notion, none whatever.

"But, in Sidi al-Nasir's office this evening, Lord Ashley calmly admitted that he owed the Sidi some one

hundred and fifty golden sovereigns, a rather large amount of money even for a Commander in his Majesty's Navy.

"His explanation to me was that Naval Intelligence had long suspected the Sidi and that he, the Commander, had contrived to get himself into debt so that Sidi al-Nasir would propose that the Commander pay the debt off by acting as an agent for His Slavonic Majesty.

"That is why I say that his luck, at that point, had turned from fantastically good to fantastically bad. In actual fact, Commander Lord Ashley had no notion that Sidi al-Nasir was in the pay of the Poles. He had got himself into debt at the *Manzana de Oro*, and the Sidi had threatened to inform you of that fact. What would you have done, Captain Smollett, if you had been so informed? Would you have cashiered the Commander?"

"Doubt it," said Smollett. "Would have had him transferred, of course. Can't have a man who gambles that way in Intelligence work. I don't object to gambling in itself, my lord; but a man should only gamble what he has—not upon his expectations."

"Exactly," said Lord Darcy. "I quite understand. There would, however, have been a black mark upon his record? He would have had little chance to rise above his present rank?"

"Little chance, my lord? I should say none whatever. Couldn't give a

man Captain's stripes with a mark like that against him."

Lord Darcy nodded. "Of course not. And Ashley knew that. He had to do something to pay off Sidi al-Nasir. So he concocted this fantastic scheme to pry money out of a man whom he knew to be a Polish agent. As His Grace the Archbishop of York remarked to me yesterday, there is no evil in this man. There is, as you can see, only desperation. I think we can believe his statement that he would not willingly betray King and Country.

"Had Sidi al-Nasir made his proposition to My Lord Commander two weeks ago, or even only a week ago, none of this would have happened. It is my personal opinion that if al-Nasir had asked Lord Ashley to pay off his debt by betraying his country before tonight, his lordship's facile mind would have come up with the same lie that he told me this evening, except, Captain Smollett, that he would have told it to you.

"What would you have said if—say, a week ago—the Commander had come to you and told you that, by deliberately going into debt, he had trapped the head of the local Polish spy ring into betraying himself? That he, Commander Ashley, had been asked to become a double agent and could now become—if the term is proper—a triple agent? Be honest, Captain, what would you have said?"

Captain Smollett looked at his knees for what seemed a long time.

The others in the room seemed to be holding their breaths, waiting. When Captain Smollett raised his eyes it was to look at the Marquis de London rather than at Lord Darcy. "If it please the Court, my lord," he said slowly. There was pain in his eyes. "I am forced to admit that had things come about the way Lord Darcy has just outlined them, I should have believed Commander Lord Ashley's story. I should very likely have recommended him for promotion."

At that moment, the door opened, and Father Patrique came in. He was followed by Commander Lord Ashley, whose face was pale and whose wrists were encased in padded shackles. In the rear came the watchful-eyed Chief Master-at-Arms Hennely Grayme, his pistol holstered, but his hand ready.

"My Lord Justice," the priest said gravely, "it is my duty to request the attention of the Court."

"The Court recognizes the Reverend Father Patrique as *amicus curia*," the Marquis rumbled.

"My Lord Justice," the good father said, "My Lord Ashley, a Commander of the Imperial Navy of Our Most Dread Sovereign the King, wishes, of his own free will, to make a statement and deposition before this Court."

The Marquis de London glanced once at Lord Bontriomphe, who was taking down everything in his notebook, then back at Lord Ashley.

"You may proceed," he said.

Forty minutes later, Lord Bontrionphe looked over his shorthand notes and nodded thoughtfully. "That winds it up," he said. "That covers everything."

Commander Lord Ashley was gone, to be escorted to the Tower by Chief Hennely and a squad of Armsmen. The Court of Inquiry had been officially adjourned.

My Lord the Marquis surveyed the room and then looked at Lord Darcy. "Except for a few minor details in what was said, you gave us the story of Ashley's activities quite accurately. Satisfactory. I might say, *most* satisfactory." He looked around at the others, "Does anyone have any questions?"

"I have a question," said Sir Lyon Gandolphus Grey. He looked at Lord Darcy. "If I may, my lord, I should like to know why you were sure that there was no direct link between Master Ewen MacAlister and Commander Lord Ashley."

Lord Darcy smiled. "I couldn't be absolutely certain, of course, Sir Lyon. But it seemed most probable. Master Ewen was doing his best to get the Demoiselle Tia to worm the secret out of Sir Thomas Leseaux. Would he have tried so hard if he knew that Lord Ashley was willing to sell it? Or, rather, claimed he had it to sell? That would have been much simpler than trying to get a stubborn child to betray everything she loved."

"But how did you know she wasn't a willing spy?" Sir Thomas asked.

"There were several reasons," said Lord Darcy. "Of course, ecclesiastical commissions had twice given her a clean bill, but there were other indications. She had gone to Sir James and argued with him, and that was hardly the behavior of a spy. A spy would have acted immediately, not argued and walked out. And a well-trained spy does not—as Tia did—throw a note from one of her fellow agents into a wastebasket and forget about it. Also—while there was the possibility that the conversation in the *Hound and Hare* might have been an act put on for my benefit—the subsequent attempt to do away with her was a strong indication that it was not. Therefore, she had, as she said then, actually intended to tell everything to the King's Officers."

The Dowager Duchess of Cumberland said: "Ironic, isn't it, that while all the Armsmen of London and half the Imperial Navy have been struggling to discover one man's identity, that letter was actually here all the time, in that envelope."

Lord Darcy reached out for the blue envelope on Lord Bontrionphe's desk, where Captain Smollett had placed it. He held it up. "You mean this?" he asked rather apologetically. "I am afraid it wouldn't have done us much good to look for that information here."

"Why not?" the Dowager Duch-

ess frowned. "Because of the spells?"

"Oh, no," said Lord Darcy. "Because of the fact that this envelope and its contents did not exist until an hour or so ago.

"The handwriting, while a passable imitation of Georges Barbour's, is actually my own. I had a chance to study Barbour's hand thoroughly yesterday afternoon at the Admiralty Office.

"You see, I wanted Ashley's confession. We actually had very little evidence. I knew *what* he had done, and *how* he had done it, by reasoned deduction. There is, of course, the evidence of the blood in his jacket pocket and in his sword sheath, but we couldn't count on its being there. We needed more than that.

"So—this letter came into being. After all, you see, Ashley couldn't have been *certain* that the information from Barbour had been sent to the hotel. Since I knew that he had opened the envelope from the hotel at his first opportunity, I also knew that what he found were blank sheets of paper. He had no way of being sure that those sheets had contained the information that was so dangerous to him.

"The letter was a necessary deception, I think—and if you will cast your mind back, Captain Smollett, you will recall that I did not once tell you that the letter had actually come from Barbour."

"So you didn't," said Captain Smollett. "So you didn't."

"Well, my lords, Your Grace,

gentlemen," the Marquis de London said, "this has been a rather strenuous night. I suggest we can make the best use of what is left of it by getting some sleep."

The eight guests left the Palace du Marquis in a body. With the exception of Captain Smollett, they were all headed for Carlyle House.

There had been still another guest present, Lord Darcy knew, a guest who would remain behind until the others had left.

Behind the Vandenbosch reproduction in my lord Marquis's office was a sliding panel, and beyond that a small alcove. When the panel was open, anyone sitting in that darkened alcove could see through the cloth of the painting and observe and hear everything that took place.

Only the Marquis, Lord Bontrionphe, and Lord Darcy had known that someone had been in that alcove during the official inquiry which had resulted in the arrest of a killer, but it was not until some two months later, in Rouen, that Lord Darcy heard anything further from that hidden observer.

A package was delivered to Lord Darcy's residence by a King's Messenger. It was not a large package, but it was fairly heavy. There was a note with it which read:

My Lord Darcy:

Again we are indebted to you for your brilliant work in the protection of Our Realm. We under-

stand that you were so unfortunate as to lose the valuable .40 caliber MacGregor which you so obligingly used for the demonstration at Westminster.

Since we deem it fitting that any weapon of this kind worn in Our presence should be Our gift, We are sending you this package.

We would have you understand however, that it is *not* a purely ceremonial weapon, but is to be used in the course of your duties. If We hear that it is hanging on the wall of your trophy room in a golden frame, or other such foolishness, We will personally

come over there and take it away from you.

J I V R

Inside the box lay what was probably MacGregor's finest creation: a handcrafted, man-stopping, .40 caliber handgun. The gold and enamel work on it made it as beautiful as it was deadly. On both sides of the butt, in hard enamel, were Lord Darcy's personal arms: *Ermine, on a fess gules, a lion passant gardant or*. In the golden tracery work surrounding the shield were the lions of England and the lilies of France. ■

IN TIMES TO COME

Next month's feature will be "Amazon Planet," by Mack Reynolds. There is the old saying that "it takes all kinds"; the United Planets, with some 3,000 human-colonized planets couldn't testify to whether it *takes* all kinds, but they definitely could testify that they *had* all kinds—all kinds of fiercely self-determined planetary cultures. All violently opposed to anybody's efforts to interfere, alter, change or manipulate their One Right Way to Life.

Amazonia, being the *only* planet colonized by a bunch of fiercely feminist women, was naturally all the more fiercely determined that the other misguided (read: "male-guided") planets of the United Planets weren't going to interfere in any way whatever.

Which made it a l-i-t-t-l-e difficult for a United Planets man to land on the planet—even if Amazonia needed his help badly. But when a little, inoffensive contract negotiator man got into a slight mixup over names—they read his name Guy as Gay—he was in for trouble of types he had never dreamed of. Amazonia has some very unusual marriage customs it seems . . .

THE EDITOR

the reference library *P. Schuyler Miller*

SO SAY YOU ALL

Isaac Asimov, Robert A. Heinlein, Arthur C. Clarke, A. E. van Vogt and Poul Anderson are the "big five" of present-day science-fiction writers. At least, so 414 Analog readers in fourteen countries contend. However, only Asimov, Heinlein and Clarke were selected by more than half of those voting, and Asimov and Heinlein stand by themselves at the top.

United States and Canadian readers put Heinlein three votes ahead; add the overseas votes—England, Wales, Scotland, North Ireland, Australia, New Zealand, France, Germany, Norway, Sweden, Israel and Ghana—and good Dr. Asimov is ahead by two. The rest of the vote was divided among 157 different authors, living and dead, including Plato, Aristophanes, Cyrano de Bergerac and the team of Marx and Engels—for their "Communist Manifesto," which the voter conceded was probably fantasy rather than science fiction.

Only three books, two of them omnibus collections, received more than half the total votes. (There

were 1,069 acceptable titles, plus three I couldn't identify and an assortment of thirty-one fantasies, mysteries and adventure stories that I threw out.) The top three:

1. Isaac Asimov's "The Foundation Trilogy" (279 votes; or 67.4%)

2. "Seven Famous Novels of H. G. Wells" (246; 59.4%)

3. A. E. van Vogt's "Slan" (209; 50.5%)

You'll have the complete lists in a moment, and more analysis and comparisons next month, but first some general comments.

Your response began by being gratifying, soon became overwhelming, and ended by being appalling. Circumstances made it impossible to tally the votes as they came in . . . and the May Analog didn't reach Australia until the end of June, so they may still be coming.

In 1952, with our first readers' poll, I was elated to get fifty-three letters—forty votes for the same kind of "basic" collection we voted for this time, thirteen for a "his-

toric" list. In 1956—which I neglected to mention in May—a second poll brought in 165 ballots. This time there were 414, with some 15,000 items to be tallied! In 1952 the vote was spread over 275 different titles, in 1956 over 387 books, and this time your votes covered 1,103 different titles. Even allowing for duplications that I missed—different titles in paperback, or in England—that's a lot of books, and it was a lot of cards to thumb through as each new letter was tallied.

This is, quite clearly, the age of the paperback. Most of those 1,103 titles were paperbacks, though I have used the hardback edition in the list. It is also the era of the omnibus, and here I had to make an arbitrary decision:

When an omnibus—like the "Foundation Trilogy" or the Wells volume—polled more votes than any of the novels in it did separately—only "Time Machine" and "War of the Worlds" rated high—the omnibus was given all the votes for its separate components. If any of the single novels polled more than the omnibus, the vote for the omnibus was added to theirs. The principal effect was to raise Asimov's "Rest of the Robots"—containing "Caves of Steel" and "The Naked Sun"—to fourth place, and to demote collections by van Vogt and Clarke, in favor of their individual novels.

Many of you complained that ten authors and twenty-five books

were too few. I agree: from past experience, I limited the number to save my own neck. As it is, I spent something like eighty hours tallying votes, and another twenty-five books or so might have doubled that. More to the point, the results show that the effect would only have been to increase the *number* of books and authors among whom your votes were spread, and to change a few positions by one or two places. This also explains why I have no intention of ever asking for a poll of your favorite short stories—something quite a few of you requested. Your votes would be scattered over 11,000 stories—or 110,000—instead of only 1,100.

Now the results:

1. Isaac Asimov, "The Foundation Trilogy" (67.4%)
2. "Seven Famous Novels of H. G. Wells" (59.4%)
3. A. E. van Vogt, "Slan" (50.5%)
4. Isaac Asimov, "The Rest of the Robots" (45.7%)
5. Alfred Bester, "The Demolished Man" (44.2%)
6. Arthur C. Clarke, "Childhood's End" (41.2%)
7. Arthur C. Clarke, "The City and the Stars" (40.6%) (including votes for the earlier version, "Against the Fall of Night")
8. Ray Bradbury, "The Martian Chronicles" (38.9%)
9. Clifford D. Simak, "City" (38.6%)

10. Walter M. Miller, Jr., "A Canticle for Leibowitz" (38.1%)
 11. Robert A. Heinlein, "Starship Troopers" (37.7%)
 12. Isaac Asimov, "I, Robot" (37.2%)
 13. W. Olaf Stapledon, "To the End of Time" (36.7%) (for "Last and First Men" and "Odd John")
 14. Robert A. Heinlein, "The Man Who Sold the Moon" (35.2%)
 15. Hal Clement, "Mission of Gravity" (34.5%)
 16. Alfred Bester, "The Stars My Destination" (33.8%)
 17. Robert A. Heinlein, "Stranger in a Strange Land" (32.9%)
 18. A. E. van Vogt, "The World of Null A" (31.9%)
 19. Theodore Sturgeon, "More Than Human" (31.4%)
 20. Raymond J. Healy & J. Francis McComas, "Adventures in Time and Space" (30.7%) (This headed both previous polls.)
 21. Frank Herbert, "Dune" (27.3%)
 22. Fredrik Pohl & C. M. Kornbluth, "The Space Merchants" (26.3%)
 23. John Wyndham, "Re-birth" ("The Chrysalids") (26.1%)
 24. Robert A. Heinlein, "Waldo" and "Magic, Inc." (25.6%)
 25. A. E. van Vogt, "The Weapon Shops of Isher" (24.1%)
 26. Robert A. Heinlein, "Methusalem's Children" (23.7%)
 27. Clifford D. Simak, "Way Station" (22.4%)
- Below this point we start getting ties. The 1956 list was cut off with twenty-six titles at 25.5%; the 1952 list with twenty-eight at 22.4%, same as now.
- As for the authors you consider best—and this is a *direct* vote: no combining—they are as follows:
1. Isaac Asimov (333 votes; 80.4%)
 2. Robert A. Heinlein (331; 80.0%)
 3. Arthur C. Clarke (277; 66.9%)
 4. A. E. van Vogt (186; 44.9%)
 5. Poul Anderson (177; 42.8%)
 6. H. G. Wells (39.1%)
 7. Clifford D. Simak (33.3%)
 8. Theodore Sturgeon (32.3%)
 9. Ray Bradbury (30.0%)
 10. Murray Leinster & Dr. Edward E. Smith (24.4%—tied)
 11. Andre Norton (21.0%)
 12. Eric Frank Russell (20.5%)
 13. Henry Kuttner and Henry Kuttner/C. L. Moore (18.8%)
 14. L. Sprague de Camp (18.1%)
 15. Alfred Bester (15.4%)
 16. Edgar Rice Burroughs (14.9%)

17. James Blish (14.5%)

There's a 3% jump to the next in line.

Next month: comparisons and discussion. There's no room now.

FRED COOK'S INDEX TO THE WONDER GROUP

Compiled by Fred S. Cook • The Compiler, 503 Terrill Street, Grand Haven, Michigan 49417 • 1966 • 239 pp. • \$5.00

Here is a prime example of the one-man bibliography, covering all issues of all the magazines in the "Wonder" family that Hugo Gernsback started after he lost control of *Amazing Stories*, and their various successors under other publishers. It cuts across both Donald Day's original "Index to the Science Fiction Magazines" and the new MIT "Index to the S-F Magazines," beginning with the first issue of *Science Wonder Stories* in June, 1929 and including the "Treasury" reprint issues of 1964 and 1965.

The organization is somewhat unusual. Magazines are indexed alphabetically, beginning with *Air Wonder Stories*. First comes a running account of the rise and fall of each magazine, with a checklist showing what issues were published. Next there is a listing of the contents of each issue, year by year, including the name of the illustrator of each story.

At the end of each year's listing you get an author index of all stories published during that year, and at

the end of the complete magazine listing there is another author index summarizing everything published in the history of the magazine. No title indexes—but that would have been a tremendous job, doubled the size of the book, and put its cost out of sight.

The book appears to be Xeroxed, with heavier paper covers: I already have mine in a spring-back binder. The photocopying is a little grubby but a lot clearer than some cleaner publications I've seen. And Mr. Cook already has a companion index to *Astounding/Analog* in the works. If he gets his costs back on this volume, the other will be along.

THE TROUBLE TWISTERS

By Poul Anderson • Doubleday & Co., Garden City, N.Y. • 1966 • 189 pp. • \$3.95

These three exploits of young David Falkayn, agent of the Polesotechnic League, younger son of a small-world noble family, and talented trouble finder and twister, were published here in *Analog* during the last three years, the title story as the two-part serial, "Trader Team." If you didn't read them then, they are now combined into a grand sequence of adventures, tied together with "quotations" from commentaries on the worlds and times of the space-straddling merchant empire.

"The Three-Cornered Wheel" introduces Falkayn as a very young apprentice on the thearchy of Gil-

rigor, a red-sun world stymied by the decree of its priests that wheels are too holy to be used by any but the elite, and then not for mundane purposes. I don't know whether the author discovered constant-width polygons before *Scientific American* did, but the result is a gimmick story of the best kind.

"A Sun Invisible," here a few months ago, is an astronomical puzzle story. To stave off a threatened invasion of the worlds on which the League has profitable trading posts, Falkayn has to find the home planets of the invaders in a sector of space where they can't exist . . . until he discovers why they are "invisible."

The title yarn, taking up half the book, presents Falkayn as a member of a multi-specific team: the centaur-crocodile Adzel, the feline Chee Lan, and himself, abetted by a poker-playing computer. They are involved in the involved politics of a neighbor of Spica, where a contingent of human refugees are doing their best to come out on top of whatever rearrangement occurs.

Just good, clean fun and dirty dealing among the stars, offered as only Poul Anderson can.

THE PEOPLE OF THE ABYSS

By George Allan England • Avalon Books, New York • 1966 • 192 pp. • \$3.25

Avalon is stringing out the "serialization" of George Allan England's massive novel of the fu-

ture at such great length that I've given up any idea of trying to wait until it is complete. The original version appeared as three serials, published in *Cavalier* over two years in 1912 and 1913, and was finally collected into one 672-page book, published the following year. The three original parts, allegedly condensed and somewhat bowdlerized, were reprinted in *Famous Fantastic Mysteries* in 1940 and '41. Now Avalon is following its own rules of condensation and subdivision.

In the first book, "Darkness and Dawn," we found Allan Stern, a New York engineer, and his secretary, Beatrice Kendrick, awakening after a sleep that started in 1911 and lasted many centuries. (The earlier books suggest a thousand years, but that seems too short a time for the evolutionary changes that have taken place.) They found the world deserted, except for some horrible little beast men, but managed to survive.

The first sequel, "Beyond the Great Oblivion," has been cut up into two parts of which this is the second. In it, the couple set out to explore the world. They find the ocean draining into an abyss near the eastern end of Long Island, abandon their boat for a reconstructed biplane—remember, this was before World War I—and fly west only to encounter another gigantic abyss slicing the world in two somewhere in the Midwest. In

this volume they try to cross the abyss, fall into it, and find a thoroughly unpleasant race of human survivors at the bottom. They undergo the by-now traditional struggles of mind over might, and the book ends with them ferrying the people of the abyss to the surface, to repopulate the Earth.

Will they cross the Great Abyss? Will they find other survivors? Will they learn what happened to the world and where the blue men came from? There's at least one more book to come.

Too bad England wasn't persuaded to up-date his books, or to permit an editor to do it, before his death in 1936.

WORLD'S BEST SCIENCE FICTION:

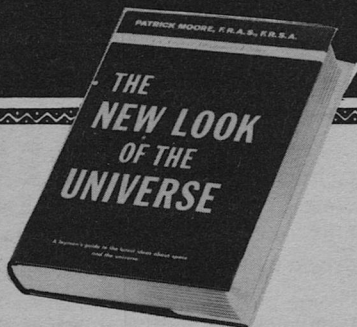
1966 edited by Donald A. Wollheim and Terry Carr • Ace Books, N.Y. • No. H-15 • 287 pp. • 60¢

This second annual selection of science-fiction shorts and novelettes does not range quite so far as the first. All but two of the selections are from American magazines (including one from Analog—Christopher Anvil's "The Captive Djinn"); the two exceptions were published in the English *New Worlds* and Arthur C. Clarke's "Sunjammer" was reprinted there from *Boys' Life*.

If this is, then, a less catholic selection than we get from Judith Merril, it is nevertheless a sound and interesting one, well worth any-

The Reference Library

A superb layman's guide to the latest ideas about space and the universe



by PATRICK MOORE
F. R. A. S., F. R. S. A.

As exciting as it is informative, here's a comprehensive survey of the startling new discoveries about space and the universe that science has made in the past few years. The author is one of the world's leading astronomical writers. Illustrated. \$3.95

*You'll also want to read
these other great books in the
AMATEUR ASTRONOMER'S LIBRARY
edited by Patrick Moore*

THE AMATEUR ASTRONOMER
by PATRICK MOORE
Revised. Illus. \$6.95

**A HANDBOOK OF PRACTICAL
ASTRONOMY**
by PATRICK MOORE. Illus. \$5.95

**HOW TO MAKE AND USE
A TELESCOPE**
by PATRICK MOORE and
H. P. WILKINS. Illus. \$4.75

At all bookstores

W. W. Norton & Company
55 Fifth Ave., N. Y. 10003

body's time and dimes. Harlan Ellison's " 'Repent, Harlequin!' Said the Ticktockman" won the Science-Fiction Writers of America's first short story award; you may consider it the author's protest against our timeclock-paced society or against the necessity for punctuality, or just against compulsion of any kind.

There are fifteen stories in the collection. Clarke's is one of his typical documentaries on the possibility of sailing through space, driven by the solar wind. Ron Goullart's "Calling Dr. Clockwork" extrapolates the shortcomings of our worst hospitals into the shortcoming of android-staffed health factories. Larry Niven, in "Becalmed in Hell," deals with the problem of getting out of the trap of Venus' hot-box atmosphere, and Vernor Vinge in "Apartness" shows us a future in which the northern hemisphere has blasted itself into eternity and the nations of the south are trying a remake the world. Then a strange, primitive colony is found in Antarctica . . .

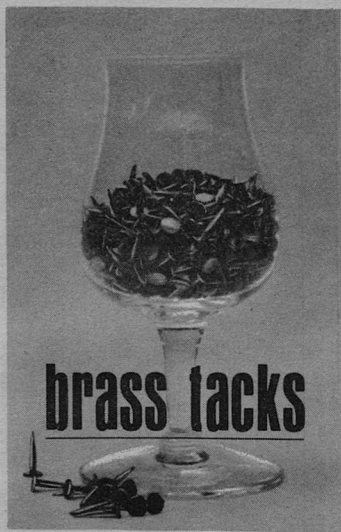
James H. Schmitz, in "Planet of Forgetting," gives us a wildly satisfying yarn about a spy on the run on a horrible and puzzling world. Clifford Simak's "Over the River and Through the Woods" is very short, very slight, and would be nothing at all but for his way with nostalgic themes . . . children

from the future sent back to safety in the Nineteenth Century. Joseph Green's "The Decision Makers," on the other hand, is a thoroughly satisfying story about contact between men and a seemingly intelligent race that is in the way of progress.

Vinge's story is one of the two from *New Worlds*, the British magazine. The other is David I. Masson's "Traveler's Rest," one of the strangest stories of this or any other year, about an utterly weird war on a world where time and latitude are inextricably interwoven. It's probably the most memorable story in the lot.

Lin Carter's "Uncollected Works," an extrapolation of the old saw about monkeys and the typewriters, is slight but pleasant. Jonathan Brand's "Vanishing Point" is another effective one about, of all things, perspective. R. A. Lafferty's "In Our Block" is nearly as off-beat as Masson's, and one of Fred Saberhagen's series about the berserker machines, "Masque of the Red Shift," deliberately parallels Poe.

Analog's contribution, Christopher Anvil's "The Captive Djinn," is a wholly zany little story with a way-out set of villains, a repulsive prison, and a thoroughly scientific escape. And Fritz Leiber closes the book with "The Good New Days," a parable of moonlighting that is almost as bewildering in its way as the Masson story.



Dear John:

Blame Poul Anderson for "Dimensions." He got me hooked on this dimensional analysis business when he published an article on the subject in *Astounding* some years ago. Since then I've been playing around with the subject, trying to work out a rational system. And then a letter of mine came to the attention of Mr. Kermit W. Dees, of Carey Associates, Berkeley, California, and that touched off a long-voluminous, and sometimes violent correspondence. Neither of us had much luck in converting the other to his way of thinking, but I know that on my part, at least, the argument—or battle—did a lot to clarify and crystallize my own ideas.

It's amusing to think that man has no receptors for any of the "fundamental" quantities defined in the article, nor was primitive man conscious of any of them. He knew about weight (force), but not mass. Velocity? Not him, except when he was being chased by a sabertooth, and then he was probably more conscious of the brute's hot breath! Action. No response. He was conscious of temperature, but not of the more fundamental heat capacity or entropy. Even when he was struck by lightning, if he was conscious at all, it was of the current and not of the charge. His was a world of length (the fish that got away was *so* big), of force, of time—so many days to the hunting grounds—and of temperature, which was the warm sun on his back. It took a long time to learn to look beneath the obvious to find the fundamental.

Anyhow, I hope that the cash customers have as much fun reading it as I had writing it.

JOHN D. CLARK

And of considerable importance, too. Almost invariably, when things get too complicated—you're going at it wrong!

Dear Mr. Campbell:

As a regular reader of your magazine for some years, I would like to venture a few not altogether unrelated comments on Mr. Janifer's

interesting letter in your April issue.

(1) Women composers—sorry, this “absolute” is incorrect, too—I can think of at least three young contemporary women composers of serious music, who are regularly featured on this side of the Atlantic in radio broadcasts, at music festivals, et cetera, though I don’t think they’ve yet got into the touring concert repertory—Thea Musgrove, Elizabeth Lutyens, and Grace Williams, whose Penillion for Harp and Orchestra is for my money the finest concertante work for that instrument since Dittersdorf.

(2) Lack of women artists—well, some psychologists have, I believe, suggested that women may tend to score closer to the mean in any population for most given intellectual characteristics—but in music anyway, couldn’t it simply be that while instrumental performance—especially on keyboard instruments—was traditionally a polite accomplishment and, therefore, suitable for a lady, composition, until recently, was, as Mr. Jannifer himself points out (in talking about J. C. Bach) a paid job, and a pretty menial one at that? Now and again you got a J. S. Bach—all too often you got the sort of character delightfully lampooned in Cimarosa’s “Il Maestro di Capella.” Naturally, no well brought up young lady would—or could—go in for this sort of thing.

(3) If I can somewhat belatedly come in on the discussion of English

graduates’ writing (being myself that terrible thing, an English graduate who teaches writing to engineers—and incidentally writes the odd poem on the side):

(a) There’s an old, old distinction between critical and creative talent which I believe is relevant here: to take an art form to pieces demands a particular cast of mind, but this has nothing to do with creativity, which can and does turn up literally almost anywhere; it’s creativity that governs ability to write well, I suppose. (Good analytical chemists are rarely first-rank synthetic chemists, either, at that. But I agree that any kind of inward looking coterie is bad for any discipline you care to name—and brother, have we got that in English Literature!)

(b) It might also just be worth while asking whether the trouble isn’t really that creative and technical writers alike have got caught up in our current knowledge explosion—the creative writer is trying to grapple with an exponentially expanding body of information about sociology, psychology, et cetera (which he feels, rightly enough, is relevant to his job) while the technical writer has exactly the same sort of problem grappling with an exponentially expanding body of knowledge in his technical field—and the tendency in both cases, time and recall usually being limited, is to compartmentalize the fields of knowledge concerned. The

result makes effective communication *sooo* difficult, for both of them!

C. C. HEBRON

Lecturer in Communication,
Department of Sociology
Rutherford College of Technology
Newcastle upon Tyne 1, England
*The creative artist—in any field—
has the job of abstracting and thus
clarifying communication. Is that
an analytical or synthetic job?*

Dear Mr. Campbell:

In the Brass Tacks column, you printed a letter by one L. M. Janifer, in which he puzzles over the fact that there are few women composers. His point is quite valid that the ratio of men composers to women composers is astronomical, and is an item that would bear looking into. However, women composers are not quite as scarce as he makes out. The two he names, I've never heard of, and I am not able to guess who "a minor relative of Liszt" might be. But how about Cecile Chaminade, Amy Woodford Finden, Carrie Jacobs Bond—whose music I know I've heard many times—Clara Schumann, Lily Strickland, and Hope Temple? I have a cheap music dictionary that lists at least a dozen more. Even as I am writing this letter, two women composers were mentioned on the radio: Dorothy Britton and Elinor Remick Warren.

As a final item, I agree wholeheartedly with the final paragraph of the letter by Barry Bunow re your

editorials. Most of your editorials make me see red. But, like Bunow says, they serve a useful purpose by making us examine our underpinnings.

RAYMOND H. F. BOOTHE

2211 ¾ S. Bentley Avenue
Los Angeles 64, California
*Try some other art fields! How
about female Shakespeares, Goethes,
and Dostoevskis? Or Da Vincis,
Michelangelos, and Rubens? On
the other hand—I understand
women dominate Japanese literature!*

Dear Mr. Campbell:

This is what you might call a letter of complaint. Please don't get me wrong. I cut my teeth on Edgar Rice Burroughs, graduated to the long-time defunct magazine *Wonder Stories*, was promoted to *As-tounding*, and am getting my Ph.D., (Philosophical Downfall) that is, in *Analog*. I was convinced to major in Chemistry in college through a story called the "Isotope Men" in one of the magazines—this was the first time I understood what an isotope was—and changed my major to Psychology as a result of Edward E. Smith. Incidentally, as a result of reading the "Isotope Men," I got an A in a high school chemistry test. Unfortunately, my major in Biology was a result of a college professor who didn't read science fiction. I developed an interest in engineering from George O. Smith—the Venus Equilateral stories. I learned much

of race tolerance from E. E. Smith, and learned not to be afraid of a new idea from science fiction in general. Incidentally, a story by some unknown author—uh, yes, "The Mightiest Machine," did much to develop my sense of wonder at what could really be accomplished through science. Thanks!

My real beef is with one of your authors. I hope your subscriptions reach Arisia, Valhalla, the Second Foundation, or Heaven, as the case may be; this author is dead. Some time ago, I read a serial called "Space Vikings." I bought the paperback book when it became available. I passed it on to members of our History staff, some of whom have Ph.D.'s in History. All were equally excited by the book. None are science-fiction fans. All are demanding "Where are the rest of the tales? When does he finish the story?" It was with great sadness that I informed them that Mr. Piper is dead and will write no more for mortal eyes. Yet this is a shame. One reads "Space Vikings" once for the story. He reads it a second time for the characterization. If he is smart, he reads it a third time for a picture of how civilization dies. If he is a real social scientist, he reads it a fourth time to see how civilization develops. At least I and one of our history teachers did it this way.

Many stories dealing with this period still need to be written. How long before the King of Trade-town

realizes he is not an independent king? What problems develop in the formation of the league of civilized worlds? What soul searching and agony awaits the Prince Regent of Marduck while he is awaiting the decision of his only judge? Does he realize that colonization of ruined worlds is the solution for his people? How does life look to a person living on a world that is raided by space vikings? What is life like for the "space tramps," the tramp traders of the time? And finally, how does the universe look to the local equivalent of the Jews?

Even you, Mr. Campbell, cannot get these stories from Mr. Piper. But can the estate of the late H. Beam Piper be convinced that the release of rights to use ideas and characters would best serve not only science fiction but maybe even the education of our children if they permitted these stories to be written?

Please do what you can to further the education of our people.

ROBERT C. VICKERS
Basic ideas derived from history are anyone's to use—they're in the Public Domain. But it takes an author who's deeply interested in history to use them!

Dear Mr. Campbell:

A few years ago an idea came to me, a logical but plainish sort. Immediately I forgot it. Today the exact origin eludes my memory but one supposes it was caused by a

lawnmower, or a washing machine, or a flooded basement bookshelf. Seeing an instruction manual mottled and stained from contact with the elements, I probably thought, "What the hell?" or another equally inspired thought.

Why didn't a publisher come out with books, "paper backs," and instruction pamphlets printed on a sort of white colored polyethylene page bound to its brother by some monstrous iron or solvent applicator (I believe along the lines of acetone . . .)? Startling effects could be achieved by printing startling illustrations on succeeding sheets of clear, like a biology book.

Then last week, I recalled my 700-day old thoughts, considered the classics enduring hurricanes, floods, and other meteorological delights. Or just being able to read your outboard motor maintenance booklet after a season under the seatcovers.

Are you interested?

Perhaps you can refer me to someone more related (DuPont or other). In any case, please let me thank you for your time.

L. FRIEDLANDER

E Division

USS Forrestal CVA-59

FPO New York, New York 09501

Hm-m-m—sounds like a real good idea for instruction manuals! Successive sheets peel back revealing successive layers of what you see as you take off parts of the equipment, either biological or mechanical!

Great for student biologists—also chemists, since the book can be washed off, and polyolefine plastics are immune to practically all chemical attack. (For the really rough cases, use Teflon sheets.)

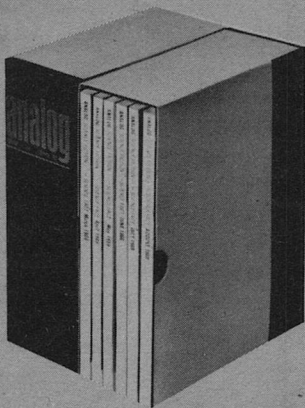
Dear Sir:

I have been following your magazine for quite a while now, and I find it simply amazing. (Sorry. I did not mean "that" . . . I just meant surprising). There is always something new, something fantastic (sorry again, no offense meant), and I have never been disappointed by your so interesting views about science fiction, analog-y, and the possibilities of the "if". (Damn it, why do these words always creep in?).

But getting serious, I would very much like to congratulate you for your publication, which is quite well known here among the English-reading fans—who, believe it or not, are more than you think. But to be fair, I must add that the competition is also well known, although less liked.

I would very much appreciate if you could publish this letter, or at least my address with a little note informing that I would like to get in touch with some colleagues. And if someone wants to practice Spanish, I'll be also delighted.

MAURICIO KITAIGORODZKI
Aguirre 688-30 B
Buenos Aires, Argentina
¡Bueno, aficianodos! ¿Puede escribir en Espanol?



**You know you're
going to save them
anyway, why not
save them neatly?**

**You'll have less trouble
with your wife that way.**

They're available at \$2.50 each
and will hold six Analogs.

Send your check to: Analog
Dept. BB-3, P.O. Box 1348,
Grand Central Station,
New York 17, N.Y.

cause it was prepared by processing whole fish—it was, the FDA held, unfit for human consumption because it contained “filthy material,” meaning the excretory organs and their content.

This had interesting repercussions. Since it was ruled unfit for human consumption by the FDA, it could not be sold for that purpose in the United States. And naturally, the United States couldn't ship it to starving people in other nations—legally permissible, of course—because there would have been howls that the United States was feeding the natives food declared unfit for consumption by our own government agency.

If the FDA seriously holds that such “filthy” material renders food unfit for human consumption—I'm waiting to see what happens when they crack down on the oyster, clam, chowder and lobster industries in the United States.

The resultant shemozzle ought to be no end of fun.

If they reverse their position, they will have marred their self-congratulatory image of Infallibility—and saved a few million victims of “kwash” here and there around the world.

But can the agency accept such a dreadful cost?

THE EDITOR



USO is there, only if you care...GIVE!

How many miles from home are they now... the displaced, lonely millions in uniform who defend our freedoms across the world?

Just as far as their nearest USO! For wherever they go, USO is there. With warmth and friendship, interest and concern, and traveling shows to spice their loneliness with joy. And a welcome choice of conduct.

USO is your "thank you" to the men and women who serve us all. Remember, USO gets no government funds. It is supported only by voluntary contributions through your United Fund or Community Chest. This year, let your gift say you care.

Give more for our bigger job this year!





***"BEST RECORD OF THE YEAR"**
 Awarded To Herb Alpert & The Tijuana Brass "A Taste of Honey"

The coveted GRAMMY AWARD
 The highest honor bestowed by the Recording Industry went this year to the brilliant recording by the versatile Herb Alpert.

"A Taste of Honey" is just one of 60 vibrant selections included in The Longines Symphonette's fantastic five-record Treasury, The Treasury of "Herb Alpert and The Tijuana Brass".

Now The Longines Symphonette Society proudly presents

The Famous, Award-Winning

HERB ALPERT
 and THE
TIJUANA BRASS

plus selections from THE BAJA MARIMBA BAND

in a sparkling five-record Treasury of songs that have taken the nation by storm! Includes "A Taste Of Honey", the song that won the coveted Grammy Award for "Best Record of the Year"!



EXCLUSIVE
 For A Limited Time Only!

LISTEN FREE FOR 10 DAYS to the most exciting
 and satisfying melody to come to America in four decades!

Not since New Orleans in the 20's has a new sound swept the nation so quickly... never before have a harmony and rhythm claimed so universal a following! If you have never heard Herb Alpert and the Tijuana Brass... you have an experience in store for you!

The music of The Tijuana Brass recreates the tempestuous happiness of Fiesta. It conjures up the music of the *Bull Fight*... the pageantry of Old New Orleans... the emotions of the "Roaring Twenties". But above all—you enjoy sheer melody without cacophony when you hear HERB ALPERT and the TIJUANA BRASS!

FREE BONUS: TELEVISION'S NEW FAVORITES, THE BAJA MARIMBA BAND! The exciting Herb Alpert Treasury includes 12 performances of THE BAJA MARIMBA BAND that you've seen and enjoyed on major television spectacles!

Yes, 60 great selections in a single five-record Treasury, produced with the meticulous care and hand-inspection that have made "Living Sound" a trademark meaning the finest in modern recording technique!

FREE FOR 10 DAYS—SAVE UP TO 50%!

You'd expect to pay as much as 89¢ each for The Tijuana Brass on ordinary 45 RPM records, but this great Treasury enables you to own their award-winning performances for only 24¢ each. Best of all, listen FREE for 10 days, return The Herb Alpert Treasury and owe nothing... or send just \$5 a month until \$13.88 (plus postage-handling) is paid! LIMITED TIME OFFER—please act at once. Mail the coupon to enjoy HERB ALPERT and the TIJUANA BRASS Free for 10 days!

Less than 24¢
 a selection!

\$5
 ONLY A MONTH

...or \$13.88!

Stereo a mere \$1.80 additional for all five records!

No extra charge for deluxe presentation case!

Here Are A Few Of The Songs You'll Hear:

"A TASTE OF HONEY", Grammy Award for Best Record of the Year plus...

- | | | |
|-----------------|----------------------|------------------------|
| Crea Mi Amor | Up Cherry Street | Green Leaves Of Summer |
| Desafinado | Mexican Shuffle | I've Grown Accustomed |
| More | El Presidente | To Her Face |
| Acapulco | All My Loving | Spanish Harlem |
| Tangerine | Número Cinco | Swinger From Seville |
| Lemon Tree | Whipped Cream | Winds Of Barcelona |
| America | Adios, Mi Corazon | The Girl From Ipanema |
| Never On Sunday | Salud, Amor Y Dinero | The Lonely Bull |
| Limbo Rock | Mexican Corn | South Of The Border |

MAIL COUPON TODAY

THE LONGINES SYMPHONETTE SOCIETY
 Symphonette Square, Larchmont, N. Y. 10538

Please send me the Treasury of Herb Alpert and the Tijuana Brass to audition FREE for 10 days. If I am not satisfied I may return it within 10 days and owe nothing, or send just \$5 a month until the modest price of just \$13.88 (plus postage and handling) is paid.

PLEASE CHECK ONE: High Fidelity Stereo (\$1.80 more)
 R 1791-923

NAME _____ (please print)
 ADDRESS _____

STATE _____ CITY _____ ZIP _____

SAVE EVEN MORE: Enclose full amount now (\$13.88, \$15.68 for Stereo) and we will pay all postage and handling!

Courtesy of



PLUS 12 songs by The Baja Marimba Band including Moonglow, Red Roses For A Blue Lady and ten more.

60 GREAT SELECTIONS IN ALL!