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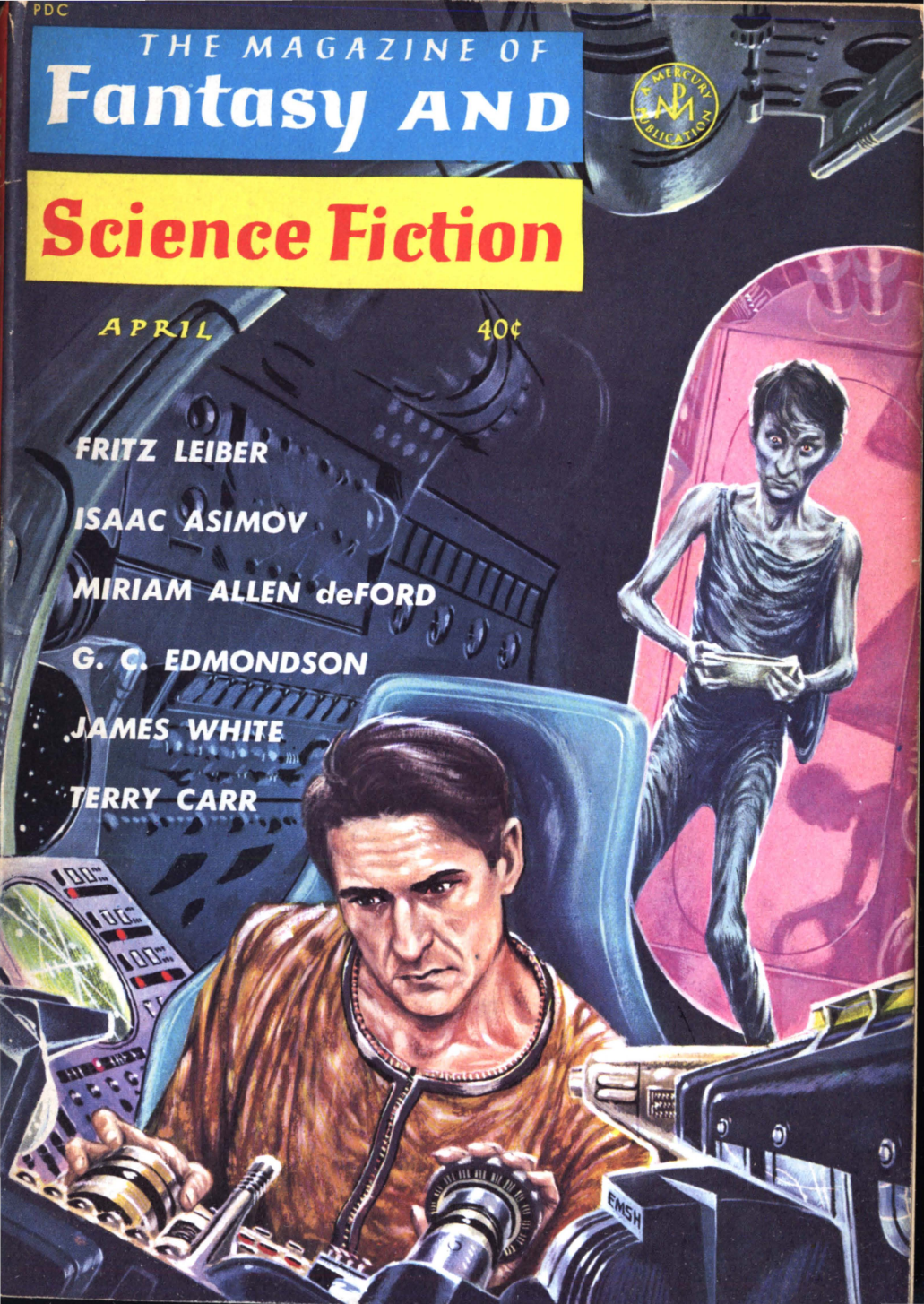

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In this issue . . .

. . . is **JAMES WHITE**'s swift-pacing story of short commons on a fast trip through space, and of passengers who fast while wondering if it will be fast enough for them; an adventure into the worlds of dreams by **ROBERT J. TILLEY**; a sardonic assessment of the high cost of dying, by **GERTRUDE FRIEDBERG**; and **KIT REED**'s latest—about a time-traveller who fell among physicians. Also, a short and amusing piece of **FRITZ LEIBER**'s. **MIRIAM ALLEN DeFORD** tells of a horrid incident on the horrid "Middle Passage" of the old slave-trade, **TERRY CARR** considers old and new perils in the Western mountains, **ISAAC ASIMOV**—in one of his rare, recent ventures into fiction—examines filial piety in the Age of Space, while **G. C. EDMONDSON** and his Mad Friend encounter Strange Things in the Mexican Highlands. **PAUL SEABURY** takes us on a grim trip to 1917, and **ROBERT FISH** concludes the issue on a note of only half-comic despair in examining the swift erosion of our lives by our limousines.

Coming next month . . .

. . . of course, is our *SPECIAL RAY BRADBURY ISSUE*: two new stories (count them: two), a profile, and a bibliography, by and/or about the best known SF writer of our day. BRIGHT PHOENIX and TO THE CHICAGO ABYSS are the titles of the stories. You should not miss them. Plus a story of exceptional beauty by Dr. **FELIX MARTI-IBANEZ**, about a girl who might have been one of those handmaidens of the Inca, called the Virgins of the Sun; and **KAREN ANDERSON** will be there, too, with a tale from the misty dawn of history (though some may call it legend) which settles a long-pondered problem. Other goodies present therewith for your purchase, and "therein fail not. . ."

The Hakluyt of the future, author-to-be of The Principal Navagations, Voyages, Traffiques and Discoveries *of the Age of Space's early days, may even now be bubbling in his crib. Time was, of course, when every tiny port could turn out ships to circumambulate the seas—now the wealth of a wealthy nation is taxed to produce a vessel capable of venturing out upon even the shallows of the heavens. So intent are we upon the primary and essential step of getting* up, *of getting* out; *so confident are we of our technical ingenuity (this shot fails, that probe falters, but the next—ah, the next—) in creating integuments and engines, that we give no glance back to those days when the water turned green and heavy in the butts, and stank; when the crew chased rats, and, when the rats gave out, were glad enough to eat the leather of their shoes; when no man had the strength to reef a sail . . . James White of Belfast, Northern Ireland, author of COUNTER SECURITY (F&SF, Feb., 1963), considers a voyage under a baleful star, when the ingenuity of space-lore creates a problem it was intended to solve.*

FAST TRIP

by James White

WITH THE SOUNDING OF THE five second warning the clicking, whining bedlam inside *Ramsey* built suddenly to a climax. The chemical boosters fired, their thunder so deep and vast that it was felt in the bones rather than heard with overloaded ears, and the ship began creeping into the sky. It picked up speed rapidly until airflow over its fins began to assist the gyros in maintaining vertical stability, until it began to outstrip its own thunder and until five gravities of acceleration and a surprisingly few minutes of time had combined to hurl it accurately into space. Then just before the

booster stage was due to fall away the ship's reactor cut in smoothly, augmenting the enormous pre-burnout thrust with its modest half-G.

That was when it happened.

The radio unit which was attached to a bulkhead a few feet above the pilot's position tore loose and dropped onto the couch below, then rolled off and snapped through the open well of the passenger compartment as if pulled by a giant elastic band. The passenger lounge was twenty-five feet long and with over five Gs acting on it the small, metal cabinet gained enough velocity to crash through the transparent panel which looked into the cargo space without even slowing down. Here it was deflected by cargo into the food storage compartment where it left the ship via a large, ragged hole it had torn in the hull plating.

On time to the split second the booster stage dropped away and *Ramsey,* outwardly unaffected by these internal disturbances, continued along its pre-calculated flight path. After seventeen minutes at one-half G the reactor shut down and the ship was precisely on the course which would place it in orbit around Mars in a little over sixteen weeks. The fact that something had happened to the radio would not become apparent until the Captain failed to make his post takeoff check report and, because it was the radio that had gone, the people on the ground would not know that anything else was amiss. So far as they were concerned *Ramsey* was pointed in the right direction and everything was Go.

For a time the ship's passengers had the same comforting idea. All except one . . .

Herdman knew immediately that they had lost pressure by the change in the sounds which the ship was making—he was hearing them via the fabric of his couch and helmet rather than through the air of the passenger lounge—and by the way his spacesuit creaked. A leak was not a very rare occurrance during the period of maximum stress that was take-off and, provided it was not the product of some more serious malfunction, loss of pressure was nothing to worry about. The ship's air regeneration system would not be activated until after the Captain had checked that everything was sealed tight, so that all they had lost was a few cubic metres of the dusty, peroxide-smelling air which had come aboard with the passengers before take-off. Herdman waited tensely for something more calamitous to happen, and when it didn't he began to relax.

The people on the ground were especially careful with ships making their first trip, he thought sourly, and with a vessel like *Ramsey*—the first spaceship designed

primarily to carry passengers—the care with which they had checked everything must have been blood-curdling to watch. Herdman was reminded of the chilling little tale of the over-anxious engineer who had tested the free working of an emergency-jettison control forty-seven times in order to make absolutely *sure* that it was functioning correctly, only to find on the forty-eighth time that he had tested the mechanism to destruction . . .

As he lay staring at the underside of the acceleration bunk above his own Herdman let his mental eye travel further upwards, past and through the vertical tier of nine bunks above him—six of which were empty— to Control and to the man who occupied it.

After the reactor shut down there would be a forty-five minute instrument check, he knew, after which the Captain would carry out a visual inspection of his ship to make doubly sure that everything was sealed and secure. During this inspection the Captain would trace and seal the leak, and only when pressure was restored would he give permission for the passengers to get out of their tiny bunks and even more constricting spaceships.

Should anyone dare to leave his bunk before receiving permission to do so they would find themselves in trouble, because Captains did not like people cluttering up their ship during that all-important first inspection. Herdman sighed, hoping that Captain Ramsey would not insist on treating him like a passenger, that the pilot might even ask him to help look for the leak. But very likely the hope was a forlorn one. From what he had heard of Ramsey the Captain was the type who leaned over backwards and, perversely, Herdman did not want to claim any privileges which were not first offered.

But half an hour later Ramsey still had not appeared, neither had there been any of the faint, irregular sounds and vibrations from the ship's metal which would have indicated the Captain moving about. Herdman began to feel anxious, and within a minute his anxiety had grown to the point where he was willing to risk a rebuff for leaving his bunk without permission. The instant he realised that something might be wrong Herdman slapped the quick-release plate on his harness, twisted out of the bunk and kicked himself towards the cone—all without coming to any conscious decision regarding his actions. It was a matter of conditioning—if there was trouble Herdman had been trained to do the correct thing automatically, and such conditioning died hard.

Something had torn loose, he saw as soon as he reached the control-room trap. There was a one-

foot square gap in the almost solid canopy of control panels and telltales which was the nose cone. Four projecting lugs showed in the empty space, to which had been bolted the missing item of equipment, and raw metal gleamed in the empty hole of each lug. Herdman wondered briefly if some overzealous member of the ground crew had tightened one of those bolts so thoroughly that he had stripped the thread, and the stress and vibration of five Gs had done the rest. But it would be very difficult to bring a negligence charge against a man who was guilty of being too careful.

The equipment had fallen a distance of three feet onto the Captain's position, although with an acceleration of five Gs acting on it the object's speed and inertia had been the equivalent of a fall of fifteen feet under normal conditions. It had struck the Captain's shoulder and dented the side of his helmet before rolling off to go bulleting through the port at the bottom of the passenger lounge.

Ramsey's suit was badly crushed where the right arm joined the body and inside the visor the pilot's face was white and sweating. The Captain wasn't moving although the suit was still airtight. Herdman pulled himself closer and saw that the other's eyes were closed, that he was breathing and that little red beads were floating about inside the helmet, eddying with every breath that he took.

If Ramsey wasn't taken out of his suit quickly, or at least had his helmet removed, there was danger of him breathing in one of those tiny red beads and choking to death on it. But before he removed the helmet Herdman would have to restore pressure to the ship . . .

While he was applying a Number One patch to the holed port Herdman became aware of three heads looking down at him over the edges of the occupied bunks. None of the passengers made any attempt to leave their places, they probably thought he was the Captain, and Herdman ignored them until air was hissing into the compartment and the pressure gauge told him that it was staying there. Then with an atmosphere present to carry his voice he flipped his outside speaker switch and said, "All right, gentlemen, you can take them off now," and dived towards Control again.

There he swung himself over the pilot's couch, locking his legs around it at the level of Ramsey's waist, and began carefully removing the helmet.

The face he uncovered was the same one that had looked out at him from the pages of newspapers and magazines with increasing frequency over the past five years, but the utter relaxation of unconsciousness gave the features an unfamiliar look. There were three deep lacerations above and behind

the right ear, caused by the radio ear-piece which had practically shattered itself against Ramsey's skull. He swung away and began searching for the ship's log.

During the three minutes it took him to find it he discovered, by a process of elimination, that it was the radio unit which had come adrift. He also found that his hands shook and he was driven close to panic at the sight of all those familiar panels and controls in their subtly unfamiliar positions. But the feeling passed when he had the log to concentrate on.

Herdman quickly found the page giving the names and all-up weights of the passengers. *Dr. F. Brett,* he read: *Dr. J. Forsythe, Dr. M. Wallace* and *Mr. J. Herdman* . . . He snapped the log shut and replaced it in its clip, wishing that he had more detailed knowledge of the qualifications of these three no-doubt eminent doctors. But it was customary to give only minimum information about any passenger, the theory being that during the long- boring trip everything there was to know—but *everything*—about one's fellow passengers would come out in conversation, and any prepublished biographical material would spoil the fun of finding out. His only course was to go and ask them, although he was going to feel awfully silly asking three doctors if one of them was a doctor . . .

When he put the question it was a tall, rangy individual, who already had his suit off and was performing a wightless adagio dance with it in his efforts to stow it away, who was the first to speak. He said, "If you mean is one of us a *real* doctor and not just one of these common PhDs, the answer is yes. My name is Forsythe, Captain . . ."

"I'm not the Captain!" said Herdman sharply, then in a quieter tone; "The Captain has been injured, Doctor. A piece of equipment came loose during take-off. Head and shoulder injuries. I didn't want to risk taking off his suit in case I compounded—"

"Quite right," said Forsythe briskly. He steadied himself against a bunk, then dived awkwardly towards the cone. He reappeared a moment later to remove the medical kit from its rack and returned without speaking. Herdman turned to the other passengers.

"This compartment is tight and there is no immediate danger," he said quietly. "But the rest of the ship has lost pressure and there may be some damage. I'm, uh, familiar with the layout of the ship and will check the damage while the Doctor is attending to Captain Ramsey . . ."

Herdman had never been in a ship like *Ramsey* before, but he had kept abreast of all the literature as it became available. He knew that the current thinking in

the field was that spaceflight was reaching the point where it should no longer be necessary for the various governments to foot the bill completely. There were colonies and projects on the Moon and inner planets which were becoming self-sufficient in that the financial returns from their research paid for the astronomical cost of keeping them supplied, and it was felt that the time had come for spaceflight to be put on a paying basis. *Ramsey* was the first step in a long journey which would enable spacetravel to be undertaken by tired businessmen rather than reserving it for the intrepid adventurer types. It was luxurious and, for a spaceship, extraordinarily roomy. It even boasted a swimming pool.

Ramsey was the last word, Herdman thought bitterly as he squeezed through the interior lock, the only trouble was that its designers were already thinking up later ones. But Ramsey was a good man and he had a fine ship—a clean, simple design which might go for eight or nine years without major modifications. In that Ramsey was lucky. It was a terrible thing to be rendered obsolescent at thirty-one.

Herdman severed that line of thought quickly before it dragged him into a morass of self-pity. Maybe the Captain wasn't so lucky, or anyone else on board his ship. Herdman wouldn't know until he had finished his check.

The ship's layout was conventional in that Control and its associated instrumentation was housed in the nose-cone, which widened from a blunt point to the ten feet which was the maximum diameter of the ship until it tapered slightly below the reactor. The twenty-five foot cylinder below Control was divided vertically by thin metal plating supported by two of the main structural members, one half forming the Passenger Lounge and the other containing the air and water recycling gear and the control tanks to the reactor. A three-way lock built into this compartment connected it with the passenger compartment and the cargo hold, which occupied the next twenty feet below. Then came the storage compartments, the fuel tank/swimming pool and finally the reactor. A hollow pipe two feet wide joined the cargo hold with the reactor room via the centre of the tank in case something went wrong.

As he had half expected the air regeneration section still retained the atmosphere brought aboard before take-off but in the cargo space pressure was nil. When Herdman saw the extent of the damage he found himself wishing that just this once the radio unit's circuits had not been sealed into a block of rock-hard plastic to protect them against vibtation. As it was that small, dense piece of equipment had wrecked havoc enough to

make an armour-piercing shell feel proud.

The missile's path through the cargo space had been deflected by a pressurised crate which had bounced it towards the food storage bin. This it had entered close to deck level, bursting through the tightly-packed food containers therein and exiting where the hull joined the deck. The plastic containers held the concentrated liquid and semiliquid meals designed for weightless conditions, and when the compartment had been opened to space vapour pressure from the contents of the burst containers had forced most of the undamaged packs out through the opening in the hull. And if that wasn't enough there was a slight but detectable fog in the compartment.

The fuel tank, whose upper wall formed the floor of the food storage bin, had also been opened.

The first job was to rescue what food containers remained in the bin and these he tossed gently into the main cargo space for collection later, noticing as he did so that there were a few others drifting outside the rent in the hull. They also could be retrieved later. Then he traced and sealed off the puncture in the tank, entering it to make sure that all was tight, and only then did he start work on the damaged hull. He was slowed down at times because certain tools and equipment were racked in unfamiliar places, and it was three hours before pressure was restored to the rest of the ship.

But he didn't go immediately to Ramsey. The things he had been doing would have registered on the Control-room tell-tales, and Ramsey had not contacted him on the suit radio. Which meant that either the Captain was still unconscious or he approved of what Herdman was doing. Herdman wriggled out of his spacesuit, drank some water and began a careful inventory of the cargo hold and its associated storage spaces.

The cargo consisted of lab equipment, medical supplies, lightweight books and drums of black, white and red paint which, the labels stated, had been developed to withstand both the sand abrasion and the extremes of temperature to be found on Mars. There was nothing edible in the cargo, which was unfortunate. He was beginning to realise the full extent of their predicament.

Unfortunate, he thought grimly, was far too mild a word to describe it.

When he finally returned to the passenger compartment the Captain, fully conscious and talking quietly, was surrounded by a weightless shoal of passengers. Ramsey's head was bandaged, the sleeve and part of the shoulder of his tunic had been cut away and his arm was strapped to his side and rendered immobile by a

lumpy, irregular mass of sealing compound. Considering the fact that it must be Forsythe's first experience with a casualty in weightless conditions it was a very tidy job. The Captain nodded when he saw Herdman, winced as if the movement had hurt his head, and went on speaking.

". . . And I don't want to burden you at this stage with a long list of 'Don'ts'," he was saying. "As you come to know the ship your common sense will tell you what you should or should not do. The one strict rule, however, is that which forbids entrance to the control-room to everyone but the Captain. There are many reasons for this, some of which are psychological . . ."

Ramsey did not dwell on that point but went on quickly to discuss the measures devised to relieve boredom during the long voyage and spoke of the necessity for politeness and consideration between passengers at all times, for control of irritating mannerisms or habits of speech, for personal hygiene . . .

Herdman was only half listening to him. He was trying desperately to catch the Captain's eye before the other said too much. Before he got onto the subject of food, for instance.

". . . One effect of boredom," Ramsey went on, "is a tendency for some people to try to relieve it by eating. Surprisingly large quantities of popcorn can be shifted during a very boring show, for example. But it is a medical fact that the body requires much less food in the weightless condition than . . . Yes, Mr. Herdman, what is it?"

Ramsey had caught his eye at last and realised that something was wrong. The others were looking at him, too, seeing him for the first time without his suit and putting his name and face together in their minds and coming up with the inevitable answer. Within seconds they all had the expressions of people who had been introduced to royalty twice in the same day. Herdman wondered if there was a polite and considerate way to tell them that they were all going to die. If there was he couldn't find it.

He said, "I've checked the ship, sir. Apart from the loss of the radio unit there is no mechanical or electrical damage. Some minor structural damage to the hull in the region of the food storage bin and fuel tank has been repaired, but we've lost most of our food and a good quantity of fuel . . ."

"How much?" said Ramsey sharply.

"Counting what was left in the bin together with the few odds and ends drifting outside," said Herdman carefully, "I'd estimate enough for three weeks. Where the fuel is concerned I can't be nearly so accurate. A lot."

The Captain was silent. His eyes had grown dull with pain and his features had the smudged, contrasty look of a bad photograph. The others were looking anxious but not frightened. They were probably thinking that Earth still filled half the sky behind them, that it was only a few hours away and that a lot of things could happen in three weeks. All the implications had not sunk in with them yet.

"It looks very bad," Herdman went on, strain making his voice sound harsh even to his own ears. "I can't say how bad exactly until I have an accurate damage report on *you*." He looked suddenly at Forsythe. "What about it, Doctor?"

It was obvious that Dr. Forsythe was a man who had been polite and considerate all his life and not just because it was the done thing during space voyages. At the same time his gentler instincts were offended by Herdman's tone and the manner in which he had referred to the Captain's injuries. He looked ready to erupt.

"Go ahead, Doctor," said Ramsey. "As an integral part of the ship's machinery I, too, would like to know the extent of my loss of efficiency and how long it is likely to last."

The doctor looked from Herdman to the Captain and back again, then shook his head. He said coldly, "The head injuries comprise lacerations, contusions and possibly a fracture of the left parietal. As for the shoulder and arm, there is a fracture close to the head of the humerus, damage to the coracoid process and indications that the gleniod fossa is—"

"What chance has he of regaining full mobility in time for the landing four months from now?" Herdman broke in roughly.

"Yes, Doctor," Ramsey added in a quieter voice. "We have to know."

Forsythe looked at Herdman with extreme disfavour and at the Captain with compassion. He said, "With the facilities available on the ship—no possibility of obtaining x-rays to chart the damage accurately and with only a glorified first aid kit to work with—my only course is to immobilise the limb until proper hospital treatment can be given. Until then you will not be able to use the arm at all. I'm sorry."

For a long time Ramsey stared at, and through, the doctor, until the silence was broken by one of the other passengers, a swarthy, round-faced individual whose plumpness was accentuated into near obesity by the absence of weight, who said sullenly, "I . . . I'm beginning to feel hungry . . ."

"You will get used to that feeling, Dr. Brett," said Ramsey sharply, and winced again. Suddenly he looked puzzled and a lit-

tle frightened. He began staring hard at each of them in turn, as if trying to see through a dense fog. His voice, when he went on, had become slurred:

"Mr. Herdman, will you explain what this means to these people. And . . . and try to work something out . . ."

The voice faded and his eyes, which were open, turned up to show their whites. His fingers relaxed their hold on the nearby bunk and he began drifting towards the passengers.

Ramsey had passed out, Herdman saw, and the fact that a man could lose consciousness without his head lolling forward onto his chest or, as sometimes happened in free fall, without his eyelids dropping closed was having a disquieting effect on the other passengers. Not unnaturally it was Forsythe who reacted first.

"He might injure himself against something," the doctor said gruffly. "He's unconscious. We'll have to strap him down somewhere . . ."

"The control-room couch," said Herdman.

Forsythe shook his head. "One of the passenger bunks would be better. Then I could keep an eye on him . . ."

"The control-room," said Herdman firmly, and took hold of the Captain's good arm and with his fingers gently closed Ramsey's eyes. Then he launched them both towards the cone, judging the dive so that he would arrive first and be able to absorb the shock of contact with his own body.

When he returned a few minutes later the passengers had their heads together and, despite the fact that he could not hear anything of what was being said Herdman could tell that the doctor was angry because of the apparently high-handed manner in which his advice regarding the Captain had been ignored and that the others were merely frightened. They stopped talking suddenly as he approached, obviously because they had been talking about him.

This time it was Wallace, the third Doctor on the passenger list, who spoke first. He was a small, thin-faced, nervous man who was trying hard to hide his fear behind a jocular tone. He said, "Uh, Mr. Herdman, the Captain said you would explain things to us. Er, what exactly *is* our problem?"

This was a question which Herdman had been considering since the moment he had realised the full extent of the damage, which meant that he had had nearly three hours to prepare a short, non-technical answer to it. He had considered all the possible angles and permutations and no matter which way he looked at it the situation was bad, so bad that he had neither the ability nor the inclination to match Wallace's tone when he replied.

"It is a three-cornered problem," he said grimly. "First, our Captain is physically incapable of handling the approach and landing when we reach Mars. Second, when we reach Mars we will be going too fast because we haven't enough fuel to decellerate into a landing orbit. And third, there isn't enough food to keep us alive until then anyway."

He watched them try to accept the idea that they were all going to die and then reject it, just as he had rejected it himself a few hours ago. Then the objections and counter-suggestions began to come. Herdman answered them all, quietly and always negatively.

No, he told them, they could not jury-rig a radio and call for help. All communications equipment with the exception of the suit radios and the landing radar had been contained in the lost unit, and letting people know they were in trouble did not mean that they would be automatically rescued—things did not happen that way in space. And no, they could not turn back while they were still close to Earth—they hadn't sufficient fuel for landing on a light-gravity planet like Mars, so they could not decellerate to a stop and go back. The suggestion that they modify course to put them into a circum-Lunar orbit was a good one, except that the Moon was in the wrong position at present to try it. Even if they checked their velocity away from Earth, and Earth control had been worried enough by their failure to report after takeoff to set one of the big radio 'scopes to tracking them, their were no spaceships in existence which could take off from Earth, decellerate to match velocities with them and return.

The only possible hope of rescue lay in a ship following the same course to Mars, with surplus fuel aboard for the necessary velocity matching manoeuvres. But he had to remind them that even in this age of spaceflight there were rarely more than thirty ships on Earth at any given time, that traffic was considered heavy if more than three of them took off or landed in a month, and that a ship took many days to prepare for flight. During the four or five days required to ready a ship for Mars both Earth and the destination planet would have changed position so that it would require some very fancy computing to make the second ship's path intersect their's.

So the best bet would be for them to continue towards Mars, except that if they did that ground control would almost certainly think that all that ailed them was a faulty radio and not bother sending a rescue ship anyway . . .

"You've got an answer for everything!" Brett raged suddenly. "The same answer, *no!* Anybody would think that you *wanted* to starve to death or crash . . !"

"Or both, concurrently," Forsythe put in drily, obviously trying to avert a row without actually coming out in support of Herdman.

"Like everyone else," said Herdman grimly, "I'm hoping one of you will ask a question which I can't answer with a 'No.' Personally I think our position is hopeless—"

"Personally," Brett broke in hotly, "I think you're a—"

"B-before I agree with Mr. Herdman," Wallace cut in hastily, "I'd like us to try attacking the problem from a couple of different directions. To begin with let's break it into its three separate parts and consider them one at a time. Take the matter of our injured Captain first . . ."

Here it comes, thought Herdman wearily.

". . . We all know that Mr. Herdman was a pilot," Wallace continued eagerly. "We recognised him as soon as he took his suit off. We also know that he was trained for a ship whose type went obsolescent five years ago, which means that he has been, uh, retired for five years. But if we assume that we will reach Mars alive and that there will be enough fuel when we get there, then that part of the problem is solved.

"I realise, of course," he added quickly, "that *Ramsey* may be a completely different class of ship to that which Mr. Herdman trained for. But there must be many similarities, and with four months to familiarise himself with the controls . . ."

Herdman shook his head violently. "I couldn't do it! My training was for—"

"You could try," said Forsythe mildly.

"Of course he'll try," Wallace said eagerly. "We don't expect more than that. And with the first part of the problem more or less taken care of we come to the second part, fuel . . ."

Part One of the problem was *not* solved and the time to tell them so was now. But Herdman was beginning to feel a great respect for this small, nervous, frightened man who was fighting so hard not to die, and a little sympathy, too. It wasn't as if the first part of the problem alone would cause their deaths, he told himself, the end lay in all three corners. So he kept silent, not wanting to spoil Wallace's dreams.

". . . What we need to attack this problem," Wallace was saying, "is information on methods of lightening the ship together with the exact quantity of fuel remaining to us. How much fuel do we have exactly?"

Herdman shook his head again. "I don't know."

"But . . ."

Patiently and quietly, because he did not want them to think that he was stupid and non-coop-

erative as well as being something of a wet blanket, Herdman told them why he did not know exactly how much fuel remained in the tanks.

At the beginning of a trip the capacity of the tank equalled the available working fluid, with a metering device measuring the fuel which passed into the reactor and recording by subtraction the amount which remained. After the accident, however, fuel had been leaking from the tank by another exit so that the meter reading was no longer accurate. And in weightless conditions the liquid hung about inside the tank in a chaotic mass of froth—and it was impossible to tell whether it was composed of air-bubbles in water or gobs of water floating in air, except that it wasn't air but water vapour which caused the bubbles.

The simplest way to work it out would be to apply thrust for a few minutes and allow the water to settle to the bottom of the tank, then measure its height and compute the volume from the known measurements of the tank. But applying thrust would waste more of their already scarce fuel as well as causing a deviation from their flight plan which would require more fuel to correct . . .

". . . And spinning the ship to make centrifugal force take the place of thrust would not work either," Herdman added as he saw Wallace's mouth open to ask what was the next logical question, "because the ship's centre of gravity is somewhere inside the tank, and taking accurate measurements with the ship spinning rapidly around you . . ."

Wallace groaned piteously, then said, "There must be a simple way to do this. We have this dirty great tank partly full of water, which we can't measure because the stuff is weightless. It's *there,* we should be able to tell how much of it there is! D'you think I could go inside and see if something suggests itself when I'm in the tank . . ?"

"Why not," said Herdman. "It's your swimming pool as well as mine."

"That's right," said Wallace, grinning. A few minutes later he was disconnecting the oxygen tanks, air hose and breathing mask from his spacesuit and stripping to his shorts. Herdman wanted to warn him to be careful in the tank, because water could do all sorts of unpredictable things in weightless conditions, but he reminded himself that the passengers had all been given instruction on handling themselves in the swimming pool/fuel tank together with advice regarding the operation of locks, suits, the air plant and so on, and remained silent.

When Wallace had disappeared sternwards Brett looked at Herdman and said, "I suppose you've no objection to my looking over

the cargo to see how much of it we can jettison . . ?"

"Why should I?" said Herdman.

Brett followed Wallace and Forsythe coughed gently. He said, "The third part of the problem is the food supply. It might be a good idea to see exactly where we stand . . ."

"Go ahead," said Herdman.

For the best part of an hour the three men worked in or near the cargo space, the bumps and scuffles of the movements drifting up to Herdman as he hung along in the passenger lounge. Most of the time their conversation was too subdued for him to hear what they were saying, but occasionally—usually when Wallace got excited about something—he heard it clearly, and sometimes it was directed at himself.

Like the time when Wallace started talking about Boyle's Law and asking if it was possible to seal an empty spacesuit from the outside while keeping the internal pressure high. He also wanted to know if anything cataclysmic would happen to the ship if he unscrewed the pressure gauge from the cargo space bulkhead. Herdman gave him instructions on how best to achieve the former and reassurances regarding the latter and had just finished speaking when Brett shouted up if it was possible for him to see a detailed cargo manifest. Some of the cargo was pressure sealed and he could more easily estimate its weight if he knew exactly what was inside . . .

The excitement was catching, Herdman found, and so was the hope. Even though he knew that there was no hope, that it was a three-part problem and that one and one did not and never would make three . . .

There was the time when Wallace returned from the tank with his gear and a storm of vituperation erupted through the open cargo lock. Without seeing it Herdman could picture exactly what had happened. Wallace had been soaking wet and naturally, automatically, he had shaken himself. In the weightless conditions the result would have been like a rainstorm down there. But the storm of abuse died on a complaining note with Brett muttering something to the effect that if the water was so blank-blank scarce why was Wallace slopping so much of it around?

Brett did not know or perhaps did not remember that there would be no wastage of water within the ship. Any excess moisture in the air would be extracted when it went through the process of repurification and automatically returned to the tank.

After that one outburst, however, the noises coming from the cargo space diminished to an occasional grunt or rustle of paper. Then suddenly they were all coming into the passenger compart-

ment again; Wallace, still in his wet shorts, holding a damp piece of paper in one hand and grinning all over his face; Brett, radiating truculent confidence and the Doctor wearing a carefully neutral expression, both gripping their respective soggy calculations. None of them had the look of men composing themselves to die.

Wallace said, "Mr. Herdman, it was stupid of me not to see it at once. We know the capacity of the tank and the air, I mean vapour, pressure within it could be measured. Making allowances for the combined volume of myself and my gear, then introducing a known volume of air via the empty suit and then finding the difference in pressure enables us to calculate . . . Anyway, I know the amount of fuel remaining in the tank. Not exactly, of course, because the pressure guage wasn't sensitive enough to give absolutely accurate readings, but my findings taken in conjunction with Brett's calculations regarding the weight he will be able to dispose of before deceleration—"

"Let me see," said Herdman, reaching for the figures. He studied them carefully for several minutes.

"That pressure gauge wasn't sensitive to small variations in pressure," Wallace said hesitantly. "I allowed for a three percent error in either direction. But giving ourselves the benefit of the doubt I think we could just about make it."

"A pretty large doubt," said Herdman drily. "More wish-fulfillment than mathematics."

"But it's a *chance!*" Brett said angrily. "We've got to try it . . !"

Herdman ignored him and turned to face the Doctor. He didn't want to commit himself until Forsythe had had his say.

When Forsythe began to speak it was quietly and seriously, as if he was discussing a difficult case before arriving at the diagnosis. He began by laying a considerable amount of verbal groundwork to the effect that the food intake of the human body was greatly reduced in weightless conditions and that the amount which was customarily taken, although a greatly reduced quantity, was in excess of what the body actually needed during free fall. It was customary during a long trip to exercise, using spring-loaded equipment of various types, to avoid atrophication of muscles, and if a person was to remain at rest instead of burning up calories in this fashion the food intake could be further reduced . . .

". . . Taking all these factors into consideration," the Doctor went on carefully, "and providing we adhere to a very strict regimen, we should be alive when we reach Mars."

Wallace's face lit up and Brett growled, "I *told* you . . !"

Herdman said quietly, "I'd like to check your math, Doctor."

Forsythe, he saw, had listed the total food available—including some of the medication with food value, glucose and so on, which they were carrying in small quantities—and divided it five ways into the best balanced diet possible in the circumstances. He had then calculated the total calories available to each man and stretched them to cover four months. The amount per person was not large.

"What about our physical condition when we arrive?" Herdman asked suddenly.

"It wouldn't be good," said Forsythe seriously. "Extremely emaciated, severely weakened, impaired sensibilities. Very close to death, in fact."

"Would any of us be capable of landing the ship?" said Herdman gently.

Forsythe hesitated, then said, "No."

Beside him Brett cursed and Wallace looked as though he wanted to. After a few minutes silence they began to talk urgently among themselves, ignoring Herdman as if he was some sort of natural law that they had to find a method of bending to their will—a cold, mechanical presence which didn't really care. Naturally, stupidly, they still refused to give up hope. Again Herdman tried to break it to them gently.

He said, "First off I must remind you that I was not trained for this type of ship, that such training is highly specialised and that the chance you would take letting me try to land on Mars is the greatest of the three. Secondly, during the approach and landing a pilot has to be in tip-top condition, have perfect coordination between eye and muscles and generally be . . ." He broke off, shook his head angrily and went on, "If you want me to *try* to land you on Mars I will have to have full rations or very nearly full rations, while the rest of you starve to death!"

While he talked they had watched him closely and when he stopped they went back to talking among themselves. Herdman kicked himself away from them and towards the cone. He went into the pilot's compartment and closed the trap behind him.

Ramsey was awake and although his eyes looked dull he knew and recognised Herdman, but he did not question the other's presence in the holy of holies.

"As a well-informed passenger, Herdman," Ramsey said suddenly, "what do you think of her?"

"Nice," said Herdman.

The Captain raised his brows, winced and lowered them again. "Is that all?"

Herdman said a few more complimentary things about the ship, trying to work the conversation around to their present predica-

ment. But Ramsey was talking as if there was no predicament, as if they were two pilot's talking shop. Ramsey might sound coherent, Herdman thought, but he had the feeling that the Captain was not quite with him.

"Not having been a passenger-ship Captain yourself," the pilot went on pleasantly, "I should realise that you weren't programmed for small talk. Not that *Ramsey* is designed for passenger work only. My reactor can deliver three-quarters G, more in an emergency, which is enough to land or lift off from Mars or any of the moons of Saturn or Jupiter without a chemical assist. And you've seen the lock arrangement—if I set down on any satellite with ice crystals frozen out of its atmosphere, and there are lots of those, I don't have to worry about refuelling. Just shovel the stuff into the reactor tank. I think *Ramsey,* and ships like her, can open up the outer planets . . ." His voice was still low, but proud, excited. ". . . I think we'll be good for five or six years!"

"Nearer ten, I'd say," said Herdman. What difference did it make, he thought, whether he told the Captain now or a few minutes or hours from now? Ramsey was only half conscious, he was having a nice dream and it would be a pity to spoil it.

At the words a faint tinge of red seeped into the pale, sweating face as the pilot coloured with pleasure at the compliment. A little hesitantly, Ramsey said, "What made you decide to come to Mars, Herdman. The government's not footing the bill, I happen to know. So it must have taken everything you had, and they aren't stingy when they pay us off. That is, if you want to talk about it . . ?"

Herdman was silent for a moment, considering that. He had had high hopes of his own, which was very unusual in an obsolete pilot, and now that there was no hope at all he found suddenly that he did want to talk about it. But not to Brett or Wallace or even the Doctor, who was the person among the passengers who was most likely to understand how he felt. Passengers, ordinary people, were too soft, too undisciplined, too human. Only another pilot could listen and understand the things he said and the other things which he did not have to say. It was a matter of common background.

Awkwardly, Herdman began, "When my ship went obsolete I had the choice of taking the usual ground job in the service, or outside the service or doing nothing at all, comfortably, for the rest of my life on the pension. I tried all three for a while, but I couldn't plug in anywhere. There always seemed to be too many people around. Illogical people, nasty people, even nice, ordinary people. You know how it is . . ."

Ramsey would know how it was about the people, being conditioned for the solitude of space from a very early age . . .

Take one twelve-year-old boy, the winner of a series of ruthlessly competitive examinations which have weeded him out from thousands of other twelve-year-olds who likewise had stars in their eyes. Put him in with a couple of hundred other winners in one of the space academies—all the major countries had one, these days—and do some more weeding out. At the end of five years the number had been cut in half and he has begun to realise what becoming a space Captain will entail and, if he accepts what will have to be done to him—no, *wants* them to do it to him!—he goes on for a few more years of weeding out.

But even at this stage he is still human. He can smoke, date girls, have a few beers—if he wants to.

He has come to realise, however, that he is to be an intregal part, the very heart and brain, of an extremely beautiful and valuable ship—a ship. A ship which he is being psychologically tailored to fit and which will, if he qualifies, bear his name for as long as they both shall be in service. Naturally, in these circumstances, he does not want to impair his efficiency by continuing to introduce nicotine or alcohol into his system, or fog his thought processes with emotional intanglements.

To some people this would appear to be a harsh, almost monastic existence. But there is great happiness to be derived from doing what one wants to do, especially if it is a struggle all the way and one wants to do it very much. By this time he is one of twenty or thirty very special individuals. Already a ship is being built for him and all over the world people are beginning to know his name.

Because the space Captains are the world's heros. Regardless of nationality everyone knows their names, faces, backgrounds, habits. And almost as well known and respected are the obsolescent Captains and those who are in the final stages of training.

The final stages . . .

Control and guidance systems are such that a ship can be tossed accurately away from Earth on a course which will place it close enough to any chosen destination for the ship's own computer to take over. The ship's computor or Captain is a small, delicate but highly dependable fabrication of flesh and blood which has proved to be much more efficient as well as hundreds of times lighter in weight than any purely electronic counterpart. It has been trained to think and act with lightning speed, to think of the controls and mechanisms of the ship as if they were part of itself and generally to be a smoothly-functioning part of a machine designed for travel in

space. Which also means that it has been conditioned to withstand loneliness and, what is even worse in a thinking, self-aware machine saddled with that indefinable something called a soul, to live and get along with for extended periods the not very pleasant person which is itself. So close is the relationship which has been fostered between Captain and ship, both physically and emotionally, that it has been likened to marriage . . .

But when a ship became obsolete, when the design was replaced by something newer, safer, more sophisticated, so did its Captain.

Despite the fantastic generosity of their severence pay and pension none of the retired Captains were happy men. Some of them worked very hard or played very hard or drank very hard, and others did things which, had they not been heroes, would have landed them in jail. And some of them—no, *one* of them—was stupid enough to want to try doing it all over again . . .

". . . Anyhow," Herdman went on, "I got wind of this project—strictly experimental and non-government sponsored—one of the development companies was starting on Mars. They had the idea of recommissioning *Wilkinson* . . ."

George Wilkinson had been a classmate of Herdman's, which meant that their ships were of a similar basic design. To the similarity between ships was added that of the men. They had been friends, they'd shared much the same views on things and, what was perhaps more important in this case, they were physicially alike in vision, reach and reaction time. When George had gone obsolete along with Herdman and the others of their class his ship had been on Mars, and there had been no point in bringing an obsolete ship back to Earth. George had died shortly afterwards—a malfunction of his breathing equipment while out walking, it was said—and the *Wilkinson* had stood for five years before someone began getting ideas about it.

". . . The design was, and *is*, good," Herdman continued, excited despite himself, "although the quarter-G reactor needed a chemical assist during landing, and that could be downright unsafe at times. But these new reactors will let it take off from Mars or any other low-G body without an assist. It means that the chemical section of the control panel would be dead, that I'd have to forget it was even there. Probably it would feel as if I was flying the ship with one arm tied behind my back, but there are a couple of psychologists up there who think they can rebuild me to handle it. And they're going to re-name the ship *Herdman II* . . ."

"I don't like it!" said Ramsey violently. "Like taking over control of a dead body . . ."

"George was a friend of mine," Herdman broke in angrily. "He wouldn't mind my trying to take over his ship!"

Ramsey turned his eyes away. In a low voice he said, "I'd hate to think of anyone doing it to *my* ship . . ."

The sound of loud but respectful knocking on the control-room trap made the Captain break off. Herdman opened the trap quickly, saw Forsythe outside and motioned him back. When he was outside himself and with the trap closed behind him he said, "Talk quietly, Doctor. I haven't told him anything yet."

The doctor nodded but did not speak until they had drifted close to the other passengers, then he said, "It's about the food problem. I think we might be able to manage something after all."

"Go on, Doctor," said Herdman, trying hard to hide his lack of enthusiasm.

Forsythe glared at him, then went on, "As you are the most important person in this operation I've calculated as closely as possible the number of calories per day needed to maintain you at optimum physical efficiency, and this number has been omitted from my calculations regarding the other people on the ship. But here I must warn you that the amount of food which I as a doctor know will keep you fit is *not* enough to keep you from feeling hungry—in effect, you will be just well enough fed to realise that you are dying of starvation.

"Where the others are concerned," he continued, "my first idea was to divide the remaining food four ways and stretch it as far as possible. But that was not a very good idea for the reason that two of us at least would have died. So in order to give everyone an equal chance of survival the food will have to be distributed unequally. We have discussed this among ourselves and have reached complete agreement . . ."

Herdman did not say anything, but his face must have said a lot.

". . . We're assuming that Captain Ramsey will go along with the majority," Forsythe went on quickly. "The exact timing and amounts will have to be worked out later, but basically the idea is for rations to be allocated in inverse proportion to the quantity of adipose carried. Take Brett, for instance. His fatty reserve will enable him to go without food for a considerable time . . ."

At that point Brett scowled and muttered to himself in a way which seemed to indicate that *his* complete agreement had been gained with some difficulty.

". . . And the same applies to myself to a lesser degree . . ." Self-consciously Forsythe patted the barely perceptable bulge at his waist, and went on, "Captain Ramsey and Dr. Wallace will thus

have the largest allocation next to yourself."

He stopped, looked all round and ended seriously, "Dividing in this way will mean that *all* of us should be alive—just barely alive, I must add—when the time comes to land on Mars. I suppose we're fortunate in one thing, at least. Mars and Earth are favourably placed at present, and this will be a fast trip as space voyages go."

Fast, thought Herdman grimly, *as in hunger.*

There was a long silence during which they all stared at Herdman. When he did speak finally he was not thinking about the food problem or even the shortage of food, he was seeing himself in the cone of a ship which was not his and with a well-nigh impossible landing to make, and he felt no hope at all. He could not look Forsythe in the eye as he said, "I don't know."

"Naturally it will be a very close thing," the doctor went on, reassuringly but with a touch of asperity in his voice. "In order to make the food stretch absolute rest will be necessary on our part. No odd jobs about the ship, no weightless exercises or games, no movements of any kind which would use up calories needlessly. I would even advise against talking. I've no doubt we will suffer intense boredom as well as hunger, but we would all prefer to be bored and hungry for four months than to die in a few weeks.

"It also means, Mr. Herdman," Forsythe continued, "that you will have to perform all the duties about the ship normally delegated as make-work for the passengers, in addition to familiarising yourself with *Ramsey's* controls . . ."

The doctor's voice tailed off. He hesitated, then ended firmly, "It's the only chance we have. We've got to try it."

While Forsythe had been talking Herdman's mind had gone back to his investigation of the cargo hold and fuel tank. Then and until the doctor had told him the full extent of Ramsey's injuries he himself had had hopes of them being able to make the food and fuel stretch until they reached Mars. But he didn't seem to be able to make these people understand that it wasn't the food or fuel that worried him, that it was the sheer impossibility of one ex-Captain being able to fly another and later Captain's ship. Admittedly they would know about the conditioning which pilots had to undergo, or they would think that they knew, and now Herdman was tempted to keep them in ignorance.

One reason for this was that he did not want to kill all hope in them even when their cause was hopeless. Another was the fact that he wanted to live as much as they did, and they were offering, *insisting,* that he keep himself fed while they starved. Both reasons prompted his reply, but one, he

felt ashamed to admit, was stronger than the other.

"All right," he said. "We'll try it."

They were all grinning and their eyes shone. Even Brett was looking as if Herdman had just conferred some priceless boon on him. All of which made Herdman feel angry and even more ashamed of himself, although only the anger showed in his voice when he went on.

"Now that you've decided what you want to do," he said harshly, "we will get down to the fine details. For instance, the timing of meals and their distribution. In the present circumstances is it psychologically desirable for us to eat together? And if talking is to be forbidden, should we stay together at all? In weightless conditions you can rest just as comfortably in one part of the ship as another. Also, if rest is vitally necessary, should unnecessary motion be rendered physically impossible rather than merely forbidding it . . ?"

The hours began to slip past while they hammered out these and other points. Sometimes they spoke quietly, but more often not. The smiles left their faces very early in the discussion although the light of hope never quite left their eyes. Brett, in between occasional flare-ups of temper, became sullen. Brett realised that ordinarily his fatness would have increased his chance of survival to a considerable extent, but the chances of the others were being increased at the expense of his own because his fair share of the food was being withheld from him. Logically he knew that the measure equalised all their chances, but emotionally he could not see it. At one point he demanded angrily whether it wouldn't be simpler if they just cut slices off his more well-rounded regions and served them up.

There was a short, pregnant silence then which everyone rushed to fill as they tried to hide the fact that for an instant they had all been thinking about the same thing.

Cannibalism . . .

Wallace said very little. After supplying the initial idea and enthusiasm which had put the plan in motion he had faded into the background so far as talk was concerned. He watched each speaker's face anxiously and trustingly, looking frightened when a serious obstacle was raised and relieved out of all proportion when it was knocked down.

Forsythe did not display emotion beyond occasionally raising his voice, and then it was usually only to make himself heard above Brett. But there was a certain vacancy about his expression, Herdman thought. As a doctor Forsythe would, in theory, know all about the physiological processes of starvation, but he must be wondering how those processes actually felt.

And all the time at the back of Herdman's mind were the two details which most closely concerned himself. One was the landing, which could be put off for a while. But the other, telling the Captain what was being planned, he could not put off for more than a few hours.

How was he going to tell Ramsey . . ?

When he finally told the Captain, Herdman did not know whether Ramsey took it well or not, there being no previous incident like this on record to serve as a yardstick. The news seemed to affect him with all the pain and shock of a sudden obsolescence, with the added agony that it wasn't obsolescence but simple injury which was responsible and that another man was going to take over and crash his ship—unlike the passengers, Ramsey had no doubt at all that both were synonymous. So Herdman was prepared when the Captain lashed out at him with his good hand, and evaded the first blow.

But reaction sent Ramsey's body twisting backwards in his loosened straps and his head hit the metal edge of the acceleration couch. He groaned and swung again, but this time the punch lacked power and direction. Herdman closed in, hoping to restrain the Captain while he talked some sense into him, but Ramsey went on fighting. Finally Herdman called the Doctor.

While they were both holding onto the weakly struggling Captain for the few minutes it took Forsythe's shot to take effect, Herdman tried to explain the reasons behind Ramsey's violent reaction to the sorely puzzled doctor, and the patient was peacefully asleep before he had finished.

At the conclusion Forsythe said thoughtfully, "Now I realise why you inisted that he would be more comfortable in the nose-cone. I hadn't fully realised how, er, attached a Captain is to his ship. And I can see now that the landing may be trickier than we thought . . ."

"I tried to tell you . . ." began Herdman.

"That you did," said Forsythe wryly. "So much so that I thought you had a suicide complex. But you also said that you would try it . . ." He broke off, hesitated, then in a more authoritative voice went on, "To get back to the Captain, I realise that it was kindness which prompted your placing him here. Now, however, I must insist on him being moved to the lounge where I can keep an eye on him. During our tussle with him you must have noticed the weak movements and lack of coordination in the left arm and leg. The indications are that there is a parietal fracture after all, and some cerebral bleeding which has caused a mild stroke. With rest, especially with the complete rest possible in

free fall, the condition may not worsen and may even clear itself, but he will have to be moved from here."

The doctor paused again as if expecting an argument, then continued, "I know that this will cause him mental distress, but I hope to relieve it as much as possible by keeping him under sedation.

"I will move him out now," he ended briskly. "You stay here, Mr. Herdman, and get used to the idea of being a spaceship Captain again . . ."

For nearly an hour Herdman lay strapped loosely to the control couch trying hard to fit himself to the ship. This was the job he had trained fifteen years to do and the environment fitted him like a glove —like a left-hand glove three sizes too large fits the right hand, he thought sickly. When he tried a dry run on the controls his hands were slippery with sweat and his stomach was knotted in panic, he fumbled and he was terribly, lethally slow.

He remembered how the old *Herdman* had felt, and that made him feel even worse. He had to close his eyes and do nothing for several minutes until he could control his shaking hands again. Suddenly he realised that he didn't *want* to fly this ship, that his conditioning had been too thorough and narrowly specialised for him to adapt himself to it.

One man and one ship, he thought helplessly, *'til death do us part . . .*

When he left the cone Herdman had accomplished nothing. He wanted to tell the passengers that their voluntary starvation was an utter waste of time. But they were all, with the exception of the Doctor, strapped to their bunks. Ramsey was strapped firmly into Forsythe's bunk and the Doctor was tethered loosely to it where he could keep the injured man under observation. All eyes went to Herdman as soon as he appeared, but nobody spoke—they were taking the rest business very seriously, it seemed. Herdman went past them without speaking, pretending that he had something to do in the cargo hold.

At the end of the third week they were still taking it seriously. Herdman had had to adjust the air and water purifying equipment several times because they were using less oxygen than expected and Forsythe had advised them to drink plenty to blunt the pangs of hunger. Herdman suspected that the doctor was conning them in this, but since it was in a good cause he didn't question it. And anyway, they had plenty of water for drinking even if there wasn't enough for landing.

Wallace and Ramsey had grown very thin and Brett appeared fatter and flabbier. But appearances were deceptive—it was simply that his skin was getting a little too large

for him and, in the weightless condition, what adipose he had left tended to wobble more. Forsythe had grown positively boney and his practically non-existent paunch had long since disappeared.

Herdman felt obliged to mention it one day while he was helping the doctor give Ramsey a bath in the fuel tank.

"You should allow yourself a little more food, Doctor," he said. "You seem to be working on a one-inch bulge for a very long time."

"Always was a small eater," said Forsythe shortly.

In addition to the tanks and breathing masks from their suits they had head-sets directly connected by cable. They could speak without being overheard, but even then the sentences were kept short because to speak at all was against the law.

"All the same," Herdman said as another thought occurred to him, "You should bring yourself level with Wallace and the Captain here. Unless you're already passing your ration on to Ramsey because he's—"

"If I had any to spare," the doctor interrupted sharply, "I'd pass them to you. I'm a practical man and you are in a position just now to save more lives than I could."

Which made Herdman remember his continued lack of success in the control-room. He changed the subject hastily.

"I'm not an expert on this," he said carefully, "but it seems to me that the physical effort of talking —moving the tongue and so on— is not noticeably greater than the effort of breathing. Do we have to impose this absolute silence?"

"No," said the doctor, then added quickly, "but I think that if we'd talked all the time we'd have done nothing but bellyache all day long, which would have been very detrimental to morale. And anyway, silence is said to be good for the soul. It's a form of mental discipline and discipline of the mind is something we are going to need badly in the weeks to come . . ."

Herdman could not see the doctor although they were both holding Ramsey and so were only a few feet from each other. The half-liquid, half-gaseous contents of the tank, stirred into slow turbulence by their entry and illuminated by its interior lighting, made a sparkling, opaque curtain between them. Only when Forsythe moved between one of the lights and himself did he see a vague, distorted picture that was like a scene observed through cut glass.

But the water had mass if no weight. As it curled and crawled along and around the tank it tugged and pushed at their bodies like a gentle, irresistible giant. It was an exhilarating experience, Herdman thought, or would have been if the circumstances had been different. He wondered why nobody had thought of using the re-

actor fuel tank as a swimming pool before now.

". . . In a few days time," Forsythe resumed suddenly, "I'm going to suggest that a little talking will do us no harm. Say for an hour before and after, uh, lunch. By then I think the novelty of being able to talk again will keep everyone from dwelling too much on the menu—a case of trying to satisfy our hunger with a gabfest . . ."

From the fourth until half-way through the eighth week Forsythe's idea worked as he had hoped it would, although for the first few days the discussions were practically welded onto the subject of Food. But the passengers were all above the average in intelligence and they realised quickly when a discussion was totally unproductive, so they moved onto other subjects and gradually the two-hour talking period became almost a game with them.

There were few rules to the game other than the main one which stated that the two-hour period must not be exceeded. For twenty-two out of the twenty-four hours when they were not trying to sleep, the passengers lay silently framing their arguments and polishing the delivery in readiness for those two glorious hours when they would be allowed to talk. And when the verbal flood-gates were opened the result was very often bedlam. But there were occasions when the debates soared and scintillated and other times when, had Herdman not known that they were all strapped into their bunks, he would have been sure that they were tearing each other to pieces.

Although he was no longer under sedation Captain Ramsey spoke very little. Herdman himself was not invited to join the discussions, but he could not help but hear everything from his position in the cone.

On the second day of the eighth week *Ramsey* hung midway between a sapphire called Earth and a dull-looking ruby which was Mars, and half of the voyage was over. The rest, the passengers told themselves repeatedly, was all down-hill. But soon afterwards the talking among each other diminished sharply, became listless and sporadic. When Herdman mentioned it to the doctor he was told that talking constantly for two hours had become too much of an effort for him.

Herdman was ragingly hungry all the time, and Forsythe kept telling him that he was getting just enough food to make him aware all the time that he hadn't nearly enough, while everyone else had reached the stage where their stomachs had begun to shrink so that they felt weak rather than hungry. He said that he felt sorry for Mr. Herdman. But there was no way of telling whether the Doctor was sincere or indulging in a

little irony because his voice had weakened so much and the skin was so tightly stretched across his face that readings of tone or expression were impossible.

Wallace and Brett were terribly weak and emaciated also, and Captain Ramsey had shrunk until the cast around his broken arm and shoulder became useless and had to be cut away. The arm was strapped to his side now, and Ramsey was so thin that Forsythe said he could almost see the damage without benefit of x-rays and that the prognosis was very favourable provided the patient received the proper treatment.

Very little effort was needed to move about the ship. The push of a finger was enough to send a body drifting in the direction of the heads or the tank or wherever one wanted to go. But by the tenth week Herdman thought it better to accompany the men when they visited the tank. The daily dunk in the tank was about the only pleasure remaining to them, but they were so weakened physically that there was danger of them not being able to secure their masks properly and drowning.

When he was helping them in and out of the tank lock they rarely spoke to him, with the exception of the Doctor, and did not seem to want to look him in the eye. But they always stared at, and seemed to gain reassurance from, the tiny circles tattooed on his neck, chest and back which had been the markers for the space medics' electrodes taped to him during training orbits. And as the days passed more and more often they complained of feeling cold, although the internal temperature of the ship was comfortably high. He increased it several times but still they complained of feeling cold. Finally he wrapped blankets around them and they stopped complaining, even when he lowered the temperature again.

He didn't have to ask Forsythe to know that it had been a psychological thing, that they *felt* warmer and more secure when wrapped in blankets like children . . .

And gradually he could see their feelings changing towards him, softening. He was the person, Herdman realised suddenly, who washed them, fed them and wrapped them up warmly for the night. When he was doing these things, or even when he was simply moving through the passenger lounge, their eyes followed him trustingly—he even caught Ramsey doing it.

But their trust was misplaced, Herdman told himself angrily, because he was making very little progress in adapting himself to Ramsey's ship. And he was terribly, agonisingly hungry. When the job of distributing rations fell to him because the Doctor had become too weak—in Spirit as well as Flesh, Forsythe insisted—the effort to

keep from increasing his allowance took everything he had.

But the passengers did not always behave like frightened, trusting children. There was the occasion when Wallace unstrapped himself from his bunk while Herdman was busy in the cone and made himself violently ill by trying to eat the contents of one of the trays of green goo in the air unit—a highly specialised, nauseous but not poisonous species of plant-life which was responsible for recycling their air. On that occasion he reminded them all quietly that they could eat the stuff or breathe but not both, that to get any good from the stuff they would need four stomachs like a cow, and that henceforth he would strap them into their bunks in such a way that only he could let them out.

Then there was the time when he was bringing Brett from the tank, and Brett began whispering urgently to him, suggesting a way of saving weight and helping the food situation at the same time. His idea was that they eat somebody and discard the inedible remains. At present it looked as if they were all going to die of starvation with the exception of Herdman, and this way at least three of them would survive for sure. Brett didn't care much who the somebody was, although he expected that it wouldn't be himself because he had suggested the idea . . .

Later, when he was dunking Forsythe, Herdman told the doctor about it.

Forsythe's lips drew back in a grimace which looked horrible but was probably meant for a smile. He said weakly, "Surprised it wasn't suggested sooner. To be expected . . . in the circumstances. Don't see why you're . . . so angry about it."

"I'm angry," said Herdman grimly, "because the damn fool made my mouth water."

"Oh," said Forsythe.

Several minutes later he said, "A person who talks about doing these things . . . rarely does them."

His tone seemed lacking in confidence.

At fourteen weeks out Earth was a tiny blue jewel far astern and Mars hung in the blackness ahead like a big orange ball that had been slightly smudged with handling. The passengers and Ramsey were incredibly emaciated. They had no inclination to speak, they scarcely seemed to breathe and only their eyes moved when Herdman passed them. With just their faces showing above the blankets, faces that were little more than skulls covered with skin and hair, it was becoming difficult to tell them apart. He was no medical man, and in the circumstances he couldn't very well ask the Doctor, but he very much doubted if they could last another two weeks.

He wondered if he could pare down his own rations enough to help them, but reminded himself how thin his own body had become and how he had greyed-out momentarily a couple of days back when he had moved his head suddenly. Then he wondered if it really made any difference, because he wasn't doing well in the control-room anyway.

Then ten days out from Mars, when Herdman was running through his fourth simulated landing in a row and trying desperately to coax a fraction more speed and accuracy out of hands which felt like two left feet, he became suddenly aware of Forsythe hanging over him.

"How the blazes did you get out?" he snapped, then at once softened his tone. "Sorry, Doctor. I'm not angry—at you, that is. And now you're here maybe you can help me. Basically it is problem of psychology . . ."

"You forgot to strap me in," Forsythe broke in weakly, but with an undercurrent of pleasure or excitement in his voice. His lips made a death's head smile and he added, "Or maybe, considering what you've just said, you used a Freudian slip-knot . . ."

Cracks at a time like this . . . thought Herdman, ashamed at the comparison with his own manner and feelings.

". . . But you're getting on top of it now, Mr. Herdman," he continued, slowly but enthusiastically. "Piloting *Ramsey,* I mean. I was watching you. I've never seen anyone's hands move so *fast* . . !"

"Slow, Doctor," Herdman said soberly, "for a pilot."

Sighing, Herdman tried to explain what fast meant to a spaceship Captain and what an approach and landing entailed. Even Captains in charge of their own vessels had to practice constantly to keep their hands in, he explained, and used taped data fed randomly into a panel which was otherwise dead. The dry runs were always difficult, always unexpected in the problems they threw out. And very often the problems had to be solved faster than thought. They had to be solved automatically, instinctively, without thought.

In the old days a bird could be thrown into space and, with all systems Go and an incredible amount of luck all round, it could be soft-landed with a small instrument package on another planetary body. Five hundred tons of rocket and associated electronic gadgetry to land fifty pounds of instruments. But when manned spaceflight arrived economies of weight, fuel and mechanisms became necessary. The people on the ground were no longer responsible for everything, they merely hoisted the bird aloft and pointed it where it was supposed to go. They didn't load it down with telemetering devices—if anything went wrong

there was a pilot to tell them all about it. Neither did they use ninety percent of the available payload fitting automatic, and often fallible, landing equipment. Ther was a pilot to take care of that, too. A pilot who was a hundred times lighter and more dependable than any servomechanism ever built, and whose rigorous training and deep-level conditioning enabled him to operate at very nearly the same speed.

As one of his instructors had told him during training, a man was not simply fitted for space, he was physically and psychologically machined to fit both space and his spaceship. Exactly. The way a nut fitted a bolt . . .

". . . And this nut," said Herdman grimly, tapping himself on the chest and nodding at the panels surrounding him, "does not fit this bolt."

"This nut . . ." began Forsythe, and coughed. He went on, "Your instructor was not without a sense of humour. But can't you force the thread a little. After all, man is the most adaptable machine there is, and you've done very well so far. In another ten days . . ."

Again Herdman tried to explain that *Ramsey* wasn't his ship—it wasn't even his old ship's sister, there was no family resemblance at all. The instruments were in the wrong places, at awkward angles and distances from his hands. She was different in a hundred more subtle ways. Even her paintwork was wrong—a cold, unfriendly combination of white and cool green. *Herdman's* control-room had been warm grey with the main panels done in a deep, rich brown —those colours were keyed to his personality, the psychologists had told him, and were very important to his emotional stability.

The Doctor was following every word that he said, and probably thought that he understood. But Herdman knew that he didn't.

"I'll do another run," said Herdman suddenly. "You watch. You'll see that I move fast, but with a certain jerkiness—I'm having to stop and think . . ."

The forward vision screen remained blank but all the other instruments—approach radar, hull temperature, atmosphere density and turbulance and a dozen others —were sending him a picture plainer than any screen could show of a planetary surface swooping up to meet him. His controls were not many for a reactor landing—jet deflectors and thrust control, mainly, but it was a matter of anticipation and feel more than anything else. There wasn't time to look at the instruments and then think what to do. So his hands moved fast, faster. Sweat popped on his forehead and hung stubbornly in the air before his eyes. He groaned and tried to move faster still, and suddenly all the instruments were at zero and he

joined his shaking hands across his chest in a gesture that was almost one of prayer.

"Well," said Forsythe admiringly, "we're down. That seemed fast, and smooth enough, too. I only saw you fumble once."

Herdman grunted and a few seconds later began questioning the doctor about Ramsey's condition. He didn't have the heart to tell Forsythe that he had been still correcting for wind deflection at twenty-thousand feet when the instruments said that they were down. They would have been down, all right, in a thirty-foot deep grave they had just dug for themselves.

Five days out Herdman began preparation for lightening ship, tracking down each item of cargo or movable equipment and carefully estimating its weight. All of the cargo could be jettisoned, also all the personal possessions of everyone aboard, much of the water and air regeneration gear—including all the precious greenery when every last drop of moisture had been squeezed from it and transferred to the fuel tank. That would be one of the last things done, of course, because he would first have to replenish the ship's emergency air tanks and those of the passengers' suits. When he had totalled all the disposable weight he went over Brett's figures again.

There still wasn't enough fuel, but what they had fell so little short of the minimum requirement that he had to try for a landing.

The thought came that he might jettison a passenger—he had the figures on their respective weights as well as those on their baggage and the cargo. But he thrust that thought firmly out of his mind and began busying himself with lightening ship.

All the small stuff he tossed out of the airlock in different directions. He did this because a ship in distress was supposed to give all possible information regarding the cause of its trouble in the hope that a similar accident could be guarded against. When ground radar on Mars picked him up that debris would have travelled so far that *Ramsey* would show as a point of light surrounded by a large, fuzzy trace—a clear indication that he was short of fuel. Because they would already have been trying unsuccessfully to raise him, they would know that *Ramsey* had no radio. It wasn't much data he was giving them, but it was the best he could do. The larger stuff—heavy machinery, the pressure containers which the manifest said contained paint, the spare spacesuits—he let drift outside the ship. They would fall ahead immediately he applied thrust and there was no point wasting energy in pushing them away.

He was supposed to be saving his strength for the landing.

With two days to go the food ran out. All of the food, including his own. Herdman's allowance had been calculated to last him until the final day of the voyage—he was supposed to take a meal a few hours before landing, in fact. But Ramsey and Wallace had seemed to be dying a couple of days earlier and he had increased their ration. This had been a very stupid thing to do; but it had been just after a particularly unsuccessful session at the controls and Herdman had felt that it didn't matter much whether he was physically fit during the landing or not when he was going to kill them all anyway.

And now all the passengers looked as if they were dying. Their white, skeletal faces were turned outward from their bunks and their eyes were open, but they didn't seem to see him when he passed. Some of them didn't move even when he disturbed their blankets to feel for the fast, incredibly weak pulse at their wrists.

It was later on the same day that he discovered an error in their flight path. Considering the distance they had come the error was trifling, but it required five seconds thrust at one-quarter G to correct it and they were already on a negative safety margin of fuel . . .

One effect of the course correction was that the passengers, feeling the ship under power again, began to show some interest in things again. Herdman used the period of increased awareness to explain the landing drill as it would effect them. How at minus eighteen hours he would perform the pre-landing checks and put everyone into spacesuits with the helmets left open. This was so that they would be on ship's air for as long as possible. At minus three hours he would seal them up, blow all the moisture which might be locked in the air purifiers and plumbing into the fuel tank, and dump everything that was movable out the airlock. The fuel and food situation being what it was there would be no stooging around in orbit. They would drop straight in.

All the time he talked loudly and reassuringly, as if it was a simple matter of time before they were down on Mars being cared for.

He wanted them to die as happy as possible. Herdman thought he owed them that much at least.

After dragging its feet for so long, time began suddenly to race by. He practiced dry runs every chance he got, and his chronometer told him that he was doing steadily worse instead of better. Forsythe had said that a human being was the most adaptable machine there was, but Herdman's ability to adapt seemed to have been trained, conditioned, out of him. He had been fitted to operate in a spaceship, his own spaceship. The things which the psycholo-

gists had done to him were basic and beyond the influence of logical thought processes. He was trying to force himself to fit a ship which was not his own, and he felt that the ship hated what he was doing as much as he hated doing it. But he *had* to make friends with this cold, hostile, awkward ship. For a few hours he had to make her do what he wanted.

The pre-landing checks took longer than he had expected. Herdman felt very weak and he seemed to be fumbling a lot, and it was minus fourteen hours when he started the long, heart-breaking job of putting the passengers into their suits. The first thing he discovered was that he would have to leave off their gauntlets temporarily as well as the helmets—he had forgotten, because the process had been so gradual, how long their fingernails had become. The gauntlets wouldn't fit until he trimmed their nails.

All at once Herdman felt revolted by these brittle, dry, horribly emaciated bodies and the empty, staring eyes—most of them seemed too far gone to know either hope or fear or even hunger. Yet he had had to do much worse things than cut their nails for them. His revulsion changed suddenly to anger and then guilt. It wasn't fair that they should be unknowing and uncaring of what was going to happen to them. He should have told them all long ago, and insisted that they listen and understand. Now his load of guilt was too heavy. He had to unload it on somebody if only to ask forgiveness.

He began to shake Forsythe's suit, hearing and feeling the doctor's body moving loosely inside it, talking softly and earnestly into the open face-plate. He wasn't sure what he said exactly except that his guilt and his helplessness and his dilemma with the controls figured largely in the passionate monologue, and that after a long time he stopped because the doctor was trying to say something.

Putting his ear close to Forsythe's lips he said gently, "What was that, Doctor?"

"Maybe you got . . . wrong end . . . of the stick," Forsythe whispered in a feeble, unutterably weary voice. The rest of what he said was slurred and unintelligible.

"What did you say?"

The Doctor made a supreme effort to control his breath and tongue. "Got to adapt," he whispered carefully. "But adapt . . . adaptability . . . works both ways . . ."

He said nothing coherent after that, but he had said enough. As Herdman kicked himself towards the control-room he asked himself viciously if he had been conditioned to have a one-track mind or was he just naturally stupid . . .

The ship's tool kit had not yet

been jettisoned and Herdman attacked the control panels, unbolting or cutting away everything that would move and which was in the wrong place. Some of the gear would not be necessary for a reactor landing and could be moved without regard for connecting wiring. But other pieces he had to move, sometimes only a few inches, with the associated plumbing remaining intact. Sometimes these necessary items did not possess the right type of lugs or brackets to fit their new positions, and Herdman wired them or stuck them in place with sealing compound. The compound might not be strong enough to hold under thrust, but it would do until he could think of something better—if he had time to think of something better.

Less than five hours remained now before landing. There was still a lot of equipment which had to be shifted around in the cone, and he would have to think of a way to mix paint in weightless conditions, fasten everything down properly, do another instrument check and seal the passengers. Every second was precious . . .

Suddenly Captain Ramsey was with him in the cone, snarling, eyes glaring, no doubt attracted by the noise. One arm was inside the body of his spacesuit but he kicked out towards Herdman, clawing at his face with the other hand. Hardman tried to fend him off but two of the inch-long talons at the ends of his fingers raked across his face from eye to jaw.

"Damn you!" Ramsey screeched thinly. "My ship! My control-room . . !"

Fury was giving Ramsey the strength to fight as well as speak. In vain Herdman tried to hold that clawed hand away from his face while he explained to the Captain what he was trying to do. But Ramsey wasn't listening, the minutes were slipping by and Herdman was in deadly danger of being blinded. Balling his fist he took careful aim and drove it into the open faceplate.

The opening was the wrong shape to allow him to hit Ramsey on the chin—all he could do was strike him in the mouth and nose and bounce the Captain's head off the inside of his helmet. But he had to hit him five times altogether —carefully, almost timidly, at first because he didn't want to compound the other's head injury, but with gradually increasing force each time. When Ramsey was finally unconscious Herdman was almost sobbing, and not because of the pain from his bleeding face and knuckles.

He returned to work, frantically trying to make up those lost minutes. Where cabinets and panels could be bolted into their new positions he used bolts, otherwise he used wire or sealing compound. Thrust during decelleration would rise little above three-quarters G

and there would be vibration only when they entered atmosphere, but the sealing compound still worried him. It was an adhesive, fast-setting, strong and should do the job. While he worked he went over in his mind the weights of the panels concerned in relation to their areas of adhesion. It was going to be very risky, he knew; if the control-room fell in on him when he was trying to land, the equipment wouldn't kill him but the resulting crash would. He had to think of a way to cut down the risk, if only by a fraction.

The shade of grey that he mixed and sprayed onto the bulkheads was dirty rather than warm and the rich brown on panels and trim was also on the muddy side. But the place was beginning to look very like the control-room of the old *Herdman,* and it felt right. Logically he knew that this wasn't the *Herdman,* but it was emotion rather than logic that had made him Captain Herdman of *Herdman* and it was emotion that was making *Herdman* out of *Ramsey.*

The nut couldn't adapt, he thought a little wildly, *but it had the power to adapt the bolt . . !*

He was forced to stop half an hour before they were due to begin decelleration in order to cut fingernails and seal the passengers. It was then that he got the idea for increasing the effectiveness of the sealing compound.

The stuff was an adhesive, which meant that it worked in part by excluding air from the interfaces of the objects which it joined, and air pressure acted everywhere except on the adhering surfaces. By increasing air pressure, he reasoned, he would help to hold them together. But when he pumped all the available air into the cone and cracked the valve on the reserve tanks the pressure guage wouldn't register the rise. It wasn't built to show increases of such magnitude. Judging roughly by its effect on his suit, however, Herdman put the pressure at four times normal.

At that pressure a spit would make a good adhesive, he thought.

Twenty minutes later everything was holding, Herdman was putting the finishing touches to some indicators he had painted on a bulkhead—indicators which would not have to be in detail because they were on the fringe of his vision, but which would make him feel more at home—and Mars filled the sky ahead. He had already picked the spot where they were going to land, the vacuum outside was beginning to soften with their entry into the outer fringes of the atmosphere and Herdman was feeling quietly and intensely confident.

Like Gaul their problem had been divided into three parts. They had gotten around the shortage of food and a proper pilot, and the problem of the fuel had just disap-

peared. Because Herdman had realised suddenly that he had been basing his weight calculations on wrong information, that one of his constants had been a variable. He had forgotten that while the passengers had been starving they had lost enough weight between them to swing the balance.

Herdman knew now that they were going to make it . . .

Sand and steam were still rising in clouds from *Ramsey's* stern when Herdman blew the cone's emergency hatch and raised his suit antenna clear of the shield effect of the ship's hull. As expected he found that someone at the settlement was calling them on the suit frequency. Herdman explained the position and was told that sand-cats and a pressurised ambulance would be at the ship within twenty minutes.

Herdman returned slowly to the acceleration couch and lay listening to the sound of four sets of breathing coming over the passengers' suit radios, and feeling good.

Still Shall The Lovers

When we shall stand, no longer wondering,
On uplands ochre with the sands of Mars,
Where the blue clouds—the never raining—bring
Their color to the noonday and its stars;

When the long parapets below our sea
Wall a familiar landscape, and we stare,
Adventure-sated, at some filigree—
Blossom or beast—that never stirred in air;

When we have cored beneath the ocean flow,
Have mined the sky, used distance for a bridge,
When there is nothing Uranus can show
Remarkable behind some frozen ridge;

Still shall the lovers, breathless with surprise,
Find wonder written in each others' eyes.

—Doris Pitkin Buck

It may have been Li Po who mused that he was never really sure if he was a man who dreamed he was a butterfly, or a butterfly who dreamed he was a man. Mr. Burke had similar problems, and if he was not quite given to Pangloslike panegyrics about the best of all possible worlds, he at any rate knew of a world which was worse. Robert J. Tilley, creator of Burke, lives in the English port city of Bristol, is in charge of display and exhibition design for the South Western Electricity Board, plays a tenor clarinet (jazz), and describes himself as "only a writer spasmodically . . ." Of his twelve sales, mostly to British SF magazines, one was an EQMM award Winner (The Devil and Mr. Wooler) *in 1955, and another,* The Apprentice *(F&SF, Feb., 1960). Mr. Tilley says that his own dream is "To get my hands on a million pounds and give it all to Orson Welles on condition that he use it to make a picture of [Ray] Bradbury's* The Martian Chronicles. *What a collaboration* that *could be!" This is another in the series of dream stories by various authors, more of which await you.* Wake up!

PLACE OF REFUGE

by Robert J. Tilley

FREQUENTLY, BURKE FOUND *himself wondering just what exactly would happen if he should ever successfully resist returning from the refuge of the nightly dreams.*

It was an absurd thought, but a tantalising one. Each night, as he watched the abrasive planes of reality dim and recede, it was as though an enormous demanding pressure was being lifted, permitting him to suck in gouts of fresh, clean air that scoured his lungs of the acrid fug clouding bitter reality. If only, he thought, resistance could in some way be prolonged, the retreat from the agonising

pressures of fact extended indefinitely. Then he could linger forever at peace in the cushioned, ludicrously unfeasible world created as the answer to his longing for liberation from the shackles of disorder.

Impossible, of course. The little changing pattern of the dreams ensured that. As he lay in the darkness of the final ritual that warned of its imminent termination, dully aware of the silent explosion of light that diminished rapidly to a winking pin-point, he would feel the restraining pressure grasp him, slowly loosening the fingers of his mind from their fading grasp on actuality.

He frowned as he walked, moving up through the mist that covered the grassy slope with long, effortless, strides. It was very early, and the sky was still hidden by the damply clinging haze.

Mitchell walked down the slope towards him, looming solidly out of the greyness, grinning like a dark-suited dervish.

Burke crouched, then sprang. They fought, suspended above the soaking ground, twisting and revolving in a grotesque arabesque that carried them very gradually down the slope.

Burke was dying when he found Mitchell's throat. He cuffed it, felt the big white hands loosen from his own neck, then seized below the jutting jaw, squeezing, watching the lips peel back from the small, indisputibly false teeth, his own face mimicking the contortion of asphyxiation, his voice echoing the clicking wheeze that jerked beneath his thumbs.

Mitchell went quite suddenly, as he always did. It was as though the skeleton had been instantaneously whisked out of his body, a diabolically clever conjurer's trick that left only a sad, flopping thing that collapsed upon itself, empty and unresisting. The face ceased to plead. It leered nullity, like the squashed head of a rubber doll.

Burke dropped him, feeling distaste and vague triumph beneath his tiredness. He moved past the jumbled mound of clothes and collapsed flesh and on up the slope to where the girl waited. It was lighter there and the mist was fading, exposing the bizarre clutter of the landscape and the white wash of the morning sky. They sat and talked, Burke watching her hands and face and yellow hair and dully wondering when and how she was to be taken from him.

The light increased, and the girl stood up and ran away from him, down the far side of the slope. Fearfully, Burke followed, caught her, then walked with her beside the dark, dripping hedge, not speaking, occasionally glancing at her and then across the haze-covered field or up at the pale sky.

He turned his head away from

the sky and the girl had gone. He paused, frowning, then saw the brimming round hole, almost by his feet. It looked like a sewer opening. A round black metal lid lay beside it, and brown water licked gently at the concrete rim occasionally splashing over onto the muddy ground of the field.

That is where she is, he thought, down there. He knew that to save her, he would have to lower himself head-first down into the tube, first kneeling beside it and plunging his head and shoulders beneath the brimming brown water. Then, if he failed to reach her, he would have to lower the rest of his body down, connected to the air-filled world by only the toes of his shoes, hooked upside-down to the slippery circle of concrete.

He tried to scream for help, but could make no sound.

After a while he wandered on through the heavy, clinging grass, shivering, and trying to forget about the girl. He walked for a long time and suddenly came to a grey, small-windowed house, with a brightly painted stable facing it across a cobbled yard. The stable door was open and he went inside.

A bacon-slicer was set on a box, and piled beside the box was an untidy mound of sides of bacon. An apron hung on the door. Burke put it on, pulled another box up to the slicer, and started to feed the bacon through it. He found the action vaguely soothing as he nudged the clammy brown sides of meat towards the blade, tugged downwards, lifted, then nudged again.

He finished a side and turned his head as he reached for another, bringing the blade down to rest as he did so. When he looked at the slicer again, a dog's paw, neatly severed, was lying on the pile of bacon slices. The dog was standing mutely beside him, a pawless foreleg raised. There was no blood visible. The end of the leg was pink and clean, and it was obvious that the animal was suffering no pain.

He tutted, and picked up the paw. It was warm, and very hard. He put it in the pocket of the apron, watching the dog as it wandered round the yard, hobbling, but seemingly indifferent to its sudden loss.

Burke walked across the yard to the grey house and knocked at the door. A woman opened it almost at once, and said "Yes?"

Burke said, "I've cut off the dog's paw. It was an accident, of course."

"Well, then," the woman said, and laughed very loudly. She went away, leaving the door open.

Burke followed her. She was working inside the kitchen, placing trays of unbaked bread into a large black oven.

"No, look," Burke said. He took the paw out of his apron pocket

and held it out to her. "I have. Here it is."

The woman laughed again, still pushing trays into the oven. A man wandered into the kitchen through another door. Burke appealed to him instead.

"I've just cut off the dog's paw," he said, and held it out to the man. It was cooling perceptibly by this time, and appeared to be much smaller. "What can we do?"

The man said, "Oh, it'll be all right."

Burke felt frustration gathering inside his head. "But we've got to fix it. What can we fix it with?"

"It's nothing," the man said, moving aimlessly around the kitchen.

"Yes, it is!," Burke shouted. His throat was constricted and his voice was very small. The man and woman ignored him, the woman still working at the stove, the man staring broodingly at the fireplace.

Burke threw the tiny dog's paw onto the kitchen floor, and went back to the yard. The dog was curled in the open stable door. It had a rat and was teasing it, cuffing it first with one forepaw, then the other.

Enraged, Burke shouted something inarticulate at it. The dog started to eat the rat, ignoring him. Burke left the yard, weeping, the tears leaking jaggedly down his cheeks.

He wandered for a long time, occasionally seeing what appeared to be animals and people, but they were always far away. They moved as he moved, in lines of direction that often bisected one another, but always too late or too soon to permit conversation, or even identification. Gradually it became very hot, and the irridescent blotch of the sun made confusing configurations of the landscape, spreading washes of color through the ever-present mist and making the surroundings bright, dark, then bright again.

At last he came to the edge of a cliff, and peered down into the darkness below, hearing faint music. Excitement gripped him. He looked for a way down, but saw nothing. He ran by the cliff edge, searching, but there was no path, only the sheer, unfissured face of the rock, sweeping down into blackness.

Wearily, Burke knelt, and gazed down towards the unseen place from where the sound still rose, muted and very distant. I could float, he thought, but immediately he felt afraid. Floating had betrayed him before, dashing him unexpectedly and horrifically downwards, cancelled somehow by the implacable none-rule of things. No, there must be another way. He searched again, slowly now, willing himself to look calmly and methodically, ignoring the urgency heralded by the deepening dusk.

The sky was a dark, brutish purple, and there was a steady rustle of unseen movement around him when he found the entrance to the tunnel. It loomed out of the near-darkness, a dull copper disc set at a forty-five degree angle in the concrete neck that angled from the ground. He twisted it open, then stumbled back, crying out. It was full of brown water, with long yellow strands floating limply on its surface. He tried to run, but he was blind in the purple darkness and there was fearful movement close by him.

He turned back to the tube and the water had gone. Now he could see dry concrete walls, brightly lit by hanging fluorescent fittings. Cautiously, he stepped inside, closing the lid behind him, then moved very carefully down the steep slope. Gradually, the tinny sounds of the music made themselves heard again. Burke hurried, joyfully identifying the metallic clatter of a fairground, a welter of piping and thunder that filtered to him along the passage.

He stepped out into the night air, laughing. Music boomed and shrilled about him, and he wandered between the brightly lit, empty booths and empty, whirling machines, searching, but he could find no people.

At last he looked up, and saw the ferris-wheel, its lurching cars garish with haphazard designs. Mitchell and the girl sat in one, the girl passive, her hands loose in her lap, Mitchell's heavy body twisted on the seat beside her and his hands cupping her face.

Rage washed through Burke. He reached out, fastened his fingers on Mitchell's neck, and heaved. Mitchell writhed round to meet him, his hands futilely grasping at his wrists. Squeezing, Burke watched the slow distension of his face, expanding like a white balloon, the features small and black against the surface.

Mitchell's head exploded, and there was a sudden uprush of hot, fetid air as his body collapsed. Burke flung the sagging remains away and slumped exhausted beside the girl, his eyes hopelessly searching her composed face.

They sat in silence as the wheel spun. Gradually, the warm night breeze soothed Burke, gently dulling his vision and then his mind. He dozed, thankfully letting himself sink into the malleable refuge, moving up and away, slowly at first and then in an accelerating spiral, whirling higher and higher towards the brightening clamour that was obliterating the fair and the world.

He slept.

Burke pushed a limp arm from beneath the clothes to quieten the alarm-clock that jangled tinnily beside the bed. He slumped back against the pillow, yawning, then turned onto his side.

He smiled at the supine mound that lay beside him, then prodded it, gently.

"Hoy," he said. The mound stirred, fitfully, and muttered something, "Well, you can't," Burke said. "Not unless you want me to get my own breakfast, that is. How about it?"

His wife disgorged herself suddenly and violently from the bed and groped for a bathrobe, still muttering. Smiling, Burke pushed himself up and out and worked his feet into his slippers.

"How the hell," his wife said, fiddling for a lost grip in her yellow hair, "you manage to wake up every morning so sickeningly cheerful, I shall never know. It's a trick worth patenting, believe me."

Burke laughed, and reached for his trousers.

An hour later, he squeezed himself into the rank atmosphere of the subway carriage, wedging himself solidly between a woman in a wide, hard-brimmed hat, and a mild-faced man in a dark suit.

"Hi, neighbour," he greeted the man. "How're the radishes? Flourishing?"

"Lousy," Mitchell said. He looked glum. "Must be the same goddam Commies that did for my rhubarb, I guess."

Burke laughed, and scanned the headlines of the morning paper, patiently and carefully folding and re-folding it in order not to jog the people around him. More atomic tests were due to start in a month's time, and the latest figures for lung cancer were causing great concern, he noted. But, there again, there was promise of an extended summer, the state school building programme was well up to schedule, and already the Pirates were way ahead of the rest of the table.

God!, he thought, deeply grateful. He beamed round at the grimy carriage and the solid phalanx of people that it held. God, what a beautiful, dirty, stinking, organised *dream it was!*

Asked by our overworked staff to provide a biographical note, Mrs. Gertrude Friedberg replied as follows: "Biographical note / *I had a play, THREE-CORNERED MOON, on Broadway and in the movies. Since I turned to story-writing, I have had several pieces in various magazines, including* Atlantic Monthly, Harpers, Esquire *and* New World Writing." *If this, her first story for F&SF, does not exactly baffle description, it certainly challenges it; and we can chicken out as well as the next man. You'll have to read it yourself, then, if you want to discuss it wherever well-read people gather for discussion. You won't be sorry.*

THE SHORT AND HAPPY DEATH OF GEORGE FRUMKIN

by Gertrude Friedberg

EVERY MORNING GEORGE GOT up, looked at the typewriter and said, "I can't possibly work today."

And every day proved him correct.

Mac kept telephoning. He sounded as if he were going to cry. I guess I did, too. Mac had gone into rehearsal with a play that had second act trouble, counting on George to fix it, and now a week before the Philadelphia opening, George had still not come through.

"He says he can't work today," I told Mac.

"I'm going to drop it, Helen. I'm not throwing good angel money into this if I haven't the script I want."

How could I tell him that besides being balky and uninspired, George was sick? I hung up and looked at George.

"I can't possibly work today," he said.

"It's not that." I listened a moment. "I don't like the way you sound."

"You never like the way I sound. What's the matter with it now?"

"Your hum kept me up all night. And now you've got a knock."

"It's this damn play. Who wouldn't knock?"

But during breakfast I could see that he was listening, too, and a little while later he let me phone for Service to take a look at his Free-line Cardioport.

We waited all day and Mac kept phoning. George took the whole morning to type one line and the whole afternoon to x it out.

"It's about time," I said when Dr. Stebbins finally arrived.

"Now, now, Mrs. . . ." (It annoys me that he never remembers our name. "De Gaulle," I supplied.) ". . . De Gaulle," he said, "no reproaches. There was a power failure in Brooklyn due to the storm. And plenty of people still live on house current you know. Not everybody can afford a fancy Free-line. In one family I found six people plugged into one small battery they had removed from a portable TV set."

I was glad it was Dr. Stebbins. He was eccentric but sound and at least he had his electrician's license from the American Institute of Cardiac Ignition instead of the corner Eduprocess Plug-in like some of the young ones.

"What seems to be the trouble?" Always that little dig with the word "seems." As though it were all in your stupid mind.

I told him. He fixed his light on his forehead and got out his screwdriver, nut-remover and wrench and laid them on the kitchen table. We eat, sleep and work in the one room.

"Do you have to take everything out?" I asked.

"Well, now," he said soothingly, "there are a lot of adjunct parts to an artificial system. I'll leave the atrium and the ventricle, but a lot of the rest . . ."

Without waiting he had deftly begun to remove the outer plates from George's chest.

"I just don't like everything lying all over the floor. The maid's coming in pretty soon."

Doctor Stebbins was reading the Polaroid ecg tape spewing from George's chest.

"Shot to hell." he said.

"It is?" said George, his voice breaking.

"The market," said the doctor.

Doctor Stebbins has an unfortunate habit of exclaiming over irrelevant personal matters while he goes through his electrical repairs.

By now he had a lot of George laid out on the floor and had set up his testing board. He inserted a wire-tipped antenna into one of George's electrodes. We watched the blank white faces of the various little bulbs on the board. A light came on.

"Damn it!" said Dr. Stebbins.

"What is it?" shouted George in terror and I put my hand over my mouth to stifle a scream.

"I forgot to tell Service where I was."

"But his heart! That light!"

"Oh, that's perfectly normal. That's the systolic all-clear. Now let's see some of the diastolic units."

He plugged in a few more. Some of the lights came on; a few flickered and went out.

"Well, Mr. . . ." ("Chatterley," said George) ". . . Chatterley," said the doctor, "it's the intercostal hook-up giving you that diastolic knock. The amplitude control is under threshold. You'll need a new battery and a new variable autotransformer. Do you have major cardioparts coverage?"

"Yes, but about all it covers is a lot of paper," said George. "Can't you fix this one?"

"I certainly can. And I won't say you couldn't go on with it, but I wouldn't give it more than a week or two. It might go any time day or night. Of course it's up to you."

I don't know why they pretend they're giving you a choice.

"Oh, go ahead. Have you got it with you?"

"Right here. I'll have to get everything calibrated to your own cardiovascular system to get a good monophasic impulse, so I'll just unplug you and . . ."

George turned white.

"You're not going to disconnect me."

"I'll switch you right on to house current."

"No, no! I can't let you do that."

"Come on, George," I said. "Don't fuss. It's nothing. I looked it in 'Looker's Capsule Digest'."

"You'll be dead," said Dr. Stebbins cheerfully, "but just for the time it takes to move from your outlet to the baseboard one."

My own heart was beating rapidly. It *is* my own, about the only thing in me that still is, but I think that's pretty good at eighty-nine. George is ninety-seven and some of him is his but I forget what.

Poor George lay down on the couch.

"I never died before," he said.

"George," I said. "I love you, George." My emotion simply increased his terror. We clung to each other with our eyes.

"Are you go?" asked the doctor.

"I'm go for dead," said George submissively.

"Take a deep breath, enough to last, Mr. . . . uh . . ."

To lose your identity thus prematurely in an unplugging was hardly reassuring. George took more of a deep sob than a breath, the doctor pulled the plug and George was dead.

"Oh god!" said the doctor, bumbling to line up the prongs of the plug correctly.

"Doctor, what is it?" I screamed, my knees giving way.

"I left my helicopter on the morning, Wednesday and March side," he said, pushing the plug firmly into its socket. "I'm sure to have a ticket."

I sank into a chair. George's color was gone and he lay terribly still.

"Oh, doctor, hurry, please!"

"Now I just switch off here, change this small circuit to here, switch on here and . . . How do you feel?"

George sat up. His eyes were sparkling.

"I feel great." He got to his feet and started toward me. The electric cord got to the limit of its thirteen feet before I screamed and the doctor grabbed him.

"All right. Take it easy," said Doctor Stebbins, easing George back to the couch. "You're on a bigger voltage and it's going to give you ideas. Electrophoria we call it."

"Come here," said George to me. I sidled warily toward the couch. He leaped over it and grabbed me. I hadn't seen him like this since he gave up his University Selected Frozen Hormonals Subscription Plan.

"George! Please!"

"I could give him an extension cord," said Dr. Stebbins.

"I don't think he'll need it," I said.

"Where's my second act?" asked George, releasing me from a stranglehold. "Move the typewriter over here. And bring the manuscript and come right back and stay here with me."

He had never been much of a typist with two hands. But it was astounding how well he managed now with one. He held me tight with one arm while he pounded away. I didn't read what he wrote. He doesn't like me to. Every five lines or so he stopped to kiss me. And every ten lines he made plans —for a trip to Ganymede, for a play octology, for a second batch of children now that our grandchildren were married.

Meanwhile the doctor had parts of George's vascular ignition auxiliary, his secondary pacemaker, his isolation step-up transformer, his systolic adjutator, and his defibrillator all spread out on the floor and was hard at work.

Tessie, our part-time, let herself in through the back door and looked around suspiciously at the scattered parts.

"What's the matter with the dishwasher?"

"It's not the dishwasher, Tessie," I said. "It's Mr. Frumkin."

"I'm not staying if you got any trouble with anything I got to use."

"Now Tessie, you'll have to believe me. It's only Mr. Frumkin and you don't use him for anything."

"I can use Tessie for something," said George. "Come here, Tessie."

She threw him a terrible look and started setting up the community dispenser dinner belt.

It seemed like hours but at last Dr. Stebbins said, "All right, Mr. . . . ("Geriatric," I said, my

back aching) . . . "Mr. Atric. Time for you to die again."

"Thank God," I said.

In a moment George was off the wall and on his own new cardio. He opened his usual lack-lustre eyes.

"I don't feel as good as I did on the wall," he said. "You sure you hooked me up right?"

"Oh, have a heart," said Doctor Stebbins. He wiped his eyes. "You ought to use that in your play. It gets a laugh every time."

I could believe it. He had almost choked over it this time.

George looked at the manuscript on the typewriter table and turned away with distaste.

"I can't work today. Take it away, dear."

I couldn't help but see the last page of the second act. It said, CURTAIN.

"But you finished it!"

He looked again, then grabbed it. "That's right. Of course I did."

He insisted on mailing it off without reading it, said he just didn't have the energy. I knew he didn't dare face what he might have done to his poor play.

And when the phone rang the next morning he made me answer.

"Helen," Mac said. "He's done it! It's great!"

"Oh, Mac!" I said, while George, who had begun to sidle out the front door, came running toward me at the note of joy in my voice.

"Yes sir," said Mac. "He gave that scene exactly what I always said it needed." And George's ear was beside mine to hear, "More heart!"

What is it which cleans our rugs, keeps picnic drinks hot (or cold), allows spaceships to travel through it, and is—despite all this—abhorred by Nature? Ans. (of course): Vacuum. Plainly, an item both useful and mysterious. Pausing from the equally mysterious (we should like to hope, equally useful) labors which occupy most of his time—he has, for instance, recently rewritten the Book of Leviticus for children without using the letter "e"—Pandit Asimov has submitted as his contribution for the month an inordinately long deposition on several subjects which puzzled great minds such as Aristotle and Newton. They also puzzled your ignorant and unKindly Editor until—well, as a matter of fact, they still do, *because—no matter: read on.*

THE RIGID VACUUM

by Isaac Asimov

PROBABLY THE GREATEST DILEMMA FACING THE MAN WHO WANTS to write science fiction on the grand scale—and who is conscientious, too—is that of squaring the existence of an interstellar society with the fact that travel at velocities greater than that of light in a vacuum (186,272 miles per second) is considered impossible.

There are a number of ways out, however, and I'll mention three. The most honest is to accept the limitation, as L. Sprague de Camp does, for instance, and to assume, instead, that travelers experience time-dilatation. That is, a trip that takes two weeks from their own standpoint may take twenty years from the standpoint of those at home. This,

of course, creates difficulties of plotting, and is therefore unpopular among writers lazier than Sprague (as, for instance, myself).

The most daring and intriguing solution is E. E. Smith's "inertialess drive," in which matter is assumed to be freed of inertia. (As far as we know, by the way, this is impossible.) Matter without inertia can undergo an acceleration of any size by the application of any force however small. Presumably, matter would then be capable of attaining any velocity, even one far beyond that of light.

(There's a flaw here, actually. The resistance of even the thinly-spread gas and dust in interstellar space would become significant as velocity rises. Eventually a limit to velocity would be set beyond which one could expect the ship to be melted and its occupants broiled. On the other hand, if we can wipe out inertia, we can easily wipe out friction, too. Why stint ourselves?)

The most pedestrian solution is the one I use myself, which is to speak of "hyperspace." This involves higher dimensions and one usually drags in analogies concerning one's going through a piece of paper to get to the other side, instead of travelling all the way to the far edge.

In contrast to all this great thought given over to the problem of interstellar travel, very little is devoted to the problem of interstellar communication. According to the relativistic viewpoint of the universe, it is not simply matter that cannot be transported at speeds greater than that of light in a vacuum; it is any form of meaningful symbol.

Well, then, suppose you don't want to travel to Sirius to see your girl friend; suppose you just want to put in a call and speak to her. How do you do that without having to wait sixteen years for the signal to make the round trip?

As far as I know, when this facet of the problem is considered, it is tossed off with the word "sub-etheric." * And that, at last, brings me to the point. I want to explain what a science-fiction writer means by "sub-etheric" and I want to do it in my own sweetly inimitable fashion; *i. e.* the long way round.

The word "ether" has had a long and splendid history, dating back to the time it was coined by Aristotle about 350 B.C.

To Aristotle the manner in which an object moved was dictated by its own nature. Earthy materials fell and fiery particles rose because earthy materials had an innate tendency to fall and fiery particles an innate tendency to rise. Therefore, since the objects in the heavens

* *At least, that's how* I *toss it off.*

seemed to move in a fashion characteristic of themselves (they moved circularly, round and round, instead of vertically, up or down) they had to be made of a substance completely different from any with which we are acquainted down here.

It was impossible to reach the heavens and study this mysterious substance, but it could at least be given a name. (The Greeks were good at making up names, whence the phrase, "The Greeks had a word for it.") The one property of the heavenly objects that could be perceived, aside from their peculiar motion, was, of course, their blazing luminosity. The sun, moon, planets, stars, comets and meteors all gave off light. The Greek word for "to blaze" (transliterated into our alphabet) is "aithein." Aristotle therefore called the heavenly material "aither," signifying "that which blazes." In Aristotle's day, the Greek dipthong "ai" was pronounced as a long "i," as we do in the word "aisle." *

The Romans adopted this Greek word, because to the Romans, Greek was the language of learning and the average Roman pedant adapted all the Greek words he could, just as our modern pedants are as Latinized as possible, and as the pedant of the future will drag in all the ancient English he can. The Romans transliterated "aither" into "aether", making use of the diphthong "ae" to keep the pronunciation correct, since that, in the Latin of Cicero's day, was pronounced like a long "i." (Caesar is pronounced Kaiser, as the Germans know, but we don't.)

The British keep the Latin spelling of "aether" but Latin (and Greek, too) underwent changes in pronunciation after classical times, and by medieval times, "ae" had something of a long "e" sound on occasion. So "aether" came to be pronounced "ee'ther."

But if it's going to be pronounced that way, why not get rid of the superfluous "a" and spell it "ether." This, actually, is what Americans do.

(The Greek word for blood is "haima", and now you can figure out for yourself why we write "hemoglobin" and the British write "haemoglobin.")

This Aristotelian sense of the word "ether" is still with us whenever we speak of something that is heavenly, impalpable, refined of all crass material attributes, incredibly delicate and so on and so on, as being "ethereal."

By 1700, the Greek scheme of the Universe had fallen to pieces.

* *Lest I give anyone the impression that I am a Greek scholar among my other accomplishments, let me admit that I got this information from L. Sprague de Camp, who is a Greek scholar among his other accomplishments.*

The sun, not the earth, was the center of the planetary system and the earth moved about the sun, as did the other planets. The motions of the heavenly bodies, including the earth, were dictated solely by gravity; and the force of gravity operated on ordinary objects as well. The laws of motion were the same for all matter and did not in the least depend on the nature of the moving object. Seeming differences were the result of the intrusion of additional effects: buoyancy, friction and so on.

In the general smashup of Aristotelian physics, however, one thing remained—the ether.

You see, if we wipe out the notion that objects move according to their inner nature, then they must move according to some compulsion imposed upon them from outside. This outer compulsion, gravity, bound the earth to the sun, for instance—but, come to think of it, how?

If you wish to exert a force on something; to push it or pull it; you must make contact with it. If you do not make direct contact with it, then you make indirect contact with it; you push it with a stick you hold in your hand or pull it with a hook. Or you can throw a stick (or a boomerang) and the force you impart to the stick is carried, physically, to the object you wish to affect. Even if you knock down a house of cards with a distant wave of the hand, it is still the air you (so to speak) throw at the cards, that physically carries the force to the cards.

In short, something physical must connect the object forcing and the object forced. Failing that, you have "action at a distance" which is a hard thing to grasp and which philosophers of science seem to be reluctant to accept if they can think of any other way out of a dilemma.

But gravity seems to involve action at a distance. Between the sun and the earth, or between the earth and the moon is a long stretch of nothing, not even air. The force of gravitation makes itself felt across the vacuum; it is therefore conducted across it; and the question arises, What does the conducting? What carries the force from the sun to the earth?

The answer consisted of Aristotle's word again, ether. This new ether, however, was not something that made up the heavenly bodies. The 17th Century scientist rather suspected the heavenly bodies were made up of ordinary earthly matter. Instead, ether was now viewed as making up the apparently empty volume through which all these bodies of matter moved. In short, it made up Space; it was, so to speak, the very fabric of space.

Exactly what ether's properties were could not be shown by direct

observation, for it could not be directly observed. It was not matter or energy, for when only ether was present, what seemed to exist to our senses and to our measurements was a vacuum, *nothing*. At the same time, ether (whatever it was) was to be found not only in empty space but permeating all matter, too, for the conduction of the gravitational force did not seem to be interfered with by matter. If, as during a Solar eclipse, the moon passed between the earth and the sun, the earth's movements were not affected by a hair. The force of gravity clearly traveled, unchanged and undiminished, through two thousand miles of matter. Consequently, the ether permeated the moon and, by a reasonable generalization, it permeated all matter.

Furthermore, ether did not interfere with the motion of the planets. Planets moved through the ether as though it were not there. Matter and ether, then, simply did not interact at all. Ether could conduct forces but was not itself subject to them.

This meant that ether was not moving. How could it move unless some force were applied to it, and how could such a force be exerted upon it if matter would not interact with it? Or, to put it another way—Ether is indistinguishable from a vacuum, and can you picture a way in which you can exert force on a vacuum (not on a container which may hold a vacuum, but on the vacuum itself) so as to impart motion to it?

This was an important point. As long as astronomers were sure that the earth was the motionless center of the universe (even if it rotated, the *center* of the earth was motionless), it was possible to work up laws of motion with confidence. Motion was a concept that meant something. If the earth travelled about the sun, however, then while you were working out the laws of motion relative to the earth, you would be plagued by wondering whether those laws would make sense if the same motion were viewed relative to Mars, for instance.

Actually, if one could find something that was at rest and refer motion to that, then the laws of motion would still make sense because the earth's motion with reference to the something at rest could be subtracted from the object's motion with reference to the something at rest and that would leave the object's motion with reference to the earth, and the laws would still apply and you wouldn't have to worry about the motions with reference to Mars or to Alpha Centauri or anything else.

And this was where the ether came in. Ether could not move; motion was alien to the very concept of ether; so it could be considered in a state of Absolute Rest. This meant there was such a thing as Absolute

Motion; since any motion could, in principle, be referred to the ether. The framework of space and time within which such absoluteness of rest and motion can exist can be referred to as Absolute Space and Absolute Time.

A century after Newton, ether was to be called upon again. The force of gravity, after all, was not the only entity to reach us across the stretches of empty space; another entity was light.

Light did not, however, raise the anxiety at first that gravitation did, for it did not act as gravity did. For one thing, light could be shielded. When the moon interposed itself between ourselves and the sun, light was cut off even though gravity wasn't. Thin layers of matter could completely block even strong light, so that it would seem that light could not be conducted by the ether which permeated all matter.

Furthermore, the direction in which a light ray traveled could be changed ("refracted") by passing it from one medium to another, as from air to water, although ether permeated both media equally. The direction in which gravity exerted its force could not be changed by any known method.

Newton postulated, therefore, that light consisted of tiny particles moving at great velocities. In this way, light required no ether and yet did not represent action-at-a-distance either, for the effect was carried across a vacuum, physically, by moving objects. Furthermore, the particle-theory could be easily elaborated to explain the straight-line motion of light, and its ability to be reflected and refracted.

There were opposing views in Newton's time to the effect that light was a wave-form, but this made no headway. The wave-forms then known (water-waves and sound-waves, for instance) did not travel in straight lines but easily bent around obstacles. This was not at all the way light acted and therefore light could not be a wave-form.

In 1801, however, an English physician, Thomas Young, showed that it was possible to combine two rays of light in such a way as to get alternating bands of light and darkness ("interference fringes"). This seemed difficult to explain if light consisted of particles, (for how could two particles add together to make no particles?) but very easy to explain if light were a wave-form. Suppose the wave of one light-ray were on its way up and the wave of the other were on its way down. The two effects would cancel for no net motion at all, and there would be darkness.

Furthermore, it could be shown that a wave-form would move about obstacles that were of a size comparable to its own wavelength. Ob-

stacles larger than that would be increasingly efficient (as their size increased) in reflecting the wave-form. Where obstacles vastly larger than the wavelength were concerned, the wave-form would seem to travel in straight lines and cast sharp shadows.

Well, ordinary sound-waves have wavelengths measured in feet and yards. Young, however, was able to deduce the wavelength of light from the width of the interference fringes and found it to be something like a sixty-thousandth of an inch. As far as obstacles of ordinary size were concerned, obstacles large enough to see, light travelled in straight lines and cast sharp shadows even though it was a wave-form.

But this new view did not take over without opposition. It raised serious philosophical problems. It makes one ask at once: "If light consists of waves, then what is waving?" In the case of water waves, water molecules are moving up and down. In the case of sound waves through air, air molecules are moving to and fro. But light waves?

The answer was forced upon physicists. Light can travel through a vacuum with the greatest ease, and the vacuum contained nothing but ether. If light was a wave-form, it had to consist, therefore, of waves of ether.

But then how account for the fact that light could be reflected, refracted and absorbed, when gravitation, carried by the same ether could not? Was it possible that there were two ethers with different properties, one to conduct gravity and one to conduct light? The question was never answered, but through the 19th Century, light was far more crucial to the development of theoretical physics than gravity was, and it was the particular ether that carried light that was under continual discussion. Physicists referred to it as the "luminiferous ether" (Latin for "light-carrying ether").

But difficulties were to arise in the case of the luminiferous ether that never arose in the case of the gravity-carrying ether. You see, there are two kinds of wave-forms—

In water-waves, while the wave motion itself is progressing, let us say, from right to left, the individual water molecules are moving up and down. The movement of the oscillating parts is in a direction at right angles to the movement of the wave itself. This type of wave-form, resembling a wriggling snake, is a "transverse wave."

In sound waves, the individual molecules are moving back and forth in the same direction that the sound wave is travelling. Such a wave-form (a bit harder to picture) is a "longitudinal wave."

Well, then, what kind of a wave is a light wave, transverse or longi-

tudinal? At first, everyone voted for longitudinal waves—even Young did—for reasons I'll shortly explain.

Unfortunately, one annoying fact intervened. Back in Newton's time, a Dutch physician, Erasmus Bartholin, had discovered that a ray of light, upon entering a transparent crystal of a mineral called Iceland spar, was split into two rays. The separation was brought about because the original ray was bent by two different amounts. Everything seen through Iceland spar seemed double, and the phenomenon was called "double refraction."

In order for a ray of light to bend in two different directions on entering Iceland spar, the components of light had to exist in two different varieties, or, if there were only one variety, that variety had to show some sort of asymmetry.

Newton tried to adjust the particle theory of light to account for this and made a heroic effort, too. Through sheer intuition, he caught a glimmer of our modern view of light as consisting of both particles and wave, two centuries ahead of time. However, after Newton's death, the lesser minds that followed him thought of a much better way of accounting for "double refraction." They ignored it.

What about the wave theory? Well, no one could think of a way to make a longitudinal wave explain double refraction, but transverse waves were another matter.

Imagine that your eye is a piece of Iceland spar and that a ray of light is coming directly toward it. (Oh, how I wish I were permitted to use diagrams.) The ether, as was then supposed, would be undulating at right angles to the direction of motion, but there are an infinite number of directions that would be at right angles to the direction of motion. As the light comes toward you, the ether could be moving up and down, or right and left, or diagonally (turned either clockwise or counterclockwise) to any extent.

Every diagonal undulation can be divided into two components, a vertical one and a horizontal one so in the last analysis we can say that the light ray approaching us is made up of vertical undulations and horizontal undulations. Well, Iceland spar can choose between them. The vertical undulations bend to one extent, the horizontal to another, and where one ray of light enters, two emerge.

It is a good question as to why Iceland spar should do this and not glass, but the question is not pertinent to this discussion and I shall leave that to another essay some day. What does matter is simply that longitudinal waves could not be used to explain double refraction and transverse waves could and the conclusion had to be, then, that light

consisted of transverse waves. The theory of light as a transverse wave-form was worked out in the 1820's by a French physicist named Augustin Jean Fresnel.

This aroused a furore indeed, for the manner in which longitudinal waves and transverse waves are conducted show important differences. Longitudinal waves can be conducted by matter in any state, gaseous, liquid or solid. Thus, sound waves travel through air, through water and through iron with equal ease. If light were a longitudinal wave, then the luminiferous ether could be viewed as an exceedingly subtle gas; so subtle as to be indistinguishable from a vacuum. It would still be capable, in principle, of conducting light.

Transverse waves are more particular. They cannot travel through the body of a gas or liquid. (Water waves agitate the surface of water, but cannot travel through the water itself.) Transverse waves can travel through solids only. This means that if the luminiferous ether conducts light, and if light is a transverse wave, then the luminiferous ether must have the properties of a solid!

And there is worse to follow. For atoms or molecules to engage in periodic motion (as they must, to establish a wave-form), they must have elasticity. They must spring back into position, if deformed out of it, overshoot the mark, spring back again, overshoot the mark again and so on. The speed with which an atom or molecule springs back into position depends upon the rigidity of the material. The more rigid the faster the snap-back, the faster the oscillation as a whole and the faster the progress of the wave form. Thus sound-waves progress more rapidly through water than through air, and more rapidly through steel than through water.

It works in reverse. If we know the velocity at which a wave-form travels through a medium, we can calculate how rigid it must be.

Well, what is the velocity of light through a vacuum; *i. e.* through the ether? It is 186,272 miles per second and this was known in Fresnel's time. For transverse waves to travel that rapidly, the conducting medium must be rigid indeed; more rigid than steel.

And so there's the picture of the luminiferous ether; a substance indistinguishable from a vacuum yet more rigid than steel. A rigid vacuum! No wonder physicists tore their hair.

A generation of mathematicians worked out theories to account for this wedding of the mutually exclusive and managed to cover the general inconceivability of a rigid vacuum with a glistening layer of fast-talking plausibility. As for an actual physical picture of the luminiferous ether the best that could be advanced was that it was a substance

something like the modern Silly Putty. It yielded freely to a stress applied relatively slowly (as by a planet moving at 2 to 20 miles per second) but rigidly resisted a stress applied rapidly (as by light travelling at 186,272 miles a second).

Even so, physicists would undoubtedly have given up the ether in despair, if it weren't so useful as the only way to avoid action-at-a-distance. And instead of growing less useful with time, it grew more so, thanks to the work of the Scottish mathematician, James Clerk Maxwell. This came about as follows:

Long before Newton had worked out the theory of gravitation, two other types of action-at-a-distance forces were known: magnetism and static electricity. Both attracted objects even across a vacuum and both types of forces, it therefore seemed, had to be conducted by the ether. (In fact, before the theory of gravitation had been put forth, men such as Galileo and Keler, speculated that magnetic forces must bind planets to the sun.)

But there again—Was there a separate ether for magnetism and one for electricity, as well as one for light and one for gravity? Were there four ethers altogether, each with its own properties? If so, things were worse than ever. This piling up of four different vacuums, one as rigid as steel, and the other three who-knows-what, threatened to rear a structure that would topple under its own weight and bury the edifice of physics in its ruins.

In the mid-nineteenth century, Maxwell subjected the matter to acute mathematical analysis and showed that he could build up a consistent picture of what was known of electricity and magnetism and, in so doing, maintained that the two forces were interrelated in such a way that one could not exist without the other. There was neither electricity nor magnetism, but "electromagnetism."

Furthermore, if an electrically charged particle oscillated, it radiated energy in the form of a wave, with a frequency equal to that of the oscillation period. In other words, if the charge oscillated a thousand times a second, a thousand waves were formed each second. The velocity of such a wave worked out to a certain ratio which, once solved, turned out to be just about exactly the speed of light.

Maxwell could not believe this to be a coincidence. Light, he insisted, was an "electromagnetic radiation." (Light has a frequency of several hundred trillion waves per second and where was the electric charge that oscillated at such a rate? Maxwell couldn't answer that, but a generation later, the electrons within the atom were discovered and the question was answered.)

Such a theory was delightful. It unified electricity, magnetism and light into different aspects of one phenomenon and made one ether do for all three.* This simplified the ether concept and made it explain much more than before. (At this point, it should perhaps have been renamed the "electromagniferous ether" but it wasn't.) If Maxwell's theory held up, physicists could grow much more comfortable with the ether-concept. But would it hold up?

One way to establish a theory is to make predictions based upon its tenets and have them turn out to be so. To Maxwell, it seemed that since electric charges could oscillate in any period, there should be a whole family of electromagnetic radiations with frequencies greater than those of light and smaller than those of light, and to all degrees.

This prediction was borne out in 1888 (after Maxwell's too-early death, unfortunately) when the German physicist, Heinrich Hertz, managed to get an electric current to oscillate not very rapidly and then detected very low-frequency electromagnetic radiation. This low-frequency, long-wavelength radiation is what we now call "radio waves."

Radio waves, being electromagnetic radiation, are conducted through the ether at 186,000 miles per second. This is the limiting speed of communication by any form of electromagnetic radiation.

But if we grant the ether-concept, suppose we imagine a "sub-ether," one that permeates the ether itself as ether permeates matter, and one that has all the properties of ether greatly intensified. It would be even more tenuous and indetectible and at the same time far more rigid. It would, in other words, be a super-rigid super-vacuum. It may even be that gravitational force, still unaccounted for by Maxwell's theory, would travel through such a sub-ether.

In that case, wave-forms (perhaps gravitic, rather than electromagnetic) would travel through such a sub-ether at far greater velocities than that of light. In that case, the stars of the Galactic Empire might not be too far apart for rapid communication.

And there is your word "sub-etheric."

Now isn't that an exciting idea? Might it not even be valid? After all, if the ether-concept is granted—

Ah, but is it granted?

You see, Hertz's discovery of waves that confirmed Maxwell's elec-

* *This leaves gravity out, but all efforts to join gravity to electromagnetism as a fourth aspect (a "unified field theory") have failed. Einstein devoted half his life to it and failed. However, that's another story for another day.*

tromagnetic theories and seemed to establish the ether concept once and for all, had come too late. Few realized it at the time, but the year before Hertz's discovery, the ether concept had been shattered once and for all, and past retrieval.

It happened through one little experiment that didn't work—
And if you wait a month or two, I'll tell you about it.

Through Time And Space With Ferdinand Feghoot: LXI

Of Ferdinand Feghoot's contributions to English literature none were more important than those in the field of fantasy. He often took promising writers on trips to the future, to far planets, or along strange time-tracks into worlds of What-If. But the drug *yahl* he reserved for the most talented, and it was seldom indeed that he took anyone to its brewing-place.

But in the mid-1930's, he went there, escorting a young British philologist. "*Yahl* will open your Eye-Into-Wonder," he said, as the Cup floated in. "Drink it, and look at the Place Where There Should Be A Prism."

The Englishman hesitated.

"Don't worry," said Feghoot, "it's perfectly harmless. Now—down the hatch!" Then he left the cave quietly.

Scarcely ten minutes later, he was summoned back by a cry of great agitation. "Mr. Feghoot!" the alarmed writer exclaimed. "Look—there's a *being!* He—he's only four feet tall, with red cheeks, and a brass-buttoned coat, and—and short breeches. And his feet are all furry! He's telling me the most wonderful story. But—but he's a *hallucination.* He simply took shape there! And you told me the drug would do me no harm!"

"My dear Tolkien," said Ferdinand Feghoot. "I said it was *harmless.* I never said it was non-Hobbit-forming."

—GRENDEL BRIARTON

A man from the future—a future wise enough to have mastered time travel and the permutation of metals—ought to be strong, stronger than we are. But if, on the other hand, we are able to hold him in thrall, doesn't this mean that we are really the stronger? Quis custodiet, *the Romans asked,* ipsos custodes? *"Who shall guard the guardians themselves?" And, finding no answer, saw their Empire turn cruel, turn corrupt, crumble, fall. Hillel the Elder asked other questions.* "If I am not for me, who then will be? But if I am for myself only, what am I? And if not now, when?" *Kit Reed's story considers these matters, and considers them in the light of our worship of science in general, and of the healing science in particular.*

TELL ME DOCTOR—PLEASE

by Kit Reed

DEEGAN KNEW EXACTLY WHY he was here—he was sick. But it didn't help.

For him the building would always have an eerie, greenish cast, and despite the covey of nurses, the flock of aides, the legion of little men with long-handled brooms who shuffled past, swishing, sweeping the corridor outside his room, he would always have the feeling that at its heart the building was deserted. So far, this was all he could remember of himself inside the building. There was nothing more but a web of aching, burning weakness. So far.

They had to make him better. With just a little strength he could make his way back to the terminal, to his own century without being followed. He tried to move and a wave of weakness took him. On the crest of it, remembering himself as he had been, he was surprised to hear himself, crying.

Outside his room a steam table rumbled past, the first outside sound to penetrate his miasma of pain. Using it as a lever—a beginning to awakening—he forced open his eyes.

They offered him a kaleido-

scope of sparks and swimming rainbows. Blinking, he tried again, and this time picked out a shape. He pushed his eyes, straining against the circle of his pain, and the shape came clear. He fixed on it—a bottle, shimmering on a stand above him, and on the tube that led down from the bottle—looped here, to slow the flow of fluid—and from this vantage point he fought back the blur until he could make out a second rack, a second tube, a whole network of tubes and drains, and when his field of vision had expanded he assured himself of the shapes of a rolling table, a white screen, the drab squareness of a white, aseptic room, and then brought his mind back to the tubes—and found that they fed needles fixed, one in the back of either hand, and that the whole complex structure of rubber and wires had one focus, one purpose—to serve his body.

He moaned as well as he could through the apparatus, hoping someone would hear it and come. Minutes went by, unmeasured. A part of him remembered that each hour was parcelled into segments, and each segment identified by some matter of routine, and that there was no one at his door to answer his call, to come into his room because it wasn't time.

He moaned again—for the last time, because moaning seemed unnatural to him. Waiting, he contemplated his hands and wrists as best he could, noticed that a needle had slipped from his vein and that the whole flat, bony structure of his hand was puffy now, slowly filling up with fluid.

"You're a long way from home." The nurse had come into the room in the wake of a sweeper, who busied himself under the washbasin fixed to the closet door.

Deegan looked at her warily.

"Now, look at this." She clucked over the hand and pulled the needle out. Quivering with gratitude, Deegan tried to tighten his fingers, but she had already turned the hand over and back, found a vein that suited her and plunged the needle in again.

She took his pulse ". . . you should have seen yourself when they brought you in. Collapsing, right in the Obelisk—at a *conference* . . ." She clucked again.

Was I very bad? He was trying to ask and she knew it—but there were too many tubes, too many drains.

He remembered being almost black, bloated with poison, but he couldn't ask her about it now, now that she seemed loose-tongued, more than willing to answer. He remembered her from before the anaesthetic. She had walked beside the chromium cart, impassive, the perfect nurse—even when his voice spiralled, crowded with questions. It was

then, in the face of her silence, that he had conceived the idea that the hospital was really deserted, and he had thought wildly of robot captors, like the mechanical enclave at Ansk. But that was in another time. He had fallen back, more frightened by his weakness than hurt by it—helpless in a strange century.

He noted with fright that the nurse's fingernails were done in green.

"Must have been quite a conference—" she slid the thermometer between his lips as if it had been greased, and when it had been there too long she added, "you and all the big guys," as if waiting for him to tell her something, and when a flicker behind his eyes refused her she let it stay until his mouth filled with saliva and then, disdainful, pulled it out. Carelessly, she juggled two white pills in her hand.

"I wonder what you talked about."

They'd have to be more subtle than that, he thought with rising anger, and saw her jounce the pills indifferently as he refused to respond, and slip them back into the white, transparent pocket in her shirt.

Under the basin, the sweeper stood up suddenly, and his head thumped against porcelain. The nurse turned on him with cold eyes and watched until he slouched, freezing, from the room. Then, with no more time for Deegan, she went out.

An hour later there was the juice cart, and in the next hour the thermometer and the sphygmomanometer, and later someone changed the bottles swinging above him, bringing fresh ones, and later someone brought another bottle, which was food. Deegan steeled himself, waiting for the questions, and when no one came to barter pills for answers he nerved himself for the next phase. They would take away the paraphernalia of healing, he was sure—they would put him somewhere for questioning in earnest—for torture, perhaps. He had been conditioned to withstand torture. Their government would want to know where he came from, why he was prepared to offer vast sums in return for deposits of certain minerals, to be cached in predetermined caverns in the earth. If they suspected he came from their future, and from which future he came, there would be no peace for him. And they wouldn't let him be until he had betrayed the location of the gate to his century, and they would hound him until he led them there. Torture . . . He managed a pale, scornful smile.

Restless, already aching from unremitting contact with the bed, he found himself almost wishing they would get on with it. But they had chosen other methods.

Days passed and no one came but the cardboard figures of his routine, with an occasional blunt question, an offer (relief in exchange for information) so overt that he had no choice but to refuse them, wondering why they thought an attempt so blatant would work with him. As days passed with no change he fretted weakly, and wondered petulantly when they would make him well. They were so efficient about the care of his body that he couldn't keep himself from hoping that the next day he would be better. He dwelled on the injections, the sphygmomanometer, each change in his bodily temperature, and when each day brought no change for the better he expected something different of the next—he expected to wake and find that one of the tubes, at least, was gone.

"Must have been quite a conference," the nurse said for the twentieth time, and without waiting for him to try to turn his face to the wall, she put the white pills back in her pocket. "You're quite the man of steel, aren't you?" she said, sighing in exasperation.

And from that day on there weren't even questions. There was just the routine.

Deegan could feel himself growing paler, diminishing. He was frightened most, as he had been from the beginning, by the weakness, because his body was his pride. Now he could not have lifted his hand to free it from the needle even if he had wanted to, and he seemed to be at one with the bed, taking on its color, sinking into it, and in the early hours of one morning he found himself sobbing despite the tubes taped beneath his nostrils. The weak tears came quickly and more often after that. He twisted, trying to hint by some contortion of the face that he might be receptive to a question, wishing there would be just one question put in such a way that he could answer it and take the pill or the injection offered in exchange for it, without damaging his pride. But now there weren't even questions.

He waked on some nameless morning to blinding sunlight and the clatter of a shade. He couldn't stop the tears, even though the grizzled sweeper, who had clattered beneath his basin faithfully each morning, thust his face into the mist above Deegan's bed.

"I know somebody kin help you," he said. Then, because Deegan closed his eyes wearily because it was expected of him, he added, "No questions."

A part of Deegan was already moving ahead, sorting pieces of useless information he could afford to offer in exchange for a return to strength, craftily planning the economy of his recovery. He managed to nod.

Suddenly the doctor was in the

room. "They should have called me in earlier," he said, and deftly he untaped the needles and removed them from the backs of Deegan's hands.

He wept, and through his tears, sorted out the doctor's image. He was large, round-bottomed and rosy, with a head as pear-shaped as his body, so that it dwindled from an incredible, shaven, jutting jaw to a knot of curls a few inches above his glasses. As Deegan watched, he took off the glasses, all health and confidence.

"I just wear them for Appearances," he said, and wiped them on his pants. Then, wanting Deegan to understand, he added, "You know—first impressions . . ."

Deegan's mouth trembled in an unaccustomed smile. When the doctor had run an expert depressor over his tongue and left, he found himself weeping again, wondering at the freedom of his wrists, turning them feebly on the covers.

That was all that day.

The next day the doctor came again, in a rush of vitality that made Deegan want to cry out his soul to him, and took away the last of the tubes and drains.

"I began wearing them when I was an intern," the doctor said, colossal in the window. 'Made me look older—you know," Deegan realized he was talking about the glasses. He turned reassuringly. "When we get you built up a little, we'll talk about making you well. Don't worry," he said. "Gain strength." And Deegan was alone.

By the third day, when he had prescribed a white powder that enabled Deegan to keep himself from weeping, Deegan thought of him as a god. He rested well that night, freed of the apparatus that had crowded his bed since the first day. He even managed to prop his head up on the pillow when he woke, and prepared a bright face for the doctor.

"I have just a slight correction," the doctor said, at the window. He was talking about the glasses again. "I could do without them if I thought it would be better." He turned suddenly. "—Do you think I'd look better without them? On the job, I mean."

"I . . ." Deegan stopped, thrilled by the sound of his own voice. "They—look—fine," he added.

"You really think so?" The doctor made a little rush toward him, beaming. Then, with alacrity, he parted the front of Deegan's hospital robe and applied the knob of his stethoscope to Deegan's chest. ". . . pressure on the diaphragm," he mutterred professionally ". . . fluid. We have an injection which should clear this us." Then, almost genially, he went on. "Of course you will have to answer certain questions. About your—history." He raised his eyebrow knowingly and his forehead ridged in wrinkles that

met his hair. "I'm sure the injection will do the trick. You're willing?"

Grateful to him for being so subtle, for making it sound as if there had been no promise made, Deegan whispered, "of course."

And the next morning, muttering as if to himself, Deegan told him why the mineral deposits were vital to his people. They could be changed into something valuable.

After the injection, he was unconscious for a day. When he woke, he was sure he was getting well. The doctor was inspecting the array of plants that seemed to have taken over the windowsill.

"I think glasses give a man stature," Deegan volunteered.

Radiant, the doctor turned to him. "I've always felt that myself. When I go on for advance work—on to psychiatry, I think they'll stand me in good stead."

"I'm in analysis myself, you know," he said the next day. "Each psychiatrist has to go through five years of it—to prepare himself," he said. "Before we can help others our own psyches have to be—pure."

Deegan was busy raising his hands until his arms were at a perpendicular. He half listened, feeling the strength course back into him.

"Even as I must be well and strong before I can help your body," the doctor said. The reflections on his glasses seemed like tiny windows cut in his head.

"Oh, yes," Deegan said, wondering how soon he would be able to bound the way the doctor did. "Glasses—inspire confidence," he said, because the doctor seemed to be waiting.

"Mens sana in corpore sano," the doctor said, all capability, and strode out of the room.

The next morning Deegan tried to sit up—and fainted, head hanging at an improbable angle, mouth wetting the linens at the edge of the bed.

"Things aren't going as I had planned," the doctor said, tapping Deegan again and shaking his head.

Glowing with gratitude at his presence, Deegan listened placidly.

"There's more fluid, I'm afraid," the doctor said. Then, gently, "I'm afraid we've had a little setback."

Deegan couldn't stop the tears.

"But I have the solution this time."

He fixed on the doctor, suppliant. "I—I can't go through it again."

"It will mean a drain," the doctor said, wiping his glasses and putting them on. "Painful—but it will do the trick." He loomed, godlike. "There's something I'll want to ask you."

Deegan hesitated. "But you'll make me well . . ."

"This will do the trick." The doctor put the glasses away. "Put your faith in me."

Deegan lumped his whole being in his eyes, proffering it, nodding assent.

He was unconscious for the next few hours while they punctured his side, and the poisonous byproduct of his illness spilled into a pan set carefully at the end of a rubber drain.

"You've done it," he said two days later, when he was strong enough to speak. "How can I thank you . . ."

In the windows, the plants were flourishing. The doctor regarded them through freshly-polished glasses. "You've already thanked me," he said.

Deegan, just before he had gone under, had revealed that the mineral deposits were valuable only when alloyed with an element which existed in his time alone. There was, at the back of his mind, the nagging memory of this betrayal. But he knew he had kept the important parts of his secret to himself. Would keep them so, inviolate. "The glasses make you look older," he said, trying to show his gratitude.

The doctor frowned slightly. "I've been wondering whether it wouldn't be better to do without them," he said. "I'd hate to think I needed them for a prop."

Deegan sensed the change in his mood. "Whatever you think."

He began to exercise his hands, wadding the sheet between his fingers and clenching them, and some days later, weak but triumphant, he sat up for the first time. The next day, they would transfer him to a wheelchair for a visit to the solarium.

The next day he was sick again, so sick he could only think back to the day before, to himself sitting up, as the strongest, happiest time of his life, of this new setback as the worst.

He saw only the glint of light on the doctor's glasses before he went under and they operated. After he had some vestigial memory of himself talking uncontrollably, spewing out the name of his city, Arragon, its place in time, naming its riches in a litany of pain. But even then, with his body saturated with water and pus and the knife waiting to release them, something had made him crafty and he had withheld the last piece of information. Until they learned how to find the turntable—how to get into his own time and pillage it, they would have to keep him alive.

Flaccid, grateful for this new treatment, Deegan mended. Often the doctor sat and talked of his own preoccupations, not caring that Deegan couldn't answer, until he too fell silent and they would stare together.

"You've done so much for me," Deegan said, when he could talk.

"I've only done what a doctor has to do." The doctor's voice was strong, his face flawless behind the glasses.

"But you must have a special touch." Deegan had examined the incision in his side one day at bath-time, and had been appalled by its expert beauty. "You—you can do anything."

The doctor lowered his head modestly, but even Deegan could see how much it pleased him. "Just have faith in me."

"I do," Deegan said blindly.

He had to call on that faith a few days later when the doctor, at his bedside for a checkup, let his face grow grave and said, "Enjoy your strength."

"I don't understand." Deegan was sitting on the edge of the bed, dangling his feet. They had been talking about Arragon (he still had a few facts to barter for sedatives and clean dressings) and medicine and what glasses did for a man.

"I must tell you—" the doctor seemed deeply affected. "They told me—I—I think you're going to have another reversal."

"No." Deegan lowered himself to the floor, quivering. "No, please."

"Don't worry," the doctor said. "We'll come out of it together."

"You'll take care of me," Deegan said, staring into the blank faces of the glasses. "I was thinking, I wonder if bifocals . . ."

"I shouldn't be telling you this ahead of time." The doctor pushed his face into Deegan's, and Deegan saw how pink he had become. "But your temperature, the charts . . ."

Deegan clutched at his middle.

The doctor helped him to the bed. "I think you may be filling up again."

"Please—no more. You can get into my time by setting dials on a turntable," Deegan said fast, almost without thinking. "Just make me better and I'll show you where it is and how to run it . . ."

The doctor patted his arm until he was still. "How do you know I'll even ask?" He polished his glasses furiously, naked without them, and said for the first time, "How do you know I'll be able to help you?"

"You will," Deegan said, eyes blurred so that the light behind the doctor's head seemed diffused into a halo. "You have to."

"Hush, now." The doctor touched the rib cage professionally. "There is a way—draining the cavity, refilling it with—never mind. It will absorb what is there, prohibit any further . . ."

"And this will do it?" Deegan asked.

"It should."

"This will do it," Deegan told himself. The doctor said so.

"It should be the last operation . . ."

"And I'll be able to go home.

Doctor . . ." Deegan raised his hands, worshiping.

The doctor surveyed him through flat lenses, sure, unimpeachable. "Do as much walking as you can these next few days—to the window and back. When the time comes you'll be stronger, more ready . . ."

"Yes. Oh, yes." Deegan's eyes shone.

He came to his feet like a skeleton minutes after the doctor had left, walking from bed to chair and back again, insubstantial as a ghost, before he collapsed, exhausted. The next day he made it as far as the door, not even recognizing his image in the mirror above the white metal chest of drawers, moving precariously as if any misstep might disturb the balance and make him unfit for the final operation.

Each day the doctor came and talked, and one morning as he turned to go Deegan got to his feet in an excess of admiration, trembling, whirling, like the last vestiges of a leaf, loath to let the man go, and followed him. He had the idea that once the doctor saw him walking, he would be so proud, so surprised that he would tell Deegan everything was turning for the better and he wouldn't have to have the operation after all. Bumping against the walls almost without impact, Deegan made his way down the hall, sure somehow that if he kept that starched white coat, that rosy back-of-the-neck, the almost perfect shoulders in sight, all would be well. He pushed on even when the blows of his hospital gown, flapping at his fragile legs, seemed intolerable, but by the time he had pushed himself around a corner, the doctor had vanished. Suddenly lost, not even sure from which room he had come, Deegan fluttered along the walls with the dusty wing-strokes of a moth, until he came to a stop outside a half-open door, transfixed by two voices—one babbling, suppliant, the other calm and powerful.

"I gave him the new series—just as you said—and now the cavity is filling and I don't know . . ." the suppliant burbled on.

"You will give him a new injection." The voice of power outlined a formula. "It will help him—for a while."

"And then?"

"Then you'll ask him about the function of the turntable." The power, the authority, seemed to fill the room and overflow into the hall.

"And when I find out for you, you'll get on with my analysis—help me with the dreams?" The suppliant's breath fluttered.

Deegan knew the voice, but he teetered just outside the doorway, not letting himself admit he knew.

"You will do as you're told and

then we'll see," the authority—the analyst—said.

"You have to help me, you have to . . ." the suppliant muffled a sob. "The dreams—my anxieties—I feel so inadequate, and this man is getting sicker . . ."

Shrinking, wavering, Deegan found the strength to propel himself into the doorway.

The man whose identity he had tried to keep from himself knelt at the feet of an enormous figure. Deegan's doctor knelt with one hand on a brilliantly polished black shoe, and above it rose his analyst, garbed in starched white, girded and collared in stiff linen, monolithic, unassailable. On his brow, catching the light and throwing it out to Deegan, was an immense reflector, which glinted and glittered and hid all but the shadowed outlines of his face.

"I only wear it for Appearances," the analyst said to no one, touching it.

"What about the operation?" Deegan's doctor, oblivious of the gasp which came from Deegan, the change in the atmosphere, went on.

"We'll save the operation." The analyst seemed so huge, so sure. "There are a few more facts we must have."

"He's going to guess . . ."

"That he'll never be any better?" The analyst looked up. He seemed to see Deegan, but Deegan, clinging to the door like a plant with many suckers, could not be sure. "That's why we have to press on with the questions."

"The incision—filling the cavity . . ." the doctor's shoulders were shaking. "You'll have to tell me how to *do* it."

The words knifed at Deegan's vitals. The *unsureness* . . .

"Haven't I always told you how to do things?" The analyst sat like a white monument. "Step by step."

"You have to help me . . ." the doctor shook uncontrollably. "With the operation—my anxieties . . ." He was pulling at his curly hair now, undone.

"Haven't I always helped you?" The analyst's voice was steely. "When you did certain things for me?"

"Yes—you've helped me—my father problem—inadequacy—my *glasses* . . ." And the doctor, Deegan's idol and his only hope, crumpled on the floor, dissolved in tears.

"When you come to me with full knowledge of the turntable, I'll give you something for your anxieties." The analyst looked up now, meet Deegan's eyes for a cold instant and continued, with supreme indifference. "You may even be able to help him. And you may get well."

He got to his feet with a massive, starchy crackle, skirted the doctor, adjusting the reflector on

his brow, and went past Deegan into the hall.

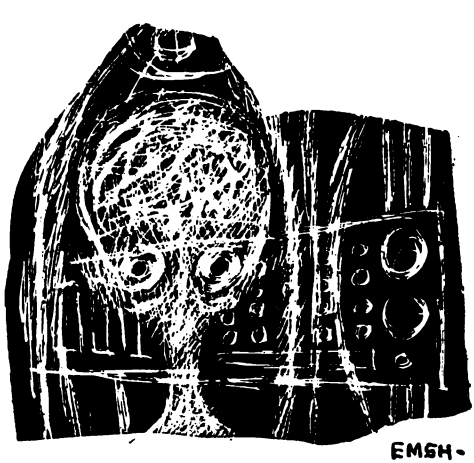
Deegan looked to his doctor, who was sobbing abandonedly now, beating the glasses on the checkered tile floor. A strange, wiry strength came into his body as the fury took him, and for one moment he was poised, ready to lunge at his betrayer, his doctor, to smash the glasses and lock his fingers in that curly hair . . .

Then he turned to look after the analyst and his fury melted into hope and he braced himself, pulling himself into the semblance of a man walking, and Deegan followed the glint of the mirror reflector, ready to lead the analyst in a charge to his own century if only this doctors' doctor would make him well. He threw himself at the analyst's heels like a dying man who throws himself on a spring, bathing in the gleam of light reflected from the great man's brow. If anyone could help him . . . With a quick, distracted motion, the analyst kicked him loose and went through a door.

And Deegan, no more than a puddle of hope, heard a change in the analyst's tone as a new voice joined it in colloquy within. He drew this into himself and assimilated it and adjusted, beyond disappointment now. It was the author of the new voice who mattered, then. In a final, spastic frenzy, he lunged into the room, voice beginning before he could stop it, rising to a wail.

Before him, the figure at the desk looked at Deegan over the suppliant form of the analyst, and this new personage wet his lips, eyes filmed with hope and relief.

"Oh, Doctor," he said. "Thank heaven you've come."



"Some teachers have a special magic," says Fritz Leiber. We might add, "And so do some writers." Take, for instance, Fritz Leiber, in this short but intriguing tale of education in the future—

KINDERGARTEN

by Fritz Leiber

SOME TEACHERS HAVE A SPECIAL magic. They'd set imps putting death-spells on paper dolls, and angels playing quoits with their halos. They'd probably teach cats to talk if they set their minds to it.

Miss Willard ended geography class by drawing a curtain across the most perfect relief-globe of Earth imaginable with a brisk, "Western Hemisphere in a day and a half," then stretched herself on her desk like a seal or a pin-up girl. "Now physics," she announced. "Newton's Three Laws."

"Einstein disproved those," Bip informed her.

"They're still true as a special case," Boysie informed him.

"And they're all goops like you can understand," Bettyann, plump as a panda, told both boys.

Miss Willard made a face at the three of them, popped a ping-pong ball in her mouth and puffed it across the room, just over Bip's head. Traveling like dream-celluloid, it crossed the room and rebounded from the aluminum wall the exact way it had come, as if it had drawn a track for itself in the air. Kiki, skinny as a spider monkey, grabbed for it a moment too late. Miss Willard threw up her head—very like a seal—and caught it between her lips.

"You had to move," Bip criticized.

"Only three inches," Boysie consoled her.

Miss Willard seemed to chew and gulp the ping-pong ball. "Peppermint," she told them with a delirious smile. Then, "First Law: a body moves in a straight line or hangs—" (She snatched out the ping-pong ball, slightly lipsticked, hung it in the air briefly, then closed her hand on it) "—unless acted on."

She opened her hand on an ivory billiard ball, wagged it back and forth to show how it tugged

at her wrist, then hung it in the air and swatted it with a redoubled sheet of paper to show how heavy it was (it barely moved).

"Second Law: a body changes direction in proportion to the amount of force acting on it and favoring the direction of that force." She doubled her arm and put the billiard ball from her shoulder as if it were a shot. It followed the course of the ping-pong ball as if the invisible track were still there and cybernetically compelling. Kiki managed to touch it and jerked back six writhing, slightly-stung fingers. Miss Willard said idly, "Civil War soldiers had their hands knocked off doing that to cannon balls."

The cream-colored sphere indented the aluminum wall with a Middle-C *bong* and started back. There was a higher-pitched *bong* as the wall undimpled. 'Now you'll catch it from Mr. Fleming," Bettyann smugly informed Miss Willard, who wriggled her nose like a rabbit, then sighted carefully and puffed the ping-pong ball. It met the other mid-room and *pinged* off at a wide angle. Miss Willard caught the billiard ball in a withdrawing hand.

Her other hand came up from behind the desk holding a loaded ping-pong pistol. She hung it in the air sideways to the class, said, "Third Law: action and reaction are equal and opposite," and flicked the hair-trigger. As the ball shot away, the magnesium pistol drifted off grip-first, majestically as a docking spaceship.

Rip yawned. "Everybody knows all those things," he said.

"They wouldn't if they went to school on the Moon," Miss Willard said. Her gaze moved beyond Bip to someone with six flexible fingers. "Or Mars?" Kiki nodded his dark antennae.

The hatch opened. A man with thinning hair and an aggravated expression thrust his upper body through just in time to blink at and automatically catch hold of the pistol traveling toward him.

"Miss Willard," Mr. Fleming began, "these cubicles are not intended for shooting galleries or squash courts, nor is—"

He realized he was waving the gun at the class and they were all holding up both hands and he broke off with a sigh of frustration.

A bell clanged. The children shot toward Mr. Fleming like fish set free and streamed around him into the corridor, where each polarized porthole showed the globe of Earth, set against blackness and stars. Over the hatch was a sign which read:

GODDARD
ELEMENTARY SCHOOL
RESEARCH
SATELLITE GAMMA

Yes, some teachers have a special magic. And so do some schools. ◄

Miriam Allen deFord is the doyenne of the San Francisco Bay Area Science Fiction group—(or Group. What the dickens—go for broke!), which includes such other luminous names as Anthony Boucher and J. Francis McComas (F&SF's co-founding editors), R. Bretnor, Poul and Karen Anderson, Rog Phillips, Jack Vance, and Idris Seabright, as well as such newcomers as Ray Nelson and Calvin W. Demmon. She (Miss deFord, that is, in case you've lost us) presides over her two-room apartment in downtown San Francisco as graciously as if it were an ante-bellum plantation—which, come to think of it, is unlikely; having been for decades a labor journalist she would not only have freed the slaves but signed them up for union membership and an eight-hour day. Miss deFord's first F&SF story was THE LAST GENERATION (Winter-Spring 1950) her latest was THE TRANSIT OF VENUS (June, 1692). In this new one our Miss deFord departs from her usual subject matter, visits the past instead of the future, and bases upon an actual incident in the hideous history of Afro-American slavery this story of

THE VOYAGE OF THE "DEBORAH PRATT"

by Miriam Allen deFord

THIS STORY MAY BE PARTLY myth; I don't know. But Jemmy Todd was my grandfather's grandfather. My grandfather remembered him as a child, and heard him tell the tale many times; and I as a child many times heard my grandfather repeat it. Certainly Quashee existed; I have a painting of him with Jemmy. Quashee was Jemmy's factotum until he died, very old, some time before the Civil War, but he was always free, and they were more like

companions than master and servant. Of course by that time Quashee wore ordinary clothes and had learned to speak English.

Jemmy was youngest and newest of the crew of the brig "Deborah Pratt," out of the Gold Coast for New Orleans, though her home port was New Bedford. He would never have been on the ship had Captain Pratt not been his uncle, his mother's brother. The ship was named for Captain Pratt's mother, Jemmy's grandmother, who had reared him since he had been left a double orphan at two. When she died also, before Jemmy was quite 16, there was a family conference, and Captain Pratt, who was home between voyages and who was now the only man of the family, agreed to take him on.

He was reluctant, but not because of the "Deborah Pratt's" trade. The trade was illegal by then, and there was always a risk that the ship might be overtaken and impounded unless they could heave her cargo overboard in time, but it had been a family business for 50 years, and nobody in the Pratt and Todd clans felt any compunction about it. No, what worried the captain was the effect of the African climate on the boy, who though strong for his years and wiry, was too lean and high-strung. He could make himself useful around the ship well enough, but they had to spend months on the Gold Coast during the dickering, and always left some of the crew in graves behind them.

Nobody, of course, asked Jemmy whether he wanted to go; it was taken for granted in New Bedford that every boy lived only for the day he could go to sea; and if he had any feelings of his own about the family trade, he would never have voiced them, or been listened to if he had.

He weathered the stay in Africa all right, being toughened up by the voyage out. While Captain Pratt bargained with the chiefs with whom he had long-established trade relations, the men were at loose ends. There was nothing much for them to do, in the sweltering heat, but keep the brig shipshape, guard the consignments in the barracoons on shore as they were brought in, and drink palm wine and, if they were hard up enough, go into the bushes with some likely native girl. Jemmy was safe from their carousing; he was the captain's nephew, and besides that they felt for him a half-paternal, half-contemptuous concern. He was an appealing lad, tall and thin, with big long-lashed blue eyes and a mop of curly dark hair.

So he spent his days about the barracoons, watching the cargo come in, and it was there that he struck up an acquaintance with one of the early arrivals, a boy of about his own age, slim and hard-

muscled and very black, named Quashee—one of old Chief Matayo's catch. His uncle was too busy to notice, and the men laughed. One or two of them had a speculative gleam in their eyes as they watched the growing companionship, but there were plenty of willing girls and nobody, however drunk he got, was stupid enough to take a chance with the captain's kin.

Neither lad knew a word of the other's language, and Quashee, like all the rest, was fettered day and night in the barracoon; but somehow they managed to communicate. Jemmy would spend hours, surrounded by black men, women, and children of all ages, squatting beside Quashee. They would laugh together over nothing, draw pictures with sticks in the ground, talk to each other by signs and gestures. There was nobody else around of their own age or near it, so they gravitated together. Jemmy made all the advances in their queer friendship; Quashee at first was sullen, angry, and very frightened, and it was a long time before he differentiated Jemmy from the rest of his captors. When the last consignment came in, and preparations began for sailing, Jemmy grew disturbed and frightened too. But he said nothing, just watched and thought.

He came nearest to protesting when the branding began. He watched, shivering, as the hot iron stamped the thighs with the company's mark. "Why must you hurt them so?" he cried to the man in charge. The man guffawed. "We brand horses, don't we?" he countered. "Don't fret your head about them, boy; they don't mind. We're easy on 'em. We know the women's tenderer, and we never brand *them* hard. You worried about your friend? We'll take it easy with him, too."

But Quashee was branded like the others, and all Jemmy could do was stand aside and shudder. He thought Quashee would hate him after that, but the African boy had sense; he realized that Jemmy was as impotent as he. He stood quietly without a quiver while the hot iron marked him as property, holding himself motionless to show he was a man. He caught Jemmy's eye and pointed to the tribal scars on his face and chest, as if to say that that had hurt worse than this.

They were all stripped naked and chained together for the march on board. Some of the crew shook their heads when they saw how many of them there were this voyage. Jemmy heard two of them complaining together. "Where'll we put 'em? No use trying to keep the hold just for men, the way we did before, and leaving the wenches and young'uns on deck under tarpaulin; there won't be room." "Cap'n says, put the women in leg

irons too. We figure about 15 to 20 will die out of every hundred, anyway, and when they're overboard we'll have more space." They were busy handing out bits of canvas for the blacks to wrap around their middles, for decency's sake.

It was Jemmy's task to go down in the hold twice daily and distribute the food. Once a day each of the cargo got half a pint of water. They lay on the bare planks on their right sides, spoon fashion, their heads in one another's laps, their leg irons closely meshed. There would have been no room for them otherwise. The sight and smell of them, the noise of their groans and lamentations, turned him sick. He mustered up courage to seek his uncle out.

"Don't worry, Jemmy," Captain Pratt smiled, patting his nephew's shoulder. "They don't feel it the way we would. Anyway, when we're well out we'll bring them up on deck once in a while in bunches and have them jump up and down in the fresh air for exercise. It's to our interest to keep them in as good condition as we can—we want as many as possible alive, and all the live ones well, when we take them off in New Orleans."

"If they guess that, they might not be willing to help, mightn't they? Suppose they won't eat, or suppose they refuse to take exercise?"

"We set them just one example, and they get the idea," said the captain grimly. "Anybody that won't eat, and isn't sick, or anybody says he can't jump in his irons, we give him a taste of the cat. If he keeps it up after that, over the rail he goes; he wouldn't be worth the cost of delivering him to the traders. We don't usually have that kind of trouble more than once or twice a voyage.

"Now you go about your business, boy, and don't bother me any more. Time you grew up and got some sense. Where do you think the money came from that's supported you and your aunts and cousins all these years?"

Jemmy went away, deep in troubled thought.

His very first time in the hold, he had searched for Quashee and found him. There wasn't much he could do, but that little he did. He got his friend moved to a place against a bulkhead, where at least nobody crowded him from the front, and he risked giving Quashee a little more food and a little more water than anyone else got. The African boy realized very well what he was doing. When Jemmy came up to him, he smiled and pressed his hand. Jemmy was making a plan, and he wished he could tell Quashee about it. He didn't suppose he'd get any wages for his work, but he was a member of the family and so entitled to his share, in trust anyway, of the

profits. When they reached New Orleans he determined to brave his uncle and ask that Quashee be bought for him in lieu of a cash return. Better keep on the good side of Uncle Pratt till then.

One morning, handing out the food ration, Jemmy noticed a man with his eyelids swollen and matted together as if with glue. He was rubbing at them and moaning with pain.

The next day there were half a dozen of them, and the day after that at least 30.

There was a ship's surgeon—when he was sober; but even drunk he felt affronted to be called upon to investigate the ailments of the animal cargo. Captain Pratt ordered him down all the same; how could he sell sore-eyed specimens like these? After a few days the doctor surlily obeyed.

He poked around in the hold and came up with his nose in a handkerchief.

"Epidemic muco-purulent ophthalmia," he said curtly. "They've all got it from each other or will soon, lying cheek to jowl like that."

"Can't you do something so they'll be cured by the time we land?"

"Do what? Smear ointment on them, if I had any, which I haven't? Most of them are ulcerated by now. No cure."

"You mean, they're going blind?"

"All of them, pretty soon, I'd say."

Only one was saved. Jemmy watched over Quashee, with his face to the bulkhead. Quashee's eyes remained clear.

Frantic, Captain Pratt ordered them all brought on deck, to see what fresh air might do for them.

The surgeon supervised the transfer. The first mate, with two husky sailors and Jemmy to help them, pulled the blacks to their feet and shoved and hustled them to the ladder. "Don't touch your hands to your eyes, men!" the surgeon kept warning them. "Wash your hands thoroughly before you touch your eyes!"

The Africans stumbled and moaned. Most of them by now seemed entirely blind. Those who could open their eyes at all showed blood-shot whites and sores running with thick, sticky, yellow mucus.

Still shackled by their leg irons, they were stood in rows on the upper deck. There was a stiff wind blowing, and the sea was restless.

The young ones, huddled on deck under the tarpaulin, made a concerted rush for their elders. Children dashed into their mothers' arms. The sailors, herding their charges like sheep dogs, were powerless to prevent them.

"Get them away!" yelled the captain. "They'll infect the whole lot!"

It was too late. Jemmy, bringing up the rear, lagging behind to shepherd Quashee, stood with his friend at the top of the ladder and saw it all. "The poor wretches must have agreed together as to what they should do," he used to tell my grandfather.

The minute they were in the open air and reunited with their children, they locked their arms together. And, irresistible by reason of numbers, holding the children to them, they moved as one to the rail and threw themselves into the ocean beneath them.

The helpless crew, panicky and getting in one another's way, could do nothing. One or two made to throw themselves after and pull the escapers back, but their comrades pushed them off the rail. Ominous sharp fins began to converge from all directions. One by one the black heads struggled and sank or were tugged under.

"Most horrible of all," Jemmy would say, "as they struck the sea they burst into song—a hymn, a chant to their heathen gods, I know not what—and the last one went down singing as we gazed."

Captain Pratt stood silent, watching the entire profit of his voyage disappear into the Atlantic Ocean. Only Quashee, standing with Jemmy at the open hatch, was left of the entire cargo.

"What did you think then?" my grandfather would ask.

"Only that now I should never be given a chance to bid for Quashee at any price I could raise. But it turned out otherwise."

The captain turned bitterly to the surgeon.

"Why?" he barked, as if the man who had herded the blacks on deck at his own order were responsible for what had become of them.

The surgeon smiled cruelly.

"They suffered from a disease," he said.

"I know. They were blind. But some of them could have been cured and sold without this utter loss."

"They suffered from still another disease," the surgeon retorted. "It is a disease called nostalgia, caused by their longing to return to their native land."

He turned toward the stricken sailors—poor devils, they too were victims. Most of them had had their choice between starvation and shipping on a slaver. Now what pay could they expect and what would be their future?

"Remember what I told you," said the surgeon. "Wash your hands well if you do not wish to bring the contagion to their own eyes."

He pivoted on his heel and strode into his cabin. He would be drunk and insensible now for days to come. The captain made no attempt to stop him; he was dazed with misery.

. . . Now, so far this is a fair and credible story, which I can well believe of those bad days. But the rest I cannot believe, yet Jemmy swore it to be truth.

Somehow some sort of order was restored, and since there was nothing else to do—they were past the halfway point of the voyage, and had he returned to the Gold Coast, Captain Pratt had no money now for further purchases—they set their course west-northwest as before. Somewhere in the confusion his uncle noticed Jemmy and Quashee—his sole salvage, a 16-year-old savage, but at least strong and well and with clear eyes. He did not ask why the black boy had not followed his compatriots; perhaps neither he nor Jemmy nor Quashee himself really knew.

"Leave him on deck," he commanded. "And you, boy, keep him in your charge. He is all I have left."

Then he too shut himself in his cabin, putting the first mate in charge.

So that night, a night of full moon and many stars, Jemmy and Quashee lay side by side on the open deck, and could see as well as by day.

According to the way my grandfather heard it and told it to me, two bells had just sounded, which would be one o'clock in the morning. Jemmy could not sleep, and had risen to pace the deck. The men of that watch were at their posts, and the rest asleep in their quarters.

Suddenly he saw in the moonlight two hands grasping the stern rail and a head following them. He raised a hail, and men came running and saw it as well. Two, three, four—ten of them in all, out of the hundreds who had gone overboard. It was impossible that they should have survived, still more impossible that they should have been able to clamber aboard again. Jemmy recognized one of them—a high chief's disobedient son, whom his father had sold in punishment. Quashee had awakened and ran toward them. Jemmy pushed him back. He gasped a word in his native tongue, of which later Jemmy knew the meaning—the spirits of the dead.

They looked to be no spirits, but solid men, who threw themselves upon the gaping crewmen. The shackles were on their ankles still, and the irons knocked together as they ran. Yet afterwards the sailors said they heard nothing and felt nothing, only saw. Whatever they were, they raised shadowy arms and tore with their fingers at the faces of the men they caught in that horrid embrace. Yet not one of them came near Jemmy, for Quashee stood before him and warded them off.

As quickly as they had appeared, they slithered to the rail again and one by one dropped off.

In five minutes the deck was as empty as before. The men were panic-stricken. Some swore, some wept, some prayed, some grabbed at their eyes as if they pained them. The outcry they raised awoke all the officers and crew, and the captain came dashing out too. When he could get the rights of it, he cursed them all for a set of fools and cowards, and ordered them back to their posts. Gradually the fright subsided, but there were white faces and shaking hands to the end of the watch.

"Were you frightened also?" my grandfather used to ask.

"I was bewildered more than frightened. That night I promised myself that come what might, I should never go to sea again, and that somewhere, wherever I went and whatever I did, I should take Quashee with me, if I had to buy him with all of my inheritance, and set him free. For he had saved me from—something, I could not guess what, against his own people."

So Jemmy told it, and it was an unlikely enough tale. In his later days, when he was James Todd, Esq., a prosperous ship's chandler in New Bedford and a noted conductor on the Underground Railroad, he was reluctant to speak of it except to his young grandson who became my grandfather, lest his fellow-townsmen should think him mad. As for Quashee, though he was fluent enough in English by then, he answered not a word to all my grandfather's demands.

But this I can verify, for I have searched for it and found it in old news dispatches.

Three months after, a British barque, the "Wayfarer," found the "Deborah Pratt" wallowing in high seas in the South Atlantic, flying the flag of distress. Through glasses they saw the deck crowded with men. "They must be drunk or mad," said the captain of the "Wayfarer." "Hear how they shriek, and see how they stumble and throw up their arms."

Then a figure detached itself from the throng and staggered to the rail. It was, they discovered later, the surgeon of the "Deborah Pratt."

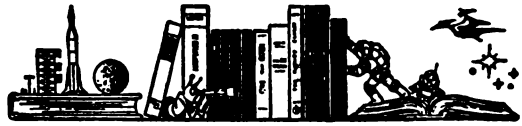
"For God's sake," he cried, "do not board us. Make fast a line and tow us to the nearest port."

"What is it?" called back the "Wayfarer" 's captain. "What ails you? Have you some disease aboard?"

"We have indeed," the surgeon answered bitterly. "Except for two young lads, one white and one black, every man jack on our ship, from the captain to the lowest sailor—and including myself, God help me—suffers from purulent ophthalmia. It is one of the most contagious of diseases, and there is no remedy for it at the stage it has reached with us.

"We are all totally and incurably blind." ◄

BOOKS



MONSTERS OF THE DEEP, **Thomas Helm,** Dodd Mead, $4.00

Thomas Helm holds the same views on sea-serpents held by most right-thinking and intelligent men (including myself), viz.: they exist, and they are not serpents; but his book isn't confined to them. He discusses prehistoric sea-monsters, living and undoubted ones, "The Fossil Fish That Came To Life" (the coelocanth, so long believed so long extinct that its fossilized remains were used to date contexts in which found, was discovered never to have been extinct at all), squids—giant and otherwise—and octopus, seals and other pinnipeds (some scientists believe that the "sea-serpent" is probably a mammal of the pinniped variety), eels—the presence of giant eels of incredible length is suspected on the evidence of eel larvae over six feet long, but no such adults have as yet been found—and so on; as well as what he calls, I think properly, "Dependable Sightings", of sea-monsters not yet classified, or, indeed, universally acknowledged.

Among the items Helm brings to my own attention for the first time is "the Animal of Stronsa," which was found on the shore, dead, in the Orkney islands. "It measured at least sixty feet in length and in some respects closely resembled the prehistoric plesiosaur." The Animal had a slender neck about fifteen feet long, a long and tapering tail, and *three* pairs of legs! Skull and bones and "other parts" were sent to museums and there examined and discussed until one Sir Everard Home, a surgeon, declared it was a decomposed basking shark—whereupon, apparently, the specimens were all discarded. The basking shark, alive or dead, is a familiar creature in Scottish waters; such a mistake by the fishermen who found the Animal seems unlikely; moreover, "serious questions later arose concerning [Sir Everard's] professional integrity." Meanwhile, his verdict ". . . resulted in the greatest loss ever suffered by the science of marine zoology."

Then, as if to make me, in particular, happy, is a letter from Captain Peter M'Quhae, R.N., to Admiral W. H. Gage, of which I quote only the opening sentence: *SIR, In reply to your letter of this*

day's date [October 11, 1848], *requiring information as to the truth of a statement published in* The Times *newspaper, of a sea-serpent of extraordinary dimensions having been seen from Her Majesty's ship* Daedalus, *under my command, on her passage from the East Indies, I have the honor to acquaint you, for the information of my Lords Commissioners of the Admiralty that at 5 o'clock p.m. on the 6th of August last, in latitude 24° 44′ S., and longitude 9° 22′ E., the weather dark and cloudy, wind fresh from the N.W., with a long ocean swell from the S.W., the ship on the port tack heading N.E. by N., something very unusual was seen by Mr. Sartoris, midshipman, rapidly approaching the ship from before the beam.*

This is a book of considerable interest, and besides its data on the great and mysterious Thing or Things, it is full of fascinating information on whales and eels and other sea-food. It has pictures, too.

WE HAVE ALWAYS LIVED IN THE CASTLE, Shirley Jackson, Viking, $3.95

Person who wrote the jacket blurb for Mrs. Jackson's new novel says that ". . . overtones of the supernatural . . . are not present . . ." in it. This, we hazard, is at best a matter of opinion. Mary Catherine ("Merricat") Blackwood, her sister Constance, and their Uncle Julian, live in a beautifully kept mansion on the outskirts of an ugly village. The villagers hate and fear them; the sentiments are heartily returned; in order to ward off outsiders and their evil and malign influences Merricat constantly surrounds the estate with talismans and constantly performs talismanic and apotropaic acts. What dreadful thing happened seven years ago, the night Merricat was sent to bed without supper? Who is protecting whom? What happens when the magic fails?—how is it reestablished? Is the fate of the sisters at book's end the most dreadful—or was it not implicite, fully desired by them? A few months ago I was mildly chidden by myself for too frequent use of "classic." I risk it again: WE HAVE ALWAYS LIVED IN THE CASTLE is a classic, powerfully written, ingeniously developed, somberly and wonderously wrought. Some few of the author's stories have appeared in F&SF (BULLETIN, March 1954; ONE ORDINARY DAY WITH PEANUTS, January 1955; THE MISSING GIRL, December 1957; THE OMEN, March 1958)—alas! how few!

FOLKLORE AND ODYSSEYS OF FOOD AND MEDICINAL PLANTS, Ernst and Johanna Lehner, Tudor, $4.95

Subtitle of this beautifully printed and beautifully illustrated

volume is *An Illustrated Sourcebook of Therapeutic, Magical, Exotic and Nutritional Uses From Ancient Herbals and Old Manuscripts.* It is too bad that the prose is so often wooden and clumsy, sounding as if it were over-literally translated from the German—which it probably was. But the details are so fascinating and the illustrations as well, as to balance this handicap. That garlic was sacred to Mars and was cultivated by the Roman Legions is easy to understand—it will not only add savor to the dull victuals of an army but may well tend to asphyxiate the ungarlic-prone enemy in close combat. But why did the Legions plant *nettles*? Why did the Romans link parsley with graves? Did you know that the carrot, now chiefly used to force-feed children, was once used as an aphrodisiac? Or that dill-pickles will ward off witches? That the Orientals distilled booze a thousand years before the Scotch or Irish? Why didn't you? The book contains lots of silly mistakes, but it's fun spotting them; and the "200 Rare Illustrations" are alone worth the money.

My comment a while back that if I found a juvenile who could review books I would have him review juvenile books brought several replies. I picked Jim Wark, of Port Dover, Ontario, because he was the youngest applicant. Jim is fourteen, and supplies us with the following "biography . . . to save Pettifoggle the trouble. I read Pogo, Peanuts, Mad, and an obscure science fiction mag called F&SF . . . Sorry I'm so late with this thing. You would be justified in docking my salary, if you weren't already exploiting me." The other applicants were mostly mature men of 16 and 17. Sorry, fellows—but we'll keep you on file in case Jim gets too big for his breeches.—**Avram Davidson**

OUTPOSTS IN SPACE, Wallace West, Avalon, $2.95

According to the blurb, one of the main themes of the story is a desire for revenge on the part of a space pilot who got sucked into going up in a ship without artificial gravity. Actually, the revenge bit is not too prominent because the hero is a good type.

Another element in the story is the penal colony on Venus: Wildoatia. "Incors" are sent there to run their own lives with a minimum of interference from the penal authorities on Earth. It is against the law to help anyone or have a partner there.

The hero's daughter gets spirited away to Wildoatia in a bit of confused and/or confusing subterfuge on the Moon.

The bad guys on Venus are building a ship which never has more than one G inside, but ac-

celerates almost to the speed of light. The daughter and her boy friend plan to sabotage a duel between the Earth forces and the Venusian ship. They figure Earth can't lose because all the bad guys in history, such as Hitler and Mussolini, always cheat and therefore have lost before they start. They're right, of course—in this story. (Shame! That's not the sort of thing a juvenile reader should say!) Fortunately for the juvenile audience, this is the only philosophy encountered in the book.

When the (bad) Venusians are defeated, the hero, the hero's daughter, and the hero's daughter's boy friend make off with the star ship and head for the stars. They return in about fifty years, unaged, and solve a mess on Earth involving actors, centennials, and pageants. As near as I can figure, they all live happily ever after.

If this synopsis seems a little confused, it's because the first ¾ of the novel is, too. However, in the final ¼, Mr. West ties up a lot of loose ends and everything falls into place, which I couldn't make happen here no matter how long I sweated.

OUTPOSTS IN SPACE is definitely good juvenile SF, in the opinion of this juvenile, and reads a lot easier than Mr. West's novel about Mars, WINGS OF TIME. It has (in the latter half of the book) an engrossing plot, and, as stated before, there is a lot of neat loose-end tying.—**Jim Wark**

Terry Carr, not content to rest on the wreaths of triumphant bay awarded him for WHO SUPS WITH THE DEVIL, (F&SF, May, 1962), BROWN ROBERT (July), and HOP-FRIEND (Nov.), has been reflecting on scenes of his boyhood, and come up with an evocative story rich with the feel of authenticity. A friend of ours, incessantly beset by demons, found, upon his arrival in a not-overwhelmingly welcome New York City, that his automobile battery kept going dead: recharged, repaired, replaced—the struggle nought availed, the labor and the pains were nought—the battery died every time. "The malign forces are against you, G——," we said. "If you owned a cow, she'd *be dead by now—and gone dry a long time before that, too." He agreed with us, somberly, that the malign forces, the dark powers, must move with the times. Terry Carr has reflected on the situation, as well, and come up to a certain conclusion. We know that the Oregon mountains were Carr's mountains, once upon a time, and we would ask him how much more in the story is real . . . but we are —somehow—just a little bit afraid to . . .*

THE OLD MAN OF THE MOUNTAINS

by Terry Carr

When Ernie Tompkins returned to Oregon at the age of twenty-two he found only the mountains the same. They loomed in the distance like monolithic grey-blue clouds in the heat of the July noon. He could smell them in the air as he drove—pine, cedar, birch, oak and manzanita, a fresh, crisp smell in the wind that mingled with the richer odor of the sawdust smoke from the lumber mills.

In the valley, everything was

changing. The highway between Gold Hill and Rogue River paralleled the river itself, but the waters seemed lower this year than he remembered them from his boyhood; out in the center of the channel he could occasionally see the rocky white bottom emerging dry in the sun. In Medford, which to him had always been a lumber town, he had passed new supermarkets. And here, all along the river, were recently-built green and brown tourist motels. Riveredge; Rippling Waters, ROOMS; On-The-Rogue . . . they were all new. Further down the river, by Grants Pass, he had heard that there was water-skiing in the summer.

It was only when the valley narrowed and the mountains walked right down to the riverside that Ernie began to feel at home again. The store at the Foot's Creek junction was unchanged: a gas pump in the shade, a wooden porch and a screen door led in to a dark interior. He swung the car off the highway onto the access-road back into the hills, and as the shadow of the mountains fell across the windshield he relaxed and let the years come back to him.

These were Uncle Dan's mountains, dark and green and steep. When he had lived here his uncle had shown them to him, as you must show things to a boy who has been so familiar with them since he was born that he's never noticed them. Uncle Dan had interpreted these mountains for him —the animal trails, the raucous birds who set up a commotion in the trees, and the shadows in the underbrush. The physical details of these hills were directly and personally real to him even now: here was the old Morrison place, looking dark and tired, its roof recently covered with fresh tarpaper; here was the Stamfords' mailbox, or whoever had bought them out. Up ahead was the cutoff to the East Fork, and the small bridge where he and Uncle Dan had sat for hours at a time watching the face of the shallow creek, the shadows of their insect-feet on the clear water following them on the muddy bed.

Almost every day, it seemed, they had gone walking out through the brush and trees, Uncle Dan with his hand-carved walking-cane, whistling to Patsy, a mongrel-shepherd who romped ahead and snuffled around the base of manzanita or pine. Sometimes Uncle Dan brought along his .22 and shot a squirrel for dinner (and sometimes he missed), but usually those walks were for exercise and for talk.

Uncle Dan had loved to talk. He'd tell you that if you peeled the crinkling manzanita bark off carefully enough you could use it for paper, and about how he'd left many a note on that bark in tree-

holes for the Old Man of the Mountains. He'd tell you about the moss on trees, and where to look for mushrooms, and about the time he was out walking and sat down to rest on a rock-ledge that turned out to be practically pure gold, only by the time he'd hurried back to get his shovel and pan he'd forgotten just where the place was. (And how often had those walks of theirs been ostensibly for the purpose of looking for that ledge of gold? Ernie wondered as the pavement of the road ended and the tires rolled on over gravel, throwing it up in a spray inside the fenders.)

But most of all Ernie had always wanted Uncle Dan to talk about the Old Man of the Mountains. "Well now, boy, he don't often come down from way up top there," he'd say, pointing with his cane to the highest mountain around. "He don't take to people much, nossir. It's all I can do to get a civil word out of him myself, and I guess I'm the closest friend he's got in the world. And the only one."

"Why's that?"

"Well, I told you. He don't like people . . . they get in his way. He's kind of an on'ry cuss, now that's the truth. Just as ugly as you please, too, but I got used to that. Sits up there all by himself, year in year out, just thinkin' mean thoughts I guess. Never know for sure what he's up to."

And Ernie, at four, had asked, "Does he have a dog?"

"Ohhh, sure," Uncle Dan had said, squinting his eyes at the sun. "Meanest damn dog you ever saw, too. Big black thing, slobbers and growls to beat anything. He keeps him locked up most o' the time, feeds him jackrabbits and field-mice."

"Why does he keep him? I wouldn' have a dog like that."

"Well, the Old Man gets along with him, that's all I know. He ain't ever been bit yet. I guess that ole dog just knows somebody meaner than him when he sees him."

The Old Man of the Mountains had filled Ernie's thoughts. Sometimes he had gone out by himself, walking down to the creek or up to the high barn where the cows were, and every time he'd kept an eye out for the Old Man. And once he'd been sure he'd seen that mean old black dog of his, and he'd run all the way back to report the sighting to Uncle Dan, who'd sat whittling on another cane and said, "Yep, yep, that was him all right. Prob'ly out huntin' for baby squirrels to eat. Damn dog never eats fullgrown animals, always looks for the babies. Meanest dog in creation."

The Old Man of the Hills had become the closest thing to the devil that Ernie had ever believed in. When some of the chickens disappeared it was the Old Man's

doing, and when the creek was low it was just another of his tricks. One night there was a commotion up at the barn, right in the middle of a rainstorm, and everybody had gone up there to quiet down the animals. Right down the back of the barn had been a black, scorched line, and Uncle Dan had said yep, that's his mark. Of course it had been lightning, but Ernie hadn't known that then.

Well, Uncle Dan had died a couple of years ago, while Ernie was in California, so he wouldn't be seeing him on this trip. But he had a feeling, as he turned off the road onto the dirt-rutted driveway leading through overhanging trees to the house, that he'd be keeping an eye open for the Old Man anyway, while he was here. The lower branches of the trees brushed against the sides of the car, and after one of them had slapped across his face through the open window on his side Ernie rolled it up. Hello, Old Man.

When he pulled across the bridge over the creek and up over a steep rise, out of the trees into the sun, old Bolger greeted him with the most godawful barking and bellering he'd heard from a dog since the last time he'd been here ten years before. Bolger had been an ungainly pup then, but he'd already weighed over thirty pounds; his bark hadn't changed much with the years, Ernie noticed. He drove slowly up to the porch of the lower house and braked the car.

"Goddammit, get down!" he laughed out the window at the dog, who was standing up against the car with his nose smearing the window. Ernie shook him off when he opened the door, and Bolger gave one great "WROOF!" and bounded away. Marth had come out onto the porch, and she shook a broom at the dog.

"That cussed dog's a pain in the neck sometimes," she said as she led him into the house. "Don't get too friendly with him, Ernie; he gets so excited he'll knock you down every time. He just wants affection, but he ain't got good sense. Well, sit down and I'll get you a beer."

Ernie sat, picking a chair by the electric fan which was going full-blast. Marth, who was his cousin by marriage but was fifteen years older than him, brought a half-quart can frosty from the refrigerator. "The men are off to the logging camp during the week," she said. "Ought to be back tonight. Your Aunt Dodo's up to her house; if she heard your car she'll be down. Drink your beer. How are you?"

Ernie drank gratefully; once off the highway, the heat of the summer was more pressing. "I'm fine," he said. "When'd you get the electricity in? We used to use the well in back for a refrigerator."

"They strung lines couple of years ago. I'm afraid your hick country cousins ain't so quaint as we used to be. Television's in there." She waved a hand back at the living room.

"I'll be damned," he said. "No more Bob Hope on the radio at night? You know, I haven't read an Andy Gump strip in the papers for years; they don't have it in Los Angeles."

"Well, he keeps goin' on up here, if you can stand him. Bob Hope's on television sometimes."

"Ah, it's not the same, Marth, not the same." He took another long swallow of the beer. "I'll bet you even have an electric stove now—you should've known I was looking forward to chopping firewood."

"I guess we've lost some of our native simplicity," she said. "But you can go out an' plow the south forty this afternoon if you want."

Ernie looked up and saw her grinning at him. At thirty-eight Marth looked a bit tired, but when she grinned at him he saw that most of the lines around her eyes were laugh-wrinkles.

"We never had a south forty here and if we did it would be overgrown with trees anyway," he said. "Don't you go making fun of us citified fellers."

"I wouldn' dream," she said, with her eyes still mocking him. Ernie sat back in the chair, feeling the fan ruffling his hair at the back, and relaxed.

Aunt Dodo came in a few minutes later, and they spent a few hours getting up to date on each other. Dodo had been Uncle Dan's wife, and she was getting on in years. When the late afternoon sun cast leaf-mottled shadows across the table Ernie said he wanted to take a walk and look around.

"Well, don't get in my vegetables out back," Marth said. "I've got enough trouble keepin' Bolger out."

Ernie went out onto the porch, where Bolger, as usual, was sitting on his hip. The dog opened one red-rimmed eye to look at him, snuffed, and went back to sleep. Ernie stepped down into the summer dust of the driveway and walked across to the ravine over the creek. He bent and dug a few rocks out of the dirt, peered out and located the tall pine he'd used for a target years ago. Then he took careful aim and threw the rocks one after another, missing with each one. Well, he was out of shape. He went on down the trail to the creek and made his way up the other side into the trees.

After half an hour he decided he should have changed out of his slacks; they were getting as dusty as his shoes. He was walking through underbrush now, using his arms to hold back the branches as he passed. Somewhere out in here, he seemed to remember, was

one of the trees in which Uncle Dan had left his manzanita notes for the Old Man.

Ernie remembered that once he'd left a note there himself, carefully written out with the stub of a pencil by Uncle Dan. It was right after Patsy had disappeared; she'd been gone for two days and Ernie had told Uncle Dan that he bet that Old Man had got her. He probably had her locked up somewhere and was feeding her baby jackrabbits, trying to make her as mean as his dog. So Uncle Dan had written a note to the Old Man and told him to set their dog free or he'd come up and take a cane to him, and the next morning Patsy had come back, her fur matted with burrs and her tongue hanging out. Ernie had spent most of that day cleaning her coat, and Uncle Dan had had to remove a tick from her ear.

Ernie almost missed the tree when he came to it. The hole near the base of the trunk was overgrown with dark green grass and weeds, and it was only when he recognized the big oak next to it that he realized he'd found it. He stooped and looked into the hole to see if one of those notes might still be there, but there were only a few leaves and ground-insects. He stood up and stretched, standing in the shade of the tree.

Behind him a voice said, "What in hell're you doin' there?"

Ernie jerked his head around and saw a man in a dirty deerhide jacket standing next to the oak tree. The man was a good six and a half feet tall, and heavily built, with dark gray hair falling down over his forehead and spraying out over his ears. His face was a mass of dirty wrinkles in skin that was almost like leather itself; his eyes held Ernie's fiercely.

Ernie grinned at the man, a nonsensical civilized reflex which he immediately regretted. "I was looking at the base of the tree," he said.

"I can see what you were doin'," the man said. "Now what were you lookin' there for?"

Ernie shrugged, feeling foolish. Had he wandered onto somebody else's property? Nobody had worrid about private property when he'd lived in these hills, but obviously things were different around here now. At any rate, he wasn't about to say that he was looking to see if he could find a note to a childhood bogey-man.

"I thought I saw something move there," he said. "Could have been a lizard."

The man drew his lips back disgustedly, and spat tobacco-juice from the side of his mouth. "If it'd been anything, might've been a rattler. You make a habit of pokin' 'round rattlers?"

Ernie shrugged again, feeling even more foolish. "I was just out for a walk," he said.

"You a city boy?" the man said,

frowning darkly at him. He was leaning on a huge, smooth-polished wood cane with a head large enough for a club.

"Well, I'm from here originally," Ernie said. "Is this your property?"

The man spat again, and continued chewing with his mouth open. "Damn right it is, boy. Damn right. Now why don't you jus' walk somewheres else?" He turned with an abrupt motion of dismissal and started to walk away, leaning with both hands on his cane. Ernie noticed then that one of his legs was shorter than the other.

Just before the man had got out of sight, Ernie called after him, "Did you ever know a man named Dan Harrison?"

The brawny dark man stopped and turned slowly around to look suspiciously at Ernie. "He's dead. What'd you have to do with him?"

"He was my uncle," Ernie said.

The big man continued to look at him from under dark brows for several seconds, then said, "Well, he's dead."

"When I was a kid we used to go for walks together," Ernie said. "Every time we'd go by that tree he'd stop and leave a note for a friend of his—or at least that was what he told me. I never did catch the fellow's name."

The dark old man leaned heavily on his staff, looking sullenly at him. "Didn't, eh?" he said.

"Uncle Dan always called him the Old Man of the Mountains," Ernie said. "He said he was the meanest man in the world."

The man spat at the base of the oak tree. "And the ugliest, too," he said. "Damned right."

Ernie watched the old man closely, but got nothing from the other's sullen gaze. "Whenever anything went wrong around the place," Ernie said, "Uncle Dan claimed it was the Old Man's fault. He said he had supernatural powers . . . magic ones."

The leathery grey man grunted. "Killed chickens and turned water bad, I suppose," he said.

"Things like that," Ernie nodded. "And Uncle Dan said once that he had one leg shorter than the other."

The old man straightened up, raised the walking-cane and flexed it in his powerful grip, one heavy eyebrow raised. "Your uncle talked a lot," he said in a low voice. Then he looked up, directly into Ernie's eyes. "So you're the kid sent me that letter 'bout the dog."

Ernie grinned. "Yes, and she came back the next day, too."

The Old Man shook his cane at him. "I didn't have a damn thing to do with that dog of yours," he said. "Minute a dog goes off to chase squirrels or . . . maybe to lift his leg somewheres, folks say it's me that's got him. If I did everything 'round here I'm s'posed to I'd never get any sleep nights."

"Well, she did come back pretty quick, though," Ernie said.

"You shoulda counted your stars, then," said the Old Man. "Kids 'round here got better things t' do than worry 'bout me."

"What *do* you do?" said Ernie. He sat down on a fallen tree-trunk and leaned forward, his elbows on his knees. "Do you hunt?"

The Old Man spat a quick stream of juice at a butterfly that passed too close to him; he missed and the butterfly zigzagged quickly away. "Yeah, I hunt sometimes. Coyote, sometimes, or deer."

"And you never come down out of the mountains," Ernie said. "Except maybe sometimes."

"Can't stand people," the Old Man muttered. "Can't stand you much either, boy. You talk almost as much as your uncle."

"You aren't so ugly," Ernie said. "He said you were the most ugly man on earth, but that isn't true."

The Old Man fixed him with a sudden piercing stare. "I'm as ugly as anybody *you're* ever likely to see, boy," he said. "Don't you know folks say I can curdle milk just by lookin' at it?"

"Well, I don't think that's true," Ernie said. "You know, Uncle Dan himself was no beauty, nobody to be talking."

"Boy, you better get yourself home!" the Old Man said, raising his cane, which was nearly the size of a tree-limb. "I don't believe you even got any respect for the dead, an' that's somethin' even *I* got. A little, anyways. Wouldn't bother me none to just split your skull, boy."

Ernie stood up quickly and backed away from the advancing Old Man. Short-legged or not, that man looked like he had the muscles and the meanness to do anything he said. "I was beginning to get tired walking anyway," Ernie said. "But I'll say this, you probably *are* about the *meanest* one man I ever met. You know, I'll bet you hate people so much because you think you're so ugly nobody could stand you."

The Old Man shook his cane at him menacingly. "And I claim I can't stand 'em because they don't mind their own business! I'm warnin' you, boy, clear out!"

Ernie turned and walked quickly away from the Old Man. But after a few steps he turned again. He watched the man walking off the other way, leaning tiredly on his cane now that he thought he was not being watched. A huge, ugly, dirty-grey haired man, leaning on his cane.

"Do you use a gun when you go hunting?" he called after him.

The Old Man stopped and looked around at him over one hide-covered shoulder. "Sometimes, boy, sometimes," he said. "And sometimes I just run after 'em and kick 'em in the butt!" He laughed deeply and prodigiously, and walked off up the mountain.

When Ernie got back to the house he didn't say anything about meeting the Old Man. It was nightfall by then, and Brad and Harry drove up the road. They laughed and joked while Marth fixed dinner, and Ernie sat reading the Grants Pass paper under the television lamp. Judging from the ads in the paper, Grants Pass too was growing up. There were ads for department stores and supermarkets, and drive-in movies. Ernie grinned at himself, put the paper down and joined the others at the supper table.

"The beer isn't cold," Marth said. "The refrigerator went on the blink this afternoon."

"Well, that's a problem we never had when I was here," Ernie said. "Civilization has its drawbacks."

"There are always problems," Marth said. "Things go wrong."

After dinner they all sat watching television until the picture started rolling so much that they had to turn it off. Ernie got a book from his suitcase and sat reading it, thinking of the refrigerator and the bad tv reception. Things were pretty much the same, really. Hello, Old Man.

Isaac Asimov must be listed, along with Robert A. Heinlein, as one of the two most seminal SF writers of the past quarter-century—if for no other reason than that to list his books, let alone his stories, would be too much work. He is also a biochemist of reknown, holding the title of Associate Professor (Boston University) in perpetuity. He is the author of Fifty-one books, plus five in press, plus one currently in typewriter (rumors that he writes in blood, with a vulture's quill, we—with some hesitation—dismiss), plus seven under contract. Doctor Asimov is a prime forty-three, a gallant, a wit, and a gentleman who allows us to bait him in these pages month after month, knowing full well that he could, if he so desired, demolish us with one verbal blow. New short stories by Dr. A. are almost unobtainable, chiefly because they are almost not being written at all. The story you are about to read (which is as heartwarming and American as a slice of Mom's blueberry pie) formed part of a series commissioned by the Hoffman Electronics Corporation and placed by them as advertisements in various scientific/technical magazines. What a pity it's so short.

MY SON, THE PHYSICIST!

by Isaac Asimov

HER HAIR WAS A LIGHT APPLE-green in color, very subdued, very old-fashioned. You could see she had a delicate hand with the dye, the way they did thirty years ago, before the streaks and stipples came into fashion.

She had a sweet smile on her face, too, and a calm look that made something serene out of elderliness.

And, by comparison, it made something shrieking out of the confusion that enfolded her

in the huge government building.

A girl passed her at a half-run, stopped and turned toward her with a blank stare of astonishment. "How did you get in?"

The woman smiled. "I'm looking for my son, the physicist."

"Your son, the —"

"He's a communications engineer, really. Senior Physicist Gerard Cremona."

"Dr. Cremona. Well, he's—. Where's your pass?"

"Here it is. I'm his mother."

"Well, Mrs. Cremona, I don't know. I've got to—. His office is down there. You just ask someone." She passed on, running.

Mrs. Cremona shook her head slowly. Something had happened, she supposed. She hoped Gerard was all right.

She heard voices much further down the corridor and smiled happily. She could tell Gerard's.

She walked into the room and said, "Hello, Gerard."

Gerard was a big man, with a lot of hair still and the gray just beginning to show because he didn't use dye. He said he was too busy. She was very proud of him and the way he looked.

Right now, he was talking volubly to a man in army uniform. She couldn't tell the rank, but she knew Gerard could handle him.

Gerard looked up and said, "What do you—Mother! What are you doing here?"

"I was coming to visit you."

"Is today Thursday? Oh Lord, I forgot. Sit down, mother, I can't talk now. Any seat. Any seat.—Look, General."

General Reiner looked over his shoulder and one hand slapped the other in the region of the small of his back. "Your mother?"

"Yes."

"Should she be here?"

"Right now, no, but I'll vouch for her. She can't even read a thermometer so nothing of this will mean anything to her. Now look, General. They're on Pluto. You see? They are. The radio signals can't be of natural origin so they must originate from human beings, from our men. You'll have to accept that. Of all the expeditions we've sent out beyond the planetoid belt, one turns out to have made it. And they've reached Pluto."

"Yes, I understand what you're saying, but isn't it impossible just the same? The men who are on Pluto now were launched four years ago with equipment that could not have kept them alive more than a year. That is my understanding. They were aimed at Ganymede and seem to have gone eight times the proper distance."

"Exactly. And we've got to know how and why. They may—just—have—had—help."

"What kind? How?"

Cremona clenched his jaws for a moment as though praying inwardly. "General," he said, "I'm

putting myself out on a limb but it is just barely possible non-humans are involved. Extra-terrestrials. We've got to find out. We don't know how long contact can be maintained."

"You mean," (the General's grave face twitched into an almost-smile), "they may have escaped from custody and they may be recaptured again at any time."

"Maybe. Maybe. The whole future of the human race may depend on our knowing exactly what we're up against. Knowing it *now*."

"All right. What is it you want?"

"We're going to need Army's Multivac computer at once. Rip out every problem it's working on and start programming our general semantic problem. Every communications engineer you have must be pulled off anything he's on and placed into coordination with our own."

"But why? I fail to see the connection."

A gentle voice interrupted. "General, would you like a piece of fruit? I brought some oranges."

Cremona said, "Mother! Please! Later!—General, the point is a simple one. At the present moment Pluto is just under four billion miles away. It takes six hours for radio waves, travelling at the speed of light, to reach from here to there. If we say something, we must wait twelve hours for an answer. If they say something and we miss it and say 'what' and they repeat—bang, goes a day."

"There's no way to speed it up?" said the General.

"Of course not. It's the fundamental law of communications. No information can be transmitted at more than the speed of light. It will take months to carry on the same conversation with Pluto that would take hours between the two of us right now."

"Yes, I see that. And you really think extra-terrestrials are involved?"

"I do. To be honest, not everyone here agrees with me. Still, we're straining every nerve, every fiber, to devise some method of concentrating communication. We must get in as many bits per second as possible and pray we get what we need before we lose contact. And there's where I need Multivac and your men. There must be some communications strategy we can use that will reduce the number of signals we need send out. Even an increase of ten percent in efficiency can mean perhaps a week of time saved."

The gentle voice interrupted again. "Good grief, Gerard, are you trying to get some talking done?"

"Mother! Please!"

"But you're going about it the wrong way. Really."

"Mother." There was a hysterical edge to Cremona's voice.

"Well, all right, but if you're

going to say something and then wait twelve hours for an answer, you're silly. You shouldn't."

The general snorted. "Dr. Cremona, shall we consult—"

"Just one moment, General," said Cremona. "What are you getting at, mother?"

"While you're waiting for the answer," said Mrs. Cremona earnestly, "just keep on transmitting and tell them to do the same. You talk all the time and they talk all the time. You have someone listening all the time and they do, too. If either one of you says anything that needs an answer, you can slip one in at your end, but chances are, you'll get all you need without asking."

Both men stared at her.

Cremona whispered. "Of course. Continuous conversation. Just twelve hours out of phase, that's all.—We've got to get going."

He strode out of the room, virtually dragging the general with him, then strode back in.

"Mother," he said, "if you'll excuse me, this will take a few hours, I think. I'll send in some girls to talk to you. Or take a nap, if you'd rather."

"I'll be all right, Gerard," said Mrs. Cremona.

"Only, how did you think of this, mother? What made you suggest this?"

"But, Gerard, all women know it. Any two women—on the videophone, or on the stratowire, or just face to face—know that the whole secret to spreading the news is, no matter what, to Just Keep Talking."

Cremona tried to smile. Then, his lower lip trembling, he turned and left.

Mrs. Cremona looked fondly after him. Such a fine man, her son, the physicist. Big as he was and important as he was, he still knew that a boy should always listen to his mother.

Before settling (if that is quite the word for someone now engaged in converting a former municipal bus to his own peripatetic and familial usage) in San Diego, Garry Cotton Mario Edmondson—he of the beautiful chestnut beard, beautiful wife, and four beautiful children—sojourned in Mexico both widely and lengthily; the curious reluctance of the inhabitants, however, to master his native Manx, obliged him to acquire more than a smattering of the Pre-Conquest tongues. Concerning the names of the tribes and towns mentioned in this, the latest of Mr. Edmondson's Mad Friend stories, we ourself know as near to nothing as makes no matter. About the identity of the Friend, we know as much as we care to. And as for the hint at The Truth about another recluse-writer (pseudonym not unlike "S. Murphy") hidden away beyond the Mexique Bay, we feel that this is a story for which we, like the world, are not yet prepared . . . James Clarke, editor of Adventure *during that magazine's great days, says that this story deals with "a world in which reality is dislocated and strange events become natural. It makes sense of a kind not realizable by conventional, logical means. The fictional effect is, to me, analogous to those achieved by Dylan Thomas and other poets who break through logic and still remain intelligible."*

THE WORLD MUST NEVER KNOW

by G. C. Edmondson

IT WAS VERY LATE OF A DARK and moonless night. My mad friend was near exhaustion and I had arrived. Crouching in a thick-

et of some thorny desert flora, we listened for sounds of pursuit. After a moment my friend stopped panting. "You suppose it really worked—like he said it would?"

I shrugged and a thorn raked my shoulder. "Want to go back and see?"

He climbed to his feet and helped me up. "Better get to the car before daylight," he said. We began trotting. A half hour later we collapsed in a dry arroyo and he was pecking at it again. "God would never permit such a thing," he complained.

"He permits this," I panted. "As for the rest, The World Must Never Know."

"About the icebox or about the writer?"

A horse neighed somewhere so we began running again.

The trip had been one undiluted disaster. First, the transmission had exploded. Then my agent had phoned at the last minute and stuck me with this fool's errand. About that time the only wives on friendly terms with us had decided they'd had enough Mexican desert to last the rest of their lives. In another month this town would be uninhabitable. Already, the mirages were carrying parasols.

We sat on a backless bench under the scant shade of the military society's *ramada* and surveyed the dancers who tramped and spun monotonously. My mad friend sipped asphaltum-like coffee and looked surreptitiously for a place to spit. Finding none, he swallowed. "It is my considered opinion," he pontificated, "That we pursue the wild goose."

I tasted *tizwín* and agreed. With neither ice, head, nor maturity, the *tizwín* offered little, apart from bits of fermenting maize and possibly less danger than the local water. "I only knew him by reputation," I said.

"So what makes your literary skill think he'd end up in a place like this?"

I shrugged. "Last known address."

My friend waited in silence.

"Apparently he was living in one of those Truman Crackerbox developments, skinning mules or missiles up in California when he first started dumping his frustrations into the typewriter."

My mad friend gave me a sharp glance. "Sounds familiar."

"He had one of those weird, gingerbread styles," I continued, "Unreadable until somebody performed an adjectivotomy."

A strident chirping issued from the church as *cantoras* antiphoned their distaff portion of the mass back at the chanting maestro. A *pascola*—one of the dancing clowns—gave us each a hand-rolled cigarette and began a long, rambling story. The language was quicker than I, but the punch

line, which convulsed our neighbors, seemed to involve a coyote urinating on someone.

"You suppose he spoke it?" my friend asked.

"Must've. His Spanish was as ungrammatical as Hemingway's."

"Why do you suppose he left Utopia-on-the-Freeway?"

I shrugged. "He had a job, a wife, two daughters—none of which, apparently, he cared much for."

"Gauguin syndrome," my mad friend observed. "What caused him to bolt?"

A small brown man with a large canvas musette bag appeared on the opposite side of the plaza. Standing between the cross and the whipping post, he peered uncertainly through the dancers' dust. Spotting the only foreigners, he advanced, unconsciously parodying the sacred steps as he wheeled to avoid a gyrating platoon whose skirts fooled no one, save possibly the Boy-Stealing-Devil for whom they were intended.

Having safely skirted the skirts, the small brown man stopped at our bench beneath the military society's ramada. He removed an immense hat and fanned himself before rummaging in the bag and extracting a much handled post card. "Meester EeYAHree?"

This was vaguely reminiscent of my mad friend's patrilineal handle so he took the plunge. *"Ehui."*

The small brown man brightened. "You speak the language!"

My friend lapsed into Spanish. "Not well," he admitted. "I can never remember when the double vowels should have a glottal stop in between." He turned the post card over.

"May we buy you a drink?" I asked.

The mail carrier rearranged the one or two letters in his bag, searching for a graceful way to apprise me of my gaffe. "I am *pweplum,"* he said, which meant he belonged to the club whose shade we used, and was a citizen of this city-state where we barbarians gaped. "You are *yorim?"* The word referred to races less favored by God—people of degenerate religious practice who are not quite human—and presumably excused me from knowing that Drink came from the Great Mother and was neither bought nor sold.

My mad friend said something in Arabic. It sounded like an old window shade being ripped down the middle.

"Qué hubo?" I asked.

"They twist the dagger in a still bleeding wound!"

The post card had squares for "x"s after *Was your car ready on time? Were our employèes courteous? Were you satisfied with the work performed? Was the steering wheel clean?*

I sympathized, for my mad friend was acutely unhappy with

the re-transmissioned and re-radiatored behemoth which languished at Road's End some 100 km below us.

"Just wait," he muttered, "Until one of those courteous, cheerful, clean-steering-wheeled pirates tools into my speed trap!" He remembered the mail man. "Will you honor us by sitting?"

The small brown man gave a furtive Indian smile and sat. A boy brought him a glass of *tizwín*.

Still shrilling, the purple crowned *cantoras* emerged from the church, surrounding Virgin & Child. Age and an unsophisticated wood-carver had given these statues a color and ethnic cast more probable than that of the Aryan travesties one encounters among Nordic Faithful.

"Murphy was lacerating his duodenum up in California," my mad friend prompted.

"Ah yes. My city slicker spent a great deal of time showing him the ropes. About the time the slicker was ready to get his money back, presto!"

My mad friend sighed.

"At first my shill thought he'd been lured away by some other razor merchant. But after several months he received a letter—"

My mad friend began dictating: " 'I take the liberty of enclosing a MS which you may find marketable. Should you decide to handle me, I must stipulate that my whereabouts remain secret.

" 'Should any unusual conjecture cross your mind, please be assured I have excellent reason for conducting my affairs in this fashion. Sincerely, Joe Blow.' "

"You got it all right but the name," I conceded. "He signed himself S. Murphy."

The mailman coughed and blew a fine spray of *tizwín* in the general direction of the dancers. "Something wrong?" I asked. He shook his head and continued gasping. My mad friend thumped him on the back and after a couple of agonized wheezes the mailman was himself again. "You are writers!" he said.

"I demand trial by jury," my mad friend hastened.

"Whatever gave you that idea?" I wondered.

"You spoke of S. Murphy. I have read his works."

"Has he been translated?"

"I read him in English," the mail carrier said.

I raised my eyebrows but did not manage to cover my bald spot. "Obviously," my friend said, "You are a man of parts."

The *cantoras* had by now escorted Virgin and Child to the Mother cross next to the whipping post. After some complicated footwork and flag waving by the village's little girls, they returned the images to the church.

"This Murphy," my mad friend prompted.

I managed another sip of *tiz-*

wín. "You're the crime crusher. You put the clues together. He pulled the plug on his instalments and in-laws and disappeared in a transparent but satisfactory manner since the joy and fruits of his gonads didn't bother or think to trace him through his agent.

"When he incarnated as Murphy, his kookie gingerbread style was unchanged, the subject matter still autobiographical. Previous stories had dealt with an Outsider type trying rather desperately to establish some contact with his family. The new run was beachcomber-remittance man genre—about the lonely stranger who nobly bears his white man's burden through some dark and secret corner of existence."

"My old sabre wounds are throbbing," my mad friend grunted.

The mail carrier took a deep breath. "I would write," he said, "If only I could find more time."

My friend flinched from the look in my eye.

"I have many ideas," the little man continued.

My mad friend glanced upward at the *ramada* which shaded us, reminding me that as guests we were duty-bound to hear out the club bore. "You didn't know S. Murphy?" I asked.

The mailman was swallowing *tizwín*, throwing his head back chicken fashion. He waggled a finger in the Latin negative.

"And you obviously know everyone in this district," my mad friend added.

The mail carrier nodded and spat the taste of *tizwín* toward the plaza where men danced in eternal penace for having slept when the Romans came to arrest their Saviour.

"Your agent's never met Murphy?" my friend asked.

I shook my head. "In this racket those who know your most intimate secrets are people you've never seen outside of an envelope."

"Why the sudden interest in looking him up?"

I fanned myself and wished either the weather or the *tizwín* were cooler. "Our errant scribe underwent some sort of metamorphosis once he escaped the strictures of Organizationville. Maybe it was a spiritual rebirth; maybe his typewriter got gummy. (He began hitting the keys a lot harder.) But he started leaving out all those adjectives. Suddenly, he had one of those simple, effective styles which makes Genesis read rather like a comic book. Of course, he loused it up by going off on some sort of phonetic spelling kick but writers never can spell anyway."

The low slanting sun was beginning to reach us beneath the *ramada* whose shade was now transposed to the plaza where *chapayecas* in needlenosed demon

masks waved wooden swords in mute menace at children who made faces at them.

"What kind of stories do you write?" the little brown mail carrier asked.

"Mostly, I write the kind everybody was buying last year."

"Principalmente," my mad friend contributed, "He writes accounts of the fantasy scientific."

"—so, about this time, S. Murphy—"

The mailman had taken the bit in his teeth. Though the Spanish language was no more native to him than to me, he had a certain way with words. "It was on the island," he began, "Which lies in the sea two days N from the river mouth. There had been a burning. The people accused him of being *ñagual.* The Mexicans got wind of it and I was taken along to interpret when they arrested the headman."

"¿Nagual?" my mad friend asked, "You believe that?"

"Certainly not," the mail carrier said. "A man is a man and a bear is a bear. They do not trade shapes. But these island people—"

"But there are no bears on this island," I protested, "How could the belief have drifted over there?"

The mail carrier shrugged. "No one ever got to the bottom of it. I could not understand their language so finally the Mexicans shot the headman and we left.

"On the way back, after the Mexicans had gone their way and I mine I decided to pass the night at—" He whisked through the double voweled stutterings which mean Jackrabbit Drinking Place Where the American Killed Many Mexicans Before They Cut Off His Head. "You have been there?"

We nodded.

"I watered my horse and hobbled him, a large *alazán* which I had acquired from a Mexican who no longer needed him."

No longer needed was a euphemism which I understood. "But you were working for the Mexicans," I protested.

"For their money," the mail carrier corrected. "This was some years ago, before they learned to respect us.

"It was early spring and there were still a few green weeds inside the hacienda's house garden. I led my sorrel in and was getting ready to boil coffee when a light came on inside the ruined building. It startled me," the little man continued, "For I had not seen many electric lights. Since then I have been in large cities and seen the colored lights which twist into letters but I have never seen light like this. It came from everywhere, like sunlight through fog. Though there was enough to sight a rifle, it cast no shadow."

A *chapayeca* came to the *ramada* and gestured with his wooden sword. While men were bring-

ing out the drum I studied his needlenosed mask of fresh deerhide. Around the neck, his rosary strung up and was hidden under the demon face. I glanced at my mad friend.

"Vow of silence," he explained. "They keep the crucifix in their mouth for the entire week."

The mail carrier sensed that we were not particularly interested and began speeding up his story. "He was very white. His face had the pale, corpse color—like the part of a white man which is always covered by trousers. It was hard to know where clothing ended and skin began. He had no pockets. Carried a bag like this, only smaller." The mailman smiled momentarily. "His trousers were tight but showed no bulge at the seat of courage. His hair was like dried corn silk and bristled a half centimeter over face and head. His eyes were pink, like those of a horse I stole once. He carried no rifle. I was certain he was not Mexican so even though he was alone, I did not kill him.

"I accepted his invitation. His food came in square pieces like that tasteless bread you Americans eat. I did not care for it but since I had only a handful of *piñole* and three more days to ride . . . His beer was cold. Have you ever seen a small box from which one takes soft bottles and bites off the end?"

"No, but I've seen this story."

"About once a month for the first twenty years after Stanley G. Weinbaum's *floruit,*" my mad friend suggested.

"You speak of stories," the mailman protested. "This really happened."

All the more reason for its suppression, I thought, but the little man was off again. "That night he took a small thing from his knapsack. It made a noise like beans when they are first dumped into a hot skillet, then a voice in some language I didn't know and he answered questions."

"How big was this radio?" I asked.

"It was like the cigarette pack radios the *turistas* carry now."

"And this really happened?" my mad friend asked, "In what year?"

The Indian thought a moment. "1926," he said.

"I know the Indian has a flexible concept of time," my friend said, "But this is carrying things too far."

"Later that night I woke and rolled a cigarette. It was that time of year when Woman Who Plants Squash is high in the sky. While I watched, the tip of her digging stick flared for just an instant, then suddenly the star was much tinier."

"Were any novas recorded in 1926?"

"Search me," my friend said, "I thought they lasted for days or months."

"I had seen falling stars," the mail carrier continued, "But this was the first time I had seen a fixed star change. I turned to see the all white man also sitting on his blanket. 'Two minutes early,' he grunted."

The sun had finally set and it was becoming endurable beneath the *ramada*. In ten minutes it would be dark and we had not yet decided where to spread our sleeping bags. The dancers and officials of the various societies had been on their feet and fasting since dawn. Soon they would eat and those whose vow of silence relaxed at sundown would be enjoying themselves before the tiny fires which rimmed the boundaries of sacred ground.

"I dislike to freeload on people who can ill afford it," my friend said, "But we'll create a bad impression if we uncork K rations in front of them."

"You will be welcome at my house," the mailman said.

"We couldn't impose on you like that." Mentally, I was calculating how many times this offer must be refused to strike a balance between politeness and necessity. The mailman was the only one in this village who had regarded us with other than a faintly hostile curiosity. "You must dine and pass the night with me," he repeated.

A boy brought *tizwín*. My long empty stomach regarded it somewhat coldly. I wondered if its taste had something to do with the village custom of constant and indiscriminate expectoration.

"So what's with S. Murphy?" my mad friend inquired.

"Ah yes, the errant scribe. Well, along with that stark and simple style he suddenly developed a plot sense. I read the first few chapters of his magnum opus as it came in. They were (and I say it with a wrenching in the cardiac region) far superior to anything I'll ever do."

"So what's the difficulty?"

"They were good enough," I continued, "To get the granddaddy of all contracts. The prepublication campaign on this one will make the *Peyton Place* business sound like the hard sell on some starving poet's slim volume."

My mad friend was still mystified.

"The time is overripe," I said. "If I can't find this guy and talk him into completing those last three chapters within 60 days my shill may be forced to subsist exclusively on Brand X."

"Zo vot's in it for you?"

"If the wheels fall off his pushcart my apples also scatter." By now I had fallen into the habit of automatically spitting after each sip of *tizwín*. The postman, apparently unused to stronger waters, had lost his Indian gravity and would soon by all portents approach orbital velocity.

"S. Murphy," he slurred, "A wonderful writer."

Somewhere across the plaza a harp tinkled and falsetto voices raised in plaint to the Great Mother. "I have read his books," the mailman continued in a voice from which *tizwín* had dissolved all roughness. "Have you read one —I remember not the title under which it publishes." He began sketching in plot and characters, using that verbal shorthand one writer employs with another. I decided he must know Murphy quite well to have picked it up. "Could you take me to see him?" I asked.

The mailman shook his head. "Impossible. Much distance."

My mad friend listened boredly. The plot dealt with a bumbling Ugly American type who settled in a village remarkably like this one—a man whose roots became large and clumsy feet when he attempted to plant them. My mad friend became more apathetic as he listened to garbled authorese. "What happened to the all-white man who was using pocket radios and predicting stellar catastrophes in 1926?" he asked.

Without hesitation the mailman shifted stories in mid-sentence. "It frightened me that this man with the pink eyes could know a star was going to die. I had always thought only Our Lord or Earth Mother could do these things. I thought of killing him but if he were what I thought, my bullets were of the wrong metal. For a moment I wondered if he might be the same one the island people burned.

"The all-white man sensed my inquietude. 'Everywhere it is the same,' he said. 'Most people are good. They hire someone to protect them from the bad and the foolish.' "

"Always around when you don't need one," I grunted.

My mad friend whistled from Gilbert and Sullivan to the effect that a policeman's lot was not a happy one. While the postman had droned on with this utterly predictable bit of sf I had been thinking deep thoughts about the Murphy plot he'd been detailing. "¿y Murphy?" I asked.

Murphy's style seemed to have rubbed off on the mail carrier though, of course, all Spanish in literal translation has that florid, bigger-than-life quality.

"There was a man in the village who could read," the Indian continued, "So he received a salary from the Mexicans, ostensibly as mail carrier, though really they thought they were hiring a Judas. Since no one else could read, his job was a sinecure. To make ends meet on his microscopic salary he also kept store, burro-training back those bits of civilization—cartridges, matches, coffee—which cannot be grown in fields.

"The postman and the stranger became friends. Both were initiates into the sacred mysteries of Alphabet. Both knew tales of the great world below. And there was the postman's daughter, in imminent danger of becoming an old maid. She sat in inconspicuous corners while the white man told stories of a world which mountain-bred beauty would never see.

"Murphy's eyes seared the brown body which bulged beneath an all-concealing dress. The postman was optimistic. But . . .

"Perhaps she reminded the white man too much of his own daughters who by now must have been considerably older. He made no overture. Meanwhile, young men of the village stayed away, knowing they could not compete with this blond Othello who held a maid enthralled with tales of distant lands." The mailman spat again.

It was totally dark now with that velvety blackness of the tropics, unrelieved at this altitude by any flicker of love-frenzied fireflies. From the tiny fires that ringed Sacred Ground came appetizing smells of coffee and broiling meat. "I don't know about you," I said to my friend, "But I could eat the gastric contents of a *ñagual.*"

"There will be food at my house," the mailman said.

I slung saddle bags of emergency rations over one shoulder and loaded down the other with the gadget bags and cameras which I had learned earlier would be reduced to powder if I so much as popped a flashbulb toward Sacred Ground. My mad friend shouldered the sleeping bags and we trudged behind the mailman, across the plaza, up the widest of the streets which wriggled octopus-like away from it.

A couple of hundred meters uphill we entered a larger than usual compound, fenced with the usual jumble of cactus and *pitahaya* stalks. With no great surprise, I recognized the store in Murphy's novel. We passed through it into the patio between the Mother Cross and a drying rack for chiles, into a low, rambling structure whose wattle and daub walls were high enough for privacy, but lacked a full meter of reaching the oval shaped palm thatch which shaded the house, stored maize out of the hogs' reach, and sustained its own ecological cycle from cockroach to scorpion via mouse to snake. We suffered a visitaton of mosquitoes.

"Burn a candle for whoever invented atabrine," I muttered.

My mad friend nodded and crossed himself.

The postman's wife was a tall, mahogany colored woman who wore abundant hair in a *molote* like Mrs. Katzenjammer. She greeted her minuscule husband with a respectful affection which explained the equanamity with

which he faced a large and confusing world. She extracted a palm leaf from beneath the baby in her rebozo and knelt to revive the fire in the patio. A stairstep set of daughters joined her and the eldest began slapping tortillas while others brought out the best dishes.

Soon my mad friend and I faced steaming bowls of the stewed squash blossoms which are one reason why I return regularly to this desolate land. We were poured countless cups of the asphaltum-like coffee which, after one disremembers American brews stands on its own peculiar virtue. There was chicken stewed in *mole,* a dark brown sauce made of 21 different chiles, peanut flour, ground *chocolatl,* and Ometecuhtl knows what else. When *tamales de dulce* appeared, made of fresh roasting ears macerated with stick cinnamon and loaf sugar, I began to suspect some runner had forewarned the household of our impending visit. The *tizwín* began to rest more comfortably.

After a terminal plate of beans with tortillas of the local, paper thin and yard wide variety, we stretched legs and tilted vertical backed rawhide bottomed chairs to a comfortable angle. I glanced at my mad friend who was more cognizant of local custom than I. He nodded so I extracted some emergency ration.

A daughter brought glasses. The mailman regarded the label on my rations with respect and said something which astounded us: "I'll bring some ice."

The wife had long since retired to her own part of the immense rambling structure. We were alone in the patio, save for the 15 year old daughter who bulged in all the proper places and was learning how to pose and project her protuberances. I wondered if this were instinct or sophistication. It occurred to me that this might be the same young lady who in her quiet way was giving Murphy the business.

My mad friend was oblivious to her. "Where in the name of Our Lord and Saviour did he ever get ice?" he wondered. It flabbergoosed me too; the nearest natural ice was hundreds of miles higher in the sierra and the nearest machine at least 100 km below us at Road's End.

The postman returned with a dish of ice cubes and Desdemona ceased her siren act. My mad friend sipped resignedly at his coffee while I and the postman tried to forget the taste of *tizwín.* "This Murphy plot," I pursued, "What did you say was the name of the book?"

Beguiled by the smoothness of my K ration, the postman was underestimating its effect. "Don't know," he slurred, "Not finished yet."

My mad friend raised eyebrows

and I nodded. "He's been describing the one my shill sent me here to get finished." I turned back to the postman. "Now when," I insisted, "do I see S. Murphy?"

The little man's eyes flickered and he was suddenly cautious. "Not possible. Much distance."

The siren remained silent and watchful in her corner. I sneaked a glance at her and wondered why Murphy had hesitated. The postman caught me looking so I hastily poured him another drink. "What happened," my mad friend asked, "To the pink-eyed cop who shrinks stars?"

"He doesn't." I marvelled at the mailman's ability to switch subjects as rapidly as my mad friend. He skipped hurriedly through the rest of the story: "The good people paid him to watch out for the bad ones—*delincuentes juveniles*—he called them." Abruptly, the mailman lurched to his feet and staggered past the Mother cross into the darker portion of the patio. I heard sounds which suggested an incompatibility between squash blossoms and emergency ration.

My mad friend glanced meaningly to my left and as a mezquite twig flickered I saw the 15 year old still studying us unblinkingly from her dark corner. "I think," I said in English, "We observe the reason why Murphy has not finished his book."

My friend reflected a half second. "Still making up his mind how to end it?"

I guessed so.

"Where do you suppose he's hiding and why won't he see us?"

I grinned. "Even without badge and nightstick there is in your freudian corpus a certain aura which probably shows—even through binoculars.

My mad friend sighed and again began whistling Gilbert and Sullivan. "So what do we do?" he wondered.

I shrugged. "There's at least one member of the family who'd love to have us stay."

My friend glanced worriedly at her. The siren protuberated visibly when she saw him looking.

Wiping away the remains of a cold sweat, the mailman returned to sit between us. "The pink-eyed man asked me," he continued, "if I had ever sat by a fire as someone in drunken glee galloped a horse through it. I remembered when Mexican soldiers amused themselves that way at the expense of the meal my mother was cooking. Thinking about it, I was almost ready again to kill the pink-eyed man when he asked, 'How would you like it if someone rode a great horse—' ". The mailman stopped perplexed and looked at us. "I've seen horses drag men and cows but what kind of horse can drag a whole field with it?"

My mad friend looked blankly at me.

"The pink eyed one spoke of galloping too close to the sun and one field interfering with another until the fire flared and went out just as when the soldiers used to ride through our village. It was annoying when people had to leave their earth and synthesize new homes. It could even be dangerous for people who do not— ¿what means *teleport?*"

My mad friend sipped coffee. "Well, Dr. OneStone, there's the missing link in your Unified Field Theory."

I looked at the mailman. "Possibilities," I said. "I can't remember it's being used in sf before. Where did you get this idea?"

"That's what the pink-eyed man said. I don't understand it." He threw a stick on the fire.

"After smoking a cigarette I went back to sleep. At dawn the all-white man's radio began sizzling like frying beans. He asked questions in that other language and finally put the small radio away. He opened the cold box and took out beer. 'I must leave,' he said, handing me one and biting the top from his own. 'Do you like cold drinks?' I nodded for the sun had been up 10 minutes and the day was already hot. 'Keep the box,' he said, 'Do not open the bottom and it will never harm you. Treat it with respect and it will run forever. Anything you put in it will be cold.'

"'I am poor,' I protested, 'What can I give you?' The all-white man gave a strange, twisted smile. 'To me, nothing. But next time you're ready to kill a cop, stop and think how your world would be if there were none.'

"I tried to understand what he meant. I was asking him to explain when I noticed that he was gone. I looked all around the hacienda buildings but did not find him."

My mad friend sipped coffee and whistled Policeman's Lot in a minor key. It was quite late and I wondered where we would unroll our sleeping bags. A mezquite twig flared and illuminated the mailman's mahogany face. Some trick of the light reminded me of an idol on a vine-tangled trail halfway between Persepolis and San Francisco.

"*Naguales,*" my friend grunted, and halfheartedly mumbled an exorcism. I decided to make a final lunge toward the main chance. "¿y Murphy?"

The brown man emerged from his white study. "Wonderful writer." He fished a melting ice cube from the dish and bathed it with K ration. I admired his fortitude. He took a long swallow which wavered briefly in his gullet before going down. "The ending is written. The pages will leave for New York whenever the post office makes up a bag."

"Didn't he send them airmail?"

"Is there need for haste?"

"Much need," I groaned, "Also much need to see Murphy."

The postman ignored this. "Two endings," he continued, "Which is most artistically satisfying? Should the bumbling stranger marry the girl and live happily or should he be consistent and put his foot in this as in everything else?"

My mad friend and I waited with unbated breath. The postman took another swallow and continued more slowly: "The stranger did not even realize that to visit the girl's father so often constituted a form of engagement. If he did not marry her the girl would never find another husband in the village."

My mad friend yawned. "And you never saw the pink-eyed cop again?"

The mailman wagged his finger.

"Good idea," I said "But it has the same defect as Murphy's book. You'll never get away with these up-in-the-air endings. Pin it down now—what happened to your all-white cop?—just as Murphy'll have to pin down what happened to his multiple-thumbed hero."

"Murphy had an ending," the mailman said.

My mad friend fanned himself and assassinated a brace of mosquitoes. "Might drag that wireless icebox back into the plot somehow," he maundered, "By the way, where're you getting all this ice?"

"From the icebox?"

"That one?"

"Couldn't be," I said in English. "No electricity; he's probably got a kerosene powered Servel."

The postman shook his head.

"Please," my mad friend said tiredly, "No extraterrestrials at this hour of the morning."

"I'll bring it," the mailman said. He staggered to his feet and left the circle of firelight. In a moment I heard the sound of K ration leaving by that same door wherein it went.

"I wonder what Monkey Ward Marvel he's going to palm off on us?" my friend mused.

I shrugged. "You may have noticed certain obvious parallels in this Murphy book," I began, "Also, a certain talent in our host."

My friend nodded. "Suppose he learned all his English in the last year from Murphy?"

"Probably chopped beets or picked lettuce in the States between revolutions."

"Have you considered," my friend asked, "How far we are from civilization and/or law enforcement?"

I nodded. "Suppose they've burnt any *ñaguales* around here recently?"

My mad friend tossed a gnarled mezquite branch on the fire and waited til it blazed. Somewhere in the darkness I could hear the mailman retching.

"You mentioned that Murphy's style changed. What about his typing?"

"Suddenly every letter was slammed home as if he were whacking them out with a chisel."

"Sure mark of a one finger typist."

The retching had stopped and I could hear the postman rummaging somewhere in his house. The branch flared up and I saw the fifteen year old still regarding us unwinkingly from the shadows. She commenced protuberating.

"He said Murphy *had* an end," I mused. "Also mentioned that a visit constitutes formal engagement." From the house I heard footsteps as the postman approached us. My mad friend looked at me and I looked at him. We both glanced at the hopeful sprite.

The postman stepped into the circle of firelight bearing a rectangular box, subtly different from anything I'd ever seen. "This is the refrigerator which works forever without fuel," he said.

The girl stretched and protuberated some more. I caught my friend's eye and we shared a common thought about an uncommon discovery. Suddenly we knew why Murphy's typewriter was being one-fingered, why his spelling had suddenly gone to playing by ear, and what had happened to S. Murphy. My mad friend tilted his straight backed chair forward and began rising.

But I beat him out the door.

It was very late of a dark and moonless night. Crouching in thorny desert flora, we listened. "I don't believe it," my mad friend muttered.

"So what are we running for?" I whispered back.

Somewhere in the distance a bit clinked. We shrank behind an ocotillo while a rider with rifle at ready light-footed down the trail. "They're ahead of us now," I whispered.

My mad friend pointed skyward. I sighted along his forearm at a line of minor but fixed stars which was slowly winking out. "Coming this way," I whispered. "You suppose that starcop was for real?"

My friend was muttering something in Latin.

"Maybe we could teleport?" I suggested.

"Please," he hissed "I've got enough troubles already!"

We started running again.

"People are always asking me why I did not have Lenin shot," Kerensky exclaimed—rather testily, it seemed to us—on his last public interview in the United States; and went on to explain why not: he couldn't catch him. One of the men of the long afternoon (some others: Prince Charles Edward Stuart, Aaron Burr, Lloyd George), whose mornings alone were full of action and glory, General Kerensky survived into our present time like a mammoth or mastadon. Surviving with him was the question of What Might Have Been had the Provisional Government of Russia (the only democratic regime ever to rule that massy and potent land), which he headed, not been overthrown by the Bolshevik Revolution of October, 1917. Wistful eyes, ignoring Omar, fix upon that fateful "sealed car" speeding over the German railroad track, heading for the Finland Station in winter-bound St. Petersburg—and a historical destiny . . . Dr. Paul Seabury, who casts a cold eye on this cold scene, is Associate Professor of Political Science at the University of California (Berkeley), National Vice-President of Americans for Democratic Action, author of The Wilhelmstrasse *(U. of C. Press, 1954)—a study of German (Nazi) diplomacy—and of a study of American foreign policy to be published this year by Random House. He is married and has two children and two cats. None of them, Prof. Seabury says, own a time-travel machine.*

THE HISTRONAUT

by Paul Seabury

When Ruggiero and Parkinson, in the course of their research at the Center of Astronautical Projects in late 1965, discovered the principle of infra-temporal mobility, they experienced the simultaneous delight and horror which is so common today among

sensitive scientists. That it was theoretically possible for man to move backward in time had long been the routine inspiration of countless science fiction stories. The idea of the time-machine had been a traditional absurdity. Now it was realized—and would be let loose upon the real world of men for them to make of what they would. That it was a very dangerous discovery to have made, neither man would deny; but also, as Ruggiero reminded Parkinson during their brief moment of euphoria, the thing did have its peaceful uses, not the least of which was this: it could free man from the chafing restraints of temporal existence—what an achievement! Space and time had *both* been conquered. On this note of triumph and self-exculpation, they adjourned from the Center of Astronautical Projects to spend several days in the nearby pleasure-palaces of Santa Fe, fully to enjoy the present before announcing man's liberation from it.

General Thayer, the Director of the C.A.P., was quick to perceive the implications of the Ruggiero-Parkinson principle and acted swiftly according to instinct and training; Ruggiero and Parkinson soon found themselves captives of their own liberative principle, surrounded by staff and research committees intent on exploring the full military implications of this appalling discovery. The General, thanks to his intuitive awareness of the extraordinary importance of their brains to national defense, surrounded the two, as well, by a most complex security system. Quite probably, of course, it was already too late—for as early as the spring of 1962, Ruggiero had imprudently published, in the *Journal of Space Science,* his first paper (the essential one in fact), in which was described his hypothesis: that space and time could be selectively reversed, and time transformed into a traversable geographic panorama. Somewhere in the Soviet Union *this much* was known already, then. At all events, official pessimism was in order.

And so Ruggiero and Parkinson vanished into the inaccessible federal lands of the New Mexico desert. The initiative having now passed wholly from their hands, Parkinson turned his attention to other playful theoretical matters, and Ruggiero, less resourceful, became a furtive and querulous bystander in the vast enterprise which his imagination had unleashed. Indeed, as his own consternation increased, his attention went by turns and spasms to problems of world government, socialism, and psychology. But these, alas, had little relevance to the work of the Center of Astronautical Projects. (Occasionally he approached General Thayer himself, with the request that his political findings be released; but the pru-

dent General refused, sensing the comfort that would be afforded to enemies of the nation to observe this once-unpolitical theoretician struggling with such bizarre notions. Thus, nothing came of the further speculations of Professor Ruggiero.)

Very likely the General was in the right; little time remained. If man could move backward in time, the secret would not remain with the Americans for long. If they were the first to effect it, so much the better; the mere capacity to do so was sufficient to deter the Russians from attempting to follow suit. Speed and secrecy were all. The implications of the principle of infratemporal mobility were—to put it mildly—light-years more far-reaching than those that had unlocked the secret of the atom. Obviously, if Americans could move backward in time, then history could be *selectively* altered *in the national interest.* If the Russians moved backward *first,* there was no telling what they might do. The irresponsibility of the Communist regime and Marxist ideology was already well enough known; why should men who had thus far shown no respect for history restrain themselves from altering it? Having rewritten history, what was now to prevent them from remaking it? It was this stunning speculation that sent General Thayer to the White House even while Ruggiero and Parkinson were recovering from the taxing diversions of Santa Fe.

The time-machine was by this time a technical matter; the consequences of its use a far more serious one. In the early spring of 1967, following the development of the first primitive experimental model, there were warnings enough of the possible consequences of use. At the Desert Springs Conference of Historiographical Manipulation, attended by a carefully selected group of Harvard and Berkeley historians, the matter was broached as calmly and fully as men can broach the fantastic. The selective manipulation of history dwarfed even the decision to use nuclear weapons in the Second World War: tampering with history was dangerous precisely because of the inability of the agents themselves to judge the infinite ramifications of even the slightest change. Human society, at the present moment, lived in the *present;* to tamper with its past would risk its alteration in ways which no one could, with any certitude, predict. To spare a flea on a Pharaoh's nose from his historical fate, as Professor Woodbridge pointed out, might have shattering contemporary consequences—not to mention the difficulties involved in carrying out the assignment. And if this were so, what of the risks in more am-

bitious undertakings—such as the proposal to retroactively assassinate Pryvushkin, the gifted Soviet nuclear physicist (playfully suggested by the representative of the Central Intelligence Agency, which long ago had overlooked the utility of such a move, to its great regret).

By the end of the conference the matter had, of course, gone beyond the purview of the Berkeley-Harvard pilot group. Disturbed by the very purpose for which they had been summoned, a few of the redoubtables joined together in the Desert Springs Manifesto, calling upon their colleagues to dissociate themselves from this ghastly enterprise. But more thoughtful scholars reflected that it was not so simple: no one could seriously believe that the American government, once possessed of such a horrendous weapon, would use it, pondering as it would the grave and unpredictable consequences. The very fact that it would soon become known to the enemy was enough to sober the most obtuse historian. As Professor Czernovich put it, did one really want to live in a world refashioned by Marxist historiography? What an opportunity for them to reconstellate the history of the modern world, accommodating it to Marx's predictions; what irony that the work of two Free-World scientists might, by default, provide doctrinaire Soviet historiographical slaves with the opportunity to *force* a plastic history into the mould which Marx had so crudely and amateurishly fashioned. To be sure, some of the present historiographers argued that even Soviet historians dared not be quite so doctrinaire. Would they risk the same possibility—upheaval of their own present way of life—so that Marx's prophesy could be properly fulfilled? No one could be perfectly sure. As Professor Schlesinger pointed out, some Soviet historians doubtless were already preparing the assassination of President Franklin D. Roosevelt in Florida in early 1933—so that the "historically necessary" contradictions of capitalism would emerge in the administration of President John Nance Garner. What a tragic and wanton act, to make Garner an American Kerensky by the redirected bullet of an anarchist assassin! (Not to mention the loss to subsequent historians should the New Deal never have occurred.) What would dissuade the Russians from such reckless deeds? Only prior possession of the weapon by the Americans themselves.

The latter viewpoint understandably prevailed; within a matter of months, the American historical profession—long in a slough of disrepute among the social sciences—had quite obviously recovered the majesty and prestige it had once possessed, before the more exact behavioral sciences had

captured a certain remarkable stature with the crises of their times. At the University of California in Berkeley, for instance, the demand for the services of historians in Project Selective Redirection ("Operation Herodotus") was so great that the atomic radiation laboratory buildings were quietly emptied of natural scientists to make room for the new scholar-warriors in the secrecy which their work so impressively required.

So, from these beginnings emerged the theory of preëmptive historical revisionism. At first, there were grumblings and protests within the President's secret Historical Advisory Commission, not to mention sharp and furious outbursts between the two inevitably rival groups of historians forming out of this turn of events, each group seeking the ear of the President and his National Security Council. "Operation Herodotus" was a far more problematical crash program of national defense than any previously undertaken; and the dizzy speed with which it commenced gave the debates of historians a certain liveliness unknown to meetings of the American Historical Association. On the one hand, a faction led by Professor Robinson advanced the not-implausible proposition that tampering with history was even more dangerous than tampering with matter; it was a fission process which could not even be tested without the gravest risk to all concerned. The more effective the weapon to be used against the enemy, the more extensive could be its damage to the nation. The most exquisitely controlled test could not fail to be perceived by the enemy himself, who would draw from it the most sinister conclusions, and possibly embark upon even more imprudent experimentation himself. The time had come, Robinson declared, to simply give up such senseless enterprises. He proposed extensive historical controls to harness this terrible power for peaceful uses and to enable all men to share in the secrets disclosed by Ruggiero and Parkinson. To the Four Freedoms, Robinson continued, should be added a fifth: Freedom of Time. If the President of the United States should offer the nations of the world the right to share this truly marvelous dimension of experience, think what such an unprecedented act of generosity would mean for American prestige. But history-meddling should be prohibited by international convention as a wanton infringement of the rights of men and nations.

Robinson's view might have carried greater weight if less had been known of the frantic enterprise already under way in the enemy camp. Not least alarming was the intelligence provided by the

C.I.A., that both major universities in the Soviet Union—Moscow and Leningrad—had suddenly been stripped of their historical faculties not a month before. As Professor Taylor pointed out, what made this particularly upsetting was that for years the Soviet historian had chafed under an ignominy even less tolerable than that of his American countepart. Among reputable Soviet scholars and scientists, history had long been discredited (by a sort of academics' agreement) as a pseudoscience. The predictive presumptions and crude expediency of Marxist historical theory was a matter for heartless mockery among Soviet scholars—a quackery which had survived only because of its servile utility to the Soviet state. What a humiliating reputation for a distinguished profession. And now, what a temptation to *hybris;* what an opportunity, at last, to do business! Soviet historiography would leap at the opportunity to simultaneously recover its respectability and elevate itself to a genuine power! Indeed, if there were among Soviet historians any who raised moral or prudential objections similar to those raised by Professor Robinson, the result was scarcely a matter for conjecture. Recall the fate of countless Russian scholars, simply erased from the academic world for lesser deviations. The American position should be clear: develop this terrible instrument at all costs—so that it would not have to be used! This course proved beyond criticism. It was good to have an historical scholar-statesman in the White House.

For histronaut T. H. O'Brien (B.A., Stanford, M.A., Oxon.) the mission to assassinate V. I. Lenin (if desperate circumstances required this preëmptive act) began as a great adventure. It quickly became tedium, unrelieved boredom. An extraordinary opportunity to be one of the first observer-participants in history quickly degenerated into the duties of a night-watchman in an interminable night. Suspended as he was in an infinitesimal slice of time, outside the exit of a tunnel near the Swiss-German frontier (through which, when he was ordered to click the switches on his instrument panel, would inexorably emerge the sealed train bearing Lenin through wartime Germany to his otherwise inevitable destination—St. Petersburg and revolution), O'Brien had ample time to contemplate his wretched situation. Outside his comfortably furnished time-machine (designed by Henry Dreyfus), lay the motionless landscape of a Bavarian forest, dimly lit by a late-winter moon. Shortly after his arrival, O'Brien had perceived, with some annoyance, the most curious feature of this panorama: a night-owl frozen in flight like an unre-

solved seventh chord, its talons reaching stiffly for the branch of a nearby pine tree: living taxidermy, which a mere (if not yet bidden) gesture of O'Brien's fingers on a switch could liberate into motion. He was reminded of the words of Goethe (for O'Brien was, or had been, something of a Germanist):

Uber allen Gipfeln
Ist Ruh,
In allen Wipfeln
Spürest du
Kaum einen Hauch;
Die Vogelein schweigen im Walde.
Warte nur, balde
Ruhest du auch.

What irony. Sleep, the balm of boredom and of care, sleep was a pleasure forbidden him for—how long?

O'Brien's mission had seemed to the young scholar at first a heaven-sent opportunity to visit the Germany of World War I—to touch the dead past and to make it live. But this particular part of the past in which, by command, he was required to stand sentinel was as confined and dull as had been the winter woods outside his boyhood home in Wisconsin. Scattered through other parts of history were other sentinels, agents of the deterrent power of the West; perhaps they, too, had discovered how dull it all was. Perhaps, he reflected ruefully, observing the wintery desolation in that dark blue night, all of history was really as mundane as this: waiting for the Event to happen. But this, surely, was worse; this particular event, into which he was instructed to intrude as a *deus ex America,* might never happen at all—or so he had been told. He had been carefully trained, of course, to *make* it happen; but like that of the new obsolete Polaris commanders, his own readiness to act, to pose a credible threat to the enemy, was part of the price he must pay so that the event would be *less likely* to occur. No sleep, continuous vigilance, the long wait for the distant signal from the "future"—a signal which he could not disobey—all these were part of that price. Inside the railway tunnel, aboard the motionless train, slept V. I. Lenin, the revolutionary pamphleteer, whose career was to be brutally interrupted if that signal came. ("The removal of Lenin from history," so read the N.S.C. action paper, "would be a massive preëmptive act, not without calculated risks, inviting possible retaliation from Soviet military authorities and risking, as well, certain unpredictable socio-economic derangements of the American economy and military system. Nevertheless, his removal from history—if rendered necessary by hostile Soviet acts—would most likely conduce to the triumph of the liberal representative governmental institutions of the Kerensky Provisional Government, and to the spread of liberal

democracy to other parts of Eastern Europe. To be sure, massive consequences and repercussions, requiring equally massive readjustments, are to be expected in American society as a result—but surely these would be less destructive than the risks of a hydrogen attack. Probably, they would be enormously favorable. In any event, peaceful revisionary retaliation is preferable to nuclear holocaust or to destruction, and is thus in the national interest of the United States. Should this act be required and prove successful, others could doubtless be undertaken later.")

Time was quite difficult to measure under such curious circumstances. During a very considerable stretch of it, Histronaut O'Brien nourished his flagging spirits with tape-recorded contemporary music, lectures, and comforting noises from home. Snow heaped his view-window. Then, with brutal suddenness, the grave signals began. There could be no mistaking them—weeks of training in fail-safe devices had taught him instantaneous obedience in unflinching sequence: the familiar flashing green light, then the profound electric shock, then the recorded command. One rapidly followed another. O'Brien was thrust, in extraordinary surprise, from his comfortable foam seat. Without delay or reflection, he seized the time-resumption switch and pulled it. (Somewhere, hidden before or behind him in history, his enemy counterpart might be doing likewise.)

Outside, the owl's talons finally grasped the branch, and, in doing so, let loose a spray of fine winter snow; a slight motion of branches responded to a sudden, gentle wind. Everything else was still. O'Brien lowered the time-machine to the ground, and unleased its hermetic door lock. Clad in his German officer's uniform—a necessary deception—he sprang out onto the cold forest snow, pistol and detonating equipment in hand, and crunched his way toward the tunnel exit. Hastily laying the explosive carbon on the track, he ran clumsily back to his machine, electric gear in hand, unrolling the wires as he went. Scarcely a minute had passed; quickly, he locked the door tight, grasped the detonating switch, and returned to his seat. Then, from within the tunnel, came the expected muffled whistle, the widening light, and the mounting roar of the train . . .

In the winter twilight of a December day in 1968, Histronaut T. H. O'Brien approached Washington, D. C., in his machine, his first mission an arduous but successful one. Below him stretched a vast dull panorama: the lights of homes, office buildings, streets.

Crossing the main part of town, he passed the Washington Monument and hovered briefly over the Potomac in search of the Pentagon landing field. The visibility was poor in the dim light of a snowy evening, and somehow he failed to see the field-lights and signals. Familiar landmarks were obscured on the far side of the river. He had never been very adept at aerial navigation, even under the best of circumstances, and these were assuredly the worst. The storm had evidently been in progress for some time, or so he thought, for even the Pentagon itself was obscured. There came over him the sense of annoyance which comes to men who are prevented by some unexpected trivial obstacle from the completion of a triumphal enterprise. His machine was sufficiently mobile to land, helicopter-like, in places of its own choosing; so, frustrated by poor visibility, he turned back in a slow arc towards the gleaming lights of the central city, which shone bleakly through the gusts of wet snow, to land on the White House lawn.

The sight was puzzling at first; while he had only the vaguest sense of how much time had elapsed since his departure (it was certainly less than a year)—yet as he dropped his machine carefully on the lower grounds of the White House lawn, he was struck by the change that had come over things in his absence. The light snow could hardly obscure the tangle of brown weeds and undergrowth which lay all about his machine: what a curious laxity of the gardeners, to neglect so much! The grounds were remarkably deteriorated. He opened the door of the machine, stepped lightly out among the brambles, and, still in his German officer's uniform, made his way quickly up the overgrown lawn to the White House. From out of the darkness emerged the expected sentinel to challenge him. *"Halt! Wer da?"* came the peremptory voice. As O'Brien approached him in surprise, the sentinel, clad in field-gray, lowered his rifle. *"Zu Befehl, Herr Major!"* he exclaimed deferentially, peering narrowly at O'Brien and his feigned insignia of rank. "You should not be outside like this after dark. The Gouverneur-General, you know, has given strictest orders for all personnel to be in their quarters after curfew. What luck! I might have shot you by mistake for an American!"

Owing partly to the absurd notion that a constitutional right to own an automobile exists, owing partly to the insolent and insidious pressures of the buggy-hucksters, and in no small measure to the treachery of the railroads, the horseless carriage—once naïvely deemed a servant of man—is rapidly in these United States becoming his master: and the Book of Proverbs warns of the servant exalted above his master. We know of Mr. Robert L. Fish only that his last communication to us was postmarked Brazil, and that this his first story here might very well be not the satire which to some it may seem, but a sober prophecy of the shape of things to come.

NOT COUNTING BRIDGES

by Robert L. Fish

THE TRUEST STATEMENT EVER made is that a lot of knowledge is a dangerous thing. Take a prime example: me. Once I was ignorant and happy, and then . . .

I was driving with a friend of mine, and this friend—who was Query Editor on a newspaper—started telling me about some of the questions he was called upon to answer.

"Some character will want to know," he said, "who held Washington's coat when he flang that dollar over the Rappahanock. That sort of thing."

I laughed merrily. "How could anyone be expected to know that?"

My friend looked at me sourly. "What'd you mean? *I* know. That's my job."

I marvelled at this. "Amazing! You supply this information for free?"

"Free, if they wait until Sunday," he conceded. "I only come out on Sundays. Of course, if they send in a stamped self-addressed envelope, they get these vital facts by return mail."

"Wonderful! Of course," I pointed out, "if you've waited since 1776, you ought to be able to wait until Sunday."

"1758," he said. "Yes, you'd think so, but people apparently don't like to wait." He paused,

and then made the statement that was to change my life so profoundly. "For example, I received a self-addressed stamped envelope just yesterday asking me what percentage of the area of the United States was devoted to providing space for automobiles."

"You mean roads and such?" I asked.

He nodded. "Also parking areas, driveways, gas-stations, drive-in movies, etc."

"You were able to answer him?"

"Of course. Today the percentage of our national space devoted to the necessities of the gas-fed monster amounts to exactly 8.64% of the total land area of the country. I do not count bridges, since they pass over water."

I smiled at him. "Not very much, is it?"

"Well," he answered with a frown, "when you consider that ten years ago it was only 1.85%, and fifty years ago it was only .0047%, you can see the direction we are going."

My smile faded. I pondered this, an uneasy feeling beginning to permeate me. "You mean . . . ?"

"Yes," he said. "I have plotted a curve. At the rate of increase evident over the past half-century, we shall eventually end up with the entire country committed to concrete roadways, parking lots, and soft shoulders." He made a rapid calculation. "About 1998, I should judge."

I was horror-stricken. "But how would we eat?" I cried.

"Howard Johnsons, I imagine."

"And where would we live?"

He glanced about to make sure we were not being overheard. "I have it on good authority," he whispered, "that the Government, aware of this trend, has reserved some two-hundred-thousand acres near Pittsburgh, and is planning an apartment-building sufficient to handle the entire population."

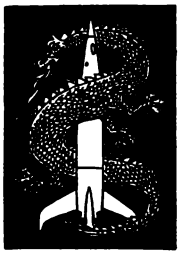
My perturbation must have shown on my face, for he attempted to alleviate the terror he had wrought in me. "Do not worry," he said soothingly. "There will be room for all. And built-in television sets, too."

But I was not to be calmed. In fury at the horrible vision he had provided, I opened the car-door and flang him into the road. I tramped on the gas, fleeing.

But I have not been able to flee from myself. I read each newspaper story of highway appropriation with panic; each bull-dozer I find at work sends chills through me. Because I know me.

When we are all in that apartment, I'll be the guy who comes home late. I'll be the guy that has to park somewhere around Indiana . . . ◄

EDITORIAL



At our side is a copy of Volume 1, No. 1, of THE MAGAZINE OF FANTASY, dated Fall, 1949 (the AND SCIENCE FICTION was not added until the following issue), which we have just re-read for the first time since it came out. The cover (a Kodachrome by Bill Stone) shows a beautiful girl in a white dress pursued by a green, wide- and eager-mouthed Thing—a genuine B.E.M, or Bug Eyed Monster, such as you don't hardly see no more. Inside, are reprints of stories by Perceval Landon, Fitz-James O'Brien, Guy Endore, Richard Sale, and Oliver Onions—good names, one and all—and originals such as Philip MacDonald's *The Lost Room* (perhaps the first to use the theme of retroactive disappearance), H. H. Holmes's *Review Copy* (a worthy modern employment of "casting the runes"), Stuart Palmer's *A Bride For The Devil* (idle-rich lady demon-dabbler whose spoon wasn't long enough), and: immediately classical, forever unforgettable: *The Hurkle Is A Happy Beast,* by Theodore Sturgeon; *In The Days Of Our Fathers,* by Winona McClintic ("Kets had T.B., Shelly drowned,/Shekspur lies in the cold, cold ground."). Thus did founding co-editors Anthony Boucher and J. Francis McComas launch their new argosy, establishing so high a standard that living up to it has been a constant (and a stimulating) challenge. The founding publisher was Lawrence E. Spivak; we quote from his INTRODUCTION—"To authors who have long wished to try their hands at this sort of thing and found the usual markets closed to such experiments, let me assure you that the latch-string is out and the welcome-mat freshly dusted. Send us your material. There is no formula. . . . To readers we will offer the best of imaginative fiction, from obscure treasures of the past to the latest creations in the field, from the chill of the unknown to the comedy of the known-gone-wrong . . ." Since that first Fall, 14 years ago, The Magazine has published many, many other great stories by many, many other great writers. Authors who have subsequently achieved some attention in this and other fields made their first appearance here (including Your Servant to Command); and this process still continues. That it still continues to your satisfaction is evidenced by our still continuing in business while most of the Science Fiction and Fantasy magazines founded then or subsequently (and, for that matter, even previously) have gone where neither Burke nor Hare can find them. Neither our rates nor our circulation are the highest in the field. Our quality, however, we may safely say, is second to none. And even as you, ours, we enjoy the pleasure of your company.

—Avram Davidson

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