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Lambda One
Colin Kapp

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Lan Wright

Guest Editor

St. Albans

It is nearly four years since Lan Wright's last serial, "A Man Called Destiny," appeared in this magazine, during which time many readers have asked when another of his highly successful inter-galactic plots will be published (his next one, "Dawn's Left Hand" starts next month, by the way). We learn that he switched his affections some seven years ago to a highly charitable cause, utilising much of his spare time as one of five radio commentators for Watford Football Club on their private broadcasts to the three central Watford hospitals.

Piped in over G.P.O. landlines direct to patients in the hospitals, the team's commentaries not only cover all the Watford football matches, but also wrestling matches, symphony and jazz concerts, and interviews with prominent personalities, recent among which have been Billy Cotton, Tommy Steele and Acker Bilk.

Such a spare-time hobby, however, is often arduous and sometimes dangerous. "One of the most nerve-wracking," he states, "was when we visited Preston—and found that the commentary box was fifty feet up one of the floodlight pylons, reached only by a narrow unguarded metal ladder and entered only by heaving one's self through a narrow trapdoor. With a high wind blowing, it was a grim ordeal, but the commentary went out on time just the same."

Although his writing time has been cut to a minimum, he still manages to read most of the contemporary science fiction literature and his guest editorial this month shows that he is still as interested and concerned with the genre as he ever was in the past.

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Editor : JOHN CARNELL

TWO SHILLINGS AND SIXPENCE

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Guest Editorial

Lan Wright has been around the science fiction field long enough to have some rather strong views on the subject—and these do not necessarily coincide with those expressed by previous guest editors.

Getting The Message

by LAN WRIGHT

Some weeks ago, in conversation, your editor evinced the opinion that most guest editorials had as their basis some particular ' hobbyhorse ' of the individual writer. Luckily for John Carnell, the number of hobbyhorses is as great as the number of writers, and they range from Jimmy Ballard's desire to turn his back on outer space through to American Harry Harrison telling us that there is nothing wrong with British s-f.

Most of these guest editorials have, to my ungracious eye, one thing in common, and that is the implicit or explicit opinion that Science Fiction has a message for the world at large.

That's what I said : A MESSAGE FOR THE WORLD AT LARGE.

Now, this sort of thing has been going on for decades. Writers, editors, artists and fans have been trying to inform us all what, in their humble opinion, is wrong with s-f. Successive pundits have implored to the heavens that s-f, to be acceptable to the general public, must make its message clear; it must have a general appeal; writers must adapt their styles; editors must encourage new writers with new ideas; a new flame must be lit to send a message to all the great mass of the ignorant and uninitiated to whom s-f is something on a par with the comic strip.

All this semi-pathological pap fails to take into account three major facts :—

1. Most s-f writers are semi-amateurs—the number of full time professionals *who earn their living from s-f* can be counted on the fingers of two hands.
2. The reading public reads what it wants to read whether it be westerns, thrillers, romances, who-dun-its—or s-f.
3. For over thirty years s-f readership has remained pretty stable in proportion to the readership of all other literary forms.

To take these points in order :—

First, professional writers have to live, and in the main they will write what pays well—i.e. what the public wants. The semi-professional/amateurs—people like myself—write as much for the pleasure they get out of it as for the profit, and the result is that they write what pleases them. Of course, this writing for pleasure can and does produce the new idea or the new approach—the story that raises a ripple on the surface of fandom, and the so-called intelligensia of s-f. But does that new idea stir the general public ? Does it attract a host of new readers from the vast, uncommitted masses who prefer westerns or thrillers or romances ? Not on your life it doesn't —to be blunt they couldn't care less.

And that leads on to my second point. All the new ideas, new concepts, fresh treatments in the world won't convert one person to reading s-f if he's completely indifferent to the medium —and, let's face it, most people are indifferent.

Logically, then, point three comes up. Out of every thousand people who become regular readers of books and magazines only a small proportion become fans or addicts of s-f—and that percentage has remained constant over more than three decades. It is true that there are spasmodic rises in circulation figures whenever another astronaut is blasted into space, but is there a similar rise when some great chemist unleashes his genius upon the world ? No, and that in the mind of Joe Public pinpoints s-f as being identified with spaceships and distant planets. Once the furore about the astronaut has died, circulation figures resort to normal and the world of s-f can get on with its proper business of entertaining its true supporters.

Continued on Page 122

Colin Kapp's return to science fiction is heralded by a brilliant novelette concerning the application of physics on inter-atomic space to produce a new system of world transportation. With two bodies safely occupying the same space at the same time —what happens when something goes wrong ?

LAMBDA I

by COLIN KAPP

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one

The unkempt shrubs obscured Porter's view from the window, but he knew instinctively that the vehicle which swept into the drive was not the one the years had trained his ears to recognize. As the sound of tyres quietened on the gravel he moved to the door automatically and without much interest. The knocker sounded a sharp rat-a-tat which keyed a memory all of ten years old.

" Damn !" said Porter to himself. " He's the last person I need."

Brevis' eyes were the remembered grey of steel, and the face, though older, had lost none of that unspoken authority. In their long association Brevis had always been the dominant character.

" Eric !" Porter offered a handshake meant to convey a warmth he did not feel. " Long time no see !"

" Hullo, Paul !" Brevis thrust a suitcase on the mat. " I'm taking you up on your open invitation. I've twenty-four hours to kill before I'm due at the East Coast MediCon. I could think of no better way of spending it than visiting Julie and Paul whom I've so long neglected. I say, I hope I'm not intruding ?"

" Heavens, no ! Very glad to see you." Porter pulled the suitcase into the hall, knowing sickly that Brevis would detect his insincerity. He looked up, to find Brevis' eyes scanning his face, and smiled wryly. " It's just that I'm afraid you've caught me completely unprepared. Julie is visiting her sister in New Mexico and I'm coping alone at the moment. The house—" he gestured uselessly "—is beginning to get out of hand. If you don't mind pigging it, though, you're very welcome."

Brevis grinned at his embarrassment. " Boy, compared with the mess we used to live in when we shared digs at Rhodes this is tidiness personified. Anyway, before you start opening cans and things let me remind you I still owe you an evening out. Grab your hat and let's go paint the town red."

" Sorry," said Porter. " Tomorrow I might take you up on that, but tonight I've got to stay within reach of the phone. I'm on emergency call at Tau Terminal. I don't expect anything will happen, but I have to be available just in case."

" I heard you were doing big things at Tau Corporation," Brevis said. " You'll have to explain Tau to me sometime. The more I learn of it the more confused I become."

" Sometimes," said Porter sourly, " I get like that myself."

When the meal was finished Brevis leaned back and eyed Porter shrewdly. " How's Julie keeping ?"

" Well," said Porter. " She's keeping quite well. And yourself ? What do you call your field ? Deep psychology?"

" Something like that," said Brevis softly.

" We've had driblets of news about you from time to time. We even caught your book: *The Psychopathology of Illusion.* It's good stuff even though I don't confess to understand it all. I said to Julie: ' That's old Eric who used to say he couldn't abide anything abstract '."

" When did you say that to Julie, Paul ?"

" When the book came out, I guess. Why ?"

" The book came out four months ago. You haven't seen Julie in about six months. She isn't even in New Mexico, is she ?"

Porter looked away. " No, I don't suppose she is. I always was a rotten liar. She walked out of here about seven months back. I don't want to talk about it."

" I think you should," Brevis said. " I met her in London a while back. She was living under her maiden name and trying to forget she ever married a big slob like you. I don't think she was too successful at forgetting. As I was largely responsible for bringing you together I feel a personal responsibility at your drifting apart."

Porter felt a tide of indignation rising. " Is that how you just happened to be passing here tonight ?"

" One of the reasons," Brevis said evenly. " There are others, but they don't matter here and now. I suggest you let me help you."

Porter shook his head. " Without wishing to be disrespectful to your professional status, Eric, I think this one is out of your province. What happened between Julie and me is not something that can be put right by a few tearful sessions with our father confessor. I'd rather we talked about something else."

The phone at his elbow rang shrilly. Porter picked it up, listened gravely, then dropped the handset back into its cradle. For a moment he gazed speculatively at nothing in particular.

" That was Tau Terminal. They've got an emergency on down there. I'll have to go. Do you mind making your own bed ?"

" If it's at all possible I'd rather come with you. I've travelled on Tau often enough but I've never yet managed to see behind the scenes. Can you fix it ?"

" Sure." Porter nodded. " But I'll have to have your undertaking that anything you see remains strictly confidential. That's a corporation rule."

" Fair enough," Brevis said. " I'll put it in writing if you wish. We can use my car, it's still in the driveway."

" You're afraid of Tau, aren't you ?" asked Brevis suddenly, setting the car sweeping round a bend on the dark mountain road. " Was it that fear which came between you and Julie ?"

" I said I didn't want to talk about Julie," said Porter. " Let's change the subject."

" As you wish," said Brevis quietly. " Let's talk about Tau, then. As I understand the principle of Tau it concerns making a solid body resonate in such a way that its atoms can pass through the spaces in the atomic structure of other solid substances. Thus two pieces of matter can co-exist in the same space at the same time without interaction."

Porter both scowled and smiled in the darkness. " You have a very small part of the idea—only, we have to do it with ships and men." His voice was cynical. " We resonate ships of up to a hundred thousand tons deadweight and send them soaring through the solid earth. It's one of the greatest wonders of modern science—a triumph of human ingenuity. But you know, Eric, I know more about the practice and theory of Tau than most, and still it scares me stiff. There are implications in Tau theory which are quite beyond our comprehension. We don't understand one millionth of this thing we have the temerity to meddle with."

" Then why do it ?"

" We have no choice," said Porter with sudden savagery. " One day Tau techniques are going to take us to the farthest galaxies. But in the meantime Tau research costs money—the type of money even national exchequers can't supply. So we take one aspect of Tau and forge it into a major transport system. That pays for the rest of the research—and even that is only a small fraction of what is needed. Tau physics is a subject with more potential than the sum total of all the rest of human knowledge put together."

" I hadn't thought that Tau physics was anything more than an extension of normal physics."

" You would soon," said Porter, " if you worked with it. The regions found in inter-atomic space have little to do with any physical domains that we know. For a start, there is no concept corresponding to what we call Universe."

Brevis thought about this for a while. " I don't understand this," he said at last. "Tau transport is acknowledged to be the safest and most reliable transport system there is—the collapse of the railways and the shipping lines indicated that. That doesn't indicate to me any profound lack of understanding of Tau basics."

" Don't be misled," said Porter. " The collapse of shipping and railways was purely economic. Tau Corporation undercut them and forced all except local traffic out of business. Even the airlines had to go. It was just too easy to do. The shortest distance between two points is a straight line, and a Tau ship can travel in a straight line between almost any two points on earth. Also, there's no friction in Tau space. Apart from the power needed to maintain the Tau-spin field the only energy

required is that necessary to overcome the static inertia of the craft, and even that is theoretically recoverable at the terminal point."

" The economics I can see," said Brevis, " but I've never yet heard of a major accident in Tau."

" By the grace of God and the efficiency of the public relations office there have been no accidents on our system which have caused a public outcry. Some of the other systems haven't been so lucky. But under certain types of government, news is what you print not what actually happens."

" What sort of accidents could happen to a vessel in Tau ?"

" We don't know all the possibilities yet, but the primary worry is the mode of oscillation of the energy package which contains the ship. Even in a simple oscillatory system, such as a cavity magnetron, there is a possibility of the device slipping from the main mode of oscillation to some other mode. With the complex oscillatory possibilities offered by the Rorsch Tau-spin generators, mode slip is not only possible but not unusual."

" Is that bad ?" Brevis halted the car at an intersection and waited impatiently for the signal to clear.

" It's not so good," Porter said. " There are four main modes of Tau oscillation : Gamma, Delta, Epsilon and Zeta. The ships are usually phased into the Gamma mode before despatch and a little over ninety-eight per cent remain in that mode till they are withdrawn into normal space at the terminal point. The other two per cent suffer a mode slip and arrive at the terminal in one of the other modes. The mode has then to be identified and phase-matched by the withdrawal generator before the ship can be brought back into normality. The difficulty is in the design of a withdrawal generator which can be deliberately tripped into matching any one of the four modes. It can't be done."

" Are you saying that you lose two per cent of your Tau-space vessels ?"

" Of course not. The point I wished to make is that you can't *design* a withdrawal generator with a controlled mode-slip. If a vessel comes to terminal point in anything but a Gamma mode you have to keep bucking the withdrawal generator until it slips into the required mode. It may take hours or even days to phase-in correctly."

" I hadn't heard of that before," said Brevis.

" No, you wouldn't. Tau Corporation couldn't bear the adverse publicity of admitting that the recovery of two per cent of its passengers and payload was largely a matter of luck. You should see how the control boys sweat when they're called to phase-in on a Zeta mode. A great many of Tau's terminal Controllers burn themselves out with sheer nervous tension before they're thirty-five."

" But that isn't your real worry, is it ?"

" No, damn you !" Porter shot Brevis a wry smile in the light of the fleeting streetlamps. His voice dropped lower. " No, it isn't at all. Tau, like every other technology, gathers its own collection of superstitions. One of them is that there's yet another mode of Tau-spin which is possible. If it exists it's so damn complex that the computers can't handle it. Nobody can prove it exists, yet everyone who handles Tau generators believes that it does happen sometimes. I've seen it myself at dead of night on the withdrawal generator at Pasadena. I had it on the scopes as clear as Sunday, but before I could bring in the cameras it had decayed to a standard Delta mode. It never showed up on the tracker charts or on the computer, but . . ."

" But what ?"

" I know it's damn silly, but the ship I was monitoring came in with a dead man aboard."

" Go on," said Brevis.

" The tech boys call this mystery mode Omega—the end. There's a legend that one day a Tau vessel is going to actually arrive at a terminal in the Omega mode, and when they do finally succeed in getting it out of Tau there'll be nothing but madmen and corpses on board. Like I said, it's a superstition, but every time you get an emergency call in the small hours you can't help wondering . . . if this is it."

" Just how possible is it ?" asked Brevis.

" I don't care to make that calculation. Rumour has it that it's already happened on some other system, but the news was suppressed. What scares me is the logic behind the assumption. If a vessel should arrive at a terminal in the Omega mode the passengers are liable to be a hell of a lot older before we can figure a way to phase-in and recover them."

two

Brevis brought the car to a halt under the bright lights of the checkpoint at the terminal gates. A uniformed gatekeeper ran out and waved the car round a line of waiting trucks.

" Mr. Porter, will you go to Grid Four. The Night Controller's signalled a top-line emergency."

" Holy Moses !" Porter gave a hasty direction and Brevis let in the clutch. The car leaped between the long, dark lines of the Terminal buildings and screeched to a halt at its destination. Before the car had stopped rolling Porter was out of the door and away across the fairway, leaving Brevis to follow in his own time.

Inside the building raw lights blazed savagely over the scene. The Night Controller left the control consoles and hurried to meet Porter, as if anxious to unload the killing responsibility on to more experienced shoulders. His face was deeply lined, indicative of a prolonged period of nervous strain. Behind him men were grouped in the various control sectors staring resignedly at instruments which told an impossible story. Naked anxiety and fear clutched the air with a cold hand.

" Thank God you've come, Paul ! There's a vessel on the grid but we can't phase-in for withdrawal. You'd better come and look at the scopes. There's something terribly wrong about the mode she's in."

Porter waved an arm to Brevis to indicate he could wander where he chose, then followed the Controller to the phasing panel. Brevis stood for a moment to gain his bearings, then began to explore. As a frequent passenger on Tau he was familiar with the layout on the farther side of the building, but he had never before seen the grid and the control sectors. When he had fitted the pieces together the effect was a considerable psychological shock.

In front of him now was the vast convoluted ' grid ' on which the vessels arrived and from which they departed on their journeys through Tau space. He knew from the conversation that there was a ship on the grid at that moment, but . . . the grid was as empty as any other empty space that he could recall.

It took a great effort of the imagination to visualize that only a few yards in front of him a great Tau vessel, with perhaps a thousand passengers on board, was waiting to be withdrawn into normal space. Occupying this square of emptiness was

about twenty thousand tons of steel and humanity with its clever Rorsch generators carefully phasing every atom of its charge into syntonic harmony with the atoms of the air with which it was co-existent. The very idea of it made the hair creep on his neck. He had the feeling that if he looked very carefully out of the corners of his eyes he could actually see the vessel as a shadowy ghost against the background of lights and girders. He knew quite certainly that he could walk across the area of the Grid and encounter nothing at all, but the idea that he would be walking through steel and living people made him feel slightly sick, and he had no stomach to try the experiment.

Something in the concept of Tau clawed at his imagination. The world of inter-atom was vastly different from the one which the basic atoms of the normal world composed. It was an area of non-logic which only grudgingly conceded a place to man and his fallibilities. Standing in the lights and shadows of Tau Terminal Brevis was suddenly gripped by a sense of unease at the terrifying nearness of it all. He imagined he could feel the dark, unknowable pressures of Tau breaking against the grid, threatening to break through into the world and flood it throat-high with something unimaginable. He sensed here for the first time the unspoken fear of all who handled the mechanisms which opened the doors to Tau.

Almost hastily he returned to the phasing panel where Porter and a couple of technicians were watching scope traces with genuine horror. Porter looked up as Brevis approached.

"Look at this," he said helplessly. "It's the prettiest specimen you ever saw. A tight-locked stable mode which has the computer in hysterics."

"Omega?" asked Brevis.

"Omega," said Porter tonelessly. "It had to happen sooner or later, but why the hell did it have to happen to me?"

"What are you going to do?"

"What can we do? We can't hope to beat the withdrawal generator into that mode, and even if we could there'd be no certainty of being able to hold it until withdrawal was complete. The best we can hope for is that the ship's mode is unstable and will decay into something we can handle."

"And if it doesn't?" asked Brevis.

"We have then no option but to instruct the Captain to take his vessel to a point we shall give him, and to sit there and wait."

" Wait for what ?"

" A Rorsch generator is an almost indestructible thing. Every possible care has been taken to ensure that it cannot possibly break down in service. Only one eventuality will inevitably stop its functions—the final failure of the stored power which drives it. Given time, a Rorsch must stop."

" So ?"

" So the vessel automatically and by definition falls back into a normal atomic condition. You get two large aggregates of matter attempting to occupy the same space at the same time. With a bit of luck the resultant explosion shouldn't remove more than about half a continent."

" Dear God, are you serious ?"

" Deadly serious." Porter mopped his brow. " This could become an international catastrophe of the first order. The most I can do is to issue co-ordinates to locate her spatially under the Atlantic Ocean when she falls out of Tau. That will minimize the damage, but I'd not give much for any shipping within a hundred miles radius, and the flood damage in some coastal areas is going to be fantastic." He turned to the technician. " Harry, get the Director on the line. We've got to get some top level action on this and get it fast."

" Check !"

" And get me full details of the vessel that's on the grid—cargo, passengers, crew, complete performance history, and any other relevant data you can lay your hands on. Tell Central Data I'm demanding instant priority."

" Check ! Routine transmission sheets are already on the logging table."

" Good. Can we get T-radio contact through to the ship ?"

" It's difficult, but we're working on it."

" And vision ?"

" Not possible, I'm afraid. We can't lock frequencies with them while they're jumping backwards through inverse square loops."

Porter looked at the mode-trace ruefully. " I take your point," he said. " Anyway, do your best."

He turned to the logging table to pick up the routine transmission sheets still limp from the electronic printer, and to summarise them rapidly for Brevis' benefit.

" The *Mu Elektron* . . . out of Tau London bound for Tau Eastern Coastal, that's us. Departure time . . . um . . . ETA . . . um . . . usual registration and certificates. Tech. Records say she homed in Delta or Epsilon modes on the last three trips. They must have been mad to send her out with a Rorsch acting-up like that. Tests check out OK, but there's a hell of a difference between a test-bed static run and the stress patterns involved in a long Tau vector. The Captain is Phil Dantor . . . Hm . . . not so good ! He used to be one of our best men until he found that liquor considerably eased the strain on his imagination. I can imagine the gentle art of becoming paralytic in a crisis might well become his main occupation for the next few days. If he does it'll be the last ship he'll ever command."

" I wonder you continue to employ an alcoholic."

" Dantor's not alcoholic, merely human. A Tau captain has to spend a fair part of his time in the instrument blister of the ship, where the shielding against Tau-environmental influences is only marginal. It takes a special type of oddball to stand that sort of punishment for more than a few vector trips. Dantor has nearly seven hundred vectors to his credit, so the Corporation makes some allowance for an idiosyncrasy which does not prove detrimental to the job."

" And drinking isn't detrimental ?"

" Not compared to forms of release which other men have chosen. Have you ever seen the figures for suicide and drug addiction among Tau operational executives ?"

Brevis frowned. " Does he know what the situation is yet?"

" I doubt it, until we get into radio contact. I expect his Tech. Officer will have guessed by now, but if he knows his Captain he'll keep the information to himself. What else have we got here ? Despatch notes, waybill, passenger and crew lists . . . Harry, damn you, where's the rest of the information?"

" They're still correlating at Records. It'll be on the wire in a few minutes. There's some coming in now."

" What's she carrying ?"

" Eleven hundred passengers and two thousand tons of psilomelane, plus the usual small mixed cargo."

Porter nodded, then stopped suddenly. " Psilomelane ? What's that ?"

The technician consulted his notes. " It's an ore of manganese."

" You have an idea there ?" asked Brevis.

" I don't know," said Porter, " but there's something in the back of my mind. I have a needling suspicion that serious mode-slip phenomena are somehow connected with something carried on the ship. The trouble is I can't get a lead on it. The whole situation is too damn complex. Harry, I want a computer check on the mode slips of all vessels which have carried psilomelane."

" Sure, but if there was a simple relationship between the two the computers would have thrown it up years ago."

" Get it, all the same. We can't afford to pass anything which might be relevant."

" The Director's on the line now. Will you take it on screen two."

" Excuse me," said Porter, " but this conversation isn't going to be fit for innocent ears. Hell, Eric, you're not looking so good. Why don't you take the car and go back and get some sleep."

" Don't worry about me," said Brevis. " I'll be all right in a moment. It's just that I've remembered something I wish I hadn't known."

Porter rapped the face of the scope with agitated knuckles, as though the possibility of altering the trace could hope to alter the circumstance which it was reporting. For the hundredth time his eyes turned wearily upwards to the clock. " Thirty seconds," he said. " If they don't slip out of Omega in thirty seconds I'm going to have to direct them to the destruction area. Slip ! Blast you, slip !"

The trace remained the same, as everyone knew in their hearts it would. Porter picked up the communications handset. The radio operator gave him the thumbs-up sign and switched in the recorders.

" Captain Dantor, this is Porter, Tau Eastern-Coastal Control. We are still unable to recover your ship from Tau. We are continuing our efforts but must advise you to remove your vessel to co-ordinate position nil-one-seven as detailed in your Standing Emergency Orders. Please acknowledge and confirm."

The answer from the *Mu Elektron* was a stream of invective which made Brevis wince in spite of his worldliness. Porter waited patiently for the outburst to subside, remaining completely in control of the situation.

"Captain Dantor, kindly get control of yourself and proceed as instructed."

" You're going to abandon us, you swine !"

" Nothing of the sort, but while your vessel occupies the grid or its vicinity in its present condition it forms a grave potential danger to a considerable portion of the mainland. We are doing all in our power to recover your vessel, but in order to minimize the public danger it is imperative that you programme your course as directed."

" To hell with the public danger ! What about our danger? No, Mr. Porter. While we occupy your precious grid you're going to have to do your damdest to get us out of Tau before our Rorsch stops and lands us all in hell While we're on your grid, Mister, you're going to sweat blood but you're going to keep on looking because you haven't got time to do otherwise. On the grid we stand a chance—once out in a safe-destruction area it's no skin off your nose if we do go to hell like a hundred nuclear bombs."

" I'm giving you one more chance," said Porter dangerously. " A transcription of this conversation will be present at the Court of Inquiry."

" Mister Porter," said Dantor, his voice heavy with sarcasm, " from my position you have no idea just how damn silly that sounds. Eleven hundred souls at the edge of purgatory and you worry about the niceties of an enquiry we may neither of us live to see. Get back to your engineering, man, and start getting us out of here."

" All right," said Porter, " you've had your chance. Now get the hell off the air and let me speak to the First Officer."

" Damn your eyes ! What do you think you're doing ?"

" Having you placed under arrest. You're drunk and incapable of commanding a vessel of this Service, Captain. As Senior Controller I don't have any option but to have you removed."

There was a choking cough of rage and incredulity, but as the Captain's virulent comments began to rattle the loudspeaker. Porter's hand cut down on the override button.

" Attention ! Attention !" said Porter sternly. " This is Tau Eastern-Coastal Control calling the First Officer of *Mu Elektron*. Captain Dantor is hereby relieved of his command and should be placed in restrictive custody. The senior able

officer is instructed to assume control forthwith. This transmission constitutes complete, repeat complete, authorization for such an officer to assume command of the *Mu Elektron*, and such an action will be upheld in any court of law. It is imperative that the *Mu Elektron* be directed as soon as possible to co-ordinate position nil-one-seven as detailed in Standing Emergency Orders. Please acknowledge and confirm."

The loudspeaker stayed silent for several long seconds, then a voice broke through, was abruptly cut off, then came through again.

" Carling, Radio Operator, *Mu Elektron*, to Tau Eastern-Coastal. Message received and understood. First Officer will assume command when the Captain has been placed under arrest. There's a hell of a fight going on up in the blister right now. The engineers are already plotting co-ordinates for the safe-destruction area. For Christ's sake get us out of here quickly ! Once the news gets around that we're headed for destruction the results in here won't be too pretty. Shades of Tau Mockba ! We've a lot of women in here too . . ."

The connections broke abruptly. Porter began calling again, then dropped the handset in despair.

" Of course !" he said. " Of all the forsaken foul-ups ! A ship in Omega is bad enough, but to have a drunken Captain as well is the worst possible luck that could have hit us. I don't know much about the First Officer, but he's going to need to be immortal and have a tireless trigger-finger if he's going to keep control."

" I don't understand," Brevis said. " What's all this about Tau Mockba ?"

" It's a Tau-space legend," Porter said sourly. " You won't find it in the history books, but it has the uncomfortable ring of truth. It was during the establishment of the old Orient Tau lines. The story has it that they had a vessel which got trapped in Tau for a couple of weeks. They finally got it out, but—you're a psychologist, Eric—what do you think happens to the souls of men and women who are confined together knowing that escape or rescue is impossible and that death is inevitable and only weeks away ? What happens to men in a position untouchable by law and unreachable by social opinion ? Tell me what restrains a man from following his instincts, Eric, and then take all those factors away and add that life is sweet but only as long as a Rorsch generator can last. Tau Mockba, my

friend, was a classic orgy of rape, mutiny, murder and panic. The only survivors were detained as criminally insane."

" My Christ ! Is this true ?"

" True or false," said Porter, " is largely irrelevant. The point is, could it happen ? You're the head-shrinker and you have all the facts of the case. Will the *Mu Elektron* become a shade of Tau Mockba ?"

" My God !" Brevis was ashen. " Shall I tell you now or keep it to myself ?"

" Tell me what ?"

" Julie is on the *Elektron.* She was coming back from London. She'd asked me to be there when she arrived—to help affect a reconciliation."

Porter swung him by the shoulder savagely. " Are you sure ? Julie ? Why the hell didn't you mention it before ?"

" She made me promise not to. She feels her desertion pretty keenly. She was coming to ask you to forgive her, and was bringing you a gift."

" What sort of a gift, you conniving idiot ?"

" A child, Paul. She's bearing your unborn child."

three

" The radio carrier from the *Mu Elektron* has died, Sir. Looks as though their transmitter may have been put out of action."

" Then God have mercy on them," said Porter quietly. "We may never know what hells they are about to endure." His eyes played over the equipment racks, searchingly. " Christ ! I feel so bloody helpless. Is she still on the grid, Harry ?"

" I think she's swinging to establish co-ordinate bearings. Yes—now she's going out, clean as a whistle. Whoever's acting as pilot still has a sure hand."

" We must be thankful for small mercies ! It can't be easy to hold a true plot when you're piloting a course straight into your own grave. Is the Director here yet ?"

" He's on his way. He gave us a radio check when his car was twenty miles out. That was seven minutes ago."

" When he gets here give him the full story and play back the tapes. I'm going to get a cup of coffee and have a long, deep think. Eric, you're still naive enough to believe in miracles, come and use some of your psychology on me. There has to

be an answer to this somewhere, and it may be so damn obvious that I'm looking right through it. If you can inject one spark of hope into this morass of despair I'll love you like a brother."

" Save your love for Julie. She'll be greatly in need of it right now. I know nothing at all about Tau physics so I'll simply start asking some damn silly questions in the hope it may prod your mind into suggesting some course of action. Right?"

" Fire away, my old Head-shrinker."

" Paul, are all Tau vessels equally mode-stable ?"

" By no means. The present fleet are as stable as we know how to make them, but some of the earlier craft were sheer murder. Rorsch's original experimental raft, the *Lambda I*, had a mode shift on average every eighty seconds, and how the hell he ever came back out of Tau is something we've been wondering ever since. He went into Tau with a survival probability of something less than half of one per cent."

" Wouldn't a less stable craft stand a greater chance of slipping into the Omega mode ?"

" Statistically, yes, of course. It would also stand less of a risk of becoming trapped in the mode."

" Where is it now ?"

" Where's what ?"

" The *Lambda I*. Haven't I seen it in a museum somewhere?"

" Sure, right here in town. In the Tau-Hopkins museum. Hell, you're not suggesting . . ."

" Why not ? If a surface ship is sinking you send out a lifeboat at least to try to bring in a few survivors. If you can't bring a relatively mode-stable Tau ship out of Omega then what about trying to send an unstable-mode craft in ? Even the psychological effect of an outside craft reaching the *Mu Elektron* might help to ward off the worst of the panic until a more constructive rescue scheme is devised."

" But the odds of such an enterprise being successful are millions to one against. The *Lambda I* was a laboratory test rig —a wild experiment which cost Rorsch his sanity. It had almost no shielding against the psychological effects of Tau. That sort of exposure sends men mad."

" The human mind is capable of withstanding a lot more than most people allow," said Brevis. " I don't doubt that Rorsch was susceptible to what ever it was he found, before he

even entered Tau. It isn't the effect of Tau but how the mind interprets the effect that does the damage."

" We don't even know if a transfer between two vessels in Tau is a physical possibility, to mention nothing of the odds against entering the Omega mode and staying there just when required."

" Think carefully, Paul. How nearly are your answers related to your own fear of the unknown? Is there no possibility of such a project succeeding?"

" It's so slight that . . . dammit, Eric, you ought to certify me on the spot for even listening to your crazy notions ! In your ignorance you may have hit on the one plan which gives any conceivable line of action—however futile that action might be. There's a minute chance of getting through to the *Elektron* on the *Lambda I* and an even smaller chance that anything can be accomplished by so doing ; but that chance, weighed against the complete certainty that the entire shipload is doomed, leaves me no alternative. If Rorsch's ship is still operative I'm going to have a try."

" I'm coming with you, Paul."

" Not on this trip, you aren't. The psychological effects of Tau in a craft as poorly shielded as the *Lambda I* aren't something you expose yourself to if you wish to stay sane to a ripe old thirty-five or so. You've got a keen brain, Eric, and it would be a pity to snarl it up so soon. This journey is strictly for somebody who has nothing to live for if he fails."

" Damn your self pity !" Brevis said. " And don't try to teach me about psychological effects. Did you ever see Rorsch after he made his Australasian-vector trip ? I did. I was twelve at the time, but I shan't forget the look in his eyes even if I get to be a hundred and twelve. That's what made me take up psychology, Paul. I had to know what had got into a man whose eyes were haunted with that particular sort of dread. Today I have a chance to find out. I put it to you frankly, Paul, that without me alongside you're not liable to come back out of Tau any saner than did Rorsch."

" Hold yourself carefully," said Porter. " This is going to be grim."

Brevis looked around. The tiny craft was centred in the immense grid built to handle Tau craft many thousands of times the size. From the far side a group of technicians looked

on apprehensively, and the Director, convinced that this was a suicide mission, paced the floor with agonizing exactness. Porter was counting softly to himself and throwing switches in controlled sequence.

Then, with a wrench, they were gone. Miraculously, the grid of cold, black iron seemed to fade and run as though painted in water colours on a window flooded with water, and a crushing insubstantiality broke over their heads like the surf of some dry, inhuman sea. They were bathed in nausea, and the black wave as it rose and fell tripped every sensory nerve cell in their bodies with twisting spite. Then, after what seemed an eternity, they were through, and a new scene coalesced like droplets of rose-water condensing on the brain. Involuntarily Porter clutched at a stanchion and swayed, sick with dizziness and dismay. Brevis merely went a deathly white and stared ahead, his thoughts unknown.

The *Lambda I* appeared to be suspended in an illimitable space, a space tinged in some unfathomable way with a monochromatic pinkness which tainted every surface and made nonsense of visual perception. Below them was nothing, no end or limit or forseeable confine ; neither was there anything above them or on any side. There was only the incredible aching feeling of sublime loneliness and bewilderment, the antithesis of security. In a pink waste more vast than space itself they were floating in a crude Tau craft which was as unlikely in its setting as was the void in which it was suspended.

" I feel humbled," said Porter in awe. " There should be clouds of candy-floss and gossamer, with cherubim and seraphim kneeling in praise and supplication. Surely this is the ante-chamber to Heaven ?"

" Subjective impression," said Brevis quietly from behind. "Try not to imagine things about it. It could prove dangerous."

" How subjective can it be ? Can't you see it too—the rose-pink of eternity ?"

" Yes, I see it."

" But the subjective comes from within. Two men cannot share the same hallucination."

" Leave the psychology to me," said Brevis. " If you close your eyes you'll see what I mean. But don't let it throw you."

" Dear God !" Porter breathed heavily. " I close my eyes and nothing happens. I can see just as well with my eyes shut tight."

" Precisely. This is not ordinary vision. There must be some interaction between Tau-matter and the fabric of the brain itself. The centres of optical perception are being stimulated from inside the skull. I suspect we are seeing only a half-truth . . . merely that portion of the stimuli which the brain can resolve in terms of imagery based on personal experience. I should hate to guess what the unseen portion is like. Psychologically it raises some very interesting speculations."

" But I can see my hands and the instruments and you," Porter protested. " By what means does the brain see without using the eyes ?"

" I wish I knew the answer to that. But let me warn you, Paul, in Tau trust nothing but your sense of touch, and even of that be wary. Tau-psychic interactions would make a honey of a research problem."

" So you think that Tau visions aren't properties of Tau as much at properties of the human brain exposed to Tau ?"

" Something like that," said Brevis. " Something in the mind only partially responds to Tau-spin. It accounts for the fact that on a well shielded ship these phenomena are absent."

Porter was staring at the pink vastness, struggling to absorb Brevis' theory and to reconcile it with what he was actually experiencing. Tentatively he tried to explore the implications, but his mind drew back in alarm. But in that moment of fear he had guessed what Brevis already knew—that each man's illusions would be bounded only by the limits of his own imagination. Brevis saw a pink abyss too, but he also saw something more—something which caused him to keep looking outward and upwards to a point where there was nothing to be seen.

Porter turned swiftly to look into Brevis' face, but the psychologist was a man of iron control. Porter decided not to investigate further something he did not want to know.

" I wish I had your clinical detachment," Porter said at last, and there was a quaver in his voice.

" Detachment, hell ! This is a major interest with me. I told you I'd seen Rorsch after he'd made the first Australasian-vector trip . . . Paul, now I know what kind of experience could make a man enter Tau an atheist and come out with religious mania."

four

Before Porter could answer, something hit them ; something that left the impression of a cleavage through the skull made with an illuminated meat chopper. Porter staggered, convinced he had been dealt a mortal blow, then remembered Brevis' warning, and explored his scalp with urgent fingers. He discovered no wounds.

" Moses ! What was that ?"

" Check your instruments," Brevis said urgently, and there was pain in his voice. " That was a form of synaptic discharge. I think you'll find we jumped a mode. The brain isn't built to handle sudden rebuilding like that."

" You're right. We've slipped to Epsilon mode and locked on it. So far the Rorsch has been pretty stable, but we're still only passing through low density material. As we start to reach the Mohorovicic discontinuity and the high density regions we can expect a mode slip every minute or so . . ."

He stopped suddenly, with the look of a man transfixed by a spear. Brevis had already seen the phenomena. He was staring at something beyond the screens with a look of unholy fear upon his face. The first impression was that they were floating in a bowl of mercury, trapped in a distorting, liquid mirror bubble. But it was not a mirror, nor anything like a mirror ; yet which ever way they turned they saw their own faces looking in out of darkness. Only the faces were reflected, faces that peered through the wired-glass screens with eyes full of horror and dismay.

" Lord ! This is awful !" Porter crossed the cabin and the faces turned to follow him, thereby proving themselves capable of independent motion. " Eric, what the hell are they ?"

" Some sort of composite image, I think. Did I once hear somebody say the time component of Tau was a variable ?"

" Yes, that's true. We don't understand it yet, but the time-velocity relationships in Tau don't necessarily accord with Einsteinian Relativity. The effect is subject to immense variations in magnitude which we have no means of predicting. I know of at least two occasions in which a ship was received at a Tau withdrawal point some microseconds before it had been despatched by its departure station. "

" You're a brave man," said Brevis, " to continue working with Tau when you are aware of how little you know. But I

think you've answered my question. The faces at the screens are probably a composite picture of something out of our own personal futures—though Heaven alone knows what horror we have to experience to evoke just that sort of expression."

" You want to go back ?"

" What I want is of no consequence. That part of our future is already decided and immutable. We have a collection of living portraits as evidence of that."

" I don't see how you can take it so cooly," Porter said.

" In my profession," said Brevis quietly, " I spend my life among people who live in personal hells not one bit less strange than this. It's my job to help men live with themselves in regions where reason doesn't apply."

" Welcome aboard !" said Porter, with a weak attempt at smiling. " If this is a fair sample of what we are going to encounter I'm certainly glad you came."

" The time you should start worrying is when I send you my bill," said Brevis, without trace of humour.

There was a snap of energy from the Rorsch generator, and Porter caught his breath. Pain was building up behind his eyes, which caused him to reel momentarily, and when his brain cleared he was almost sick with apprehension. It took him several seconds to grasp what the new transition meant.

Suddenly the cabin had become a scene in black and white, but painted with such alien wrongness that he had to explore its parameters with slow logic rather than attempt to accept it as a whole. The entire emphasis was wrong . . . light shone brightly where shadows ought to be . . . and in the ceiling, cones of greyness narrowed to a point where the pin lamps radiated shades of the darkest black. Brevis was seated in the chair staring at his hands, his normally dark hair now a block of gleaming snowy whiteness and his face an impassive transposition of shades like a living photographic negative.

" Interesting !" said Brevis after a while.

" For Crysake !" Porter felt his nerves getting the better of him. " Does nothing rattle you ?"

Brevis grinned, showing a large expanse of coal-black teeth. " You look like something out of a very cheap cartoon film," he observed. " What mode are we in now ?"

Porter consulted his instruments with difficulty. " This is a straight Delta, but it isn't locked into synchronization. We're

on the correct vector and our course is now on automatic. In about three hours subjective time we should arrive at the spatial co-ordinate position which was the intended destination of the *Mu Elektron*. Don't ask me if she'll be there or how long it may take us to slip into the Omega mode."

" How do you buck a Rorsch generator when you want to induce a mode slip ?"

" Several ways : alter the output impedance, overload the input lines, reverse any two of the four-hundred and eighty seven phase-couplers, or tap on the casing with a spanner. None of these ploys actually work except when applied by accident. A good Rorsch, however, is extremely sensitive about being screamed at, and can be guaranteed to do precisely the wrong thing when being cursed."

" That's about what I figured," said Brevis. " And if you should happen to slip into the mode you require can you then lock into synchronization ?"

" You can try. The synch condition only holds good when the density and composition of the Tau-normal strata through which you're passing remains constant—a condition which rarely applies for more than a few minutes unless the vessel is at rest in Tau space. The big ships have a stable Rorsch which automatically compensates for this effect. On the *Lambda I* we have no such luxury. If we strike a variation in Tau-normal parameters we have to hunt for a new synch point, and probably slip a few more modes in the process. Does that give you any ideas ?"

" No," said Brevis. " Only a sense of irony. The *Elektron* is locked in a mode she can't escape and we may have a devil of a job locking into that mode when we do find it."

As if to emphasize the point the *Lambda I* slipped another mode. Stars blazed and blinded then turned into pinwheels and spinning orbs. The transition stunned Porter with a wave of confusion and disorientation. The austere lines of the raft began to waver and blur like reflections from a pool of water into which a stone is tossed. But this was not a mere distortion of an image but a gross distortion of fact and fabric. The raft itself lost its comforting rigidity, and wavered and broke and rejoined and bent with a paralysing loss of cohesion and solidarity. And so did the men.

In the grip of some unknowable tide, all stable geometry and reason was lost. The evil swell ceaselessly rippled and ran, and

the matter which had been the *Lamda I* and its crew rippled and ran also with horrible plasticity. Eyes and walls, limbs and lines and racks of instruments, all were awash and wavering, all shorn of the dimension of orderliness and reduced to the viscosity of blobs of thick oil trapped beneath a restless sea.

No communication between the men was possible. Brevis was apparently trying to rise from what had been his chair. Porter's one thought was to reach the Rorsch before their dissolution was complete and while he still had sufficient cohesion of mind to direct some purposeful action. His target was the wavering strands which once were the phase-coupling leads on the generator, but his limbs were more useless than soft balloons, and his urgent fingers could exert no more pressure than if they had been made of rotting seaweed. Horror clouded his mind, and there was a fear within him such as he never knew was possible. Almost senselessly he toiled away in the nightmare of all nightmares, knowing that their one hope of survival lay in his being able to unbalance the Rorsch. Terror topped terror, and the compounded dismay of his inability to perform even a simple operation threw him into a state verging on insanity.

He only vaguely comprehended that Brevis came past and got between him and the Rorsch. The rest was a blur of confusion and anguished bewilderment coupled with a host of other emotions which he had not known of his capacity to experience. Before his useless eyes some nameless ritual was enacted which his mind would not accept.

Something gave. Solidarity reformed, but not stability. In a series of rapid mode slips, images changed and altered like the flickering of some kinematographic film when each successive frame is different. And each change imparted its own increment of disorientation to a mind which was already too shocked to follow what was happening. After a while the flickering stopped, but Porter had no knowledge of this. He had slipped down into a grey pit of unconsciousness from which he only gradually emerged.

When he came to he saw that Brevis was again in the chair, holding his forehead in his hands and looking at the screens beyond which nothing was visible but a grey, stained mist. With difficulty Porter staggered to his instruments and read them with disbelieving eyes.

" Omega," he said finally. " We're in Tau Omega and somewhere near where the *Elektron* should be. What happened back there ? My God, Eric, what happened to your wrist ?"

Brevis turned with unreadable eyes. From the handkerchiefs hastily contrived as bandage and tourniquet red blood was still dripping. " Whatever's on your mind, Paul," he said, " don't ask me to explain it just now. At this moment it's better that you don't know."

Porter was shocked by the pallor of his face, and decided not to press the matter for a moment. He sensed something very wrong, but his partner's earnestness warned him that there were things better left unsaid. Instead he looked at the Rorsch. Two or three of the phase-coupling leads had been torn from the side of the generator ; but more terribly, Brevis' blood had been showered in the area in sickening quantity. The open knife was ample evidence of how the wound had been inflicted but whether by accident or act of madness Porter did not even want to guess. In silence he broke out the first-aid kit and bound the psychologist's arm, not daring to consider the portent of the vicious cuts in the flesh.

" How do you feel ?"

" Weak," said Brevis. " But not dangerously so." He started to say something more, then gestured uselessly and turned his face aside. Almost immediately something beyond the screens caught his attention and he was charged with new interest.

" Look, there she is—the *Elektron* !"

Porter had time only to verify that the huge black bulk visible through the mist was the *Mu Elektron*, before the kaleidoscope of rapid mode slips hit them again. Cursing wildly, Porter flung himself at the controls. For minutes, or perhaps hours, they fought against the bewildering shocks of a shattering succession of quasirealities, some of which were completely new and hinted at physical concepts which even Brevis' mind was unable to assimilate. Porter, in a state of half-conscious bewilderment, manipulated the synch lock like an automaton, locking now on one mode and then on another, then deliberately throwing back into chaos as he tried to refind the elusive Omega mode.

Brevis leaned back in the chair and stared at the ceiling, his pale face a passive mask of concentration on something which

might have been death, seemingly oblivious to the hurtling transitions. The open knife was suggestively close to his fingers again.

Twice more they hit Omega and passed it before Porter could lock on. Then, after what seemed an eternity of suffering, synchronization was achieved, and the mad whirl quieted again to the chilling mists of Tau Omega.

" I can't see her now," said Brevis finally. " We were pretty close before we hit that last series of slips. Have we moved or have they ?"

Porter consulted the panels. " We haven't moved, at any rate. We're still in the same co-ordinate position, but you'd not need much of a drift to lose sight of a ship in this damn fog."

" Have we sufficient control of this craft to set up some sort of search pattern ?"

" Yes, but only at the risk of breaking strata and precipitating another chain of mode slips. I don't know about you, Eric, but I don't think I could take much more of that. Every time we slip a mode I seem to lose something from inside of me."

Brevis ran unsteady fingers through his hair. " I know what you mean. It's like personality disintegration in discrete quanta. Hell ! If we assume the *Mu Elektron* is still out there somewhere is there no way we can make contact ? What about T-radio ?"

" We don't have any such. There was no T-radio when Rorsch built the *Lambda I*."

five

A screaming blast of sound shook the fabric of the craft and made Porter put his hands over his head protectively, preparing to meet the physical and mental shocks of another series of mode slips. When nothing further happened after a few seconds he looked up again, seriously afraid.

" What the hell was that ?"

" It sounded like a siren—a big siren." Brevis had reacted differently, and stood with his face against the screens waiting for a repetition of the sound. When it came he was ready for it. This time there was no escaping the strong harmonics of a big ion siren.

" It's the *Elektron* all right," said Porter. " She must have seen us earlier. That's the takeoff siren she uses before she leaves the grid."

" And it means that whoever's in command is still capable of rational action," said Brevis. " How far away would you estimate she is ?"

" Impossible to tell, since we know nothing of the sound propagation properties of the Omega environment. If Tau-normal effects are applicable I'd say she was within one hundred yards."

" I can't see a thing," said Brevis. " I can't even tell from which direction the sound came."

The blast came again, a hellrousing shriek, solid with multiple harmonics and sub-harmonics. Brevis spun on his heel trying to use the sound to establish the direction of its origin, but the effort yielded no information. He returned again to the screens to scan the blank wall of fog and to scowl at something nameless which troubled his mind. The next blast had him laying on the cabin floor with his ear pressed hard against the dirty cork flooring.

Porter was appalled. " Eric, for God's sake, don't crack up on me now !"

" I wasn't cracking," Brevis said. " I think I've solved the problem. I know where the *Elektron* is. She's directly underneath us."

" That can't be," said Porter.

" I tell you she is. I don't understand the physics of Tau but in this hell-fog world between the atoms is there any reason why she shouldn't sink ? Is there no gravity out there ?"

" No, it doesn't necessarily work like that. There's gravity in here because of the normalizing influence of the Rorsch field. But outside is a whole new set of physical postulates which we don't have the imagination even to classify. There is no gravity component necessary in a Tau vector equation and vessels arrive at their destination within inches of a predetermined position, therefore we assume there is no gravity in Tau space."

" But you could be wrong ?"

A brittle, soaring crash shook the raft, and a sudden angular spin threw them cruelly against the equipment. The spin stopped with a wrench and a shock that brought the emergency lights on momentarily.

" Sure, I could be wrong," said Porter painfully. " We've no prior experience of the Omega mode. I think we've hit the *Elektron*.

" You're damn right we have," said Brevis. " We've landed on top of her." He rose from his knees and peered through the screens. Vaguely through the mists he could discern the outline of some of the nearer features of the *Mu Elektron's* superstructure. The complex T-aerial array stuck up like a hand with gigantic slotted fingers, and part of the dome of a heavy-cargo hatch was identifiable from the shape of the clamps and pressure seals.

" So what's the next move ?" asked Brevis, looking at the door.

" We stop and think," Porter said. " We may take it as axiomatic that what we see of Omega Tau through the screens bears little relationship to what it is actually like. The charge on the screens functions as a physical and psychological protection against Tau environments ; it modifies as well as attenuates Tau influences. We don't know if what is out there is compatible with human life, nor is it possible to guess. If we open that door we shall find out—but we may not live long enough or remain sane enough to appreciate what we find. Absolutely anything could be beyond that door."

" This must be one of the most elaborate and expensive suicide pacts ever devised," said Brevis wryly.

" True. That's why I wanted to come alone. If I can't get to Julie I don't much want to go back."

" That's why I couldn't let you go alone," said Brevis quietly. " Are you going to open that door, or shall I ?"

" I don't understand you," said Porter. " You don't seem to care about anything."

" In my profession," said Brevis, " I deal in what remains of human minds after they've been subjected to the by-play of human interacting with humanity so-called. Sometimes I don't much want to go back either."

" My God ! I never suspected you of such bitterness."

" Not bitterness, but an appreciation of reality. I see the personal hells and battlegrounds which inhabit the individual. In comparison I don't much fear anything that lies beyond that door."

Porter found the switch and threw it without further comment. Brevis was first to the door, and as the automatic slid aside the panel to reveal the scene beyond, his face grew hard

and cold but unsurprised, as if so desperate a wasteland was not too unfamiliar.

The *Mu Elektron* was a helpless metal bulk, half submerged in a cruel, inky, surging sea. Overhead, clouds of brown and violet vapour scudded across an impossible sky, lashed and driven by the same winds that tormented the sea to distraught and vicious fury. Blood-red lightning bridged the savage space between the ocean and the firmament, spitting virulent arcs of flame which struck like the crack of a whiplash. To their right lay a terrible coastline of jet black rock, jagged razor edges of ink-washed spite, lifeless, murderous.

" My God !" said Porter. " Such are the seas of Hell. Is this place real ?"

" Real enough that the sea could drown you or the rocks could crush your head." Brevis turned from the door and looked out through the screen again. From this view the mist of Tau Omega held steady in absolute contrast to the terrible panorama through the door. " Two realities," he said finally. " I wonder how much of our own world we also miss just because we don't have a Tau screen to show us the alternatives."

" You give me the creeps," said Porter. " Right now I want to know which of these is real, the mist or the hell-storm ? Which of these is the real Omega environment—because if that sea is real I've just lost what little purpose I had in life."

" Neither of them is real," said Brevis, with a tight rein on his voice. " We don't have the senses necessary to interpret the whole gamut of Tau Omega influences. The mind does its best with what it can handle and imagination fills the gaps. Here you have two apparent realities, and the difference is produced by screening off some of the stimuli. I doubt if either of them are remotely near the truth."

" Attenuation I can understand," Porter said, his voice ragged, " but these are mutually contradictory. What does it mean physically ?"

" You would feel whatever you could see, or, more precisely, whatever you believed you could see. The sea will drown you or leave you dry precisely according to what you perceive it to be. On what level are the *Elektron's* passenger hatches ?"

" At the bottom, that's the hell of it. Don't you see, Eric, there's no way we can get in."

" What about the top hatches ?"

" We can't open those without help from the inside, and that means we have first to establish communication. Frankly I don't think we stand any chance there if those aboard are following the Tau Mockba pattern. God ! This is grim ! Julie . . ."

" Don't think of Julie, think of something constructive. If your mind is strong enough, think over what I have said about Tau realities—and then follow me down."

" But we can't go down far enough. The passenger hatches are beneath the surface of the . . . sea."

" Precisely," said Brevis, unmoved. He glanced momentarily at his bandaged wrist. " Are you with me, or do I go down there alone ?"

" Has Tau twisted your mind ?"

" No, I was never saner in my life. I'm going to take a gamble on a theory. I'll either be right or I shan't be coming back."

Porter all but closed his eyes and concentrated his attention on the cold steel of the ladder, rung by rung, grateful for the reassuring sensation of solid metal under his feet and hands. He dared not look up or away lest the terrible image of the storm should intrude upon his consciousness. Instead he watched the ladder and the plating of the hull and counted even the solitary seams and rivets, forcing himself to ignore the reflections of the blood-red streams of lightning.

Despite his resolve he could feel the swell of the thundering sea rolling and tossing the *Mu Elektron's* mighty bulk, and the nausea of sea-sickness added to his distress. He could hear Brevis' feet below him striking the rungs with a more confident rhythm, and he marvelled at the psychologist's control of mind. Of the two realities of Tau Omega Brevis had chosen to accept the fog as factual, and, by a magnificent feat of auto-hypnosis, had succeeded in banishing for himself the storm environment.

Porter had not been so successful. Of the two realities the storm held by far the greater impact. Occasionally, when he fully concentrated his attention, he,too, could dispel the storm. The fury and the sound would die away ; the ladder beneath him would cease to heave and twist, and the clammy hand of the mist would cool his cheek and brow. Then he would slip into panic at the thought of the black, rolling waters towards which he was descending, and the spiteful flare of reflected radiance would blaze from the hull, and the ladder would move under his feet and the waters murderously roar.

Finally he stole a look downwards. Brevis was nearing the water-line, and looked up encouragingly. Porter stopped and watched. Brevis, now moving with complete confidence, continued to descend, deliberately ignoring the screaming sea. A wave crest thundered and broke against the hull, and Porter screamed involuntarily, not believing that a man could hold on against such turbulent violence. Then as the wave receded, Brevis re-appeared, unwetted and unharmed. And with equal confidence he continued to descend beneath the surface of the sea.

Porter followed, believing yet unbelieving. The black spray was bitter in his nostrils and his clothing was saturated. The wind buffeted him against the ladder and threatened to tear him away from the vessel's side—yet Brevis had passed this way unharmed, protected by an acceptance only of what he chose to see and believe.

" *Neither of them is real.*" Brevis had said that, and had demonstrated his conviction in the most dramatic way. Therefore it *had* to be true. Porter clung to this tenuous line of reason and thrust himself down into the doom-black waters. And the waters were insubstantial, a shadowy masquerade which surged and broke around him without the pressure or the cold, dreadful weight of the sea. But as the sea closed over his shoulders panic born of fear shattered his resolution, and instantly the great waves slammed him against the ladder, and he was screaming and gasping for breath as the maelstrom closed down upon him.

Another wave smashed him sideways from the ladder and he floundered helplessly and was flung, half stupified, at the steel plates of the *Mu Elektron's* hull. Then he was drawn away and hurled back again and his head was beneath the surface and water was in his mouth and nose and he was fighting for breath with all the blind, urgent panic of a man drowning.

And it was over. His feet touched something solid and Brevis had him by the shoulder.

" Paul, damn you, think ! For Heaven's sake, think !"

Porter was aware that he could breathe again, and opened his eyes in agony. Suddenly there was no sea, and he stood in a world of mists on the gallery which opened to the passenger hatches at the base of the ship. Glancing up, he had the momentary impression of great waves moving above his head, and for a second his body was caught in the cold grip of the

moving tide. Then Brevis struck him a sharp blow on the face.

" For Heaven's sake, Paul, don't think of the sea or you'll drown."

" Sorry !" Porter concentrated on the hurt in his cheek. " I don't have your single-mindedness. The whole idea of alternative realities throws me into complete confusion. I have to believe that what is real is real and that the unreal is always illusion."

" If only you were right," said Brevis, " how simple would be philosophy. Now how do we get into the *Elektron* ? Those hatches were never designed to be opened from the outside."

" First I must know what's going on inside. We may not . . . want to go in. Help me up to that port. I have to know if hell is riding on this ship."

Brevis helped him up. For once it was Porter's face which remained impassive, as he gazed into the interior of the *Mu Elektron.* Finally he descended. His voice alone betrayed the full extent of his misery.

" They're either asleep or dead."

" Dead ?"

" Yes. I tell you, Eric, I'm scared silly. Perhaps it's all for the best for . . . them, but what in hell can have happened apart from the fact that they're in the wrong mode ?"

" Let me have a look," said Brevis. He climbed to the port on Porter's back and peered in, a frown of puzzlement on his brow.

" Whatever it was it came over them slowly and without panic," he said. " For that at least we must be thankful. They have lain down as though they grew suddenly tired. We're too far away to see if any of them still live. Fiends in Hell ! When you get trouble in Tau you certainly make a thorough job of it !"

Porter examined the hatch dejectedly. He knew without trying, that even if they were able to unlock the clamps they still did not have the strength to move the hatch itself, and there was no way of reaching the servos.

" Let's get out of here," he said. The continuous strain was beginning to sap his strength and he could feel the clammy hand of the unreal sea beginning to snatch at his body. Faced with the final reality he knew now that he had no capacity for suicide. Julie or no Julie, somewhere ahead was a grey future,

with work in which to lose himself trying to unravel the mysteries of Tau.

Brevis started towards the ladder, then turned suddenly. " I have an idea," he said. " Didn't you tell me that a mode tends to lose stability when the density and pressure of the Tau-normal strata changes ?"

" Briefly, yes."

" Wouldn't that also tend to apply to changes in composition of Tau-space strata in modes intermediate between Omega and Tau-normal ? "

" That depends which set of mathematics you're using. The general assumption is that matter and phenomena in different modes don't interact—that's what makes Tau possible. There is a Special Theory, however, which considers that the total mass of objects coincident at one point but in different modes must necessarily have an effect on the sub-atomic displacement of the Tau-normal atom. Alter conditions in one mode by inserting or withdrawing mass, and you affect the basic atom and to some extent modify the synch point at that co-ordinate in every other mode. It's an assumption that hasn't yet been proven or disproven. Hell ! You do choose the damdest times to ask for lectures on Tau theory."

" It wasn't idle curiosity," said Brevis. " Suppose we went back to the raft, slipped into another mode, and then returned to the same co-ordinate point as the *Elektron* ? Couldn't the effect of our mass possibly be of sufficient magnitude to cause the *Elektron* to kick out of Omega ?"

" Ye gods and little fishes ! Talk about ' out of the mouths of babes and sucklings !' Do you know that might even work." He gestured uselessly as a new thought struck him. " But it's such a damn risk and it's too late now to be of any use."

" No," said Brevis. " It's not too late. Don't you realize we've forgotten something ? There's somebody still alive on board the *Elektron*—somebody still capable of rational action."

" Of course ! The siren . . . somebody sounded the siren. We've got to give this a try. There may yet be a chance to save them from whatever it was got the others. Something's incredibly wrong aboard the *Elektron,* and we have to find out what it is."

six

Returning back up the ladder on the *Mu Elektron's* side was easier than had been the descent. Porter was now able to retain the mist in clear focus, and so urgent was his anxiety to try out the new idea that he forgot even to think about the black, shadowy sea. Once over the guard rail he stopped and waited for Brevis to catch up. As Brevis' head came over the edge of the superstructure he saw the psychologist's face cloud in sudden puzzlement.

" Don't turn round," said Brevis. " Just answer my question. Paul, how many *Lambda* craft did they make ?"

" Only one. What the devil's the matter ?" Sudden alarm made Porter's voice run high, but he quashed the impulse to turn.

" The raft," said Brevis. " There's somebody in the *Lambda I.*"

" God ! That can't be !" He turned to follow the direction of Brevis' anguished gaze, and his face drained white with horror. There were two figures in the craft, at that moment turned away to face the control panel. Then the figures turned and looked directly at them, faces mirroring mounting disbelief and terror. Porter was almost sick with apprehension as he recognised the raft's occupants : they were none other than Brevis and himself, absolute duplicates, laterally inverted mirror images, yet ones which moved with an independent life of their own.

Porter choked back a mounting tide of dread and despair. He knew at that moment just how foolhardy had been man's penetration into a region of physics he had so little chance to understand.

" Eric, this is unholy !"

Then, as if it were a wraith or mirage, the raft flickered and vanished leaving nothing but a swirl in the mists of Tau-Omega. Something in Porter snapped, and he rushed into the vacant spot crying in a voice of wild despair, as though he hoped some pity or compassion in the elements might bring back their vanished link with the normal world.

He staggered as Brevis struck him.

" Paul, for Heaven's sake, listen to me ! That was the wrong raft. It *has* to be the wrong one. Don't you see, that was the

other half of the mirage when we saw ourselves outside as we hit the Epsilon mode. There has to be another raft here somewhere."

" I'm going crazy," said Porter, fighting the panic in his voice. " I tell you there was only one raft ever built, and that's just taken off with us in it. We're trapped in a bloody paradox."

" Let's consider this rationally," said Brevis. " The raft we just encountered was not ours but simply ours as it was at some previous point in time. Damned if I can see how these mode transpositions contain visual images as well as a time paradox, but we must accept the evidence as we find it. That doesn't alter the fact that the raft corresponding to here and now ought still to be in existence. Damn all Tau-space technicians for meddling with something they know so little about. I'm going to have a look around."

" Don't leave me," Porter said. " If we split up, anything could happen, and I do mean anything. I should hate to come face to face with myself wandering around in this blasted fog. I think I'd crack."

Brevis caught at his arm. " What's that over there ? Isn't that another raft ?"

They strained their eyes in the billowing mist. Perhaps it was imagination or perhaps the vapour was stained yellow by a cluster of lights like those of the *Lambda I.* They started towards it cautiously, their nerves still raw from the shock of their previous experience. It was a raft, and it was empty. As far as they could determine this was the one in which they had arrived. The decision deepened to a certainty when they entered the raft and came under the normalizing effect of the Rorsch field. Porter keyed the instruments thankfully.

" I'm setting new co-ordinates for the position of the *Elektron,*" he said. " The next time we slip out of Omega into some alternative mode-stable condition, I'm going to move this craft to become co-existant with the *Elektron.* You'd better start praying, because if we slip into Omega whilst still in the same position as the Elektron, or if she slips into our mode before we can get clear, there'll be an explosion which will probably split the strata of Tau-space right down the middle."

" I'm ready," said Brevis. " After what I've been through so far I doubt if Tau has anything left that could really surprise me now."

Porter completed setting-up the instruments, then thumbed the final drive and gave the Rorsch a reassuring pat. " All set ! This is a kill or cure method of beating Omega, and I'm not speaking figuratively. No wonder it needed a crazy, twisted, head-shrinker to dream up an approach like this. What is it about your profession that makes the death-wish contagious ?"

" It's a way of looking at reality," said Brevis quietly.

Instantly they jumped a mode, and the candy-sweet pinkness of the Gamma region swam into existence. Porter held them there long enough to verify that they were synchronized as much as the unbalanced Rorsch would allow, then he applied the drive to force them into the co-ordinate position occupied by the *Mu Elektron.* As the plotting needles swung together he crossed his fingers, and his mouth moved in a prayer said too softly to be audible. Brevis, too, watched the swing of the needles, but he remained impassive except that his knuckles showed white from the pressure with which he gripped the table's edge.

The needles hit calibration point simultaneously and continued a little beyond. Porter, white faced now, began to sweat. For a moment the frustration of failure was writer on his face, then hell closed around them.

The racking pain of a torrential series of mode slips stripped the senses from them, yet the alternating stimuli denied them the refuge of complete insensibility. Caught in a twilight world somewhere between death and the edge of life, they hung at the very fringes of endurance in a state of mental and physical chaos. Then after a while the flickering pages of the book of alternate realities grew dark and drew them headlong into a vast, tenebrous blankness somehow as supporting and comforting as the womb.

Time lost its meaning then. There was no motion, no light and no sensation of any kind for a period completely without definition. It was with something of a shock that Porter realized later that not only was he still living but that he must have been partially awake for some time without knowing it, so complete had been his isolation from extraneous stimuli.

Slowly, sensations came back. There was a peculiar numbness in his limbs which, as it dissolved, accounted for the fact that only now could he feel his body hard on an inclined plane. There was no light whatsoever, and something heavy was across his legs, trapping them but without any actual hurt.

Porter accepted these facts with a calm philosophy. After the initial shock of wakening, his mind refused to react in panic to the unknown environment. He felt curiosity and amazement but no fear.

Tactile sense was returning to his fingers, and he stretched out an exploratory hand. It crawled over the dark, slightly ductile plane and came to rest against a socket and part of an angled frame which memory told him was part of the foot of an equipment rack on the *Lambda I.*

Cohesion flashed into the picture which was forming in his mind. He was on the floor of the *Lambda I*, with the raft tilted at a crazy angle and not one instrument functioning. Even the Rorsch was dead.

Dead . . . dark . . . the Rorsch is dead ! Alarm bells sounded in his brain yet he refused to respond with fear. His mind collected such a host of imponderables that he dared deal with them only superficially, seeking to place them first in an overall pattern. *Given time a Rorsch must stop . . . so the vessel automatically, and by definition, falls back into a normal atomic condition . . . shouldn't remove more than about half a continent* !

But the Rorsch has stopped ! *Is this some hiatus in time ; some subjective instant between cause and catastrophe* ? *Are these atoms even now preparing to ride the tide of atomic conflagration high into the unsuspecting atmosphere* ? A moment's thought convinced him that this was not so. He put his hand inside his shirt and felt his heartbeat. *Heartbeats take time, objective not subjective time, but the collapse of a Tau-spin field is instantaneous.*

Immediately, the problem changed perspective. That the Rorsch had stopped and not yet terminated his existence presupposed one staggering condition—that he and the craft were not in Tau space at all. Yet—where in the normal universe could the *Lambda I* be suspended at so perilous an angle and in darkness so absolute ? In a way the proposition was more unnerving than his previous assumption that they were still locked in some obscure Tau mode. This line of reasoning brought him to think of Brevis—and the dead weight on his legs. Experimentally he drew his feet up a little, and the reaction produced a grunt from the shifting body.

" Eric, are you all right ? For Heaven's sake answer !"

There was a scuffling in the darkness, and the weight removed itself slowly.

" Where the devil are we ?" asked Brevis' voice.

" We're still in the *Lambda*," said Porter. " But we aren't in Tau any more—at least, the Rorsch isn't working, which is proof enough."

" Is it dark, or am I blind ?"

" It's dark, darker than hell."

There were sounds that Brevis attempted to stand, but the angle of the floor was against the success of any such manoeuvre. The fall of his body was accompanied by a string of academic curses.

" All right," said Brevis at last, " let's deal with this coolly and logically. We were in Tau just before we hit the co-ordinates for the *Elektron*. That's about the last rational thing I can remember."

" Agreed," said Porter. " But we can't be in Tau now, nor yet can I think that we got back to the Terminal and they got us out and dropped us down the nearest coal-hole. It doesn't make sense. We can neither still be in Tau nor yet can we have got out of it."

" Is there no way a craft could come out of Tau without using a terminal point ?"

" Not unless there happened to be a particularly good vacuum available in the right place at the right time."

" Then we don't have enough facts yet," said Brevis. " Let's try another angle. When I woke up my limbs were almost without feeling. That is significant of something. Also I fancy I smell a curious sweetness in the air. I think if you're careful you may almost taste it in your saliva."

" Yes, I can, now that you come to mention it."

" Good, because that's a telltale characteristic of a certain class of organic compounds. It's one of a series of newly developed vapour-phrase anaesthetics and analgesics. It's a product of some pretty advanced metal-organosynthesis, and I'm quite certain that it never occurs free on nature."

" Where does that get us ?"

" If used in sufficient concentration it puts people to sleep."

" So ?"

" If you had about ten grams and the means to distribute it you could put a thousand people to sleep, Paul. I think we're on the *Mu Elektron*."

" Oh Lord !" said Porter. " It fits beautifully—so beautifully it just has to be true ! We moved to the *Elektron's* co-ordinate position and knocked her clean out of the Omega mode. The reaction must have kicked us through a series of mode slips but we finished up in the same mode as the *Elektron* . . . inside the *Elektron.* When our Rorsch gave up the ghost it didn't matter . . . don't you see . . . we were already inside the *Elektron's* field."

" I thought you said that if we were to occupy the same co-ordinate position and mode as the *Elektron* there'd be an explosion."

" Ordinarily, yes. But if by chance we located on an empty space in the *Elektron* there'd only be air molecules to contend with. I can't figure a way round that but it must have something to do with our rapid mode transitions pumping the air from the space before we fell into synchronization. I'd give you pretty good odds that we're now in the cargo hold halfway up a mountain of psilomelane."

" There are times, Paul, when you show unsuspected flashes of imagination."

" I'm only a technician. You're the brains expert. What gave you the idea ?"

" When we were down at the base of the ship I figured somebody aboard the *Elektron* had had a stroke of genius. At the prospect of a Tau Mockba climax to the trip he'd released some gas or poison into the ventillation system in order to save the final blind orgy and bloodbath. I couldn't think what he'd have available for such a job, but if he had access to the medical stores . . . he must have anaesthetised the whole damn lot !"

" It all fits," said Porter. " Let's try and get out of here. If the air has cleared here in the hold it should also have cleared elsewhere in the ship."

" You realise what we might be getting into ?" said Brevis. " This is a pretty serious situation. You can't pump an unspecified concentration of a powerful soporific like that around a ship without damaging some if not all of the people who inhale it. Don't forget it was probably intended as an act of humane murder rather than a conscious attempt at salvation."

" I know," said Porter, " but there'll be plenty of spare oxygen in the tanks and if anyone can be saved only our hands can do it."

* * *

" How're things going upstairs ?" asked Brevis.

" Encouraging," said Porter. " Most of the staterooms weren't too deeply affected, and recovery there is almost total. The ship's doctor will be down here as soon as he's checked the rest of the crew members."

" I'd guess he was the one who administered the anaesthetic ?"

" He was, and he still can't figure out why he's still here instead of sweating it out in the nether regions. I must be very careful how I write up his actions when I make my report. What's the score down here ?"

" Fair," said Brevis. " No fatalities so far, but I'd hate to think of the consequences if we hadn't arrived when we did. At a rough guess I'd say not more than about seventeen will need hospital treatment when we get back to the terminal."

" Then Julie . . .?"

". . . is all right. They're both all right."

" Both ?"

" Lord ! Do you mean to say nobody told you yet ? You have a child, Paul. A fine boy. Here, come, let me show you."

" One minute." Porter caught at his sleeve. " I'd sooner see them alone if you don't mind. What you said about fear of Tau coming between Julie and me—well, it's true in many ways. I can't blame her for leaving, but it does make reunion rather . . . delicate."

" Sure, I understand." Brevis smiled briefly. " You'll find them in the private suite at the end of the corridor. I don't have to wish you good luck."

" Thanks," said Porter. " But will you answer me one thing before I go—something which has been troubling me since it happened. Eric, what the hell happened to your wrist back there in Tau when you came over to the Rorsch ?"

Brevis looked away rapidly, and when he looked back the steel in his eyes was overlaid with a thin film of misery.

" There's no harm in your knowing now. You remember you had a hunch that serious mode-slip phenomena was in some way connected with something carried on the ship itself. Well, it's true."

" I don't see the connection."

"The connection is in my point about Tau-psychic interaction That's the key to the whole matter. It's a true two-way interaction, which I don't pretend to understand but can and does happen. I made it happen. I forced the *Lambda I* out of

that dissolving hell and into the Omega mode by an act of desperation."

"For God's sake come to the point."

"Paul, I tried to commit suicide out there in Tau. I deliberately slashed my arm so badly that I knew for certain that unless we came out of that hellish mode of dissolution I would have no chance to repair the wound. Either that ship had to jump to another mode or I had to die. I had reasoned that that alone was the gateway into the Omega mode."

"This is madness!"

"Not madness, Paul, but a demonstrable fact. The key to the Omega mode slip is an extremely desperate state of mind on the part of someone present on the vessel. Call it fear of death or what you will, but it's a phenomenon inextricably bound up with the will to live. Not all the mind responds to Tau-spin, and the part that doesn't apparently upsets the balance of the field when the sense of desperation is extreme. Here's the fact behind the legend that a vessel touching Omega will have a corpse aboard. The man who dies, Paul, is the cause not the effect of the vessel touching Omega."

"There are many fantastic things in Tau," said Porter dubiously, "but I'm not convinced that this is one of them. One thing alone explodes your theory—there were no dying men aboard the *Mu Elektron* when she went into Omega."

"Think," said Brevis. "Didn't I say the effect was inextricably bound up with the will to live? Do you know at what period in a whole lifetime that will is predominant? It's when one is being born, Paul. In the period of emergence from the womb that will is never stronger. You'll find your wife and child down there at the end of the corridor."

Colin Kapp

The best the crippled ship could do was remain in an orbit round Mars and hope for rescue—but was the planet below a paradise or just plain hell ?

MEANING

by DAVID ROME

It was a dream, and he was fighting it.

The world was swimming in giant circles around him, in reds and blues and greens. He could taste the dryness of dust in his mouth, feel the heat of a sun on his face. Somewhere faraway he could hear a booming sound, like the desperate beat of a fist against a bulkhead.

But there were no bulkheads here.

He shoved himself into a sitting position. He was sitting in fine warm sand, under an arch of green foliage, on a world far from home.

He spoke aloud. " My name is Alan Ross !"

Something stirred beside him. Alien faces drifted into view. Beautiful faces, pure glistening green, with just a flush of pinkness at their throats.

" Amanan . . . " they whispered. " Love is love." They held out fruit-food to him.

But Ross was turned toward the sound outside. It rose and fell like a summer wind, sometimes loud above the roll of the surf on this alien beach, sometimes lost in the crumpling roar of the breakers. He got to his feet slowly, ducking low as his head touched the foliage above him. The aliens smiled, offering food to him. But he shook his head gently and stepped between them.

" Amanan," they called after him, as he moved into the sunlight.

Amanan ? Was that their name for him ? A wave of memory washed forward in Ross's mind. Amanan meant . . . It meant . . .

The booming sound thundered louder. He turned slowly. He was standing on the beach, a golden crescent that curved away from him to east and west, edged on one side by the deep blue sea, and on the other by the line of low green foliage and the bright red dunes.

His eyes touched the blue of the surf for a moment. Out there, four figures sported. Joe Tumpin, Dom Davidson, and two darting native creatures. He turned again to look along the shimmering beach. It might have been the beach of Paradise.

But where was Gifford ?

A spiral wind blew softly, stirring the sand behind him. He turned and heard the booming sound again. His eyes followed the line of the dunes, searching the deeper shadows where sand valleys shut out the sunlight. The warm wind blew along the summit of the dunes, streaming sand away into the purple sky.

Up there, against the skyline, a darker bulk caught Ross's eye. He cupped his hands, shielding his eyes against the glare.

Among the blowing strands of beach grass lay the body of a man.

" Gifford !"

Suddenly he was running, sand spurting from under his heels. He bounded up the rise, calf muscles trembling. He crossed a shadowed valley, climbed a steeper slope. " Josh, Josh !"

He reached the body, sucking air into his chest, staring down at the silver pressure suit, the dark hair, specked with sand. The man lay on his face, his helmet upright in the sand, a yard away. Ross could see the black initials lettered there :

J.G.

Josh Gifford.

And then the world began to turn in giant circles again. The booming sound was roaring in his ears, boom-boom ! It seemed to come from inside the empty helmet. But Ross

was fighting the dream, was forcing it away from him down a long, long tube in a mist of colour. He shouted names. "Joe ! Dominic !"

He woke.

He was in the ship, strapped in his snugcouch, the mass of instruments and dials still flickering in front of him. His eyes were fixed on the control console, on the pulsing silver dome which nestled like a delicate metal snail shell in its padded brainpan.

"AYAR . . ." he growled between his teeth. And suddenly he shoved himself forward, jerking his strap-buckles loose. Weightless, he grabbed at the console with both hands. He put his face close to the shimmering silver brain. "I'll get at your heart, AYAR !"

There was a sound behind him. Across the cabin were three more couches. The centre one was empty. In the others, Tumpin and Dom Davidson stirred restlessly. Their eyes were closed, their bodies slack. A sheen of perspiration beaded Tumpin's upper lip.

Ross launched himself forward, dabbing with his hands to carry himself in a glide to Tumpin's side. As he caught the arm of the couch, he became aware of a sound from behind the bulkhead. A soft, insistent sound, like the beat of a fist.

He knew the cause of it.

Beyond the safety lock, Josh Gifford had been checking the generators when the nickel-iron missile smashed the stern of the ship into scrap. Now the motion of the ship in orbit washed his body to and fro, striking it against the bulkhead with a regular, chilling rhythm.

Ross dragged his eyes away. "Joe !" He shook Tumpin's shoulder. "Snap out of it, Joe !"

Tumpin's lips moved; but the words made no sense to Ross. The ship lurched in its erratic orbit, and Ross grabbed at the snugcouch again. He heard Gifford's body strike hard against the bulkhead.

In the other couch, Davidson was stirring; but Ross turned now, shoving himself across the cabin to the console. The panels still glowed with life, but he knew the instruments were useless. The meteoroid had destroyed the power units in the stern of the ship. Not even AYAR, with his ranks of

memory tubes, his labyrinth of computing circuits, could land them safely now.

Ross steadied himself as the ship rolled again. The silver brain, nestled deepdown in its cushioning fluids, still feeding on the trillion impulses channelled to it through the space-ship's sensors, seemed to shimmer in the space-lit cabin. Ross spoke with steady rage :

" Let them go, AYAR. Let them go, or by God, I'll tear your guts apart. I swear it."

The silver dome grew brighter. It hummed softly.

" Let them go !" Ross warned.

Suddenly the delicate silver shell went dark. Behind Ross there was movement. He turned and saw Davidson pushing himself erect. Then Tumpin stirred, his eyes dragging open. He stared at Ross, blinking slowly through heavy lids. He didn't speak. He didn't move in his couch.

" Joe . . ." Ross said softly.

The ship rolled suddenly, jerking Tumpin forward against his straps. Through the starboard viewport, as the ship came back again, Ross glimpsed the mottled surface of Mars three hundred miles below them. Mars . . . He had dreamed of this red world when he was a child, had chased the shadow of John Carter across the Sacred Iss. Now AYAR had carried them here, had crossed the dangerous miles of airless space —fully programmed, analytical, infallible: a machine with a mind.

But at the last moment—no better than a man.

Now Tumpin opened his eyes wide. He stared at Ross, the starlight glinting coldly on his helmet visor.

" Why . . . ?" he asked softly. " Why did you wake me ?"

His gloved hands moved together, clasped tight as a spasm shook his body. The ship lurched. Behind them Gifford's body nudged the bulkhead.

" *Why did you wake me, Al* ?"

Ross said softly, " You were dreaming, Joe."

Tumpin's body went slack. " A golden beach, blue surf . . ."

" Paradise," said Davidson gently.

Ross flattened his lips. " Paradise, hell," he growled. "Are you crazy ? This is *reality*. Here !"

" This is hell," Tumpin said softly. " We're going to die."

The silver snail shell nestled in the console began to glow again. A haze of red and blue stirred like a distant breeze

in Ross's mind. He shook his head savagely. " Nobody's going to die !" He flung a hand at the viewport as the ship dipped her nose and showed them Mars, far below. " We got into safe orbit. We've got food for six weeks, air for more. The rescue ships will be here in a month."

Davidson shook his head slowly, eyes deep and dark under heavy brows. " A month in orbit . . . "

" You're a spaceman !" Ross snapped angrily. " You can do it. You don't need a dream to keep you sane !"

Tumpin said softly, " A paradise, Al."

" Whose paradise ?" Ross swung around to stab a finger at the console. " AYAR'S ! He didn't land on Mars. He failed his mission—and it's tearing him apart ! He was infallible; but he failed ! And that he can't take. He's trying to plant success in our minds—trying to give us a Martian paradise he created himself !" Ross shoved himself forward, hanging in mid-air in front of Tumpin. " Do *you* need it, Joe ? A dream ?"

" A dream . . . " whispered Tumpin. His eyes found Ross's, and held. " Are we crazy already . . . ?"

" No !" Ross barked. " Nobody's crazy !"

He checked himself. For an instant the beach rolled into his mind, became startlingly clear. The glistening aliens held out their arms to him, beckoning. Soft winds blew; the water broke along the shore, rushed in lacy cream up the golden sands. He shook his head, and the ship came back. Stark and lonely. Filled with fear.

" Six weeks in a coffin," Tumpin whispered. " Locked up with a dead man. I can't take that, Al. I don't want to." His head was sinking forward again. The warm surf rolled in at Ross, rising high above him, falling down and down to flood his mind with deep red shadows and pure green light. Then the green wave broke and left him stranded. But it was taking Tumpin and Davidson down with it. Tumpin's face was darkening. Davidson's head began to drop on to his chest.

" AYAR !" Ross roared, swinging to face the pulsing silver dome. Then the ship dipped sharply. Davidson was flung against his straps. They cut deep, and pain flashed across his face. In the other couch Tumpin squealed—a high, frightened sound—as AYAR let his mind go free.

" Easy . . . Take it easy," Ross panted softly.

Davidson's eyes were open wide as Ross swam towards him. " We can last it out, Dom. We can make it." He raised his glance as Gifford's body boomed against the bulkhead. " And we'll give Josh a space burial. With him gone, the lasting will be easier." He stared down into Davidson's face. " Dom, I didn't do this to you. I'm not to blame."

Davidson's lips moved faintly. " What do you want me to do ?"

" Come through the lock with me. Help me get Josh off the ship. Then—" he hesitated. " Then we can tackle AYAR."

" AYAR can be shut off," Davidson said slowly. " A flick of a master switch, and AYAR would be dead."

" We'll get rid of Josh first."

Davidson's eyes didn't move. " Why not switch him off ? He's an instrument. Just an electronic brain, just a little more human than most, that's all. You can shut him off."

The red beach swirled in Ross's eyes. He scrabbled with his mind, climbing out of it. " Shut up ! Shut up ! Shut up !"

It was Tumpin who spoke.

" I'll help you, Al. I'll help you bury Josh."

They opened the first door and stepped through into the tiny lock.

Their helmets were closed and sealed, the oxygen purring behind Ross's ear. They could have talked like this their visors pressed together—but they didn't. They waited in silence and listened to the rustle of air through their valves, and the whistle of air pumping out of the lock. Then they were in vacuum, and Ross jabbed the button that would slide the second door open.

Amanan . . . whispered a soft voice in his mind.

As the door slid back, he saw the darkness of space, specked with stars, like the sand in a dead man's hair. He looked out into a meadow of twisted metal: big green generators, buckled and useless. The whole side of the ship had been sliced away. The stars showed, wheeling, then the lip of Mars, fiery in the sunlight.

Tumpin touched Ross's arm.

They hung together, staring at Gifford.

Explosive decompression had sucked the engineer between two massive generators. Now he dangled head down, his

pressure suit in shreds. One arm protruded stiffly from the bank of twisted metal.

Then Tumpin pointed, soundlessly. The ship was rolling again, following her corkscrew orbit. And in mid-air a silver helmet floated forward to strike against the bulkhead. It made no sound in the airless module, but Ross knew that Davidson, in his couch, would hear the booming.

He launched himself forward, guiding himself across the generators. Tumpin followed close behind as Ross scooped the drifting helmet out of the vacuum and tossed it in a low flat arc through the open side of the ship. It dwindled slowly, a silver point of light, closer than the stars. Ross watched it for a moment, seeing Gifford's body lying dark against the purple sky, against the skyline of the Martian dunes . . .

He didn't know how close behind him Tumpin was. Couldn't know that Davidson had slid the airlock quietly open and was swimming silently toward him now. Then the big man's arms locked suddenly around his neck. Instantly the purr of air from Ross's tank valve ceased, and he was fighting for his life.

He struggled in Davidson's grasp, kicked out at Tumpin as the squat man leaped at him from one side now. He gasped for the single chestful of air that remained in his helmet, felt his lungs begin to fill. Now the inside of the ship was sparking with a million points of light. Dreamlike, he felt his brain, his mind—was it his ?—begin to pull apart. Two parts of his mind separated, then clashed again, writhing in combat in the corridors of his brain.

Ross clenched his teeth with effort, began a slow roll forward carrying Davidson over his shoulder. He heard the rush of air through Davidson's helmet as their visors touched; then Tumpin was on him too. Red anger flooded Ross's mind ! It gave him strength. Chest heaving, teeth still clamped together, he dragged Davidson all the way over, following through to throw him bodily at Tumpin. The grip on his throat relaxed suddenly. Air roared in his ears again.

He grabbed at Davidson as the big man tried to wriggle clear. Now Ross's back was pressed against a towering power unit. He drew his knees up tight against his chest . . . Davidson was a yard away, Tumpin directly behind him. Ross kicked out. His booted feet struck Davidson in the chest,

and the force flung Ross against the power unit. He seized it, locked his arms together to stop himself from rebounding.

But his eyes were holding Davidson and Tumpin.

The two men had crashed together. And they had no hand grips. They were flying toward the open side of the ship, the stars behind them, waiting. Tumpin stretched his arms, kicked desperately with his feet, turning slowly now, swimming in life-or-death slow motion toward an out-thrust metal arm. Davidson was screaming soundlessly.

I'm not to blame ! cried a part of Ross's mind.

Tumpin's groping hand missed the side of the ship by inches. The two men drifted past, arms flailing, faces white and staring. Then they were gone, were beyond the ship—both dead men now, as dead as if their heads were severed from their bodies. They dwindled, lost forever in the star fields.

An end to dreaming ! Ross cried in his mind.

He flung himself heedlessly at the safety lock. Beyond the lock was AYAR. It was AYAR who had tried to destroy him. AYAR had controlled their minds.

He got the first door open, slid it shut behind him, crouched inside the tiny space between-doors. Oxygen gushed in.

He felt the machine-brain probing his mind as he pressed the button to open the second door; felt AYAR's fear come rushing over him now. Then the blue surf rose from a corner of his brain; blue surf and golden sand, and alien creatures, glistening green.

AYAR made a last attempt to save himself. Amanan . . . the aliens whispered. Love is love. The green trees stirred in a warm wind, the sand streamed like silver snow from the tops of the dunes. This was Paradise. This was Mars.

But Ross shoved it aside.

Through the haze of purple sky, he could see the control console and the shining silver dome nestled there, like a bright moon on his slowly turning horizon. His eyes moved downward, fastened on the master switch.

His mission had failed . . . His men were lost. But he wasn't to blame. AYAR was to blame.

Amanan ! cried a desperate memory.

And then he touched the switch.

It was cool to his gloved fingers. And the coolness seemed to run like ice-water up his arm to his heart. He tightened his fingers, and the switch began to move. Slowly, slowly. Amanan . . . Amanan . . . soft voices pleaded. Then the coolness reached his eyes. Green water filled his brain, rushed down the darkening galleries of his mind.

A drowning man, he pulled the switch.

He was lying on his side in hot sand. Sand that filled his ears, his nose, his mouth. Overhead he could see the sky. A faded blue sky with no trace of cloud.

He turned his head. His lips were dry and parched. His throat was on fire. Weakly, he stared about him.

Within arm's length was the twisted wreckage of his metal snugcouch. Further back in the ship, in deeper shadow, he could see three men. Tumpin, Davidson and Gifford, dead in their seats. Their heads lolled forward, silver helmets split apart, showing red blood masks where their faces had been.

A spiral wind blew hot through the open side of the ship. It carried red sand with it, flooding in through the gap like silting mud through the bones of a galleon. Gifford's snugcouch moved in the wind, boom-boom-boom. The helmet of the dead man beat against the side of the ship as Gifford dangled in his strapping.

Ross struggled to his knees, gasping for air. His mind was filled with tumbling patterns of memory. The sand had drifted in through the side of the wrecked ship until a low mound had formed between himself and the world outside. He wriggled over it, his face pressed into the red sand, his nose choked, each breath an agony in his throat.

He wasn't insane . . . He wasn't to blame. AYAR? Where was AYAR?

At the top of the mound he lay a moment, sucking air into his lungs. Sunlight glinted on a silver dome, a yard away. A space helmet, thrown clear after impact. It stood upright in the sand. From the top of the mound Ross could read the black initials lettered there :

A.R.

Al Ross.

And then his mind began to crumble. He clutched fistfuls of sand, pushed them into his mouth, chewed on them. The dust filled his throat, choked him. He gagged. *An end to dreaming* !

He raised his eyes to look out across the endless desert. No plant, no animal, no life. Hot winds swirled banefully across an empty sky.

Where were the beautiful alien creatures, the ice-blue sea, the golden beach? Where were the creatures who had called him Amanan?

Amanan, whispered faint memory, in his mind, Amanan meant . . . It meant . . .

His eyes clung to the barren wastes; and aching sorrow filled his heart and mind.

Amanan meant——

A man alone.

David Rome

THE LITERARY LINE-UP

During the last ten years, Lan Wright has written three book-length serials specially for this magazine. His fourth one, "Dawn's Left Hand," commences next month. A highly complex galactic intrigue between rival political factions each bent upon the single domination of the trading Empire. Into the middle of this dynamic situation, one man suddenly becomes the focal point of both sides when the spaceship in which he is travelling disintegrates—and he is the sole survivor, with another man's identity.

Two brilliant short stories are promised, too: J. G. Ballard's "The Subliminal Man," another of his over-crowded cities theme, and Robert Presslie's "Ecdysiac," a murder with a difference, for the man to be murdered has already been killed four times. Plus other short stories by Philip E. High and newcomers R. W. Mackelworth and David Jay.

Story ratings for No. 120 were:

1. Minor Operation (Part 2) - - - Brian W. Aldiss
2. The Man On The 99th Floor - - - J. G. Ballard
3. Sixth Veil - - - - - - Francis G. Rayer
4. Paradox Lost - - - - - - - Steve Hall
5. Yorick - - - - - - - Donald Malcolm
6. Double Time - - - - - - - P. F. Woods

It was a world so alien that no human being could even land on it and survive. When Wallsey crash-landed he was immediately engulfed by one of the inhabitants.

CAPSID

by FRANCIS G. RAYER

Half a second after Wallsey's damaged scout touched the dusty planet's surface, the capsid's mental filaments had secured him. Consciousness went, his hands fell from the ship's controls. The blackout was as complete and absolute as if the little scout had been reduced to scrap on impact, and its only human occupant destroyed with it.

The capsid was pleased with its catch. It had been content, yet watchful, in its tunnel in the sand, and it had struck with the fantastic lightning speed of all its kind. It leisurely brought the remainder of itself along the tunnel, heaving up the surface covering of sand. Its body came to rest against the scout, and built up, exerting pressure to roll the ship over. Satisfied that it could indeed move the vessel, the capsid began flinging aside sand, making a cavity large enough to take the ship.

Hot wind howled over the planet's dusty surface, devoid of all vegetable or animal life. The Pleiades sun around which the planet spun seared the broken rock and sand with unendurable visible and ultra-violet radiation. The whole planet was a ball of irregular stones, blistered salt and sand, with no sea or polar regions. The ceaseless tunnellings of the capsids had long ago mixed and churned the surface to a glinting irregular uniformity which extended from horizon to horizon.

The capsid worked slowly, feeling satisfaction. When the cavity was deep, it burrowed round the ship, heaving itself along in a flowing wave so that the scout rolled over, and into the hole. Far enough under the sand to protect itself from the searing radiation of noon, the capsid circled the vessel, pushing in sand and caked salt, until the ship was covered. Hot winds scurried over the planet's surface, carrying dust devils, laying a thin carpet of pulverised rock. Soon there was no mound or cavity to distinguish the spot from the shifting desert covering the planet.

The capsid felt happy, and it worked slowly until an extension of its tunnels held the ship. Then it began to deposit biting acids systematically along the hull. The furnace atmosphere of the tunnels was soon thick with fumes, and the metal corroded away, revealing bulkheads, power equipment, and the interior of the ship. The capsid drew out its captive, and began spinning layer upon layer of fine silicious threads around him. After a long time it drew him away down one of its tunnels.

Some miles from the ship, the capsid had a store chamber, one of many. It left the bundle there, and returned to the ship. Travelling along the tunnel, it sensed the proximity of another capsid, near and curious. Temporarily it detached a warning filament from itself, leaving it in the tunnel wall to keep the other capsid away. For the moment, it wished to investigate its trophy alone, re-stocking its tunnels and chambers with anything which it felt of interest.

Unhurried, it demolished the ship. It had little use for most of the metals it found, or for the salts which arose from the hissing contact of its biting acids. There were square objects of a very hard, smooth fused silica, and it carried them away to one of its stores. Other objects resisted its acid, and it dragged them into the corridors branching from the tunnel. Soon there remained only a mound of rust, mineral salts and rubbish, which it pushed up to the surface.

The capsid admired the arrangement of its tunnels. The way it had made to the ship was disorderly, unpleasant, and it filled the vault and wide passages systematically, retreating as it did. Soon all was restored. It went back along the main tunnel, noted the other capsid had moved away, and collected the vibrating filament. All was very peaceful and

pleasant. The tunnel roof here was formed of caked salt, scorched to furnace heat. The capsid tasted the roof lovingly with its back, as it moved, and felt happy.

It would rest, it decided. After, it could take in the new, exciting animo of its capture. An extremely long time had passed since any alien form of life had come its way.

The capsid did not sleep, it never did. But its physical activity ceased and it rested quietly in its tunnel. It felt completely at peace, wanting nothing, and admiring its tunnels and store chambers, as it mentally reviewed them.

The cargo ship *Endolon* coasted a thousand miles above the planet, her scanners directed on the surface below. A girl with high cheek bones, tawny hair, and cream skin stood before a view screen, her eyes sad. A man many years her senior manipulated the screen controls, sometimes bringing a portion of the planet up with increased magnification.

" I doubt if we could pin-point Wallsey within twenty miles, even if he's alive," he said. " I'm sorry, Anne."

She looked at him, gaze yearning. " You saw the scout touch down, and took bearings."

" I know. But the capsids can easily open a ship, and take a man away. We believe their tunnels run for miles."

" No one has ever come back ?"

" I'm afraid not," he said sadly. " A capsid strikes like a chameleon's tongue taking a fly. No one likes this trade route. We steer clear of *that*—"

He shuddered, jerking a finger at the shifting image. The planet's surface was all desert, glinting salt and sand, riddled with capsid burrows, dotted with shifting hills. The Pleiades inner group sun was too near, too harsh. Wallsey knew the danger, had undoubtedly fought to avoid the planet. But the meteorite cluster that had destroyed two thirds of the stern of his scout had left him out of control.

The *Endolon* dropped lower, circling. Everyone on her knew that to touch the surface of the planet below would be almost instantly disastrous. No ship could land to find Wallsey, no search party could spread over the desert, hoping for some clue.

Rusty brown, spreading over a wide area, visibly marked the spot where the capsid had pushed up unwanted, dissolved metallic substances from the scout. Already a fine layer of dust, carried on the hot wind, was toning the rusty brown to match the surrounding waste.

Other suns of the Pleiades group shone harshly, more remote. The *Endolon* was large, equipped to ferry cargo. On her underside projected a giant loading bay, which could be opened at the front, and she carried no other scout. She was alone, plying her route. The scout had stood off to check for possible minerals on the system's unexplored inner planet, when the meteorites had sped from nowhere, struck violently, and passed on.

The girl watched her father adjusting the screen controls. The rusty patch had no particular features.

" What are—the capsides ?" she asked uneasily.

" I've never seen one, nor has any man living. Every ship that touched down was instantly captured. At first, traders thought it was mere bad luck, or a fault. Maybe we'll never know how many explorers landed, and were never seen again. The planet got a bad name, and deserved it. Eventually a robot exploration was financed, and soon came to grief too, but not until a few pictures had been radioed up. The place is like an ant-hill. A man in a ship is captured almost instantly, in some way we don't understand. A robot device lasts until the capsid acids get through the shell, and that doesn't take long."

She could not be still, could not rest. Wallsey, lean and brown, had been the only man ever to bring love to her eyes.

" There was some legal formality about protecting men in this area," she pressed. " Where did that lead ?"

"Nowhere, lass." He remembered that Wallsey had talked briefly of being the first new scout pilot to be sent particularly to this area. It was unkind to offer hope where there was none. No man ever returned. " I shouldn't count on it."

He left her, unable to endure the pain on her face. The *Endolon* would stand off the planet several days. Somehow it seemed the least they could do.

Harsh sun played on the dusty hills, pouring heat on the scorched sand and baked, gleaming salt. Occasionally a dune moved, as a capsid came near the surface, drinking in the radiation. Hot winds carrying sheets of dust raced over the planet. The rusty patch, once a ship, slowly disappeared. At noon, the vast beds of sand, flecked with quartz, magnesia and soda, gleamed with radiant heat. At midnight, a fierce and dreadful darkness gripped the hemisphere. Only under the surface, in the smoothed tunnels, was there purposeful

movement. Each capsid burrow was isolated from its neighbours, a mass of branching, circling passages, some large, some outgrown.

The capsid was pleased with its trophy. Experimentally it relaxed its hold on the upper levels of Wallsey's mind, letting consciousness return. But the degree of alarm arising in the man was soon so extreme that the capsid drew its mental filaments tight quickly. Clearly it must be content to sample subconscious levels.

Everything in the man's mind was too alien and strange to be understood, but the capsid drank in emotions and impressions. It hoped its captive's body would live at least one or two planetary rotations.

As it investigated, it sensed other capsids drawing near, and it repelled them angrily. It would not share this trophy with neighbours. It rolled the irregular capsule to its centre store, as far as possible from all other capsid tunnels. There, it again felt more content.

The man's animo was complex, and the capsid drew in sensations, motives, fears and purposes, not understanding them, but experiencing at second hand some of its trophy's happinesses, unease, fear, and ambition. It was exciting, very pleasant. The capsid knew it would never have such a catch again, and its mental processes became more and more closely linked with the man.

Occasionally it sensed the exploratory forays of other capsids and it slowly grew afraid that some might succeed in stealing its prize. It would build higher, it decided, so as to carry the man up a little above the main tunnels. Other capsids would then only be able to approach him with difficulty.

It worked in a circle, throwing up sand, gluing the new cavity walls with secretions which hardened instantly in the searing heat, and which it could re-consume. As it got its prize higher above the tunnels, its unease diminished.

The capsid again occupied itself with sampling its captive's emotions. Now, it felt closely associated with him in mental symbiosis. It enjoyed the sensation, and resented any possible intrusion by other capsids. After a little while it decided that the cavity holding the man might be raised even higher, for further protection against an attack by neighbouring capsids. It also decided temporarily to seal many of the radiating tunnels.

When the work was finished, the capsid felt pleased, and relapsed into its mental union with its captive. After a little while it again began to feel unease, and it decided even better preparation against attack would be wise. It went a long way down the remaining tunnels, then began collapsing them behind it as it returned. Soon it had created a neutral, tunnel-free area round its centre chambers, so that no neighbouring capsid could make a rapid attack.

The capsid was happy, its precautions taken, and in its close association with the man's deeper mental levels. It enjoyed the sensation of gladness and safety, and let its body rest in the chamber with the man. But in a little while a new, sudden unease occupied the capsid's mind. Suppose neighbouring capsids made a quick foray on the surface, with twilight when the sun's harsh radiation was failing? Suppose they captured the man, dragging him away?

The possibility filled the capsid with a new unease. It made a quick circuit of the tunnels, to check they were blocked. In one place it could sense another capsid quite near, and its alarm grew. Perhaps the central chamber housing the man should be a little higher, the capsid decided. Other capsids could then be repelled more easily.

It began to work rapidly, throwing more sand and salt up around the chamber, cementing the powdery material so that the rising walls would not crumble. When it had finished, it felt content, and it paused, enjoying its contact with the man's mind. Images that passed were completely unintelligible, but the undertone of emotion was strong, and pleased the capsid.

After a time the capsid realised that the direct radiation above was dropping in intensity. and that night was coming. A new, sudden unease filled it. Perhaps neighbouring capsids would be quick and strong enough to scale the small mound it had built. Perhaps the central chamber should be raised further, the capsid thought uneasily. It could be made a real fortress, safe from any attack.

It began to work rapidly, powerfully carrying up baked sand from farther levels. As it laboured, its unease began to pass once again, changing slowly to gladness.

Night drifted over the hemisphere. For a distance of very many miles, burrowing activity increased, as it grew safe to come nearer the surface. In the brief twilight between the searing radiation of day, and the cold blackness of night,

occasional holes appeared in the beds of salt, as a capsid threw up unwanted sand from below, or sent out exploratory tendrils for soda and manganese crystals. High winds blew in the twilight regions, bearing heavy, whirling sheets of dust. Ages of ceaseless activity below had mixed and churned the whole surface of the planet, reducing it to a desert. No mountains stood against the sky. If valleys once existed, they were long ago filled, hidden by dunes of shifting powdered rock, arid salt and sand, and fragmented silicates and crystals.

The *Endolon* stood on gravity neutralising jets above the noon side of the planet. Shuttered ports screened out the biting radiation of the Pleiades sun and many of her small crew snatched brief sleep. When a man looked below, at the endless desert his scalp crept. Sometimes they watched tall pillars of swirling dust, but usually their gaze moved nervously, searching for any sign of movement under the gleaming wastes of sand. Each knew that there was no spot on the whole planet's surface safe for the *Endolon* to rest upon, even fleetingly.

Anne had scarcely slept in the four days since Wallsey's scout had crash-landed. Her father had reported the disaster, and many hours later had received a relayed report that a military ship carrying a special officer would be put into radio contact with the *Endolon*. The officer proved to be a young man with a deeply lined face and astonishingly piercing eyes, whose voice had a steely bite, even over the several stage relay covering parsecs of interstellar space.

Anne would not let herself hope. It would have taken weeks for the special officer's ship to reach the *Endolon*, and even then he could do nothing.

"I understand you trained with Wallsey," her father said.

Captain Bridie nodded, his lined cheeks drawn in. "We studied everything known about the capsids, which is little enough."

The elder man's face was dark with fatigue. "We only have a bearing pin-pointing the place within miles, Captain." He glanced momentarily at Anne, sorry for her. "Originally, deposits from the ship were visible, but there is always a lot of sand and dust moving."

The image flickered from some ionic disturbance somewhere in the space paths. "You all realise it would be fatal to put

the *Endolon* down?" Captain Bridie asked. "You'd all be captives within perhaps half a second, at the most."

"I know." It was difficult to meet the pain in Anne's eyes. "How long could a man live—if he survived the forced landing?"

"Only a short time," Bridie admitted. "Temperatures are extreme. We've no exact knowledge of what the capsids do. No man has ever come back from even the briefest landing—"

"But I understood there was—was hope," Anne cried. said you had studied capsids, "They perhaps knew more about them than anyone."

"Which is very little." Captain Bridie was obviously moved by the pleading in her voice. "No one can land anywhere on the planet. Special robots have landed, but their life was extremely short. No such robots are available now, anyway. If a search were possible, which it isn't, it could scarcely succeed." He was momentarily blanketed by static. "The *Endolon* has the usual forward loaded cargo intake?"

"Of course," Anne's father said briefly.

"Then I suggest you get your crew alerted. Call me back as soon as they are ready, and when the area where the scout came down is approaching dawn. The communication channels will be kept ready."

The lined, rather sad face disappeared. Anne's heart grew heavy. She had hoped, but saw there was no reason for hope. Captain Bridie was so distant he could not reach them for weeks. Below, a man could live for only a short time, even if lucky. She glanced at the brazen radiation pouring on the dunes below, and shuddered. No ship could land there. No robot was available, even if they knew where to direct it.

She closed her eyes tightly to hold back tears.

The capsid sensed that its captive would not live very long, now. Tight in the great cocoon of fibres, the man was drifting towards coma and death. Only deep in his mind burnt a spark of determination and purpose, the last of unconscious will.

The dark period had been alternating joy and unease, for the capsid. Time after time it had settled down to enjoy its contact with the man's mind, and just as repeatedly had it been roused by fear that other capsids would get too near. Towards dawn, the capsid's activity had been more urgent.

In symbiosis with the man's mind, it experienced an urgent desire to make its defences more impregnable. It repeatedly checked the caved-in tunnels, assuring no opening remained, or had been made. It realised that height was important, offering safety against surprise attack, and it laboured powerfully, drawing in more sand from a greater distance. The capsid felt that it was reasonably safe from attack from below, as all its tunnels were securely closed. But a surface attack was a different matter. It could not rest, but decided to build higher, so that the chamber holding the cocooned man was too high to be reached by other capsids, except by passing up the central, almost vertical tunnel, which it could personally defend.

The tiny spark in the man's mind seemed to flicker more brightly, when the capsid laboured. When it rested, the spark burnt low, and the capsid returned to its work, feeling at second hand the need for greater efforts.

The Pleiades group sun dawned in steely brilliance, its scorching radiation glaring on the dunes. A cargo ship hung fifty miles above the sand, following the dawn. Below the surface, the capsid worked furiously. Soon it would be impossible to venture up, and the need not to relax in its labour was like a long drawn cry in its mind.

Vivid sunshine came over the area, and shone on the high, irregular, termite-like tower the capsid had built. Glued with its secretions, the tower walls shone with salt and mineral crystals. Round the tower, extending to a vast distance, was a circular moat, showing how industriously the capsid had carried sand. Away beyond the dip were the heaps and ridges which showed that other capsids had worked their way near.

The *Endolon* came quite slowly, altitude dropping, her course steered critically, and her gravity neutralising jets streaming fire down towards the dunes. Like a giant finger, the capsid tower stood high and clear, baked soda gleaming where the sun struck.

The *Endolon* passed over once, circled, and came again, lower. In her underside, the great front ports of the hanging loading bay stood open. The bay was a giant scoop, and it passed through the tower, gathering hundreds of tons of sand, that collapsed and streamed away. Inside the bay men clung to ropes, faces sweating. As the ship passed, low, a mass of tendrils appeared under her and in her wake, reaching

up, so that the dunes were momentarily clothed with waving hair. The pillar broke, showing a central tunnel, its sides glinting, and the dark back of something that moved . . .

In the *Endolon* they tore off the cocoon. The ship was gaining altitude, motors closing her loading ports. Many hands carried Wallsey up out of the bay. With infinite thankfulness Anne saw that he lived.

As they carried him to the medical cabin, Wallsey's lips moved, as if repeating a lesson learned so deeply it would never be lost.

" We are not happy here. Build higher. It is not safe. Build higher. Others will attack you. We are not safe. Build higher—"

Kneeling by his side while the dust and sweat was wiped from his face, Anne understood. Captain Bridie had said no one could save a man lost down there. But he could save himself.

Francis G. Rayer

" Whose finger on the button " could be of prime importance in any retaliatory war—providing that there was anyone left to press the button. Paul Corey's satire herewith is probably not meant to be serious—but the more you think about it the more neatly it fits into this crazy old world.

OPERATION SURVIVAL

by PAUL COREY

To be a part of *Operation Survival* was like sitting in on a preview of History. Before your eyes, you witnessed the preservation of " Democracy," " The Free World," " The Christian Ethic," " Our-way-of-Life," and at such a small, such a very small, loss—Mrs. Pollsen.

You see, she was one of my technicians and I am Director of the Willegar Home for the Mentally Retarded.

I still wonder whatever happened to her.

However, when I recall that great and privileged experience—*Operation Survival*—there always comes to my mind bits of Robert Browning's poem, " Incident of the French Camp."

That probably tells you how old I am. I've heard that teachers stopped making youngsters memorize that poem about the time I finished grammar school.

It's a rousing piece. In case you've forgotten.

" *You know, we French stormed Ratisbon:* "

That's how it starts.

Napoleon's standing on a mound a mile away. He's worried. Will he win again? Or is this going to be *not* one of his good days?

Then out of the smoke of battle comes a boy on horseback. And Browning tells us:

" (So tight he kept his lips compressed,
Scarce any blood came through)
You looked twice ere you saw his breast
Was all but shot in two."

They had guts in those days even after their lungs were gone. You have to hand it to them.

This youngster gallops up to the mound, jumps off, stands at attention, salutes:

" 'Well,' cried he, 'Emperor, by God's grace
We've got you Ratisbon!' "

Victory again. That's what Napoleon had been hoping. He brightens up, spreads his chest, then he sees the condition of the messenger. That shakes him. He says:

" 'You're wounded!' 'Nay,' the soldier's pride
Touched to the quick, he said:
'I'm killed, Sire!' and his chief beside,
Smiling the boy fell dead."

But back to *Operation Survival*. As should be, it was run by our Military. It was dreamed up by General Homer LeBut of the *Last Ditch Defence Command*.

(Incidentally, he has some very emperor-like characteristics. That's why, I suppose, the poem comes to mind.)

After the whole caper was over—a dry run was all it was of course—the apparent victory wasn't as clear-cut as STRANSECOM said. (STRANSECOM is the computer. Without it our military thinking would be on the non-com level.)

Unanswered was one big question, a question a good bit more serious in its implications than what happened to Mrs. Pollsen. When, later, I put it to the General, all he said was, " Pray God that never happens."

Of course *Operation Survival* was classified. To make possible the telling about it, I've changed the names of places and participants.

My name isn't Doctor Coots, Director of the Willegar Home for Mentally Retarded. General LeBut has a more American name like Brown. There is no Mrs. Pollsen so called.

Operation Survival began early in the spring. A Colonel came to my office. His military poise reminded me of a golfer's No. 5 Wood, standing on the handle end.

" You are Doctor Coots," he said.

I nodded.

He said, " I am Colonel Chip. Is this place bugged? "

" Uh— " I said. It's been a long time since a word that conjures up " bug " or " bughouse " has been used about the Home.

Without asking my permission he started searching the office. I realized then that he was looking for a hidden microphone. He didn't find one of course.

Satisfied at last, he said, " I must warn you, Doctor Coots, the subject I am about to touch upon is *top secret*. If you reveal any part of it you will be guilty of a treasonable act."

" Yes, Colonel." Always humor them is s.o.p. around the Home.

" What are your retarded groups? " he asked next.

" Idiots, imbeciles and three grades of morons."

" Check. Now Doctor Coots, how many do you have? "

" Thirty-eight hundred and three this morning.' My eyes read the figure on the slip of paper tucked in the corner of my desk blotter.

" Check," said Colonel Chip. "How many are ambulatory?"

" Twenty-two hundred and sixteen." This was just a guess.

This time he said, " Right."

He turned on his heel, went to the door, then turned back. " *Top secret,* remember? " He placed a finger to his lips. " Tip top." He went out.

My first impulse was to shrug. Nothing had been said or discussed that wasn't in the open record. I shrugged. For a moment I wondered how one of my " feebs " had got hold of a military uniform and a colonel's eagles.

I considered calling " security." But my secretary interrupted, bringing a complaint against Mrs. Pollsen. It seems she had slugged one of the inmates.

Mention of Mrs. Pollsen brought a quick picture of her to my mind. She was bony, big, powerful, aggressive and as strict as any military martinet. She was of the old-school of technicians, the kind that were called " Bughousers."

I had often contemplated getting rid of her, but she had tenure. Besides, her ward was the best run in the Home.

At that particular moment she symbolized Colonel Chip in my mind, and by so doing, the actual Colonel vanished from my thoughts.

The whole incident soon became a part of an ordinary day's work at the Willegar Home for Mentally Retarded. Later, when rumour reached me about lists of names of inmates being asked for, I concluded it was welfare work and ignored it.

Then, one morning, Colonel Chip appeared again. He entered my office without being announced, searched it, returned to the door, opened it, and stood at attention.

In slouched a four-star general. He looked a little like a sweet Italian sausage with legs. His jaws were moving slowly, steadily, almost doggedly. It took me a moment to realize that he was chewing gum.

He grunted.

The Colonel said: "Doctor Coots, this is General Homer LeBut, commanding officer of the Last Ditch Defense Command."

I held out my hand. The General apparently didn't see it. He buttocked down on the edge of my conference table with a little nod to the Colonel, indicating that he expected the man to get on with it.

"You have twenty-two hundred and fifteen ambulatory inmates here," the Colonel said.

"Sixteen," I corrected.

"Fifteen," he said. "The General's car hit one on the way in."

"Fifteen," I said.

"On May One," the Colonel said, "we will give those twenty-two hundred and fifteen ambulatory inmates a day's outing. Transport will be here at seven hundred hours. They are to be ready."

"I'll have to get authority from the proper state agency," I said.

"Impossible!" said the Colonel. "Doctor Coots, this is *top secret*. Not even the state must know. I wish to warn you again against any security leak."

I didn't say anything.

He continued: "At seven hundred hours May One you will deliver to our transport twenty-two hundred and fifteen ambulatory idiots, imbeciles and three grades of morons."

Quite wrongly, I'll admit now, but at that moment I had a vision of a gigantic gas chamber swallowing all of my charges. Horror gripped me. What would happen to my job? What would happen to the jobs of my psychiatrists, psychologists, doctors, surgeons, nurses, dietitions, psychiatric technicians, guards, gardeners and welfare workers? Top secret or not, I had a vested interest to protect.

" My technicians must go along to look after those people," I said.

" Quite impossible."

"And I must be allowed to go also."

" Out of the question, Doctor Coots."

I stood up. Leonidas at Thermopolae, Horatio at the bridge, no parasan, five feet four inches of administrative determination pitted against the Pentagon.

" Then I cannot permit this junket."

"Junket? " The Colonel seemed to grow taller, and leaner and straighter and more like a golfer's No. 5 wood hanging over me.

"Aw, let 'em go along," said the General.

" But, sir, we've got security clearance for the feebs, now we'll have to clear the keepers as well."

" Clear 'em then," the General said.

" Yes sir," said the Colonel.

The First of May and seven hundred hours came. I met the moment bravely. I stood at my office window, Colonel Chip at my side. We watched the olive green buses being loaded in the square below.

Twenty-two hundred and fifteen ambulatory idiots, imbeciles and three grades of morons produced a solid roar. A sense of inevitability came over me as I saw this mass of flailing arms and legs and contorted faces. Never before had so many retarded been so disturbed for so great a cause.

My technicians were having a rough time getting their charges loaded. But through this exceptional throng strode Mrs. Pollsen like a top sergeant, maintaining what order was possible.

I admired her then. What a tower of strength. She seemed like a chunk of the quiet, orderly ground around the administration centre that had risen up to stem a tide of chaos.

Finally, the loading was finished. Doors were slammed and locked. The Colonel and I went down to the square and the waiting staff car.

With a military police escort and the General's car leading, the olive green buses peeled off in good order and headed out of the Home parking space. Our car brought up the rear. Colonel Chip sat on one side of me in the back seat, a major sat on the other side. A captain sat in front with the driver.

As soon as we were out of the grounds the column picked up speed. We were travelling so fast that I didn't see much of the country. To begin with, it was level. Then we began to climb. Once I noticed a " 3000 ft. Alt." marker. The last half hour was a terror and torture of switch-backs.

At last we pulled up in a large parking area surrounded by conifers, manzanita brush and grey boulders. As I climbed out behind Colonel Chip, I saw the buses up ahead disgorging their cargoes of disturbed humanity. Beyond the buses, in the side of the mountain, were two huge steel doors opened wide.

I followed the colonel, major and captain through the debarkation area. My technicians were herding their charges across the lot and into the open doorway. But they themselves weren't allowed to enter. MPs turned them back at the entrance and they stood aside in little worried, whispering groups.

Many looked appealingly in my direction. I tried to appear calm, nonchalant even, to give their sagging morale something to lean on. But the scene before me reminded me of the Pied Piper. Would my idiots, imbeciles and three grades of morons ever come out again? Surreptitiously I crossed a pair of fingers.

On the outside of the mountain, not far from the open doorway, cement steps climbed to some vantage point above. General LeBut had taken up a position a few steps up these stairs. Methodically chewing his gum, he watched the screaming, arm-waving, tortile mass below. We joined him there, on steps nearer the base, of course, and watched the proceedings.

It was then that I saw, conspicuous in the confusion at the entrance to the mountain, a slim young lieutenant. He moved busily and purposefully about. He gave orders, returned salutes, pointed, gestured and sometimes let his voice rise.

The separation of technicians from retarded seemed close to a finish. The commotion at the open doors had begun to slacken a little. Then I heard yells and screams coming from inside the mountain.

Cold fingers seemed to explore my spine methodically. "My God! Somebody's flipped," I thought. "Somebody's gone berserk." I held my breath.

Out against the current of retarded humanity came two husky MPs dragging Mrs. Pollsen. Straight to the stairway they came and she was fighting every step. A veritable tigress she was at that moment.

The corporal in charge saluted Colonel Chip. "Sir, we thought she was one of the feebs."

The good woman let out a roar of anger and indignation. It seemed to rend the mountainside with its fury. Then she saw me.

"Doctor Coots," she screamed. "You can't let 'em do it. They're turning our looneys loose in a room full of buttons."

I wanted more than anything else to reassure her. But what could I do? What could I say?

From above came the General's hollow voice: "She's seen too much."

The two MPs dragged Mrs. Pollsen away, still kicking and screaming. It was up to me to protect my own. But I was helpless. I tried not to pay any attention. I tried to maintain the dignified mien of an administrator. Besides, perhaps this was a way to beat tenure. I reminded myself that she was guilty of slugging inmates.

The last gibberinug, gesticulating character disappeared in the mountain and the little lieutenant bustled up, saluting the captain.

"Lieutenant Smiling reporting, Sir, condition yellow is completed."

The captain passed the word to the major, the major to the Colonel and Colonel Chip to General LeBut. The General chomped his gum twice while he made his decision, then he said: "Get on with it."

Colonel Chip turned to the major. "Condition red," he said.

When the little lieutenant got the word he saluted and raced to the opening in the mountain.

General LeBut started up the stairway. The colonel, major and captain followed. I went up three treads after them, then heard whisperings and mutterings above me. I stopped, cringing, expecting to hear that hollow voice say, " He's seen too much."

Instead the General said, " Let 'im come."

We climbed to a platform on the rim of a giant crater. On the side we'd come up, I could look down on the car park. The rows of olive green buses and staff cars were lined up like a platoon for inspection. The huge doors in the side of the mountain were closed tight.

Looking the other way, into the crater, I saw a plain several miles across. It was man-made. There was no doubting that. Scars were still obvious on the sides of the crater where the rock and earth had been hewn away and hauled out to make the vast flat area.

At this vantage point, upon this little platform, the General stood, with chin out-thrust, you fancy how, chewing gum. His officers stood apart. I drew near Colonel Chip. After all, I felt I was acquainted with him at least slightly.

We were all now on the side overlooking the plain. At first the wide space showed complete calm. Then spike-nosed objects began to sprout like strange plants. Moments must have passed before I realized that these were missiles I was seeing.

Some appeared, rose into position on launching chute or pad, and with a puff of smoke toppled over on the ground. Others took their places. Some started into position, got halfway out of the ground and receded.

A huge pointed cylinder appeared and I heard the captain say, " Gargantua at last, 's 'bout time."

The major shushed him.

But Colonel Chip said, " That's Pantagruel."

By now the entire plain bristled with projectiles. A low cloud of smoke, accumulating from the repeated puffs, began to cover the flat.

Colonel Chip said, " Good show, what? "

" But none of them leave the ground," I said.

" Good God, no. This is just a test run." From behind his hand he whispered, " This is happening at every one of our missile launching bases all over the world. Amazing, isn't it? "

I agreed. " But what about those that start, then go back?" I asked.

He shrugged. " Who knows? "

I looked past him at the General calmly chewing his gum. What sort of speculation did this sight provoke in his great mind, I wondered.

Not much conversation took place amongst us. We watched the missile dance for a couple of hours and the smoke of simulated starts thickened. At last the bristling plain grew calm again.

I looked the other way and my attention was caught by the little lieutenant as he came bounding up the stairway. He looked pale. But he snapped a salute to the captain.

" Sir, condition red is completed."

When this report reached the General, he said, " Let God have it."

" God, sir? " said Colonel Chip.

" Give the dope to the computer, you fool," the General said. " Let's find out how we did."

" Condition blue," said the Colonel.

When this order, passing along the chain of command, reached the little lieutenant, he hurtled down the stairway toward the opening doors in the mountain. As he reached them he was met by the stormy return of my charges. He plowed through them and disappeared.

The mountain debauched its horde of disturbed humanity. My technicians would certainly have their work cut out for them to get their groups loaded, I told myself. If Mrs. Pollsen were only here that would be a great help. But I refused to think of Mrs. Pollsen. The hubbub in the car park grew.

It was then that I realized the difference. The commotion wasn't that of twenty-two hundred and fourteen ambulatory idiots, imbeciles and three grades of morons. No. It was the sound of twenty-two hundred and fourteen men, women and children returning from an outing. Had two hours in a room full of buttons done all that to my charges? What would this do to my position?

I glanced quickly across at the General. He was staring out over the now quiet plain. His lips were moving. I thought

he was chewing gum as usual. Then I realized that he was speaking.

" I read a book once," he said. " It said that a room full of monkeys in a room full of typewriters would write a book if they were kept there long enough."

He chewed gum rapidly. His officers were absolutely quiet. Their General was thinking out loud.

" This was the problem as I saw it," he went on. " Suppose all our top eschelons and control centres were knocked out by a sneak attack. Who would then direct our massive retaliation? Our-way-of-life would be destroyed.

" There was one simple answer. Put all the feebs we could round up into a single impregnable control centre and let 'em push buttons."

He paused. He chewed his gum. We waited. It was apparent that he hadn't finished his thinking.

" But suppose it don't work," he said. " Suppose them feebs don't push the right buttons. That'll be it. We'll have bought it then. It will be the end of Our-way-of-life."

Out of the confusion below shot the little lieutenant. He never stopped for breath until he reached the platform where he stood. Pale, haggard, trembling, he passed over the captain, the major and Colonel Chip. With great effort he controlled his heaving chest and drew himself up before General LeBut.

" Well," he cried, " General, by god's grace, we've got you victory." He held forth a sheaf of papers—one page of copy done in octuplicate.

The General's eyes flashed. This day was his then. He'd won. He smiled upon the rigid little lieutenant.

" You're tired, kid," said General LeBut.

" No." The little lieutenant held himself stiffer still. " I'm exhausted, sir." And he fainted dead away. (This was only a test run, remember.)

The General glanced at the papers he had been handed. Then, for the first time, he spoke to me directly.

" With the help of your feebs, Doc, we've clobbered the enemy. Old STRANSECOM gives us plenty to spare. Your looneys are our last line of defence, Doc."

I realized the significance of all I had seen. Willegar Home For Mentally Retarded was in the Front Lines, so

to speak. Then the big question came. "But suppose an enemy missile had struck the Home?"

That shook the General. He chomped his gum three times. "Pray God that never happens," he said.

The noise below had quieted. The buses were loaded, doors slammed and locked, Sam Merwin, one of my trusted technicians, was allowed to come up the stairway.

"Doctor Coots," he said. "They loaded like lambs. I don't know what's come over 'em. I expected all hell to break loose when they came out."

I felt sick. Push-button therapy—the world must never learn of it. "It won't last," I told him.

"We're ready to leave, Doc. But Mrs. Pollsen ain't showed up."

"We'll leave without her," I said.

We descended the stairway. Our job was done. Back at the Home my charges would never know they had changed. All jobs were still secure. But I kept thinking: "I regret that I have but one Mrs. Pollsen to give for my country."

Paul Corey

Herewith a brief inter-connecting story in Joseph Green's series about the colony world of Refuge, wherein we encounter the sentient breshwahr tree again (see "Life-Force" in No. 124)

TRANSMITTER PROBLEM

by JOSEPH GREEN

Varinov English was a patient man—it was a prerequisite for the office of Security Section Head on a frontier planet—but his endurance was growing thin. "Now look, Doreen," he said firmly. "I've argued with you as much as I care to. The answer is no and will remain no. Furthermore, I want you to stay out of here and not bother poor old Hamrick again. Keeping this pile of junk in operation is enough of a chore for the old fellow without having you pestering him."

The red-headed, freckle-faced young woman, whose slim and softly curving body still bore traces of a skinny adolescence, was just as determined as English. "Varie, if Phazz says it can be done, it can be done. Now who are you to stand in the way of the greatest discovery since the invention of this monster we're arguing about?"

Instead of answering her, English turned and beckoned to a pair of technicians. In response to his gesture they seized the handles of the dirt-filled tub containing the squat, bushy-topped tree she had called Phazz. Grunting under the weight, they carried it outside the steel door of the transmitter building. Doreen, her hands on her slim hips, watched them with a face growing as red as her freckles. Old Hamrick, his white head bent over the control console in the small booth in the corner, watched her out of the corner of his eye as the boxes and bales

on the transmitter platform in front of him blurred and were gone. What she had asked was impossible, especially for him. For she had, literally, asked to be killed.

" Varie English, I—I hope you choke !" Doreen said furiously. Her rust-red hair, falling in a bright cloud to her thin broad shoulders, swirled angrily as she tossed her head in defiance of the Security Head's arbitrary action. But when English stepped closer to her and gestured toward the door with a courtly bow, she went without further argument.

The tractor and trailer were just outside the door, but loading Phazz was beyond her physical strength. The bushy *breshwahr* tree, anchored firmly in his tub of borax-enriched dirt, weighed almost two-hundred pounds.

She looked down the unpaved road, hunting for Carey and Timmy, but they were nowhere in sight. The small town of Refuge consisted of a cluster of wooden buildings huddling around the grey steel giant that was the matter transmitter, and the road system started with a large circular dirt tract around the transmitter, the heart of Refuge and all other extraterrestrial frontier towns. Four dirt roads led from the circle in the four directions, and the bulk of the people lived on the huge farms that surrounded Refuge for a distance of thirty miles or more. Only Central Government employees lived in town, and only " C.G." was in the business of buying farm products and transmitting them to Earth.

Doreen walked around the circle far enough to look down the next street and saw her brother and Timmy walking toward her. Timmy, a bit more sensitive to her moods than Carey, felt her anger, although she was not deliberately projecting, and glanced up. A slow smile spread across his hairy face, and into her mind, with gentle insistence, slid emotions of *peace-contentment-soothingeaserest*—she angrily cut him off, and felt the young Loafer's gentle laughter as he withdrew. Then they had reached her in body as well as mind, and Carey's tanned face was breaking into a wide smile.

" You should have known, sis. We've got to come up with some sort of proof before you can expect Hamrick and English to believe you. After all, look at the number of people who tried it and lost their lives before Earth Central made the act of transmitting living creatures illegal."

" Please don't lecture to me, Carey," Doreen said stiffly, as she turned and walked with them toward the tractor and trailer.

She was a tall girl, but looked small beside her brother, whose deep chest and heavy shoulders indicated great strength. Carey Sheldon would soon be twenty, and on the planet of Refuge both sexes became adults at eighteen. Doreen had over an Eryear to wait. " I know the facts as well as you. Your trouble is that you aren't really sure I can do it, either, and you don't honestly want me to try it."

Carey, who had the reputation of being the most good-natured and easy-going man on the planet of Refuge, shrugged his broad shoulders. " You say you can, Phazz says you can. Who am I to argue ? I'd just rather it was someone besides my only younger sister who made that first trip."

Doreen's face softened. " I'm the only one who *can*, Carey. Oh, anyone could learn, of course. Phazz could teach Timmy in an hour, if he was interested. And even someone as thick-headed as you *could* learn it. That's the point. I'm not gambling my life just for fun. This could benefit all humanity."

" Gee, sister, thanks for the compliment," said Carey drily. He and Timmy picked up Phazz's bucket and set him in the rear of the trailer, handling the load with ease. Timmy, a member of the only humanoid native race, contemptuously called " Loafers " by the industrious Earthmen because they lived by controlling nature rather than working, was as tall as Carey, though more slenderly built. The only obvious difference between the young Loafer and young Earthman was the rich coat of brown hair that covered Timmy from head to toe. Except when in the Earthman's town, or during cold weather, this hair was the Loafers' only clothing.

Carey mounted the bucket seat of the tractor and Timmy and Doreen climbed into the trailer and seated themselves on a wooden board inserted in its slat-sides. Carey eased the throttle down and the atomic tractor hissed gently and moved forward, in two minutes passing out of the tiny town and into the ochre-green countryside. Both the Planet and the town of Refuge had land in plenty, and the half-square-mile farms allotted to each colonist had been spaced to leave plenty of virgin forest areas between cultivated fields. There would be no erosion problems on Refuge.

Maud Sheldon, her husband and three children had been one of the initial first families to colonize Refuge, and the Sheldon farm was only a short distance from the little town. Carey had

been the first human of Earth stock born on Refuge, and Doreen, following three years later, could count herself among the first hundred. The Sheldon place, which their father had built shortly before he was trampled to death by one of the huge ugly-tempered herbivores called *grogrocs*, was one of the better old houses of Refuge. The strong hand of Maud Sheldon had seen to it that it was kept up, and the three-hundred and twenty acres of rich land that was the Sheldon farm had produced regularly for the past nineteen years.

" Are you going to take Phazz back to the Upper Sweetwater today ?" Carey asked, as they rolled inside the big yard.

" Not unless he insists on going," said Doreen, reaching out and caressing the rough bark of the short tree. There was a brief, silent exchange between the slim girl and the squat plant, and then she said, " He can do nicely in the tub for another week, and will be happy to stay with us if we like."

She gave the cool bark a final pat and went into the house, while Carey and Timmy placed Phazz in a spot where he could absorb the sunshine of purple Antares for the rest of the day. Then Timmy said goodbye and left for the Loafer community on the coast, two miles away, and Carey went inside the barn to talk with Uncle Harvey a moment before leaving for the fields.

The time was early spring and last year's cover crops were being plowed under, to form part of the food of the new generation of peanuts which they would shortly be planting. Refuge's main export crop was meat, and the main meat was a large local bird all the farmers raised in great quantities, called fatbirds. They dressed out between seventy and eighty pounds of meat, and required only supplementary summer feeding, and heavy feeding during the winter, to attain their full growth in under two years. They would have long ago over-run the planet and overpopulated themselves into extinction, except for their inborn gluttony. During the warm season when food was plentiful they ate until they grew to heavy to fly, and fell prey to the small carnivores who roamed Refuge in large numbers. The colonists upset this balance by protecting the birds and feeding them, primarily peanuts, then restored it by slaughtering them on the same principle nature had selected. When they became too heavy to fly they were butchered and transmitted to Earth.

Maud had the noon meal underway and Doreen helped her mother cook and clean for the rest of the morning, working out her resentment on the pans and brooms. She and Carey had first encountered the intelligent *Breshwahr* trees one Refuge year back, when C. G. had sent Carey to the Upper Sweetwater Valley to mediate a dispute between some new colonists and the local Loafers. The natives had been intent on protecting the trees from the farmer's plows, and after learning of the semi-intelligence possessed by the bushy plants Carey had acceded to the Loafer's demands and seen to it all land on which the trees grew was returned to them.

In addition, the Earthpeople had discovered the trees' intelligence could be greatly heightened by the addition of Boron to the soil, and had supplied the Loafers with sufficient Borax to feed every tree in the valley. The result, a Refuge year later, was Phazz. He had been a tiny sprout when he received his first Borax, and it had stimulated both his physical and mental growth.

Doreen had made the care of the *Breshwahr* her special task, and soon won the admiration and respect of the Sweetwater Valley Loafers. When she passed the Loafer's initiation rites and became a Controller in Timmy's tribe her acceptance was complete, and they had given her a virtually free hand. As a controller she found it a great deal easier to understand the *Breshwahr*, and had chosen the healthy young plant that was Phazz as a test-case pupil, to see how high their intelligence could be raised. Constant practice had made the art of communicating with a plant's mind, at first so difficult only emotions and sensations could be exchanged, a matter of relative ease for Doreen, and she and Phazz understood each other perfectly. The young tree had the approximate intelligence of an eight-years-old human child at present. It was anyone's guess what he would be at maturity, still fifty Refuge years away. Doreen intended to be there to see.

The Sheldon family had just finished the light noon meal when they heard the purr of a tractor in the front yard. Carey walked to the front in time to open the door to the first knock of their visitor. It was Sam Harper, a colonist who had arrived the past year and started working in the upper Sweetwater Valley. It had been he and two other farmers in the Sweetwater who had discovered Phazz and his brethren, and he and Carey had become good friends when the discovery brought the two men together.

Sam was carrying a tabloid, of the type transmitted daily by Earth to all her far-flung children, and his face was grave. "Bad news, Carey. A rebellion has broken out on the European mainland. It's not an organized revolt against Earth Central, something the Security Section could put down, but a complete breakdown of governmental authority at all levels. The best description of it is anarchy, and it's already spread from its starting point in the Paris Sector to the British Isles."

Carey took the proferred paper and scanned it quickly. He had never been on Earth, but the history of the home planet was a required course in Refuge schools. The account was brief but pungent, and substantially as Sam had stated it. There was one brief additional comment. The world's leading psychologists had been called in on the problem, and had issued a statement within twenty-four hours. They blamed the breakdown of authority on a mass psychosis which had been building up for years, and of which they had repeatedly warned authorities.

Earth's eighty billion people, crowded together in great skyscrapers, covering every non-radioactive inch of land with their polluting and proliferating bodies, had at last reached the breaking point. Earth had contacted a mass case of claustrophobia, and it was spreading swiftly across the scared face of the old globe. The people were revolting primarily against themselves, and what they wanted was room. The faceless man on the street demanded a face, and the slugs sitting dazedly in front of the tri-di had at last pressed the button that turned off the magic tranquilizer.

Like a great slow-worm, one with a body composed of millions of individual cells, the people had turned on their leaders and demanded that which was impossible to give, a better life for themselves. And in demanding they had loosed the self-imposed restraints of government and control, and like the cancer it resembled the psychosis was infecting the body of mankind.

Carey pointed out the psychologists' statement to Harper, who nodded in understanding. "I know just how they feel, though I'm surprised to find there are people left with the guts to do something about it. The frustrations start building up the day you're born, and they stop the day you die and your body goes into the sea, to help feed the next generation. They have to work a forty-eight hour week because there are almost no recreational facilities, and everyone knows that all the jobs,

except a few million, are make-work nonsense designed to pass the time as painlessly as possible. Yet the majority of people are so apathetic they have to be drafted before they will move to a colony."

" I knew conditions were bad, that Earth Central was putting every available resource into starships and sending out all the people they could possible cram into them. I also know they can't make but the smallest dent in that terrible population." Carey was silent for a moment, and then asked, " Do you know the answer, Sam ?"

" Sure," said Harper promptly. " Everyone knows the answer, has known it for years. Perfect the matter transmitter. Make it possible to transmit living creatures without killing them."

" We could take a million people a year here, for the next thousand years," said Carey in a slow, thoughtful voice. " We get a few thousand. The same thing can be said for a hundred other worlds." He turned away from Harper and called " Doreen !"

There was an urgency in his voice that brought her on the run. When her anxious face appeared he said, " I've just called Timmy. We're going back to town. You'll get your chance with the transmitter."

Doreen nodded in mute understanding, and did not say a word. When placid, gentle Carey made up his mind nothing between heaven and hell could change it. It had been that way when he first decided, despite the objections of Maud and his brothers, to take Controller's lessons with Timmy, and had mastered the art of controlling animals by mental commands. He had stubbornly persevered, until all land on which an intelligent tree grew had been reassigned to the Loafers.

The particular tribe that tended the *Breshwahr* lived with them in a symbiotic relationship that was unique throughout the known universe. In return for the care and protection they received the trees taught the hairy humanoids secrets of horticulture known to no other people, and the Sweetwater Valley Loafers, though lacking tools of any kind, were the best farmers on Refuge. In payment for the Borax, which had to be transmitted from Earth, the Loafers passed some of this information on to their new neighbours. Sam Harper was incorporating all their suggestions into his farmwork, while his neighbours

served as test comparisons by continuing to farm in the old way. Acre for acre Harper was out-producing them by fifty per cent.

Carey hooked up the trailer and drove the tractor around to the front of the house while Doreen explained the situation to Harper, telling how she had been working for the past year on the idea of transmitting living creatures. The one exception to the transmitter's killing power was plants and cells. Seeds could be transmitted and planted and grown with no ill effects. Living cells, such as fertilized eggs, could be sent with impunity. Whole plants could be placed in a tub, like Phazz, and transmitted without harm. In fact, Phazz had been to Earth and back, and the young *breshwahr* differed from all predecessors in one vital way. He was alive in a way no plant had ever been, aware with more than a plant's awareness, and could perceive and record.

Doreen had sent him to a pen-pal on Earth, and the pal had sent him back, and the result had been as she had hoped. Phazz had detected what he thought to be the power that tore apart the delicate matrix of forces that was animal life, and had told Doreen what she must do to prevent it happening to her.

" It's a matter of withdrawing, Sam, of pulling yourself in and in until there's not much of you outside for the shock to hit. The machine transmits every last atom of you, without fail or change, but somewhere in the taking apart and putting together again there's a jar that kills, as surely as a big club. The first transmission hurt Phazz a little because he didn't know what to look for, but the trip back was a breeze. He says I can do it, or any creature with intelligence. You don't even have to be a Controller, though it helps. And if it works, just think—the whole galaxy is ours, and things like this anarchist rebellion need never happen again !"

" You've convinced me," said Sam, grinning. Then his face grew serious and he added, " But how can you be *certain* it won't kill you, as surely as it did the dozens who tried it before the practice was outlawed. There's a vast difference between a plant's metabolism and an animal's, and who really knows what a *breshwahr's* mental capabilities are ?"

" I do, if anyone does. That's the very point, Sam. I'm a human, not an animal. I can control myself, withdraw my perceptions in a manner no unintelligent animal can possibly duplicate."

" Doreen, do you know that some of the fanatics who died in transmitter trips during the early stages of galactic transmission made the same claim? Quite a few said that their mental powers would save them, that the mind controlled the body, and so forth. Not one made the trip alive."

" None of them had my training, Sam."

There was no time for further argument. Timmy appeared, and he and Carey loaded Phazz into the trailer. " Do you want me along, Carey?" asked Harper. " I can lend a good right arm if the going gets tough."

" Thanks, Sam, but no. We'll try to do this without hurting anyone, at least physically."

The big farmer watched them as they piled into the trailer and headed down the dusty road, then went inside to sit and wait with Maud until they knew the results.

Carey had brought along a tarp, and though Phazz protested mildly at having the sun cut off his leaves Carey spread it across the top of the trailer. Doreen had created quite an interest in Phazz with her three trips to the transmitter, and the whole town of Refuge knew of her claim that she could transmit herself unharmed. There was no point in advertising that they were about to try again.

Refuge transmitted in the morning and received in the evening, and there was no one waiting in the transmitting line when they drove up. Carey and Timmy hurriedly pulled Phazz from under the cover and carried him inside, Doreen behind them. The day's run was almost over, the three technicians moving the final articles off the transmitter platform and into the stores area. Old Hamrick sat in his control booth, recording the events of the day's work. He was the oldest man on Refuge, one of the original colonists who settled the planet twenty Eryears back, a man who had been caught in the first Call when he had had only a year to go before he would have been past Calling age. His wife had chosen not to come with him, as did most mates of Called ones, and he had not married again, remaining one of Refuge's few bachelors.

He looked up from his work, saw the three young people approaching, and sighed in vexation. That Doreen was about the stubbornest female he had ever known, even worse than her mother. Maud Sheldon remained the only woman on Refuge who had heard Claude Hamrick propose marriage, and

when she had gently but firmly refused him, preferring to live with the memories of her husband, he had retreated again into withdrawal from women. But he had not lost his admiration for the fine woman who was Maud Sheldon, and reserved a soft spot in his heart for her youngest, who was so much like her.

Varinov English was nowhere about, and Carey sighed with relief. He and the Security section chief were good friends, and he had no wish to tangle with him until after the transmission, unless he must.

The three technicians—all former farmers who had failed to make a go of it and been forced to take government jobs—were snickering openly as they wheeled the last load out of the room. As the door closed behind them Hamrick got to his feet, sighing tiredly, and opened the door to the control booth. He stepped out to face Carey, and there was something in the younger man's face that gave him pause.

" Ham, I want you to send Doreen and the tree to Earth, as she has requested. I ask that you do this voluntarily. If you will not, I shall compel you to do so."

Hamrick drew up his spare old shoulders in righteous indignation, then let them slump again. Carey Sheldon couldn't compel him to do anything, but the youngster was so obviously sincere he would give him the benefit of having good intentions, at least. A lot of lives had been lost by people who were certain they had found the answer, and he would reason with Carey rather than throw him out.

He slowly shook his head, and opened his mouth to explain why it was impossible, not only from the legal point of view but from the humane. Some of the best brains on Earth had been working for years on the problem of live transmission, and as yet the best they had done was send through a chick still in its egg. He started to speak, and was frozen to the floor, gripped by a force he neither felt nor understood, while foreign fingers went riffling through his brain and an icy numbness sneaked down his spine. He battled frenziedly with the outside control that was seeking to take over his motor nerve impulses, lost, felt himself being turned around, and was walking with slow, faltering steps toward the control cubicle. The icy fingers were picking at his brain, extracting the knowledge needed to run the complex transmitter machinery, and his muscles were obeying the foreign impulses rather than his own frantic commands.

He learned fast, and by the time he reached the door he had begun to fight effectively. With a great effort, one he knew he could not sustain, he regained enough control to turn and his mouth worked soundlessly as he tried to speak. And then the fingers were gone and he was standing alone, trembling, an old man who had encountered something above and beyond his experience, and with which he did not know how to cope.

Carey's expression was stern, unrelenting, his eyes fixed immovably on Hamrick's wrinkled face. The old man passed a shaking hand across his brow, and got the words out. "Don't make me do it, Carey. Don't make me. I love her like my own daughter. *I couldn't bear to kill her* !"

" She thinks she can do it, and neither you nor I know enough about it to doubt her. And you love her no more than I do, old friend."

" No !" he said in a defiant whisper, and then the fingers came back, more numerous this time, and he felt the presence of Doreen, and realized it had been Carey and Timmy before. His body moved woodenly through the door, sat down at the control console, and then he grew afraid of the fumbling, loose way his hands behaved, and knew he would kill Doreen. They felt his acquiescence, and the cold fingers withdrew.

Carey and Timmy swiftly set the tub containing Phazz on the transmission platform, and with hands that still trembled Hamrick activated the power supply. As the great machine began to warm up again he pressed the button that indicated to Earth he was preparing to transmit, and after a somewhat longer than usual pause the ' ready ' light flashed on his board. The Earth operator was jarred by the departure from the usual routine. He would be more than jarred when a dead young girl came into view on the platform. He closed his eyes and tried not to think about it, and then opened them to see Doreen lying on the platform by the tree, her eyes closed, apparently asleep. Her breathing was shallow and slow, her face empty of expression. Carey motioned for him to send, and he cursed himself for the most unlucky man who ever lived and flipped the switch.

Doreen and the tree blurred and were gone, and he lowered his head to his hands and sobbed with the bitter frustration of the old.

Something he could not identify slipped gently and softly into his mind, a sense of peace and calmness, of healing and redemption. He felt in it the touch of Carey. It soothed and healed him, and he grew calm despite himself, found the strength to sit erect and wipe his eyes, and started studying the board. It stared back at him with a blank face, only the ready lights and the standard indicators showing its life. He reached up to adjust a rheostat, brought the supply voltage back to the fine point where reception was best, and after a moment, slowly, he flipped the switches that transformed the machine from a transmitter to a receiver.

He sat there with a numb ache where his heart should have been, knowing that she was dead.

Carey and Timmy had walked into the control booth and stood just behind him. He glanced up at their young faces, saw Carey's calm and unmoved, saw Timmy's its usual pensive self behind its protection of hair, and had the awesome and unexplicable feeling that he was sitting in the presence of two young gods.

The yellow warning light flickered. Earth wanted to transmit.

With hands that were shaking again he made a few minor adjustments, and in a moment there was the familiar blurring in the air above the platform and Doreen and the tree appeared. The girl lay motionless, but before he could more than wonder why the other operator had sent back a dead body, the red eyelashes moved upwards, the young bosom moved in a shallow breath, and then she scrambled erect, smiling, and came walking across the platform toward him, and about her there was something of the carriage of a goddess.

Then she was in the booth, was hugging him excitedly and apologizing for what they had forced him to do, and she was only little Doreen Sheldon again, and his old mind was playing tricks on him and it was time he went home and to bed.

On the trip home Doreen recounted how easy the trip had been, how simple it was to lock away the force of life deep inside oneself, beyond injury, and how shocked and horrified the operator at the other end had been when she appeared on the platform. When he fully understood what she had done he had not wanted to send her back, but she had compelled him to operate the machine and return her to Refuge.

" Do you agree with Phazz that even non-Controllers can learn to transmit ?" Carey asked, when her jubilation had quieted a little.

" Easily. There's nothing to it, once you understand how to push yourself down inside. All it takes is a little concentration. They'll never be able to send animals, I'm afraid, but any being with sufficient intelligence to concentrate can transmit."

" I'll notify C.G., in the morning," said Carey, taking a deep breath. " The news should stop the riots on Earth the moment it's announced the problem's been solved and people can leave Earth by the millions instead of thousands. And now we've got another problem. How do the sixty-thousand people on Refuge handle the million people from Earth who'll be joining us within the next year ?"

Doreen only smiled, and stared at giant Antares, setting purple in the distance. There would be a way.

Joseph Green.

Inevitably, someone had to invent a force-field, and inevitably, it had to be tried out as an invention that could be the salvation of Mankind. Pure energy, however, can play some peculiar tricks.

MOOD INDIGO

by RUSS MARKHAM

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one

Scanlon had been drinking again. He wasn't reeling drunk, but his breath was heavily enough charged with a well-known product made North of the border to make it plain that he hadn't been sampling lemonade. He was also late, and by the stubbly appearance of his jowl it hadn't felt a razor in the last twenty-four hours. Seeing the slight frown beginning to gather on Channing's face, the heavily-built electronics engineer hastened to speak first.

" It's all right, Don, I admit that I hung a few on last night and I've had two as an advance celebration this morning, but I'm as sober as a judge and ready for action."

Channing looked at his junior partner critically. " I doubt whether the Bar Association would go along with you on that assessment," was his dry comment. " And when all's said and done, it will be time enough to celebrate *after* we've sold the goods to the War Office boys. They'll be here in half an hour, so let's get weaving."

" Sure, Don, sure," agreed Harry Scanlon hastily, anxious to direct the conversation into the safer channels of work, although he still had a dull, throbbing headache from his

depredations of the night before—the hair of the dog hadn't worked with its usual efficacy that morning, or he just hadn't had enough.

Channing, however, was not easily diverted. Picking up a screwdriver by its clear, amber-coloured handle, he waggled it at Scanlon to emphasize his points. " What you do with your share of the profits is your business, Harry, but we're not in the big-time yet. Maybe we'll score today if all goes well and they like the gadget, but don't you think it would be wiser to take it easy until we're sure ? We might need all the money we can lay our hands on if we have to do more development work."

" All right, Don, I've got the message," said Scanlon. " Now you *did* say these characters were coming in the next thirty minutes, didn't you ?"

The senior partner looked at his wrist. " Only twenty-five now."

Fortunately Channing had arrived early at the big, old, corrugated steel garage which they had been using as an electronics research lab, and very little remained to be done. In spite of his addiction to the bottle, Harry Scanlon was a first-class worker when he settled down to it, and his fingers flew over the connections and test instruments as if they had a separate sentience of their own. The two men made a good team—Channing had the keen, incisive brain which could wend its way through the tortuous maze of theoretical reasoning, while Scanlon had the complementary ability to translate his partner's diagrams into a working reality.

Scanlon completed his work in fifteen minutes, and straightened up from the apparatus which had advanced sufficiently from his original, bread-board rig to look reasonably impressive " All set to go, Chief," he said, with an attempt at cheerfulness that he didn't feel ; his head was throbbing more abominably than ever, and he was anxious to see if a few swift pulls at the flask in his hip pocket would help.

" Nice work," approved Channing. " I can look after our visitors if you want to nip into the office and clean up. My shaver's there too," he added meaningly.

" I could do with a crop," agreed Scanlon, rubbing his jaw. " Are you sure you can manage O.K.?"

" Don't worry," confirmed Don, " you go ahead."

Scanlon put his tools back in the wall-rack, and strode off towards the tiny office and washroom at the rear of the big shed with an alacrity that vaguely puzzled Channing.

A few minutes later, the sound of a jeep drawing up outside announced the arrival of the Army party. They came into the building in a single file in strict order of rank, led by a short, springy-stepping major sporting a bristling moustache that was completely in character. Behind him, was a rather pale-faced lieutenant, obviously not long out of military college, and at the rear, his glittering boots and immaculately pressed uniform marking him out as a professional, strode a well-muscled private, the sleeves of his blouse generously arrowed with long-service chevrons.

They drew up in front of Channing like a small, military parade ; the major's shoes clicked smartly to a standstill, the lieutenant's shuffled to an uncertain halt, while the private's boots hammered out a one-two on the hard, concrete floor that should have jarred the top off his head, but surprisingly didn't.

" Good morning, gentlemen," said Channing, holding his hand out uncertainly to the major.

" 'Morning, Channing," responded the officer, shaking it briskly. " This is Lieutenant Sanders and Private Johnson. My name is Reeves."

Channing shook hands with the apologetic-looking Sanders and the stiff-standing Johnson who had a .22 target rifle slung from one shoulder.

" Now then, Channing, where's this device you'd like to demonstrate ?" questioned the Major abruptly.

" It's at the other end of the lab," replied Don, equally eager to get into action.

Three pairs of eyes automatically followed the direction of his finger to a point twenty yards away. A one-inch diameter, metal rod about four feet high, sprouted upwards from a circular base plate. On top of the rod was a framework enclosing a group of electronic components and a storage battery. Above these again, a smaller rod was topped with a cluster of dish antennae looking like a bunch of metallic blossoms.

" I think I'd better show it to you actually operating," continued Don. " The explanations of the theory involved can come afterwards if you're satisfied with the demonstration."

" Good, good," said the major unconsciously assuming command. " Carry on please."

Channing walked down the shed towards the demonstration apparatus, watched closely by the military goup. Reaching into the meccano-like framework, he actuated a two stage-timing mechanism which would switch on the device in thirty seconds and switch it off again after another ten minutes. Before rejoining the observers, he placed a small, wire cage containing three white mice on a little platform set to one side of the main components.

A tiny, but distinct click signified that the first operation of the time-switch had taken place. It was followed by a faint, low-pitched, humming which continued at the same level throughout the next ten minutes.

" What happens now ?" queried the Major after a few seconds.

" It'll take about five minutes yet for the field to build up," answered Don, " then we can go ahead. Is Private Johnson all set with his rifle ?"

" What's he going to shoot at ?" demanded Reeves.

" Those mice in the cage."

" Mice !" snorted the Major, as if it were a swear word. " Oh well, I suppose you know what you're doing."

Channing grinned faintly. " It won't be easy," he promised. " Just keep your eyes on the projector."

Shortly afterwards, the group saw a nebulous, globular shimmer develop around the apparatus at a yard or so's distance from it in all directions. It looked as if an invisible spider was spinning a ghostly, spherical web. In the next two minutes it grew more closely knit until the surface resembled a two-yard diameter bubble poised unmovingly in mid-air. The major was reminded of a phantom globe of the world on its stand. Everything inside the energy sphere looked larger than life, apparently magnified by some strange refractive action of the all-enclosing surface. The mice seemed almost as big as rats as they crawled over each other in their cage.

" Now you can try a few shots at the mice," said the electronics engineer.

The private looked faintly contemptuous.

" It'll be like shooting fish in a barrel at this distance," rumbled the Major, saying what his marksman was quite obviously thinking.

" Try it," offered Channing, his eyes gleaming with anticipation of the surprise they were going to get.

" All right, Johnson," ordered the Major, " fire at will—three rounds ought to do."

The soldier loaded the magazine with a clip of bullets, jerked the bolt and raised the weapon to his shoulder. His left eye closed and the rifle barrel veered slowly, following the selected target animal. His right fore-finger squeezed the trigger and the first shot crackled its way into the humming silence.

Three white bodies still moved around their cage unconcernedly.

Johnson bit his lip and fired twice more.

Still the animals remained unscathed.

Taking the rifle from the disappointed marksman, the Major fired five more rounds from the weapon himself, again with no results. After handing the gun back to Johnson, he turned to Channing and said bluntly : " What's the secret ? Are we missing the animals because of that magnification effect ?"

" If you had, what would have happened to your bullets ?" returned Channing equably.

" They would have hit the wall behind—probably gone right through."

" Did you hear any impact ? After all there *were* eight shots. The corrugated sheets ought to look like the top of a pepper-pot now."

Reeves stared hard at the far wall. There was no daylight showing through, and if the wall had been hard enough to stop the bullets, then they should have heard them being stopped. " What did happen ?" he said with a baffled air.

" Come with me a moment," answered Channing, walking in the direction of the enigmatic sphere.

Scattered on the circular disk of the baseplate were strips and shards of very, thin metallic foil.

The engineer knelt down, carefully keeping his head and body well clear of the sphere's bulging outline. He stretched out a hand and picked up some of the scraps. " These are the remnants of your bullets."

Reeves looked uncomprehendingly at them.

" This screen," said Channing, " is of pure energy, forming a closed surface. Any moving object can, for split micro-

seconds, penetrate into it an infinitesimal distance, then the surface reforms, cutting off a disk of the substance. The object's speed pushes more of itself forward, again puncturing the screen, and again it is sliced off. It's rather like pushing a carrot under a rapidly-chopping guillotine blade. So the bullets, after penetrating the screen at one point and being cut into foil disks then lost speed due to the air resistance inside, and fell downwards. Once more they pierced the energy layer at various angles and got thoroughly masticated in the process, ending up like this."

Inside the sphere, the time-switch clicked again, and very slowly, the strange surface became more tenuous and faded away.

The white mice gambolled away happily in their cage looking as normal as ever.

Major Reeves inspected the apparatus, closely accompanied by his lieutenant.

Sanders was keenly interested and put a shrewd question to Channing.

" How much energy does it take to produce a screen of the size we've just seen ?"

" About one watt-hour per square yard—say twelve watt-hours for a two-yard diameter bubble."

" Pretty economical," commented Reeves.

" It depends on the size of the screen," stated Channing. " Don't forget that the surface area of a sphere is proportional to the square of the radius."

When the major looked a little blank at this, the engineer amplified the information. " A sphere double the diameter of this one would require *four* times as much energy."

" You could still englobe a whole city in such a screen though, couldn't you ?" pressed Reeves.

" Given sufficient power, yes," replied Channing cautiously.

" So that your invention provides complete protection against ballistic missiles, bombs dropped from a plane, or shells fired from a gun ?"

" It will slice up anything, provided there is relative motion between the screen and the object," confirmed the engineer flatly.

" Are there any adverse effects on living creatures ?" remarked Sanders, coming to life once more.

" I haven't built a projector big enough to enclose humans yet," answered Channing. " I need money to develop the device but experimental animals come out O.K.," he held up the cage of mice as proof.

" You'll get your money," said the Major, " but as of now the entire project becomes top secret. Put everything under wraps. You two stay here to stop any unauthorised persons getting in," he ordered, turning to his companions, " while I arrange something more permanent."

" There's no need for that," protested Don.

" There's *every* need for it," contradicted the Major.

two

Channing leaned peaceably on the rail of the destroyer. Around the warship, the Pacific sparkled like a vast sapphire in the blaze of a tropical sun.

Following the successful demonstration of the pilot projector six months before, preparations for the full scale development of his invention had proceeded with lightning speed. The project had been officially christened ' Operation Bubble,' then he and Scanlon had been given full facilities and an unlimited budget for the designing of a scaled-up model which, in theory, would be capable of generating a screen five miles in diameter.

An island, remote from any others, in the southern half of the world's largest ocean had been selected for the testing of the device which promised to make all long-range weapons as obsolete as the arquebus.

The big bubble would need a lot of power, and a large, automatic generating set had been installed on the island together with the screen projector itself.

At first, the Government had been unwilling for Don and his partner to take part in the test personally. Later, after Channing had pointed out that even if something went wrong during the trials, they still had all his diagrams and development notes and could continue without him, they had graciously consented. The senior of the two electronic engineers had himself privately doubted the wisdom of taking Scanlon on the trip. But apart from one or two fairly mild binges, the man had worked well enough and seemed freer of his alcoholic obsession than for a long time past.

During the last month or so of preparatory work, a small team had been formed for the trip to the Pacific. Apart from Channing and Scanlon, there were three others on the boat : Phil Hanson, a dapper and friendly psychiatrist, who was going to keep a benevolent but observant eye on them all ; Myra Lombard, the highly competent and equally attractive female mathematician, who had been selected to correlate and evaluate all experimental figures obtained ; and Gertrude Mulloy, big, blonde and cheerful, and not nearly as clumsy as she looked when it came to handling laboratory animals.

Ahead of them all on the island, was a man they had not yet met—Dave Hewitt, an electrical engineer who had supervised the installation of the 20-megawatt generator, and who would remain to look after it during the trials. The other two people who comprised the advance party on the island were completely non-technical, but very essential all the same. Ned Fulton and his wife Annie, who were going to attend to the creature comforts of them all.

Myra Lombard, looking very attractive in a blouse and shorts, joined Don at the rail.

" Any sign of the promised land yet ?" she queried.

Channing shaded his eyes and peered at the horizon. " I think it's coming into view now," he said, pointing at a faint, green smudge. " That ought to be Taruha there."

Twenty minutes later, the destroyer dropped anchor about half a mile away from the reef-enclosed island, and the party followed their baggage down a gangplank and into the hovercraft which had come out from the island to meet them. It was piloted by Ned Fulton, who wore a crumpled, yachting cap on the back of his crew-cropped head.

" Any more for the *Skylark* ?" he offered jovially. " Take your seats now for a trip to this romantic South-Sea island at the back of beyond."

" Does that mean you don't like the place, Ned ?" asked Myra.

" It's a paradise," replied Ned more seriously, " but it's good to see some fresh faces." He revved up the engine and the hovercraft skittered slowly over the blue water towards an opening in the reef. Ragged, rock-hard teeth tore the sea into frothing eddies, and seemed to strain forward at the frail craft as it edged its cautious way between the jagged jaws into the

area of calmer water beyond. The hovercraft picked up speed then, and was soon tilting slightly and sliding over the golden, toasted sand of the short beach.

Outside the reef, the destroyer raised anchor and turned out to sea to join the other ships forming a cordon around the island ten miles away. They were there to turn away all who might attempt to intrude, accidentally or by design. Overhead, the first planes were taking to the air with orders to keep above twenty thousand feet until further notice and to head off any unexpected visitors. The island was well away from any regular routes, but in view of the screen's known potentialities, no risks of a tragedy could be taken.

Beyond the beach, the route of the hovercraft continued along a ribbon of smooth, white concrete roadway which gradually wound its way around a series of gentle curves to an artificial plateau formed by bulldozer work at the island's maximum elevation. The camp site was a little over one hundred feet above the point where the sea lapped ever hopefully at the ring of glowing sand. Within the concentric strip of beach, the island's lush green vegetation reigned supreme, its verdant, undulating surface broken here and there by a tree taller than the predominant shrubs, creepers, and grasses. Overall, Taruha was roughly lozenge-shaped and above three quarters of a mile by half a mile at its maximum end dimensions. Situated as it was, only slightly off centre of the island, the plateau site afforded a commanding view of the entire surrounding territory.

Ned Fulton steered his craft half-way along the road which terminated at the end of the buildings flanking it, and stopped. For a moment, the vehicle stood still, poised on its cushion of air, then, as he cut the motors, it sank to the concrete below with an exhausted sigh of reproach.

The five passengers gazed around with interest. They had all seen plans of the layout before commencing their journey, but the solid reality still held that extra modicum of fascination that no drawing could possess.

" Just in case you lose your way in this metropolis," Ned began, " I'll point out the main features.

" The building on your left, is the projector and generator control room ; the generator chamber itself being below the control room. On the roof of the building is the ' Christmas

tree,' which some of you may not have seen before even in model form."

Gertie and Phil Hansen nodded affirmatively, after all eyes had automatically followed Ned's finger up the ninety-foot mast supporting the twelve bowls of the antenna system.

" This side of the street is where we all live," went on their guide. " Mr. and Mrs. Fulton and the main dining room in the middle, with the ladies' quarters and lab one end, and the male staff rooms at the other."

Just then, the door of the control building opened and a short, broad-shouldered man came out. Beneath his dark, wavy hair, his deeply tanned face widened into a welcoming grin, displaying a set of very white teeth. Before offering his hand, he wiped it vigorously on a cotton rag.

" I've been getting the place bulled up for you," he apologised, " and cut it a bit too fine to wash before you got here."

Dave Hewitt was obviously pleased to see them all, and chatted amiably as he led the way to the neat, prefabricated residential block.

After an excellent meal, which made Channing seriously think of marriage if he could find someone as expert as Annie Fulton, the party was conducted on a grand tour by Hewitt. Gertie Mulloy only got as far as her lab, and stayed fussing over her animals while the others departed from the technical building. Hansen was the next absentee, when after one sweeping glance at the horseshoe-shaped, instrument-packed panel, he remembered some obscure errand elsewhere. The other three stayed with the electrical engineer, listening interestedly as he pointed out the main features of the large, subterranean room and the smaller, surface building.

Forty-eight hours later, Scanlon and Channing had completed the adjustments to their equipment, and been assured by Hewitt that the generator was ready to take load.

Channing made a little speech to the others that evening after dinner : " Thanks to some excellent work by Dave and Harry," he gestured at the two men concerned, " we are now ready to start the blowing up of our first, full-sized energy bubble.

" We've reported by radio to the security forces that we're ready to go, and propose starting to build up the charge at nine-thirty tonight. It'll take a number of hours to finish it, so

I propose taking the first five-hour shift myself—Harry, you can take over at three a.m., O.K.?"

Scanlon nodded. " Three ayem it is."

" I'll rejoin you at seven, we should be well into the last stage by then," Don continued. He turned to Myra, " I think maybe you should join us at seven, too—there'll be plenty of preliminary figures available for you and you can see the final tapering off, if all goes well."

" Right, I'll be there," promised Myra.

" There won't be anything much for you two to see until after breakfast I'm afraid," hazarded the electronics engineer, looking at Hansen and Gertie, which turned out to be the understatement of the century.

" You'll see us started, will you Dave ?" finished Channing.

"I will indeed," responded Hewitt, a trace of his Carmarthenshire accent coming through, " and, of course, I'll be there at seven also, to see that Jenny is still behaving herself."

At precisely half-past nine, Channing threw the switch which fed power into the projection equipment. The faint hum from the almost sound-proof basement deepened, and the vibrations permeating from it seemed to become imperceptibly more powerful. He and Hewitt scanned the banks of instruments, anxiously at first, and then with more confidence as every electronic indication proved to be as predicted.

The stocky power engineer yawned after half an hour's restless pacing in front of the instrument panel, suddenly at a loose end after months of concentrated work. He stroked his thin moustache thoughtfully, looking more Latin than ever.

" Why don't you hit the sack, Dave," suggested Channing, " there's nothing for you to do now."

" Are you sure you'll be all right, what if . . .?"

" I'll give you a shout if anything looks like going wrong," promised the designer of the energy screen.

" Fair enough ; see you at seven then," the Welsh accent was in evidence once more.

Don settled down in a comfortable chair with a cigarette and some coffee from a thermos when the door had swished shut behind Hewitt. The next hour saw him wishing he hadn't drunk the liquid quite so quickly, there was very little left and he still had several hours to go before Scanlon relieved him. Just as he had mentally considered and rejected slipping over to the

kitchen for some more, the door opened and Myra Lombard looked in.

" How's the night watchman," she queried.

" All alone with nothing to drink," he replied, swinging his legs down from the arm of the chair. " What's the matter, can't you sleep ?"

" Got it in one," she smiled. " Believe it or not, I'm too excited. It seems wrong to be snoozing when scientific history is being made—I want to tell my grandchildren all about this—I'll get you some more coffee ; back in a minute." Her head disappeared around the door.

Don wandered around the control board while Myra was gone ; all the needles were rock-steady and the several recording instruments were beginning to disgorge chart-paper covered with coded traces.

"What's the exact programme," questioned Myra, pouring out two cups of steaming beverage.

" Well," explained Don, " the buildup was calculated to take nine hours in theory—give it ten for luck. After that, we can throttle back the input to just enough to balance the energy leak. Exactly how much that will be we can only determine by experiment."

" Then what ?"

" We'll maintain the bubble for a week, compare notes, and give our findings to the War Office."

" Do you think we'll notice anything at all, here, inside the bubble ?"

" I doubt it. We certainly won't be able to see it in the daylight from two and a half miles away, and I don't think it'll glow enough at night either."

" What about other effects ?"

" That's what we've got to find out. I don't see personally why there should be any, but in seven or eight hours we'll know positively."

" Does the Navy or Air Force intend to try out any form of missile attack on the screen ?"

" Not this time," answered the engineer. " The first test is just for us inmates, after that they'll try a few shells, bombs and rockets against the fringes of the bubble remote from us."

" I see," said Myra, putting her empty cup back on the tray. " Thanks for taking time out to explain things to me."

" Thank *you* for the room service," responded Channing.
" Any time," said Myra.
" Likewise," said Don.

At three a.m., sharp, Scanlon took over from his partner, and Channing went to bed.

At six-twenty precisely, just before his alarm clock went off, Channing was awakened by a loud crash and opened his eyes blearily. The door to the dormitory was still quivering after rebounding from the inside wall. Swaying drunkenly in the doorway, and holding an empty whisky bottle by the neck, was Scanlon, his hair awry and a peculiar look in his eyes—the look of a man who *knew* that he had the D.T.'s and was beginning to be terrified by the knowledge.

" Wake up you slumbering slobs," he shouted raucously, pounding on the hardboard wall with his bottle, " come and see the new technicolour world !"

Coincident with Scanlon's words, Channing noticed that the daylight filtering through the translucent window blinds was of a distinctly greenish hue.

three

" What the hell are you doing here, Harry ?" snapped the senior electronics engineer. " You should be in the control room until you were properly relieved. And where did you get the booze ?"

Scanlon cackled humourlessly. " I've got quite a few of my little friends stashed away, see ?" He dropped the empty bottle on the floor—somehow it didn't shatter—and pulled out a hip flask. The big man raised the container and took a long swallow that half-drained it. He advanced towards Don's bed. " Here, you have a drink, then go outside an' tell us what you see." Scanlon's normally florid complexion was a peculiar orange-yellow tattooed with the dark spearpoints of his day-old beard, and he swayed even more as he walked.

Channing swung his legs out of bed and stood up. Impatiently, he brushed aside the heavier man's arm with its proffered whisky. The slight blow upset Scanlon's precariously maintained balance and he lurched sideways, falling full length on his own bed. For a moment he struggled to get up, then his befuddled senses faded right away and he passed out cold.

Phil Hansen and Dave Hewitt had been slower in wakening than Channing, and had only heard and seen part of what had occurred.

" What was all that about ?" the psychiatrist asked.

" Never mind for the moment, Phil," replied Channing, "just keep an eye on ' Alcoholics Anonymous,' will you ? "

" Dave, you and I had better check things in Control."

The two men only paused to slip on light dressing gowns and then headed for the partly open door.

Hewitt glanced up automatically as soon as he was outside. " My God !" he expostulated, dragging the unheeding Channing to a halt. " Look at that !"

Above them a cloudless, violet sky arced from one horizon to the other. The two-hour old sun shone brightly and clearly —*the centre was pale green blending into a surrounding band of yellow, which, in turn, gave way to further concentric areas of orange and finally red.*

After a one second glance at the fantastic looking primary, Channing switched his bemused eyes to the semi-tropical vegetation around them—*it was universally the deep, blue-violet of indigo.*

The sea was a strange sight too, matching the sky with the same unnatural, violet colour. Its surface seemed to swell uneasily and there were virtually no waves upon it.

" What the devil's happened ?" demanded the stocky Welshman.

" I don't know—yet," answered his companion single-mindedly, " but whatever it is, it'll keep for the time being. Let's check the control room first."

Hewitt reluctantly tore his fascinated gaze away from the weird panorama—for a few moments his attitude had been that of a rabbit confronted by a particularly hypnotic snake.

Inside the concrete building, everything was in order. Channing scanned the tell-tale instruments with a practised eye that missed nothing.

" The screen potential is high enough now to cut back on our charging rate," he commented.

" I'll reduce the excitation then," nodded Hewitt. He gave three consecutive jabs to a spring-loaded push-button at one end of the curving panel, then a relay obediently clicked and buzzed its way over several contacts. Pointers slid backwards across the graduated faces which studded the panel.

" That ought to just about balance the leakage," said the electronics expert after closely studying one particular dial through its bulging lens. " Although I must say I'm pleasantly surprised that the standing losses are so small."

Dave Hewitt returned to his original theme. " Now that you've got one baby sorted out, what about the colour change outside ? We'll have to tell the others something."

Channing turned around from the panel, and for the first time that morning really *saw* the Welshman's face. The deep brown tan of yesterday was now a muddy olive green.

" The changes are not all outside," he observed thoughtfully.

" So I see," retorted Hewitt, staring back equally hard. " Your face is yellowish you know."

" The devil it is," swore Channing. " Let's get back to the billet."

Scanlon was still stretched out on his bed and was snoring loudly. Every once in a while he twitched and brushed at his face with his hands.

Quietly, the two engineers described the appearance of the world outside to the listening psychiatrist.

" The whole thing must be caused by a distortive or absorbtion effect of the screen—I don't know which," finished Channing.

" It's certainly distorted your associate," remarked Hansen jerking his head in Scanlon's direction. " Has he always been liable to do this sort of thing ?"

" I'm afraid so," said Channing, " although he's behaved himself pretty well of late and kept on the wagon."

The psychiatrist tilted some of the vanes in the slatted window blinds and took his first glance through. " We'd better see if we can locate the rest of his liquor cache," he said. " I don't think that it would be advisable to let him have another skinful under these conditions. The poor devil probably took on a load during the night, came out after dawn to sober up in the fresh air, and thought he was seeing things. When he comes around we'll have to tell him that what he saw wasn't the D.T.'s."

Channing picked up Scanlon's big holdall and dumped it on a bed. Inside, were a layer of books, then several clean shirts and finally, a whole nest of bottles carefully separated from each other by folded underwear. " Six," enumerated the engineer disgustedly, " one a day for the rest of our stay—he

was all set for a real picnic." He gathered up an armful of the bottles of Scotch with their strange, pea-green contents and walked outside. One at a time, he flung them in six different directions into the indigo jungle. " If he can find that lot he'll have earned a drink," he observed with quiet satisfaction. " D'you think it's safe to leave him here for the time being, Phil ?"

Hansen went back into the dormitory and rolled back one of Scanlon's eyelids with a practised thumb. The bloodshot eyeball stared up blankly with gruesome immobility. The dapper man gave his verdict : " He'll be in dreamland for a good five hours."

" Right," nodded Channing. " Any time now the others will be getting up—we'd better warn them of the ' special effects ' which the screen's produced."

A few minutes later, and now fully dressed, the three men entered the main dining room sandwiched in the middle of the building. Its single window faced due South, and it was decidedly darker than the dormitory had been.

" I've just thought of something," said Hewitt quietly, stopping just inside the room. " If we dim the light down a bit more, the girls won't be able to see the sickly-looking faces we've got. That'll allow us to tell them what to expect before they actually see us plainly."

" Sounds logical," agreed Hansen. " Let's try the effect."

Channing closed the door and moved towards Hansen who, in turn, tilted the blind into the closed position. The intensity of the light in the room generally, dropped considerably as Hewitt had suggested. The stocky Welshman himself, was standing in the area of deepest gloom immediately behind the door.

" How's that Dave ? D'you think it's . . .?" Hansen's voice trailed away into silence. He peered intently at Hewitt for a moment, closed his eyes tightly, and then stared hard again.

" What's the matter, Phil ?" questioned Channing, who had his back towards the electrical engineer.

" Stay where you are, Dave," commanded the psychiatrist sharply. " Don, look at Dave there, and tell me what you see."

Channing stared at the discomforted man standing in the shadows. For a short time, he could see nothing noteworthy. And then abruptly, he could. *All around Hewitt was a dull-red,*

pulsating aura ; as he moved a limb, so the glowing nimbus moved with it like a tenuous garment of lambent flame.

The sound of footsteps on the board floor came from the Fultons' quarters.

" Put the light on, Dave," rapped Channing suddenly.

" I thought we were going to keep the room dark," objected the power engineer.

" That was the original idea, but what we can see around you in the darkness will give them all the creeps a lot quicker than if they can see us plainly—switch on please."

Hewitt was both impressed and baffled by Channing's words, but complied nevertheless. The switch clicked and a cluster of tungsten lamps came to life in the centre of the ceiling. Was it imagination, or did they seem brighter than usual ?

The aura around Hewitt immediately vanished, to the evident relief of Hanson and the electronics engineer.

" Now," said the short man, " just *what* did you see when you looked at me ?"

" Tell you later, Dave, I think Ned's coming out."

The caretaker entered the dining room, his face shining from the effects of soap and water. " All ready for breakfast I suppose ? Annie'll have it organised in a few minutes." He suddenly became aware of the lowered blinds and the artificial light blazing away. " What's the idea of this ? There'll be enough daylight here if we open up the blinds."

Hansen replied. " There's a reason for it, Ned. Will you ask your wife to bring the two girls in here straight away please ? And tell them not to lift any window blinds for the moment."

Fulton looked mystified. " Is it something to do with the bubble ?"

" Yes," nodded Channing, " we'll tell you all that we know when you get everyone in here."

Ned turned away to relay their wishes to his wife, then returned to join the silent trio. Under the artificial light, their variegated complexions didn't look quite as startling as they had in full daylight, but they still had the jaded look of the morning after the night before.

" You chaps look as if you've had a night on the tiles—have you ?"

"I wish it were as simple as that," said Channing unsmilingly, " but don't get the wrong impression. We may look a bit anaemic but we're perfectly healthy."

" We hope," added the psychiatrist cryptically.

When three pairs of puzzled eyes swung to stare at him, he went on : " We've become aware of an unprecedented change in things this morning, so far it doesn't seem to have affected our health, but it wouldn't be justifiable to assume any more than that just yet."

Before any argument could develop, Annie Fulton entered, closely followed by Gertie Mulloy and Myra Lombard. The two scientists had only taken time to put on dressing gowns over their night attire.

" You'd better have a good reason for dragging us out like this," said Myra, half threateningly and half in fun. Then, seeing the serious faces, a partly guessing the underlying cause, she added : " Is anything wrong with the screen ?" Her eyes flickered to Channing's and stayed there.

" Yes and no," he replied. " The screen itself tests out O.K. But there's a side effect that we hadn't expected—maybe we couldn't have foreseen it. Anyway, this is what's happened," he described the events to date succinctly.

" Is that *all* ?" commented the mathematician. " I'd thought you were really ill by your appearance."

" It's enough for us," countered Channing, secretly relieved by the calm way in which the news had been taken.

" I agree it's strange," went on Myra, " but it's also interesting. What d'you think is behind it all—have you any theory ?"

" Not yet. The main trouble is not a lack of data to analyse, but a surfeit of it. I'm overwhelmed."

" Well," she smiled, " Rome wasn't built in a day, suppose we have breakfast, then investigate. We've got several days, and after all, that's what we're here for—to see what it's like living inside the bubble."

Until Myra's words, none of the group had been conscious of hunger, then they discovered that whatever else might have been affected, their appetites at least were still healthy.

* * *

four

Gertie Mulloy was the first to finish breakfast and knocked over a chair in her haste to get up. Blushing a trifle with embarrassment, her cheeks changed from pale yellow to orange, a performance at which Don Channing stared with fascinated awe.

" I'm going to look at my animals," blurted the green-haired girl.

Myra nudged the engineer surreptitiously. " For God's sake stop staring at her like that, haven't you seen a chair knocked over before ?"

Channing roused himself from his contemplation. " Of course I have, but not by a green-haired girl who blushes from yellow to orange.

" Are you two ready to go over to Control ?" he continued, including Hewitt in his final remark. " We should be able to total up the overall energy input to the screen during the charging period and get some idea how the leakage is going."

" Ready and willing," nodded the chunky Welshman, wiping his mouth with a napkin.

" I'll go and have a look at our defaulter," said Hansen, "and if he's still quiet, I'll join Gertie with the animals. The control room holds no thrills for me."

Annie Fulton came in to clear away the dishes as they all rose, her formerly red hair now a bright, straw colour. She seemed quite pleased with the effect and glanced at herself in the mirror as she passed.

Myra spoke to the three men as they all left the room. " I seem to be the only female who hasn't had a free colour rinse—it seems that black is still black."

Her remark caused a slight disturbance on the surface of Channing's mind, but it was gone before he could make anything significant from it.

" Oh well," Hansen was saying, " it's a consolation to see that everything hasn't changed." He strolled away towards the male dormitory with a parting wave of his hand.

The sun had risen higher in the sky, and was beginning to change direction south ; its appearance, however, was as flamboyant as it had been two hours earlier.

All seemed serene in the control room and in the generator chamber below. Hewitt's meticulous, two hour inspection

confirmed that all was well with the big machine, now running lightly and supplying only a fraction of its full load capacity. When he climbed up the steel-runged ladder to join Myra and Channing, Ned Fulton was coming through the outside door with some mid-morning refreshments.

"Timed it perfectly as usual," remarked Hewitt, sitting down at a table covered with sheets of calculations.

Channing swept an area clear so that Ned could put his tray down in front of them.

" We've got the preliminary figures for the charge, Dave. It was only five minutes over the calculated time. How's that for theory ?"

" Pretty good—how's the leakage factor ?"

Channing's grin widened. " It's definitely far less than we had dared to hope for. Once blown up, the bubble will be pretty cheap to maintain that way."

The Welshman looked at the hand which he had just extended to take a cup from Myra. Its changed colour brought back the memory of the weird melange that was the outside world. " What about the colour business, have you thought that one out ?"

" We haven't had much time yet, have we, Myra ?"

The girl shook her dark head in confirmation.

" Another hour or so will see us finished here," went on Channing, " then we can devote some time to your pet worry. Have you formulated any theory to explain it ?"

Hewitt smoothed his moustache for a moment. " I'm afraid not, it's a bit of a baffler." He finished the last of his coffee and stood up. " I think I'll have a stroll around, I want to get some cigarettes anyway—maybe the fresh air will give me some inspiration."

Myra and Channing had half-finished their cigarettes in companiable silence when a cry of pain from outside brought them both to their feet with a rush. The engineer raced across the room and flung open the door. Diagonally opposite, and immediately outside the mens' dormitory, the inert form of Hewitt lay sprawled on the ground face downwards. Crouching over him and glaring around, a wicked-looking knife in his big fist, was the hulking form of Scanlon.

Channing sprinted across the intervening distance closely followed by Myra. He was vaguely aware that the other members of the group were also emerging from various doors.

Scanlon raised the knife threateningly as his partner halted only yards away. " What have you done with my whisky ?" he growled menacingly.

Channing eyed him calculatingly. " Give me the knife and I'll tell you where it is."

" I'll bet you will," sneered the big man, and lunged forward with the weapon.

Channing was two stones lighter but quite as tall as his partner. He stepped to one side of the bull-like rush, stuck out his leg stiffly and chopped at the back of the thick neck with the edge of a hard hand as Scanlon tripped over.

" I thought you'd had it then," gasped Myra, bending down to examine Hewitt.

" A little judo goes a long way," he answered dryly, looking appraisingly at Scanlon's inert form.

Hansen hurried up as the girl was about to turn Hewitt over. " Don't move him—let me look first." He checked the unconscious man's pulse swiftly, then slid one hand between Hewitt's chest and the ground. " A chest wound," he observed, " high up near the shoulder, nasty, but thank God it's missed the vital organs."

" All right, give me a hand will you, we'll get him inside."

Ned Fulton and Channing carried the wounded man into the dormitory and laid him gently on his bed.

Myra gazed with concern at the spreading stain drenching Hewitt's white shirt. It was a curiously pale colour for blood. " It looks a bad wound, can you do anything for him ?" Her question was directed at Hansen.

" Oh yes," he replied. " Every psychiatrist qualifies as a medical man before he becomes a head-shrinker. Hand me my bag, will you, Ned ?"

The doctor unbuttoned the engineer's blood-soaked shirt, exposing the gaping surface wound which sliced downwards from the middle of the left shoulder to the upper breast. Philip Hansen's hands had not lost their surgical skill, as the almost miraculous job he did on the slashed flesh testified. Aided by Gertie Mulloy, he stitched and dressed the wound, strapping the injured man's left arm comfortably across his lower chest.

While the doctor was working, Channing and Ned Fulton dragged Scanlon unceremoniously into the dormitory and dropped him on to his bed like a sack of coal.

Channing mopped his steaming brow. " We'll have to make sure that he doesn't roam around any more, Ned."

"Leave that to me," said Fulton confidently, " I've had some experience in the R.E.'s with knots and lashings. I'll make sure that he stays put." He departed for his own quarters, returning in a few minutes with a coil of sash cord. The job Fulton made of securing the burly engineer showed that he wasn't boasting. Each leg and arm was spreadeagled and tied to the four corners of the metal-framed bed. A loop of cord went around Scanlon's thick neck and was anchored to a cross-piece at the head of the bedstead. All ropes allowed a few inches of movement, but not enough to get at any of the knots. The big man was as helpless as a trussed chicken.

Both parties finished work at about the same time.

" How's Dave," asked Channing.

" All right for the moment, but I'd like him to be quiet for a few hours to give his system a chance to get over the shock of that wound. He's also lost a lot of blood ; I'm a bit worried about that. We'd better give both of them a shot of something —I wouldn't want Scanlon waking up and raising Cain." Hansen loaded a hypodermic and gave both of the unconscious men an injection in the upper arm.

" D'you think we should call things off and ferry the two of them out, Phil ?" pursued Channing.

Hansen pursed his lips judiciously. " Not just yet. Dave shouldn't be moved for a few hours, so if you can manage the technical stuff, Gertie and I can look after these two. I'll give you a final opinion in about six hours."

" Fair enough," nodded the electronics engineer. " Myra and I will do what we can while Ned and Annie get the lunch organised. We'll keep an eye on things here when you two are ready for food."

It was the middle of the afternoon when Myra and Don got down to considering the unusual and unexpected effects observed since the screen had been energised. The couple sat in the shade in front of the control building, away from the direct heat of the multi-coloured sun blazing down on the man-made plateau.

" How shall we start this job, Myra ? Have you any ideas to work on ?"

" Yes. How about making a ' before and after ' list ? That should start us off in a systematic way if nothing else," suggested the dark-haired girl. Seeing the engineer's faint frown,

she pulled out a notebook, wrote the word ' Before ' at the head of one column and ' After ' at the top of the other. She paused a moment, glanced around, then scribbled in the first column, ' Vegetation—Green.' Alongside in the adjacent column, she added the words, ' Vegetation—Indigo.' Myra held the book for Channing to see. " Get the idea ?"

" I'm with you," he commented. " Now add these : ' Sky—Blue, Sky—Violet ; Blood—Red, Blood—Orange ; Sand—Yellow, Sand—Green ; Concrete—White, Concrete—White." He touched her hair, " Hair—Black, Hair—Black. How does that look—is there any semblance of order about it ?"

They both atared at the list, frowning intently. Then Channing said : " It's a start but its not systematic enough, let's try leaving out the objects themselves and concentrate on the colours. Another thing ; we should arrange the ' Before ' list in order of occurrence in the spectrum and compare it with the ' After ' listing."

" That'll mean leaving out White and Black," commented Myra. " They're not colours."

" O.K.," agreed her companion. " Leave them out of the running for the time being."

The rearranged columns were :

Before	*After*
Red	Orange
Yellow	Green
Green	Indigo
Blue	Violet

The couple checked the double listing, and saw the relationship instantly.

"They're both in the right order going through the spectrum," said Myra excitedly.

" Yes," agreed Don, " but there are one or two gaps." He pointed them out : " The first sequence hasn't got Orange in it, and the second one lacks both Yellow and Blue—I wonder why ?"

" It's as if the normal spectrum colours have slipped a few notches towards the Violet end," added Myra.

" You've hit it ! Hold everything for a second." He got up and strode rapidly into the control room. Shortly afterwards, he returned carrying a thin booklet. It was labelled, ' Mathematical and Physical Constants.' " I remembered seeing this on your desk," the engineer explained. He leafed through the

pages until he found what he wanted. " Here we are ; the Electro-Magnetic Spectrum. The range of visible radiation extends from Red, which has an upper limit of about 7500 Angstrom Units, down to Violet having a wave-length of only 3900 A.U.'s. Let's draw that to scale, say 1000 A.U.'s to the inch." He drew a horizontal line on the notebook 3.6 inches long and then divided it up into sections of different length, consulting the Physical Tables for the figures involved. Finally, he labelled each section with the initial letter of the colour corresponding to the wave-length.

" I see," said the girl. " That line corresponds to the visible spectrum split up into its seven components, with the Red end at the left and Violet on the right."

" Correct. Now let's juxtapose a similar line underneath it and see if it makes any sense—the question is, how much should we displace the lower line ?"

Myra scanned both lists of colours and the table of wave-lengths. " Try moving the second line above six or seven hundred Angstroms to the left," she suggested.

Don sketched in the new horizontal about half an inch under the original and divided it off as before, labelling each section appropriately.

" You've got it," he said triumphantly. " Look : the upper end of what used to be the Blue band now becomes Violet ; the lower end of Green changes to Indigo ; it checks out all the way along. How's that for a combined operation ?" Their heads were close together over the notebook and he kissed her on the cheek.

" What's that for ?" she asked quietly.

" A reward," he answered.

" Are you an Aberdonian ?" she queried, in the same low tone.

" No," he replied. " Definitely not," and proceeded to prove it to Myra's complete satisfaction.

They came up for air. " All right," said Myra, " so you're really a hot-blooded Spaniard beneath that rugged exterior, now what about finishing this analysis ?"

Channing favoured her with a sidelong look. " So you've gone North of the Border have you ?"

" Yes," she said, " but there'll be a South-bound train this evening, will that do ?"

" I'll be waiting at the station," he said.

five

" So that's what's happened, Phil," Channing explained. " The sun radiates a whole gamut of electro-magnetic frequencies, most of which we can't see. The small section of wavelengths between roughly 3900 and 7500 Angstrom Units we call the visible spectrum. Our eyes and brain translate the wavelength impinging on the retina into the colour sensation corresponding to whatever is being received at that instant ; for example, anything between 5300 and 5900 A.U.'s registers as some shade of Yellow, while 4200 - 4900 is recognised as Blue.

" Now consider what happens when so-called ' White ' light falls on say a Green object. All wave-lengths comprising ' White ' are absorbed by the object except the ones somewhere between 4900 and 5300 A.U.'s. These range from Blueish Green around 4900 to Yellowish Green at 5300. We then become conscious of the particular shade of Green and say the object ' has ' that colour. In reality, of course, that is the only colour the object *doesn't* possess, because it is the only one that has been reflected and not retained.

" Next, let us suppose that en route between the object and ourself, the frequency is speeded up slightly so that the wavelength is shortened a little by 6 or 700 Angstrom Units. We now have a spectral line of something like 4500 A.U.'s, which the eye and brain identifies as Blue. Similarly with all other frequencies ; they all move down the spectrum towards the Violet end.

" Of course Black, which is the total absorbtion of all frequencies, and White, which is a total reflection, remain unaltered. Hence Myra retains her raven locks and the concrete road still has its pristine glory."

" What about that peculiar aura which we saw around Dave this morning ?" interposed Hansen.

" That falls into line also," said Myra, " and incidentally, he isn't unique—we all have one. All living creatures radiate body heat—Infra-red—which is invisible to the eye being beyond its range of perceptive ability. Some of it has been affected by the frequency change so that it is no longer invisible Infra-red but visible Red, hence the aura. People have claimed that they've seen human auras before now—maybe they've had eyes sensitive to longer wave-lengths than most of us, and so

have actually seen the radiated body heat. Incidentally, all the electric lamps here look brighter also because some of their Infra-red has now become visible light."

"And how exactly has the frequency change been produced?" asked the psychiatrist patiently.

Channing spread his hands. "There you've got me. I don't know enough about the transmission of radiant energy to answer that one—presumably the constants of space within the bubble have been altered in some way."

"Maybe *our eyes* have been altered in some way," commented Hansen shrewdly.

Myra and Channing exchanged glances.

"Phil's right you know," she said. "We've thought up one possible answer—maybe it's really a human phenomenon instead."

The electronics engineer was shaken and he looked it. "I hope to heaven Phil's wrong," he said fervently, "or at least that the effect disappears when we collapse the bubble. I can put up with a mood Indigo for a while, even enjoy it to some extent," he gestured at the undulating jungle. "But just imagine strolling out to mow an Indigo lawn of an evening!"

"To say nothing of seeing your children glowing in bed," added Myra, with a typical feminine reaction.

"Amuse yourselves with the possibilities," said Hansen, walking off towards the dormitory. "I'm going to see how Dave is progressing." He returned shortly afterwards to the pair who were still contemplating some of the colour permutations which might remain their permanent lot. The physician's face was cast in a more serious mould than when he had left them. "Dave's not responding as well as I'd hoped," he stated bluntly. "I had given him a saline transfusion a while ago because his blood pressure had been reduced so much, but what he needs is a transfusion of the real thing."

"Will any of us do?" offered Myra and Channing simultaneously.

"No dice I'm afraid. Dave happens to be the odd man out—I had already checked our groups earlier, in case we had to consider such a move."

"There's only one thing for it then," said Channing. "We'll have to lower the screen." He swung on his heel. "I'll get on with it straight away." The control room door closed behind his tall figure.

Myra remained with Hansen, and they both looked around them waiting and hoping for a reversion to the normal colours of life.

Nothing had changed when Channing rejoined them.

" We still have the status quo," remarked Hansen. " It looks as though our eyes *were* affected."

The engineer raised an admonishing hand. " Don't rush your fences, Phil. We've pumped a heck of a lot of energy into that screen, it won't drain away in five minutes although I've cut off all input."

" How long will it take ?"

Channing wrinkled his brow. " Maybe an hour or so—the energy leak was a lot smaller than we expected—so that what we had to put in to keep the bubble inflated was pretty small too."

Two hours later, their eyes still said that all colours were unaltered from their bizarre appearance, and in confirmation, the radar detector's probing finger reported that the energy bubble was still 99% energised.

The group turned perplexedly to the electronics expert for an answer. " At this rate," he said gloomily, " it'll take days to dissipate. We're well and truly bottled up."

Gertie Mulloy offered a suggestion uninhibited by too much detailed knowledge. " Suppose," she said, " the colour change is due to our eyes being permanently affected, and also that your detector is faulty—how do we know that the barrier is still there ?"

Channing's face brightened for a moment. " Maybe you've got something there. I'll try to raise one of the ships by radio—if we can get through, the screen must be down and we're O.K." His mood of sudden optimism infected them all, and buoyed them up until he returned from another visit to the control room with a resigned expression and a negative shake of his head.

Gertie was not abashed however. " Could you be getting a false impression as to its real strength ?" she persisted. " After all, this is the first full-scale test of everything—instruments, radio, the lot. And again, how do we know that a human couldn't pass through it, even if it is still there ?"

Don opened his mouth to refute her arguments then changed his mind. Instead, he patted the big girl's shoulder thankfully.

" Whether you're right or wrong, you've given us all something to think about and something to try. How would you like to take a trip with Ned and I in the hovercraft to find out the answers ?"

Gertie blushed orangely at his praise. " I'd be glad to help if I can."

The sun was low on the horizon when the amphibian craft made ready to set off from the encampment with its crew of three. Before it left, Scanlon had been released from his bed under the close supervision of Channing, Hansen and Ned, and allowed a break for food and natural functions. The big man had sunk into a mood of sullen apathy, but had offered no violence after his partner had given him a serious warning about what would happen if he did attempt anything.

On Gertie's suggestion, a number of organic samples including a small tree bole, freshly cut, and a side of bacon, were taken aboard. Only after a great deal of persuasion that living animals might also be necessary had she agreed to add one of her precious hamsters to their cargo.

Myra accompanied Channing to the waiting craft.

" Be careful out there," she warned, " I want you back in one piece."

" Don't worry," he said, " I'll be at the station like I said, I've never missed a train in my life."

The trio remaining, watched as the air-cushioned craft slid out of sight for the time being, around one of the nearer curves in the concrete roadway.

It was a pleasant but unusual evening. The sun, sliding ever-nearer to the rim of the world and sending its rays through a thickening atmospheric blanket, was becoming more normal in appearance as the the shorter wave-lengths of green light were absorbed. Swiftly, it was changing into a fascinating, golden ball with a fuzzy orange and red periphery.

Green-glittering particles of dry sand swirled away from the hovercraft's leaky, pneumatic support until the firmer, damper part of the beach was reached. With a slight fore and aft see-saw motion, the craft slid on to a darkling, violet lagoon, whose surface swelled gently like the chest of a slumbering giant.

" Keep her speed down, beyond the reef, Ned," cautioned Channing. " I wouldn't like to bet on the exact distance to the screen."

At no more than a fast walking pace, the hovercraft crept across the surface of a strangely calm sea until faintly, at first, the couple standing in the bows could make out the shimmering, soap-bubble skin of the energy screen slicing down into the water.

" Dead slow ahead," ordered the engineer, holding up one hand. " Stop !"

The craft rocked slightly at a standstill, twenty yards from Channing's brainchild.

" I can see now, why the energy leak is so small," he said.

" Why ?" asked Gertie.

" It's the sea. Look outside through the screen and you'll see that it has the usual waves upon it. They're beating against the bubble's surface, which is absorbing their kinetic energy and using it to maintain itself. That means that we're only getting atmospheric leakage—the thing is almost self-sufficient once erected over the ocean."

His two companions gazed with him for long moments at the barely-perceptible curve which separated the turbulent ocean outside from the unnatural mill-pond inside.

Channing was the first to rouse himself from the almost hypnotic reverie into which they had all relapsed. " We'd better get on with our experiments, although I should warn you that I'm none too sanguine about success."

" What's the first item on the agenda ?" asked Ned.

" The tree," answered the engineer. " Take us ten yards nearer, and we'll launch it from there."

Fulton inched the hovercraft expertly into the required position. The energy wall rippled to and fro slightly, as if queasily conscious of the presence of intruders.

Channing lowered the tree-trunk carefully over the side, aimed its blunt tip at the open sea outside the screen, and pushed. Like a lethergic torpedo, it nosed through the water and lunged uncaringly into the tenuous, sub-atomic barrier, re-appearing on the far side as paper-thin, irregular disks which were immediately snatched up by the eager waves and dashed against the bubble in a reverse direction. In complete and uncanny silence, these fragments were promptly sliced into shards and shavings by the omnipresent energy layer.

Ned and Gertie's strange facial colourings paled at the swift destruction.

" So much for the vegetable kingdom," commented their companion, grimly unmoved. " Let's try the animal world."

Channing and Ned picked up the side of bacon.

" No need to waste it all," suggested Fulton frugally, and sliced off a transverse chunk with a large jack-knife. " Lob it over," he continued, handing the lump of meat to Channing.

The engineer hefted it appraisingly for a moment, and then threw it through the air with the over-arm action used to fling a hand grenade.

Again, the moving object was instantly transformed into shreds far thinner than could have been produced by the most finely-set bacon slicer.

" Is there any need to sacrifice the hamster ?" pleaded Gertie.

Channing shook his head, appalled by the ruthless efficiency of his invention. " None whatsoever. Let's go back."

six

It was a dispirited trio that returned to the encampment on Taruha as the shadows of evening began to subdue the variegated exuberance of a mutated landscape. Briefly, but adequately, they summarised the information gained on their voyage, to the other five members of the expedition in a hastily convened meeting held in the men's dormitory.

During the temporary absence of Channing, Gertie, and Ned Fulton, Philip Hansen had talked with good effect to Harry Scanlon, who was now in a much more tractable frame of mind. The big man became even more anxious to please when the apparent insolubility of the problem made it likely that Hewitt's condition might worsen to a critical level if they could not penetrate to the outside world in the next twenty-four hours.

Hewitt himself, pale-complexioned and weak lay in his bed listening quietly at first to the general conversation.

" So that's it," finished Channing, " we're trapped here just as effectively as goldfish in a bowl. If anyone has even the ghost of an idea, now's the time to air it." He stared blackly at nothing, his eyes filmy with concentrated mental activity.

Scanlon's eyes flitted from face to face like nervous butterflies, seeking hope and finding only despair.

When Dave Hewitt's voice broke into the oppressive silence, it possessed only a reminiscent rustle of its former strength and

cheerfulness, but nevertheless recharged the atmosphere with cautious optimism.

" I think there's a possible way out," he said. " Don, what has happened to the energy which you pumped into the screen ?"

" For the most part it's stored there in the spherical layer which we've established, like a . . . like a . . ." Channing searched his mind for an apt simile.

" Like juice in a battery ?" offered the power engineer.

" Yes, very much like that. And in the same way that a charged battery will gradually lose its charge through leakage, so the screen will dissipate its energy—if we could wait long enough."

Hewitt smiled his satisfaction, and borrowed one of Channing's recent phrases. " And in the same way that a battery can return its energy to a source, so can the screen."

Channing obviously hadn't derived any meaning from the Welshman's semi-cryptic sentence. " Don't push the analogy too far Dave," he returned reluctantly, " it never works all the way."

" I'm going to push this one to its limits," retorted Hewitt equably. " Follow this reasoning through and tell me where it goes wrong." He paused for a moment gathering his mental and physical reserves. " Suppose you use a motor-generator set to charge a battery fully, and then remove the source of mechanical power driving the generator, *leaving the battery electrically connected*—what happens ?"

" The battery will return electrical power to the generator and drive it as a motor—go on, Dave, I'm beginning to get the drift."

" It's like this," explained Hewitt. " Every device we have is a means of converting energy in one form to energy in another, so that all machines are actually energy converters. For instance ; with a generator we put in mechanical energy and convert it to electrical, likewise with a motor we push in electricity and take out mechanical power. Similarly a battery converts electrical energy to chemical, and vice-versa ; the list is endless.

" Now my point is this : we've put a lot of megawatt-hours of juice into the screen ; that is, we've converted it to some esoteric form of Don's devising—*so why not convert it right back again and let down the bubble* ?"

" Exactly how would you suggest it be done ?" queried Channing, intrigued by the novel concept.

" You've still got the generator running, haven't you ?"

Channing nodded his confirmation. " But she's not feeding power into the screen."

" Well," continued the injured man, " first re-establish the link with the screen by resuming the charge, then switch off the mechanical power to Jennie. She should carry on turning if I'm correct, *but this time she'll be sucking power from the screen via the antenna instead of pumping it up.*"

Channing's eyes gleamed with a sudden understanding of the obvious but ingenious idea. " So first we bridge the gap, then let the energy feed back along the link—just like water pumped up behind a high-level dam being allowed to drain back through a pipe." Suddenly his exhilaration faded. " But I've no experience of handling a large generator, and you're in no position to do it."

Scanlon saw his chance to make retribution in some measure and spoke before Hewitt could answer. " I worked in a generating station for a time in my younger days—maybe I could handle the job if Dave gave me the exact griff on how to shut down the primary input."

And so, for the next few minutes, the rest of the group were treated to the sight of attacker and attacked exchanging confidences like a couple of conspirators.

Hansen smiled and confided in Myra and Gertie. " This is excellent therapy. I hope for both their sakes that it works out."

Shortly afterwards, the two electronic engineers walked together to the control building, discussing technical details eagerly, as they had in the past. For the moment, at least, enmity and bitterness were forgotten, they were partners again with a job to do and weighty considerations depending upon their ability. When they returned to the dormitory half an hour later, Hewitt was only barely awake, his cogitations and explanations had almost exhausted his chunky frame. His eyelids drooped shut and a contented smile spread over his face, though, when Scanlon sprinted between the beds, knelt down beside the Welshman's and burst out excitedly : " Dave, it works—you were right. Jennie's motoring at full speed—I've checked with the tachometer."

" Good," said the wounded man, and went to sleep.

Harry Scanlon looked at him anxiously, then turned to Hansen. " He's all right is he ?"

" Perfectly comfortable for the time being. We should be able to get him away in time for further treatment now that you and Don have started the rundown of the bubble."

" We don't *have* to move Dave, do we? Suppose I stand by in the control room, watch for the generator slowing down, and radio to one of the cordon ships to send help? That way the rest can get some sleep in."

" Good idea, Harry," enthused Hansen, ignoring Channing's doubting frown. " You go back over right now—I'll keep an eye on Dave—let me know as soon as you make contact and I'll tell them what we need."

Scanlon hurried out, pathetically eager to please.

" Do you think it's wise to leave him alone over there, Phil ?" questioned Channing as soon as the door had closed.

" Look, Don," said the psychiatrist, " Harry is responsible for the situation we're in, it's only right that we should let him work to retriece the position. Besides, it's the right sort of therapy to let him contribute towards his own salvation and Dave's. Also, I suspect that you could use some rest, you didn't have much last night and you've had a pretty energetic day."

The electronics expert capitulated. " O.K.—you're the Doctor, I suppose."

" He is indeed," said Myra definitely. " Now do what the Doctor orders."

" I'll see you all back to your quarters then say good night to Harry first, though," said Channing conditionally, " otherwise the deal's off."

Gertie and the Fultons discreetly left the couple alone outside the other end of the building, and after a few highly satisfactory moments, Channing made his way back to Philip Hansen, looking in en route at his partner in the technical block.

" Harry's as busy as a bee over there," he observed. " Are you sure you can stay awake all night, Phil ?"

" I'm used to overnight calls, now you hit the hay, I don't want any more patients this trip."

The engineer closed his eyes and was almost instantly asleep.

Six hours later, a whip-cracking, lightning stroke clove the dark sky overhead, confirming that 'Jennie' had depleted the bubble to the point where it could no longer maintain its

existence. The following roll of thunder underlined the fact that it had completely dissipated its remaining resources. Within minutes more, Scanlon announced that he had spoken to a patrolling destroyer and that Hansen could relay his instructions to it.

Hewitt awoke at the sound of their conversation.

" Phil," he said, " *I* don't think you need say too much at this stage about the *accident* that Harry and I had when we were horsing around with the knife, do you ?"

Hansen looked searchingly at them both.

" No," he said, " accidents do happen, don't they ?"

Scanlon wordlessly wrung his victim's hand in gratitude. Hewitt responded as best he could.

Myra and Don gazed appreciatively together at the glorious dawn. The greens and blues and all the other colours were as normal and wonderful as they could be. Mood Indigo in all its aspects was behind them.

" You know," he said dreamily, " this is really something to tell our kids about."

" *Our* children ?" she queried.

" *Our* children," he repeated firmly.

Myra didn't argue, being quite content to let her tall companion call the shots, as long as they were in the right direction.

Sensing her aquiescence, Channing continued : " Now that that's settled, I'll tell you something that I haven't told the others yet. The colour changes were *not* caused by a frequency shift as we had thought."

Myra was contemplating their future married life with part of her mind, and replied a little indifferently. " So Phil was correct in saying that it was our eyes that were affected ?"

" Not the way he thought."

" What do you mean exactly ?"

" Well," said Channing slowly, " our eyes *were* affected and *so were our bodies, and so was everything else inside the bubble—everything, without exception, expanded beyond the size which it had before the bubble was created. That's why our perception of the wave-lengths of light altered—the cells in our eyes became larger and handled the frequencies in such a way that we thought that light itself had changed.*"

Myra could see that he was serious, but doubted his reasoning. " What evidence have you to back up that theory ?"

" It's not a theory—you see, the possibility had crossed my mind but there seemed to be no way of checking it—if everything had been enlarged in the same ratio, how could I ? Then it hit me as we left in the hovercraft to go out and look at the screen last night. If the island itself *had* expanded, its edge would be *nearer* to the bubble than we thought. I checked the distance to the screen roughly on our trip—it was considerably less than the two miles or so than it should have been."

Myra concentrated on the last statement.

" Even if you are correct, we're back to our normal size now whatever the screen did in the past to the matter inside it. So is it at all significant ?"

" I'm still trying to sort that one out myself," said her fiance. " You see, there are several natural energy layers above the atmosphere. There are the Heaviside and Appleton layers which have been known about for years, and more recently we've discovered the Van Allen belts."

" I still don't see the point," she replied.

" They are all energy spheres, possibly similar to our screen, *if so what happens to us when we go outside them into space itself ? Will we diminish in size ?*"

Once again Myra had no comment to offer, but suddenly, the limits of the Universe seemed to recede even farther into Infinity.

Russ Markham

SALES AND WANTS

3d. per word. Minimum 5/- Cash with order.

TO COMPLETE personal files, John Brunner requires: US *Analog* March 62 ("Iron Jackass"), ditto July 62 (" Listen ! The Stars ! "), *Fantastic Universe* March 59 (" Number of my Days "), US *If*, date uncertain ("Single-minded "). Box 143, Nova Publications Ltd., 131 Gt. Suffolk St., S.E.1.

The British Science Fiction Association Annual Convention for 1963 will be held in Peterborough, Northants, April 12th to 14th. Registration Fee : 5/- (allowable against attendance fees). Full details from: B.S.F.A. Con-Com 63, c/o K. F. Slater, 75 Norfolk Street, WISBECH, Cambs.

Guest Editorial continued

All these things add up to one inescapable fact—that s-f sells to those people who enjoy it for what it is, and no amount of soul-searching, no amount of message-seeking will convert one person to reading s-f who doesn't want to read s-f.

Most literary forms—especially in the field of fiction—have as their end the entertainment of the general public, but that end can only be reached if the general public wants to be entertained by any particular literary form.

It is all very well for ' experts ' to say that s-f must have a message—something to say—but no message will get through to people who aren't interested in it in the first place. It must be realised that 99% of book readers and magazine readers read for enjoyment, and that the most popular books in the public libraries are the so-called " popular " novels. And whoever heard of a western with a message ! Did Ethel M. Dell or C. S. Forester or Nevil Shute have a hidden meaning—something to be chewed over and discussed ? Of course not ! I'd hazard a guess that Shakespeare wrote for financial reward and left it to future generations of critics and experts to read " messages " into his work. Maybe that's what will happen to Asimov or Bradbury or Wyndham in two or three hundred years. If it does then it'll be the responsibility of future generations, but please, don't try and saddle modern s-f with a responsibility that it does not deserve and probably does not expect.

I am sick of critics who try and interpret the work of authors, and I am sick of authors who sit back and smirk their self-satisfaction over motives attributed to them which they never intended.

A recent example of " message reading " has been Heinlein's *Starship Trooper*. Mr. Heinlein has not, to my knowledge, replied to all the pseudo-intellectual drivel that has poured forth over his book. The pros and cons, the arguments concerning its ' morality,' the idiotic search for a ' hidden meaning,' the hysterical branding of the book as ' a war mongering piece of pro-military propaganda.' All these have been dredged up, discussed and written about, but no one has mentioned the one single, inescapable fact—that *Starship Trooper* is an entertainment, and a rattling good adventure story. It is not, cannot be (and was probably never intended to carry) any sort of philosophic message. Any message has

been grafted on by a semi-intellectual hysteria emanating from pseudo-intellectual morons who batten on the ideas of others under the grossly misused heading of " criticism."

Possibly the only author of modern times with a message was the late George Orwell, but he was not a true s-f author. He was a socialist with communist tendencies, a political satirist whose books were largely ignored until " 1984 " was popularised by TV and the cinema. " 1984 " had a message but no one cared about it until it became popular, and by that time the message had been largely obliterated as a result of the process of popularisation.

It is a regrettable but true fact that the only people who try to read " messages " into modern s-f are the fanatics—to paraphrase Bernard Shaw, those who can, do; those who can't, criticise. Critics, in my humble opinion, are frustrated fanatics.

The average reader buys *New Worlds* or *Analog* because he enjoys reading the stories. Most writers write because they enjoy it—they write for fun, and if editors like John Carnell are prepared to pay for their efforts then so much the better—but messages? God Save Us All !

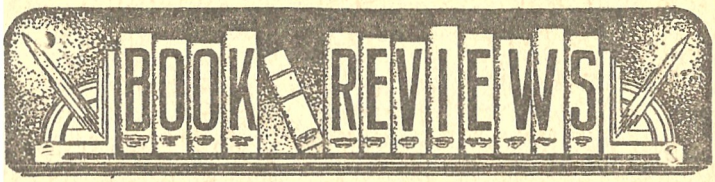
A side effect of all this is the trumpeting that greets a new author who shows a new style. I recall the eulogies that greeted Jimmy Ballard and Colin Kapp—both authors whom I admire—but I'll wager that neither of them wrote his first few stories with any idea of passing on his own personal testament.

I well remember a comment that was made at the World Science Fiction Convention in London, by John W. Campbell. At a Press Conference on the opening night a reporter (one Alan Whicker of subsequent fame) asked him what was the purpose of the convention.

In reply Campbell said, " If by that you mean what message do we have, then the answer is, sir, that we have no message. We are here only to enjoy ourselves."

Which sums up my own approach, and—I suspect—the approach of most honest authors and fans. We write and we read for the pure hell of it, because we enjoy it. Some of us write better than others, some of us are pure hacks while others are masters of the fluid phrase, the new approach, the refreshing style—but none of us consciously expects to write a new gospel—and few of us even try.

Lan Wright



British—Hardcover

As a showcase for the talents of one of our better science fiction writers, John Brunner's **No Future In It** (Gollancz, 15/-) reveals the intelligence and versatility of the competent craftsman, rather than a uniformly brilliant and individual style, which has earned him over a decade a prolificity of by-lines and an increasing popularity on both sides of the Atlantic. No less than six of the stories in this initial collection (obviously there are more to come !) saw print originally in these pages, and the title story—a neat twist on demon-raising—first appeared in *Science Fantasy*. The other four, plus the miniscule joke " Report on the Nature of the Lunar Surface," are culled from the top American s-f magazines. He is very effective with straight *science* fiction and " Puzzle for Spacemen," " Windows of Heaven," " Elected Silence," and " Stimulus," are as good as, and similar to, Clarke's work, which is high praise indeed. But " Iron Jackass " is rather second-rate Asimov, and " Badman " is a little obvious. I liked the humour in " Out of Order " with its too logical computer, and the horrible fate of a telepathic sensitive whose mind is exposed to the world in " Protect Me From My Friends." But my favourite is " Fair " a sensitive and sincere dart aimed at intolerance. John's own neat comments preface each story to good effect. All in all a fair cross-section of a good modern contemporary.

Andre Norton's first book to be published in this country **Catseye** (Gollancz, 13/6) is one of her latest and best with a particularly interesting theme of Terran domestic animals imported as exotic pets to a key planet in the Galactic Confederation as weapons of espionage. How this scheme affects the destiny of a young D.P. who finds himself in mental rapport with the animals is excitingly told in this second of the publisher's series of " Science Fiction Adventures," following *Farmer in the Sky*, and as Miss Norton's devoted followers

know from her many books available in America, she can hold her own with Heinlein on this level any old time.

When Daniel F. Galouye's first novel **Dark Universe** (Gollancz, 15/-) appeared originally as a paper-back, there was not, as in this present edition, a dust-jacket blurb giving a complete resume of the story, and so destroying the inherent surprise value. Although an s-f addict would become excitedly aware of the possibilities of the denouement early in the book, it seems a pity to diminish the impact in this way. Presumably the publishers intend to play safe with the uninitiated who otherwise could not be expected to read past the first chapter—it's that kind of story, a novel and highly imaginative treatment of a not too original theme—the emergence of a community of troglodyte survivors of nuclear war after many generations in the utter darkness of their underground existence into the supposed horrors of the outside. The mechanics of the plot are superbly done and the transition of the hero, Jared, from sound-echo viewing with clickstones, down the iconoclastic path to the reality of sunlight, is cleverly characterised. Score high for presentation, lose a point for overlength.

John Christopher's new novel **The World In Winter** (Eyre & Spottiswoode, 16/-) attempts once more a dramatic microcosm of survival against a grim background of improbable natural catastrophe, but unlike *Death of Grass*, fails to convince. The relationship between the leading men, a TV producer and a higher Civil Servant, after mutual adultery and swapping of wives, seems most unreal. The decline in solar radiation which rapidly induces a new Ice Age in the Northern Hemisphere finds the one a refugee in an Africa where the white man is an unwanted and inferior person and a white woman may have to prostitute herself for the black elite, and the other a stalwart defender of the London Pale, first against starving London mobs and eventually against a Nigerian expedition which lays claim to a depopulated England. The action is in three parts—the disintegration of society in England, an English couple's degradation and lucky rehabilitation in Nigeria, and the expedition to England including an encounter with a local petty tyrant in the Channel Islands.

The fate of the rest of the world is dealt with in a casual remark and one must accept that the teeming white millions of Northern Europe did nothing very much to save themselves

from the encroaching Arctic conditions. Although this is in a future where the Confederation of African States is an accomplished fact, so that any take-over of the new temperate climes would entail a desperate struggle, the turn of events as depicted takes a bit of swallowing. This general unreasonableness apart, it is, as expected from such an excellent novelist, a skilfully written and absorbing book.

A newcomer to Messrs. Faber's " Best " series is **Best Fantasy Stories** edited by Brian W. Aldiss (Faber & Faber, 16/-). No slouch himself as an author in this genre, Mr. Aldiss not only contributes a wonderful introductory essay, but has collected together ten wonderful and not too familiar fantasies. The two longest are that extraordinarily clever psychiatric story of a man's science-fiction psychosis by Robert Lindner, " The Jet-Propelled Couch," and the macabre " Baron Bagge " by Alexander Lernet-Holenia with its strong supernatural atmosphere. Michael Joyce's early " Perchance to Dream " generates a proper feeling of horror, as does Angus Wilson's cosy and nastily ghostly " Mummy to the Rescue," while " In the Season of Calm Weather," distils the very greatness of Ray Bradbury. John Collier is typically and diabolically funny in " Incident on a Lake," and Jack Finney is deliciously funny in " Cousin Len's Wonderful Adjective Cellar." Charles Beaumont is improperly funny, a la *Playboy*, in " You Can't Have Them All," and Saki is properly funny in " The Story-Teller." In all these I do mean funny ' ha ha ' and funny ' very peculiar.' Oh yes, and the editor modestly includes himself with " Intangibles, Inc." (from *Science Fantasy*) which is, well, intangibly moral. Thoroughly recommended.

Leslie Flood

American—Hardcover

Several years ago, noted American essayist Clifton Fadiman compiled a fascinating anthology for Simon & Schuster entitled *Fantasia Mathematica*. I need hardly say that he has done it again with an even greater degree of acumen in *The Mathematical Magpie* (Simon & Schuster, $4.95) producing a melange of intriguing items broken into five categories although each section has its quota of interesting oddities. The first section contains ten s-f stories based upon a mathematical

concept (amongst which we find that outstanding theological story of Arthur C. Clarke, " The Nine Billion Names of God "). Two other sections, called *Comic Sections* and *Irregular Figures* deal adroitly and often humorously with stories or fables in which the central figure is " a mathematical oddball " (the wrapper says) but you have to read these sections to appreciate their versatility.

The final two sections deal with music, anecdotes, poems, limericks and various other extraneous items based upon some form of mathematics. The whole brought back nostalgic memories of those vasty " annuals " one used to receive from doting relatives about Christmastime—a lucky-dip book filled with exciting items which forces one to explore into its innermost reaches—except that this one is adult, modern, and right down the middle of the science fiction groove.

American—Paperback

Eight Keys To Eden, Mark Clifton, (Ballantine 50¢). Vintage 1960 and better than most of the 1962 novels. A colony world cut off from Earth by an alien intelligence, Earth sends a super-intellectual to investigate and open the eight locks to a higher understanding of the Universe. (A UK hardcover edition coming from Gollancz soon).

Far Out, Damon Knight, (Berkley, 50¢). 13 shorts by the virtuoso of modern short stories in the science fiction genre.

Conditionally Human, Walter M. Miller, Jr. (Ballantine, 50¢). 3 novelettes by the " Canticle " man. " Dark Benediction," " The Darfsteller," and the title story.

Mars Is My Destination, Frank Belknap Long, (Pyramid 40¢). A fast-paced action story, close to home for a change—two industrial empires fighting for control of Earth's only solar outpost.

When Time Stood Still, Ben Orkow, (Signet, 50¢). An ' outside ' writer's view of 50 years' deep freeze and a reawakening in the strange new world of the future.

The Wonder Effect, C. M. Kornbluth and Frederik Pohl, (Ballantine, 50¢). 9 stories from this outstanding writing team, with a fascinating foreword by Frederik Pohl on how they used to work.

13 Great Stories Of Science Fiction, edited by Groff Conklin (Gold Medal, 40¢). A reissue. Sturgeon, Clarke, Wyndham, Knight, Anderson, and others.

The Night Shapes, James Blish, (Ballantine, 50¢). Shades of "The Lost Planet," "Tarzan," and Rider Haggard—a *very* entertaining African adventure story, but hardly science fiction.

Or All The Seas With Oysters, Avram Davidson, (Berkley, 50¢). 16 short stories, most of them 'non-conformist' and from *F & SF*—Davidson, like Aldiss, is an off-beat writer who apparently writes more to please himself than any specific editorial requirement; which makes a pleasant change.

Ace Science Fiction Classic Series (Ace Books, N.Y., 40¢). Editor Donald A. Wollheim has very astutely followed up his recent successes in this series by producing four of Edgar Rice Burroughs' early other-world thrillers. *At The Earth's Core* (F-156) and *Pellucidar* (F-158) both being taken from the original 1922 and 1923 hardcover editions, while *The Moon Maid* (F-157) and *The Moon Men* (F-159) follow the text of the 1923 magazine novels which incorporated a third story in the series, *The Red Hawk*. This last part appears in the same book as *The Moon Men*. In particular, artist Roy Krenkel, Jr., illustrating the jackets, appears to have caught the flavour of Burroughs which has been missing on so many more recent editions of his other works.