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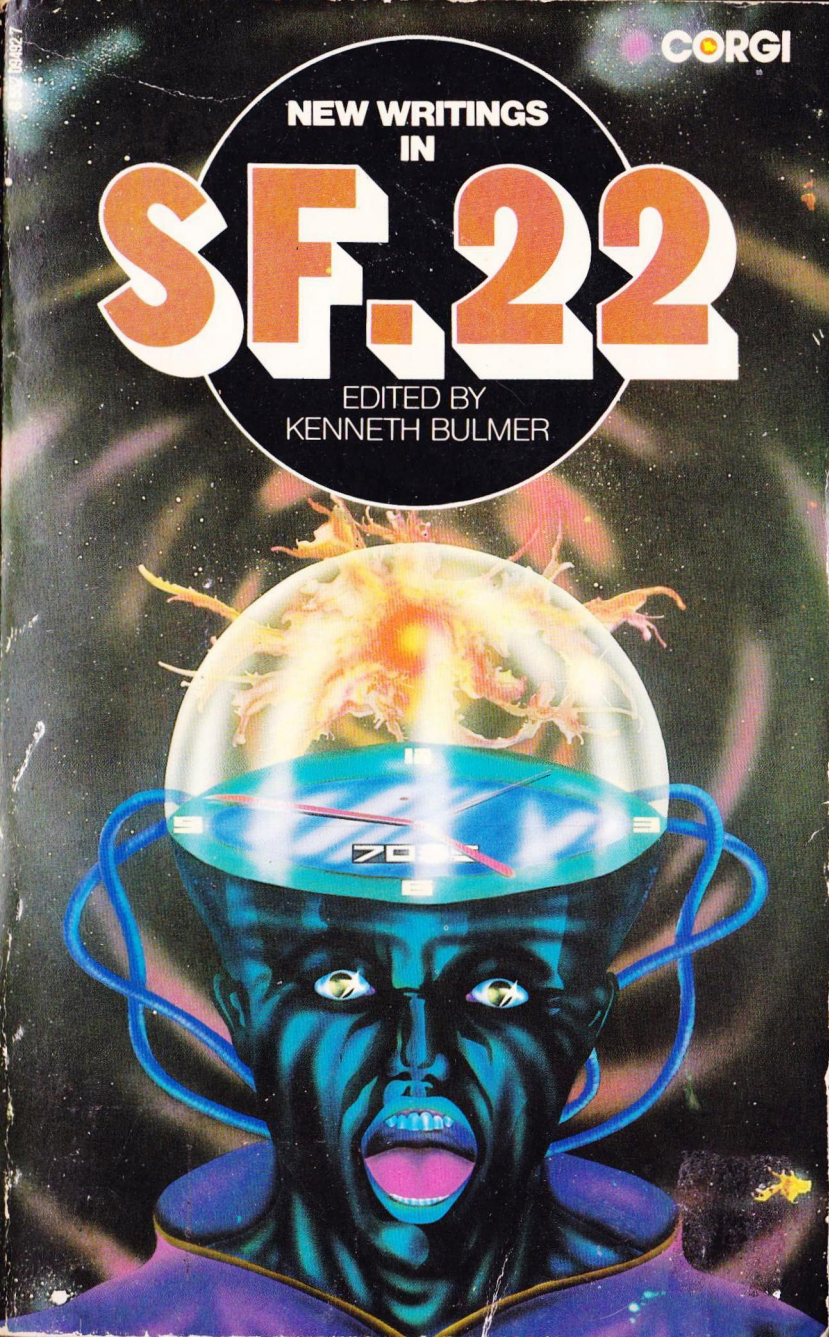
NEW WRITINGS IN SF.22

EDITED BY
KENNETH BULMER



NEW WRITINGS IN SF–22

This edition of *New Writings in Science Fiction* is dedicated to John Carnell who edited the previous twenty-one editions and who died in 1972. Kenneth Bulmer has taken over John Carnell's role as editor and in his introduction he says, 'All the writers herein presented were closely connected in one way or another as editor, agent, and friend with John Carnell, and in every case their comments accompanying their manuscripts said clearly that the writers believed the work he pioneered should not be allowed to fade away. The contribution John Carnell made to science fiction was immense and I am quite certain that all those many readers who have found pleasure and inspiration in New Writings in the past will be happy to know that the series will continue.

In the same series, edited by JOHN CARNELL:

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edited by

Kenneth Bulmer

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To the memory of
EDWARD JOHN CARNELL
1912–1972

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FOREWORD

by

KENNETH BULMER

This volume of *New Writings in SF* is at this moment unique in the series begun by John Carnell in 1964.

All the writers herein presented were closely connected in one way or another as editor, agent and friend with John Carnell, and in every case their comments accompanying their manuscripts said clearly that the writers believed the work he pioneered should not be allowed to fade away. The contribution John Carnell made to sf was immense and I am quite certain that all those many readers who have found pleasure and inspiration in *New Writings* in the past will be happy to know that the series will continue.

Science fiction is now a well-established part of life, and although many people cling to their own interpretations of what they mean by science fiction—from serious and imaginative sf to the horrors of sci-fi—everyone, I believe, is aware that we are living in a science fiction world, whether we will it or no. That sf itself can serve as an invaluable guide to the modern world and also to the world of the immediate future has led to the emergence of a type of sf devoted to just this kind of purpose. This sf is valuable. Equally valuable is the sf that seeks to stretch our imaginations in ways that the modern world has not yet got around to thinking about. This kind of mind-extending sf should not be confused with fantasy.

Up until fairly recently it was generally considered that a thorough grounding in Latin and Greek was sufficient to equip a person to undertake a useful role in life. Nowadays, with computers demanding special languages—among which, I venture to suggest, Latin and Greek do not figure prominently—with electronics, physics, chemistry and all the specialised scientific disciplines required of an age wherein men walk upon the Moon and mine the oceans de-

manding total commitment, it would be folly to entrust complex modern problems to a man relying on ancient languages for his knowhow. And yet—and yet although the basic philosophy may have been overtaken by events, enough of truth remains to make us look with particular care at any world that denies that philosophy without providing acceptable and viable alternatives. In this rushing hurly-burly of an age humanity must of necessity be able to find some surcease from the continuous strain. If that respite also gives the probability of better responses to life—that is, opens closed eyes and minds to fresh possibilities, indicates new avenues of thinking, shows dead ends and futures no one would care to enter, provides a perspective—then that refreshment is clearly of a value beyond price.

This function of recharging the vital batteries of the human psyche is only one of the virtues of sf; but it is one that should never be underestimated.

The practitioners of sf gathered into these pages collectively provide a considerable jolt, from the most sensible suggestion yet for the deployment of ballistic weapons by Arthur Clarke to the iconoclastic investigation of what we think of as reality in terms at once beautiful and irreverent by Brian Aldiss. It used to be said that humour was a quality sadly lacking in sf; but the field has never been as grey as it has been painted, and here both Harry Harrison and John Kippax use this elusive spirit of comedy to make their points in stories widely differing as to locale and intent. Sydney Bounds and James White continue our uneasy speculations on the possible reaction of humankind when meeting with other intelligences, while Donald Wollheim and John Rackham bring their investigations nearer home and suggest that if all around us we see life as a reality we must be prepared to open our minds a little further. That Laurence James chose to set his entertaining mystery story on this Earth,—don't jump to a premature conclusion!—rather than on the planet of a distant solar system surely indicates we must uproot the seeds of our own destruction before they can germinate. A strange locale with infinite possibilities that will have the astrophysicists running for their slide-rules provides Christopher Priest with a setting challenging in its implications, and also sows its seeds of future controversy.

Is the future symbiosis of man and machine an inevitable outcome of our increasing reliance on machinery of all kinds? E. C. Tubb reminds us chillingly that in humanity's attempts at progress we may find ourselves using the machine as a parasitoid.

Taking the Arthur Clarke piece as a conte in its own right, here are eleven new science fiction stories, never before published, ranging over a wide variety of the themes, ideas, imaginations and concerns of science fiction. There are many, many more excitements and entertainments in the unlimited scope of sf and *New Writings in SF* will be presenting the best of them in the volumes to come.

It is appropriate here to quote the last words John Carnell wrote in his last foreword for *New Writings in SF*, that for Number Twenty. *'I have no doubt later volumes will have their fair share of light relief and the banishment of death, doom and destruction.'*

I believe that to be true.

Horsmonden,
September, 1972

KENNETH BULMER

AN HONEST DAY'S WORK

by

HARRY HARRISON

The image of the grim-jawed hero with steely eyes has become tarnished in this latter half of the twentieth century. Pride in manual skills in a culture clearly being taken-over by automation collapses so that 'satisfaction from a good job well done' is more and more obtainable only from avocations, not vocations. Harry Harrison in rumbustious fashion sets about demolishing notions of duty and glory and interstellar invasion as well as the dignity of labour and the rate for the job.

'I DO my job, that's all. And that's all that anyone can expect.' Jerry's jaw set hard with these words, set as firmly as his voice as he bit deep into the scarred stem of the old pipe.

'I know that, Mr. Cruncher,' the Lieutenant said. 'No one is asking you to do anything more than that, or to do anything wrong.' He was dusty and one of the pocket flaps had been torn off his uniform. There was a wild look in his eye and he had a tendency to talk too fast. 'We tracked you down through BuRecCent and it wasn't easy, there were good men lost ...' His voice started to rise and he drew himself up with an effort. 'We would like your co-operation if we could get it.'

'Not the sort of thing I like to do. It could lead to trouble.'

The trouble was that no one expected it, or rather the people who expected it had expected something altogether different and had made their plans accordingly and fed them to the computer which had drawn up programs covering all possible variations of the original. However the Betelgeuseans had a completely different plan in mind so they therefore succeeded far beyond what was possibly their own wildest dreams. The trade station they had set up in Tycho crater on the Moon was just that, a trade station, and had nothing to do at all with the events that followed. Records of the Disaster are confused, as well they might be under the circumstances, and the number of aliens involved in the first phase of the invasion was certainly only a fraction of the exaggerated figures that were being tossed around by excited newsmen, or worried military personnel who felt that there *must* be that number of attacking aliens to wreak the damage that was done. The chances are that there were no more than two, three maximum, ships involved; a few hundred Betelgeuseans at the most. A few

hundred to subjugate an entire planet—and they came within a hair of succeeding.

'Colonel, this is Mr. Cruncher who has volunteered . . .'

'A *civilian*! Will you get him the hell out of here and blindfold him first, you unutterable fool. This headquarters is double-red-zed top security . . . !'

'Sir, the security doesn't matter any more. All of our communications are shut down, we're sealed off from the troops.'

'Quiet, you fool!' The Colonel raised his clenched fists, his skin flushing, a wild light in his eyes. He still did not want to believe what had happened, possibly could not believe. The lieutenant was younger, a reserve officer; as much as he disliked it he could face the facts.

'Colonel, you must believe me. The situation is desperate, and desperate times call for desperate solutions. . . .'

'*Sergeant!* Take this lieutenant and this civilian to the target range and shoot them for violating security during an emergency.'

'Colonel, please. . . .'

'Sergeant, that is an *order*!'

The Sergeant, who was only four months short of retirement and had a pot belly to prove it, looked from one officer to the other. He was reluctant to make a decision but he had to. He finally rose and went to the toilet, locking the door behind him. The Colonel, who had been following his movements in eye-bulging silence, gasped, his face a bright scarlet, and groped for his sidearm. Even as he drew it from the holster he gurgled and fell face first upon the desk, then slid slowly to the floor.

'Medic!' the Lieutenant shouted and ran and opened the Colonel's collar. The medic took one look and shook his head gloomily. 'The big one. He's had it. Always had a dicey ticker.'

The Sergeant came out of the toilet and helped the Lieutenant to pull a gas cape over the corpse. Jerry Cruncher stood to one side and looked on in silence, sucking on his pipe.

'Please, Mr Cruncher,' the Lieutenant said pleadingly, 'you must help us. You're our last hope now.'

Now when we look back at Black Sunday when the Disaster began we can marvel at the simplicity of the Betelgeusean plan and understand why it came within a hair's breadth of succeeding. Our armies and spaceborne tanks were poised and waiting, all instruments and attention firmly fixed on the massive bulk of the 'so called' trade station which was, indeed, just a trade station. On Earth a complex spiderweb of communication networks linked together the host of defenders, a multilevel net of radio and laser links, buried coaxial cables and land lines, microwave and heliograph connections. It was foolproof and unjammable and perfect in every way except for the fact that all global communications were channelled through the two substations and ComCent in Global City. These three stations, wonderfully efficient, handled all the communications with the armed forces on Earth, below the ground, on the Moon and in space.

They were knocked out. Betelgeusean commando squads in field armour dropped one null-G on to each centre and the battle could not have lasted more than half an hour. When it was over the three communications centres had been taken and the war was lost before it began. Headquarters were cut off from units, individual units from each other, tanks from tank commanders, spaceships from their bases. Radar central on the far side of the Moon very quickly discovered the blips of the invasion fleet swooping in from beyond Saturn. But there was no way they could tell anyone about it.

'I have to ask my supervisor about it,' Jerry Cruncher said, nodding solemnly at the thought. 'This being my day off and all. And taking of unauthorised people into the tunnels. Can't say he's going to like it much.'

'Mr. Cruncher,' the Lieutenant said through tight-clamped teeth. 'In case you have not heard there is a war on. You have just seen a man die because of this war. You cannot call your supervisor because the military override has rendered the civilian visiphone network inoperable.'

'Can't say I like that.'

'None of us do. That is why we need your help. The enemy aliens have taken our communication centres and

they must be recaptured. We have contacted the nearest combat units by messenger and they are attempting to retake the centres, but they are virtually impregnable.'

'They are? How did those Beetlejuicians capture them then?'

'Well, yes, it is Sunday, you know, minimum personnel, at 0800 hours the church coaches were leaving, the gates were open . . .'

'Caught you with your pants down, hey?' A wet suck on his pipe told the world what Jerry Cruncher felt about that kind of efficiency. 'So your lot is out and you want back in. So why bother a working man at home on a Sunday?'

'Because, Mr. Cruncher, war does not recognise days of the week. And you are the oldest employee of CitSubMaint and probably the only man who can answer this question. Our communication centres have their own standby power sources, but they normally use city power. And the land lines and cables go out underground. Now, think carefully before you answer, can we get into these centres from underground? Particularly into ComCent?'

'Where is it?' He tamped down the glowing tobacco with a calloused thumb, then sucked in the grey smoke happily.

'At the junction of 18th Way and Wiggan Road.'

'So *that's* why there are so many cables in 104-BpL.'

'*Can* we get into it?'

In the hushed silence that followed the burble of Jerry Cruncher's pipe could be clearly heard. The Lieutenant stood, fists clenched tightly, and beside him the Sergeant and the Corpsman, as well as the operators who had left their silent communication equipment. All of them waited and listened in strained silence as Jerry Cruncher narrowed his eyes in thought, took the pipe from his mouth and exhaled a cloud of pungent smoke, then turned to face them.

'Yep,' he said.

They weren't the best troops—but they were troops. Technicians and operators, MP's and cooks, clerks and motor pool mechanics. But they were armed with the best weapons the armouries could provide and armoured as well with a sense of purpose. If they stood a little straighter or held their guns a little more firmly it was because they knew that the future of the world was in their hands. They

marched with grim precision to the road junction where they had been instructed to wait and had been there no more than a few minutes when Jerry Cruncher showed up. He wore waterproofs and a hardhat, heavy gumboots that came to his waist, while a worn and ancient toolbox was slung by a strap over one shoulder. His pipe was out, but still clamped in his jaw, as he moved his shrewd eyes over the waiting troops.

'Not dressed right,' he said.

'Everyone is in combat uniform,' the Lieutenant answered.

'Not right for the tunnels. Gets mighty damp——'

'Mr. Cruncher, these are volunteer soldiers. They may die for their world so they do not mind getting wet for it. May we go now?'

Shaking his head in solemn disapproval Jerry Cruncher led the way to a manhole in the road, into the socket of which he inserted a shining tool with which, in a practised movement, he flipped the heavy manhole lid aside.

'Follow me then, single file. Last two men in slide that lid back on and watch out for your fingers. Here we go.'

Automatic lights sprang on as they climbed down the ladder to the cool, green tunnel below. Wires, cables and pipes lined the walls and ceiling in a maze that only a Jerry Cruncher could make head or tail of. He slapped them affectionately as they passed.

'Water main, steam main, 50,000 volt line, 220 local feeder, telephone, teletype, co-ax, ice water, pneumo-delivery, food dispenser supply, oxygen, sewer feeder.' He chuckled happily. 'Yep, we've got a little bit of everything down here.'

'Medic!' a voice called from the rear of the file and the Corpsman hurried away.

'They've found us!' A Permanent KP wailed and there was a rattle of weapons readied.

'Put those away!' the Lieutenant shouted. 'Before you kill each other. Get me a report, Sergeant, snap to it.'

They waited, weapons clenched and eyes rolling with anxiety, until the Sergeant returned. Jerry Cruncher hummed to himself tonelessly as he tapped various valves with

a small ballpean hammer, then carefully tightened the gasket retainer on one.

'Nothing much,' the Sergeant said. 'Burne-Smith got a finger mashed putting the lid back on.'

'They never listen,' Jerry Cruncher coughed disapprovingly.

'Move it out,' the Lieutenant ordered.

'One thing we haven't mentioned,' Jerry Cruncher said, unmoving as a block of stone. 'You guaranteed that my supervisor would see that I received my pay for this job.'

'Yes, of course, can we talk about it as we go?'

'We go when this is settled. I forgot that this being Sunday I'll be getting double time and triple time after four hours.'

'Fine, agreed. Let's go.'

'In writing.'

'Yes, writing, of course.' The Lieutenant's scriber flew over a message pad and he ripped off the sheet. 'There, I've signed it as well, with my serial number. The Army will stand behind this.'

'Had better,' Jerry Cruncher said, carefully folding the slip and placing it securely in his wallet before they moved out again.

It was a nightmare journey for all except the grey, solid man who led them like a Judas goat through this underground inferno. The main tunnels were easy enough to pass through, though pendant valvewheels and transverse pipes lay constantly in wait for the unwary. Had they not been wearing helmets half of the little force would have been stunned before they had gone a mile. As it was there was many a clank and muffled cry from the rear. Then came the inspection hatch and the first crawltube leading to a vertical pit sixty feet deep down which they had to make their way on a water-slippery ladder. At its foot an even damper tunnel, this one faced with blocks of hand-hewn stone, led them through the darkness—no lights here, they had to use their torches—to an immense cavern filled with roaring sound.

'Storm sewer,' Jerry Cruncher said, pointing to the rushing river that swirled by just below their feet. 'I've seen it bone dry in the season. Been rain in the suburbs lately, and

here it is now. Stay on the walkway, this is the shortest way to go, and don't slip. Once in that water you're a goner. Might find your body fifty miles out in the ocean if the fishes don't get it first.'

With this cheering encouragement the men slithered and crawled the awful length of that great tunnel, almost gasping with relief when they were back in the safety of a communications tube again. Shortly after this Jerry Cruncher halted and pointed up at a ladder that rose into the darkness above.

'98 BaG dropwell. This is the one you want, to that second centre you talked about.'

'You're sure?'

Jerry Cruncher eyed the Lieutenant with something very much like disgust and he groped his pipe from his pocket.

'Being you're ignorant, mister, I take no offence. When Jerry says a tunnel is a tunnel, that's the tunnel he says.'

'No offence meant!'

'None taken,' he muttered mollifiedly around the pipe stem. 'This is the one. You can see all the wires and communication cables going up there as well. Can't be anything else.'

'What's at the top?'

'Door with a handle and a sign saying NO ADMISSION UNDER PAR. 897A OF THE MILITARY CODE.'

'Is the door locked?'

'Nope. Forbidden under paragraph 45-C of the Tunnel Authority Code. Need access, we do.'

'Then this is it. Sergeant, take eighteen men and get up that ladder. Sychronise your watch with mine. In two hours we go in. Just get through that door and start shooting – watch out for the equipment though – and keep shooting until every one of those slimy dirty Betelgeuseans is dead. Do you understand?'

The Sergeant nodded with grim determination and drew himself up and saluted. 'We'll do our duty, sir.'

'All right, the rest of you, move out.'

They had walked for no more than ten minutes down a lateral tunnel lined with frosted pipes before Jerry Cruncher stopped and sat down.

'What's wrong?' the Lieutenant asked.

'Tea break,' he said, putting his still warm pipe into his side pocket and opening his lunch box.

'You can't—I mean, listen, the enemy, the schedule . . .'

'I always have tea at this time.' He poured a great mugful of the potent brew and sniffed it appreciatively. 'Tea break allowed for in the schedule.'

Most of the men brought out rations and sipped from their canteens while the Lieutenant paced back and forth slapping his fist into his hand. Jerry Cruncher sipped his tea placidly and chewed on a large chocolate biscuit.

A shrill scream sliced through the silence and echoed from the pipes. Something black and awful launched itself from a crevice in the wall and was attached to Trooper Barnes' throat. The soldiers were paralysed. Not so Jerry Cruncher. There was a whistle and a thud as he instantly lashed out with his three foot spanner and the vicious assailant rolled, dead, onto the tunnel floor before their bulging eyes.

'It's . . . it's . . . *hideous!*' a soldier gasped. 'What is it?'

'Mutant hamster,' Jerry Cruncher said as he picked up the monster of teeth and claws and stuffed it into his lunch box. 'Descendants of house pets that escaped centuries ago, mutated here in the darkness until they turned into this. I've seen bigger ones. Boffins at the university give me three credits for every one I bring them. Not bad if I say so myself, and tax free too, which I hope you won't be repeating.' He was almost jovial now at this fiscally remunerative encounter. As soon as the trooper had been sewn up they pressed on.

A second squad was left at the next communication substation and they hurried on towards ComCent itself.

'Ten minutes to go,' the Lieutenant gasped, jogging heavily under the weight of all his equipment.

'Not to worry, just two tunnels more.'

It was three minutes to deadline when they reached the wide opening in the ceiling above them, sprouting cables from its mouth like an electronic hydra's head.

'Big door at the top,' Jerry Cruncher said, shining his torch up the shaft. 'Has a dual interlock compound wheel exchange lever. As you turn the wheel counterclockwise the lever in position *ready* must be . . .'

'Come up with us, please,' the Lieutenant begged, peering at his watch and chewing his lip nervously. 'We'll never get in in time and they'll be warned by the attacks on the other stations.'

'Not my job, you know, getting shot at. I let them as has been paid for it do it.'

'Please, I beg of you, as a patriotic citizen.' Jerry Cruncher's face was as of carved stone as he bit down heavily on the stem of his pipe. 'You owe it to yourself, your family, your conscience, your country. And I can guarantee a hundred credit bonus for opening it.'

'Done.'

They climbed against time and when they reached the platform at the top the second hand on the Lieutenant's watch was just coming up on the twelve.

'Open it!'

The wheel spun and gears engaged, the great lever went down and the massive portal swung open.

'For Mother Earth!' the Lieutenant shouted and led the charge.

When they had all gone inside and the tunnel was silent again Jerry Cruncher lit his pipe and then, more out of curiosity than anything else, strolled in after them. It was a vista of endless steel corridors lined with banks of instruments, whirring and humming under electronic control. He stopped to tamp down his pipe just as a door opened and a short hairy creature, no taller than his waist, shaped like a bowling pin and possessing a number of arms, scuttled out and raced towards a large red switch mounted on the opposite wall. Five of its arms were reaching for the switch, spatulate fingers almost touching it, when the spanner whistled once again and sank deep into the creature's head, flooring it instantly. Jerry Cruncher had just retrieved the spanner when the white-faced Lieutenant raced through the same door.

'Praise heaven!' he gasped, 'you've stopped him in time.'

'Didn't like his looks at all, though I didn't mean to bash his brains in.'

'That is their leader, the only survivor, and he was going for the destruct switch that would have blown us all a mile high. He's our prisoner now and he'll talk, believe me. You

didn't kill him. The Betelgeuseans have their brains in their midriffs, their stomachs are in their heads. He's just unconscious.'

'Like a boot in the guts. Glad of that, didn't mean to kill him.'

'Where you been?' Agatha called from the kitchen when she heard Jerry's heavy tread in the hall.

'Special job,' he wheezed, pulling off his high boots. 'Going to be some extra lolly in the pay packet this week.'

'We'll need it to fix the viddy. It's been out of order all day, though it just came back on. Something wrong with it I'm sure. Had phone trouble too, would you believe, all in the same day. Tried to call Mum but our line went dead. Was it a hard job?'

'Not specially,' Jerry grunted, digging out his pipe. 'Government work, bit of a bonus in it too I imagine. Showed a bunch of chaps through the tunnels. Not a clue they had. One mashed his hand in a lid and the other just sat there while a hampmutey went for his throat.'

'Oooh, don't say that, I'll have no appetite at all. Tea's ready.'

'Now *that* is the sort of thing I like to hear.'

He smiled for the first time since he had gotten out of bed that morning and went in to have his tea.

EVANE

by

E. C. TUBB

E. C. Tubb, winner of the new Europa Award presented at the first European sf congress at Trieste in 1972 for his short story Lucifer, *is well known for his powerful evocation of human emotions aroused by confrontation with the daunting spectacle of scientific progress. Just how far can machinery go in making use of life?*

THE computer had been vocalised on the basis of psychological necessity; a concept determined by those who lived in ivory towers and who, trying to be rational, ended by being sadistic. There were other things also, some explicit photographs, some books, a thing in a box which could be inflated and used to ease personal tensions. He used it once and then, repulsed, destroyed it together with the books and photographs. The voice he could do nothing about.

It was soft, mellifluous, the voice of an actual woman or something designed on computer-optimums, he had no way of telling. But it was mellow, devoid of the stridency of youth and for that he was grateful. And, as he couldn't ignore it or turn it off he had learned to live with it and, over the long, long years, had grown to accept it, to rely on it as an integral part of his limited universe. He had even amused himself by fitting a face and figure to the sound.

The image had varied as age had stilled the passions of his blood. At first she had been lithe with raven hair and jutting breasts and hips and thighs belonging to adolescent yearnings. And then she had matured into a more comfortable image, the transition moulded by the voice of his own desires. Now she was tall with short blonde hair curling just above the shoulders. Her eyes were blue, deep-set, crinkled at the corners with a tracery of fine lines. She wore black, a simple dress revealing smooth shoulders and the upper parts of her fulsome breasts. Not the hard, jutting promontories he had once imagined but soft and slightly pendulous, matching the maturity of her face, the rounded swell of her hips. And he had given her a name.

'Time for routine inspection, Charles.'

He started, shocked out of his reverie, blinking as he sat upright in the big chair. Before him the panels were as always, the big dials with their creeping hands, the gleam of polished metal, the rows of telltales. He had been dreaming, he realised, not asleep but sunken into a reverie which was

a form of self-defence, a half-world in which memory became confused with imagination and fiction outweighed reality.

'Time for routine inspection, Charles.'

The use of his name, another psychological device but one which led to an inevitable personalisation of the machine. A blatant trick to assuage loneliness but one which could too easily lead to insanity. If it was insane to give a mechanical voice a name. To imagine that a real woman was speaking. To dream that somehow, incredibly, he wasn't really alone, that somewhere in his restricted world was another living person and that, perhaps, some time they would meet.

'Time for routine inspection, Charles.'

It was imagination, it could be nothing else, but had the voice grown a little sharp? A trifle impatient at his lack of response? Worried, even? It would be nice to think that someone cared; but experience had taught him to know better than that. Three times and then the shock, the electrical stimulus which would jerk him fully aware if asleep, a painful reminder that there was a job to be done and he the one to do it.

Quickly he said, 'All right, Evane. I heard you.'

'Your response was delayed. Were you asleep?'

'No, just thinking.'

'Are you well, Charles?'

He looked down at his hands, at the thick veins and mottled patches, the skin creped over the knuckles. Once they had been young and strong and good to see. When had they changed? Why hadn't he noticed the change before?

'Charles?'

'I'm all right,' he said shortly.

'I think I should monitor your metabolism, Charles. After the inspection, naturally.'

'Damn it, Evane, you don't have to nag me. I'm all right, I tell you.'

'After the inspection, Charles.'

How could you argue with a machine? He could refuse; but there were ways to make him obey, the Builders had seen to that. Nowhere could he be free of the sensors and to disobey meant punishment. Sullenly he rose from the chair,

uneasily conscious of physical malfunction. His legs, for example, had they always ached as they did now? Over the years he had become accustomed to the dimming of his vision so now it was normal for him not to be able to see the fine divisions on the dials from his position in the chair. But the ache, the slight hesitation of his left foot so that he almost stumbled, saving himself by gripping the back of the chair? Was this new or had he experienced it before? And, if he had, why couldn't he remember?

The thought nagged as he moved from the chair down the ten feet of space towards the rear bulkhead. He could reach the ceiling by lifting his arms, touch the walls by extending them. A tiny space backed by complex machines which fed him air and food and water in calculated amounts. A sealed environment in which he was nurtured and housed and, above all, protected from external influences. In such a place experiences were few and always strictly personal. How could he possibly forget any detail of his monotonous life?

'Charles, you hesitate. The inspection must be completed.'

He reached the bulkhead and reached for the simple controls. Freed by the computer they responded to his touch, a panel lifting to reveal a vast area dimly lit and magnified by the plate through which he stared. Direct vision aided by lenses and mirrors to eliminate the possibility of electronic malfunction. Dutifully he examined the enigmatic hoppers, the ranked containers, countless phials, numberless motes which were packed into thin-skinned ampoules, unknown objects tucked into plastic membranes. Once he had thrilled at the sight, conscious of a tremendous sense of purpose, warmed by the conviction that he was important and essential to the success of the project. Now he simply went through the motions.

'Charles?'

He had stared for too long, losing himself in another of the insidious reveries, trying, perhaps, to recapture the early thrill, extrapolating, looking ahead, guessing at incredible futures. Or perhaps he had simply dozed a little, bored, resentful of the dominance of the computer.

'Charles, is everything at optimum function?'

'Yes, Evane, as always.'

'Then return to the chair, Charles. I must monitor your metabolism.'

He felt the controls shift beneath his hands, the panel falling to seal the bulkhead, and slowly he returned to the chair, sitting, thrusting his right hand and arm into the familiar orifice. Probes sank into his flesh and he felt the mild tingle of surface stimulation. He leaned back, closing his eyes, imagining a smooth face framed with blonde hair, blue eyes, a little anxious perhaps, the full lips pursed and the dress falling a little, a very little away from the chest and shoulders as she leaned forward to study the results of her examination.

'Well, Nurse, will I live?'

'Nurse?'

'At this moment, Evane, you're a nurse. A person who takes care of the sick. Am I sick?'

'You are not operating at optimum efficiency, Charles.'

'Which means that I'm sick. Cure me, Evane.'

He felt the touch of something followed by a rising euphoria. An injection of some drug, he guessed, something to dispel his depression, his mounting sense of anxiety. And the obedience helped, the fact that she had complied with his instruction. A man should always be the dominant partner.

Eyes still closed, imagining her leaning back, smiling, her expression a soft blend of affection and motherly concern, he said, 'How long, Evane?'

'You are imprecise, Charles.'

'And you are being stubborn. You know damn well what I mean. How long have we been travelling in this can?'

'A long time, Charles.'

Too long, he thought. So long that time had become meaningless. Flung at a speed close to that of light, aimed at the distant stars, his metabolic clock slowed by the contraction effect. Back home it could have been ten thousand years. Within the ship it had been a lifetime.

The thought bothered him and he fought it, aided by the drug, the comforting presence of the woman. Imperceptibly he slipped into reverie, hearing again the childish voices of the chosen, the deeper tones of his instructors.

He was special. He was to be trained for a momentous task. His life was to be dedicated to the Great Expansion.

He stirred and felt again the soothing injection.

'Talk to me, Evane.'

'About what, Charles?'

'Pick a subject. Any subject. You are tall and blonde and beautiful. How do you feel locked up in that machine? Shall I let you out? Break into your prison and let you take a walk?'

'You are being irrational, Charles.'

'How so, Evane? You've been with me for how long? Fifty years? More? A long time in any case. We've spoken often and surely you must have changed a little from those early days. Listen, do you know why I destroyed the books and those other things? I felt that you were watching me. Watching and despising me. Can you deny it?'

'I have watched you, Charles, certainly.'

'Watched and ordered, do this and do that and do it damn quick or else. At times you've been a bitch and I should hate you but I don't. Hate you, I mean. I don't hate you at all.'

'Hate, Charles?'

'An emotive feeling.'

In his imagination she frowned and shook her head.

'Don't say it,' he said quickly. 'I don't want to know what you can and cannot feel. Nothing with a voice like yours can be devoid of sensitivity.'

'You are irrational, Charles. Perhaps you should sleep.'

'No!'

He snatched his arm from the orifice before the drug could be injected, cunning with much repetition for this was not the first time he had sat and conversed with the woman locked in her machine. And yet this time seemed different from those other occasions. Then he had permitted the oblivion she gave, sinking into darkness and a world of dreams in which, living, she had come to him, arms open, body yielding, sweeping him on a tide of consummation in which everything was wonderful and his life complete.

'I don't want to sleep,' he said. 'I want to talk. I want to know what all this is about. You are going to tell me.'

'I do not understand, Charles.'

'Data insufficient?' He sneered at her expression. 'Are you still trying to convince me that you're just a machine? Don't you realise I know better? This whole thing is a farce. A play. It's time it ended.'

'I still do not understand.'

'Guess.'

'You seem to be aberrated. A malfunction in your physical condition, perhaps. If you will replace your arm I will monitor your metabolism.'

'You'll do no such thing. You'll open the doors and let me out of here.'

'That is impossible, Charles. You know that.'

'Then return back home.'

'That is equally impossible. You are distressed, Charles, your thinking illogical. But you are not alone.'

Tiredly he opened his eyes and stared at the dials, the ranked telltales, the metal he had polished and the panels he had kept spotless. No, he was not alone. A million vessels over a span of years, each exactly like the one in which he rode, each loaded as this one was loaded, filled with manufactured spores, seeds, the life-elements common to the home world. Incipient life lying dormant in the hold, protected in a dozen different ways with skins of various plastic and natural membrane, in globules of ice and nutrient jelly, dehydrated, frozen, held in electronic stasis. Motes, dusts, moulds, near-invisible molecular chains. A cargo designed to perpetuate the race.

And himself?

'No!' He writhed with inner turmoil. 'No!'

'Charles, you must relax. You have no need to fear. The ship is intact and you are unharmed. Everything is as it was.'

The soft, soothing, mother-tone. The reassurance of a dedicated companion. He was not alone, she was with him, she would always be with him.

But she lied as the others had lied as his whole life had been a lie. His whole empty, stupid, wasted life.

'The truth,' he said harshly. 'Tell me the truth.'

'About what, Charles?'

'About everything. Talk, damn you!'

'The project was explained to you at the very beginning.

The Great Expansion is the dream of the race of which you are a member. We are to seek out a suitable star, discover a planet within a certain range of determined factors and discharge our cargo according to programmed instructions. If successful the life-cycle of that world will be guided to emulate conditions approximating the home world. This means that, in future times, the race will find suitable planets on which to settle. By extrapolation it is possible that within a foreseeable future the members of your race will find habitable and, to some extent, familiar worlds scattered throughout the galaxy.'

'And the rest?'

'There is no more, Charles.'

'Like hell there isn't. What about me?'

'You are the safety factor. It is remotely possible that something could go wrong with the ship or the life-support or maintenance mechanisms. If so you are able to effect repairs.'

'With what? My bare hands?'

'No, Charles, with the tools which I will make available in case of need.'

'And the knowledge of how to use them?'

'That has been implanted in your subconscious mind, Charles. The knowledge will be released by any state of real emergency.'

It sounded logical and he wondered why he should be impressed, what else would a machine be but logical? And yet the thing had been programmed and set to respond in a certain way to certain stimuli. It could be lying or, correction, telling the truth as it knew it which needn't be the truth at all.

And yet, if that wasn't the truth, what was?

Why had he been incorporated into the vessel?

Restlessly he rose from the chair and walked the ten feet towards the rear bulkhead, the ten feet towards the chair, the ten feet back again. Around him the vessel operated with its usual, quiet efficiency and he stared at the walls, the ceiling, the panel with its ranked instruments. Window-dressing, he thought, suddenly. Something to occupy his attention and to maintain the illusion that he was important to the functioning of the ship. Why hadn't he realised

before that he was totally unnecessary with the vessel operated as it was by computer control? An expensive piece of inessential cargo.

And yet the Builders would never have wasted so much unless there had been a reason.

He said, harshly, 'Evane, why am I here?'

'I told you, Charles.'

'You lied. Now tell me the truth.' Incredibly she did not answer and, staring at his hands, seeing the thick veins, the blotches, the signs of age, he said, 'What happens when I die?'

'When you cease to function, Charles, we will have reached terminal distance from the home world. I shall then reverse direction and commence to search for a suitable world to receive our cargo.'

For a moment it made no sense—and then the truth came crashing in, numbing, killing with its sudden destruction of his pride and ego.

'A clock,' he said blankly. 'You mean that I'm nothing more than a damned clock.'

A metabolic timepiece: for in the contraction caused by near-light speeds how else to determine duration? The seeded world must be within reach and that measurement must be determined by the life-span of a man. His life-span or his awareness of the truth, the variable was important.

And the rest?

'I am sorry, Charles,' said the machine and this time there could be no doubt as to the note of regret. 'I am really sorry.'

And then the electronic device implanted in his brain froze him to instant immobility, the gases came to chill him into stasis, the walls opened and displayed the instruments which would take him and sunder his flesh into fragments, preserving the essential RNA and DNA molecular chains all to be added to the final seeding.

But there was no pain. No pain at all. In that, at least, the Builders had been kind.

RENDEZVOUS WITH RAMA

by

ARTHUR C. CLARKE

Arthur Clarke was one of John Carnell's oldest friends and as an author feels a particular debt to him because, among many other things, John Carnell first published 'The Sentinel', *the short story that was the germ of* 2001, A Space Odyssey. *Naturally, Arthur Clarke was anxious to appear in this special volume of* New Writings. *But he tells me he has nothing unprinted, for* The Wind from the Sun *brings all his stories into book form, so it is with very great pleasure we are able to present herewith the introduction to his novel* Rendezvous with Rama, *published by Gollancz. This short introduction indicates that the Clarkian magic and breadth of vision continue unabated ...*

SOONER or later, it was bound to happen. On 30 June, 1908, Moscow escaped destruction by three hours and two thousand miles—a margin invisibly small by the standards of the universe. Again, on 12 February, 1947, yet another Russian city had a still narrower escape; the second great meteorite of the Twentieth Century detonated only two hundred miles from Vladivostok, with an explosion rivalling that of the newly-invented uranium bomb.

In those days, there was nothing that men could do to protect themselves against the last random shots in the cosmic bombardment that had once scarred the face of the Moon. The meteorites of 1908 and 1947 had struck uninhabited wilderness; but by the end of the Twenty First Century, there was no region left on Earth that could be safely used for celestial target practice. The human race had spread from Pole to Pole. And so, inevitably...

At 09.46 G.M.T. on the morning of September 11, in the exceptionally beautiful summer of the year 2077, most of the inhabitants of Europe saw a dazzling fireball appear in the eastern sky. Within seconds it was brighter than the sun, and as it moved across the heavens—at first in utter silence—it left behind it a churning column of dust and smoke.

Somewhere above Austria it began to disintegrate, producing a series of concussions so violent that more than a million people had their hearing permanently damaged. They were the lucky ones.

Moving at thirty miles a second, a thousand tons of rock and metal impacted on the plains of northern Italy, destroying in a few flaming moments the labour of centuries. The cities of Padua and Verona were wiped from the face of the earth; and the last glories of Venice sank forever beneath the sea, as the waters of the Adriatic came thundering landwards after the hammer-blow from space.

Six hundred thousand people died, and the total damage

was more than a trillion dollars. But the loss to art, to history, to science—to the whole human race, for the rest of time—was beyond all computation. It was as if a great war had been fought and lost in a single morning; and few could draw much pleasure from the fact that, as the dust of destruction slowly settled, for months the whole world witnessed the most splendid dawns and sunsets since Krakatoa.

After the initial shock, mankind reacted with a determination and a unity that no earlier age could have shown. Such a disaster, it was realised, might not occur again for a thousand years—but it might occur tomorrow. And the next time, the consequences could be even worse.

Very well; *there would be no next time.*

A hundred years earlier, a much poorer world, with far feebler resources, had squandered its wealth attempting to destroy weapons suicidally directed by mankind against itself. The effort had never been successful, but the skills acquired then had not been forgotten. Now they could be used for a far more worthy purpose, on an infinitely vaster stage. No meteorite large enough to cause catastrophe would ever again be allowed to breach the defences of Earth.

So began Project SPACEGARD. Fifty years later—and in a way that none of its designers could ever have anticipated —it justified its existence.

SPACEBIRD

by

JAMES WHITE

Besides being the recipient of the new Europa Award presented at the first European sf congress at Trieste in 1972 for his novel All Judgement Fled, *James White has a tender loving care for all his stories, not least the well known Sector General series. Previous stories may be found in* New Writings *Nos. 7, 12, 14, 16 and 18. For such a series to be successful the qualities of compassion and understanding of an alien viewpoint are prerequisites. These qualities James White possesses to the full . . .*

SPACEBIRD

ONE

THE Monitor Corps scoutship *Torrance* was engaged on a mission which was both highly important and deadly dull. Like the other units of its flotilla it had been assigned a relatively tiny volume of space in Sector Nine—one of the many three-dimensional blanks which still appeared in the Federation's charts—to fill in the types and positions of the stars which it contained and the numbers of planets circling them.

Because a ten-man scoutship did not have the facilities for handling a first contact situation, they were forbidden to land or even make a close approach to these planets. They would identify the technologically advanced worlds, if any, by analysing the radio frequency and other forms of radiation emanating from them. As Major Madden, the vessel's captain, had told them at the start of the mission, they were simply going to count lights in the sky and that was all.

Naturally, Fate could not resist a temptation like *that*...

'Radar, sir,' said a voice from the controlroom 'speaker. 'We have a blip on the close-approach screen. Distance six miles, closing slowly, non-collision course.'

'Lock on the telescope,' said the Captain, 'and let's see it.'

'Yes, sir. Repeater screen Two.'

On Corps scoutships discipline was strict only when circumstances warranted it, and normally those circumstances did not arise during a mapping mission. As a result the noises coming from the 'speaker resembled a debate rather than a series of station reports.

'It looks like a ... a bird, sir, with its wings spread.'

'A plucked bird.'

'Has anyone calculated the chances against materialising this close to an object in interstellar space?'

'I think it's an asteroid, or molten material which congealed by accident into that shape.'

'Two lightyears from the nearest sun?'

'Quiet, please,' said the Captain. 'Lock on an analyser and report.'

There was a short pause, then: 'Estimated size, roughly one-third that of this ship. It's non-reflective, non-metallic, non-mineral and——'

'You're doing a fine job of telling me what it isn't,' said the Captain drily.

'It is organic, sir, and . . .'

'Yes?'

'And alive.'

For a few seconds the controlroom 'speaker and the Captain held their breath, then Madden said firmly, 'Power Room, manoeuvring thrust in five minutes. Astrogation, match courses and close to five hundred yards. Ordnance, stand by. Surgeon-Lieutenant Brenner will prepare for EVA.'

The debate was over.

During the ensuing four hours Lieutenant Brenner examined the creature, initially at a safe distance and later as closely as his suit would allow. He was sure that the analyser had been a little too optimistic over what was most likely a not quite frigid corpse. Certainly the thing was no threat because it could not move even if it had wanted to. The covering of what looked like large, flat barnacles and the rock-hard cement which held them together saw to that.

Later, when he was ending his report to the Captain, he said, 'To sum up, sir, it is suffering from a pretty weird skin condition which got out of control and caused it to be dumped—certainly it didn't fly out here. This implies a race with space-travel who are subject to a disease which scares them so badly that they dump the sufferers into space while they are still alive.

'As you know,' he continued, 'I don't have the qualifications to treat e-t diseases, and the being is too large to fit into our hold. But we could enlarge our hyperspace envelope and tow it to Sector General.

'That would make a nice break in the mapping routine,'

he added hopefully, 'and I've never been to that place. I'm told that not all the nurses there have six legs.'

The Captain was silent for a moment, then he nodded.

'I have,' he said. 'Some of them have more.'

Framed in the rescue tender's aft vision screen the tremendous structure that was Sector Twelve General Hospital hung in space like a gigantic cylindrical Christmas tree. Its thousands of viewports were constantly ablaze with light in the dazzling variety of colour and intensity necessary for the visual equipment of its patients and staff, while inside its three hundred and eighty-four levels was reproduced the environments of all the intelligent life-forms known to the Galactic Federation—a biological spectrum ranging from the ultra-frigid methane-breathers through the more normal oxygen- and chlorine-breathing types up to the exotic beings who existed by the direct conversion of hard radiation.

In addition to the patients, whose numbers and physiological classifications were a constant variable, there was a medical and maintenance staff comprising sixty-odd differing life-forms with sixty different sets of mannerisms, body odours and ways of looking at life.

The staff of Sector General prided themselves that no case was too big, too small or too hopeless, and their reputation and facilities were second to none. They were an extremely able, dedicated, but not always serious bunch, and Senior Physician Conway could not rid himself of the idea that on this occasion someone was playing a complicated joke on him.

'Now that I see it,' he said drily, 'I still can't believe it.'

Pathologist Murchison, who occupied the position beside him, stared at the image of *Torrance* and its tow without comment. On the controlroom ceiling, where it clung with six fragile, sucker-tipped legs, Doctor Prilicla trembled slightly and said, 'It could prove to be an interesting and exciting professional challenge, friend Conway.'

The musical trills and clicks of the Cinrusskin's speech were received by Conway's translator pack, relayed to the translation computer at the centre of the hospital and transmitted back to his ear-piece as flat, emotionless Eng-

lish. As expected, the reply was pleasant, polite and extremely non-controversial.

Prilicla was insectile, exo-skeletal, six-legged and with a pair of iridescent and not quite atrophied wings and possessing a highly-developed empathic faculty. Only on Cinruss with its one-eighth gravity and dense atmosphere could a race of insects have grown to such dimensions and in time developed intelligence and an advanced civilisation. But in Sector General Prilicla was in deadly danger for most of its working day. It had to wear gravity nullifiers everywhere outside its own quarters because the gravity pull which most of its colleagues considered normal would instantly have crushed it flat, and when Prilicla held a conversation with anyone it kept well out of reach of any thoughtless movement of an arm or tentacle which could easily cave in its fragile body or snap off a leg.

Not that anyone would have wanted to hurt Prilicla—it was too well-liked for that. The Cinrusskin's empathic faculty forced it to be kind and considerate to *everyone* in order to make the emotional radiation of the people around it as pleasant for itself as possible.

Except when its professional duty exposed it to pain and violent emotion in a patient, and that situation might arise within the next few minutes.

Turning suddenly to Prilicla, Conway said, 'Wear your lightweight suit but stay well clear of the being until we tell you that there is no danger of movement, involuntary or otherwise, from it. We shall wear heavy duty suits, mostly because they have more hooks on which to hang our diagnostic equipment, and I shall ask *Torrance's* medic to do the same.'

Half an hour later Lieutenant Brenner, Murchison and Conway were hanging beside the form of the enormous bird while Prilicla, wearing a transparent plastic bubble through which projected its bony mandibles, drifted beside the lock of their tender.

'No detectable emotional radiation, friend Conway,' reported the empath.

'I'm not surprised,' said Murchison.

'It could be dead,' said the Lieutenant defensively. 'But when we found it the body temperature was measurably

above the norm for an object warmed only by a two light-years distant sun.'

'There was no criticism intended, Doctor,' said Murchison soothingly. 'I was simply agreeing with our empathic friend. But did you, before or during the trip here, carry out any examinations, observations or tests on this patient, or reach any tentative conclusions as a result of such tests? And don't be shy, Lieutenant—we may be the acknowledged experts in xenological medicine and physiology here, but we got that way by listening and looking, not by gratuitous displays of our expertise. You were curious, naturally, and...?'

'Yes, m'am,' said Brenner, his voice registering surprise that there was an Earth-human female inside the bulky suit. 'I assumed that, lacking information on its planet of origin, you might want to know if there were any safe atmospheric compositions in which it could be examined—I was assuming that, being a bird, it needed an atmosphere to fly in and that it had been dumped in space because of its diseased condition...'

Listening, Conway could not help admiring the smooth way in which Murchison was getting the Corps medic to tell them about the things he had done wrong. As an e-t pathologist she was used to non-specialists interfering and complicating her job, and it was necessary that she discover as much as possible about the being's original condition before the changes or additional damage caused by inexpert examination—no matter how well-intentioned—had been introduced. She was finding out all that she needed to know quietly and without giving offence, as if she was Prilicla in human form.

But as Brenner continued talking it became increasingly clear that he had made few, if any, mistakes, and a fair proportion of Conway's professional admiration was being diverted towards the Lieutenant.

'... After I sent the preliminary report and we were on our way,' Brenner was saying, 'I discovered two small, rough areas on the black stuff covering the creature—a small, circular patch at the base of the neck, right here, and an oval patch, a little larger, which you can see on the underside. In both these areas the black stuff is cracked but

with the cracks filled, or partly filled, by more of the stuff, and a few of the barnacles in these areas have been damaged as well. This is where I took my specimens.'

'Marking the places you took them from, I see,' said Murchison. 'Go on, Doctor.'

'Yes, m'am,' said the Lieutenant, and went on. 'The black material seems to be a near-perfect insulator—it is highly resistant to heat, including that of a cutting torch at medium power. At very high temperatures the area under test formed a black ash which flaked away but showed no sign of softening or cracking. The chips of shell from the damaged barnacles were not quite so heat-resistant unless they happened to be covered by the black material.

'The black stuff was also resistant to chemical attack,' Brenner continued, 'but not the pieces of shell. When the chips were exposed to various basic atmosphere types, the results seemed to indicate that they had not originated on one of the exotic environments—methane- or ammonia- or even chlorine-based atmosphere envelopes. Composition of the fragments seems to be basic hydrocarbon material, and they did not react to short-term exposures to an oxygen-rich mixture——'

'Give me the details of the tests you made,' said Murchison, suddenly becoming very businesslike and, although the Lieutenant did not know it, very complimentary. Conway signalled Prilicla to come closer, leaving the professional and amateur pathologists to get on with it.

'I don't think the patient is capable of movement,' he told the Cinrusskin. 'I don't even know if it's alive. Is it?'

Prilicla's limbs trembled as it steeled itself to make a negative reply and, by so doing, become just the slightest bit disagreeable. It said, 'That is a deceptively simple question, friend Conway. All that I can say is that it doesn't appear to be quite dead.'

'But you can detect the emotional emanations from a sleeping or deeply unconscious mind,' said Conway incredulously. 'Is there no emotional radiation at all?'

'There are traces, friend Conway,' said the Cinrusskin, still trembling, 'but they are too faint to be identifiable. There is no self-awareness and the traces which are apparent do not, so far as I am able to tell, originate from the

being's cranial area—they seem to emanate from the body as a whole. I have never encountered this effect before, so I lack sufficient information or experience even to speculate.'

'But you will,' said Conway, smiling.

'Of course,' said Prilicla. 'It is possible that if the being was both deeply unconscious and at the same time was having the nerve endings in its skin constantly stimulated by severe pain, this might explain the effect which I can detect on and for some distance below the skin.'

'But that means that you are detecting the peripheral nerve network and not the brain,' said Conway. 'That is unusual.'

'Highly unusual, friend Conway,' said the little empath. 'The brain in question would have to have had important nerve trunks severed or have suffered major structural damage.'

In short, Conway thought grimly, we may have been handed someone's cast-off patient.

Two

MURCHISON and Brenner, using the pathologist's sterile drills, were taking deep samples as well as collecting and labelling chippings of shell and the black material which covered the patient—more accurately, Murchison took the samples while the Lieutenant sealed the tiny openings she made. Conway returned to the tender with Prilicla to arrange accommodation for the patient based on their sketchy knowledge—an evacuated chamber large enough to hold the thing, with provision for restraining it and for surrounding it with an oxygen-based atmosphere—and was followed shortly afterwards by the others.

It was then that Brenner saw for the first time the contents of the pathologist's spacesuit, and Prilicla began a slow tremble.

Unless covered by a heavy duty suit fitted with an opaque sun filter, Murchison displayed a combination of physiological features which made it impossible for any male Earth-human member of the staff to regard her with anything approaching clinical detachment. The Lieutenant

finally managed to drag his eyes away from her and to notice Prilicla.

'Is something wrong, Doctor?' he asked, looking concerned.

'To the contrary, friend Brenner,' said the empath, still trembling slowly. 'This type of involuntary physical activity is my species' reaction to the close proximity of an intense but pleasurable source of emotional radiation of the kind usually associated with the biological urge to mate . . .'

The Cinrusskin broke off and stopped trembling because the Surgeon-Lieutenant's suddenly red face was clashing discordantly against his green uniform, and Prilicla was feeling his embarrassment.

Murchison smiled sympathetically and said, 'Perhaps I am the cause, Lieutenant Brenner—I have intense feelings of pleasure over the way in which your earlier tests and deductions have saved me nearly four hours work in a very irksome spacesuit. Isn't that so, Prilicla?'

'Most certainly,' said the empath, to whom lying was second nature so long as it made someone, especially itself, happy. 'Empathy is not nearly as accurate as telepathy, you know, and mistakes of this kind frequently occur.'

Conway cleared his throat and said, 'I've arranged to see O'Mara just as soon as we have the patient accommodated which, initially, will be in an evacuated dock and storage chamber on Level 103. We will use the tender's tractor beam to transfer the patient to the hospital, so if you are needed on board *Torrance*, Lieutenant . . .?'

Brenner shook his head. 'The Captain would like to spend some time here, if possible, and so would I if I wouldn't be in the way. It's my first time to visit this place. Are there, ah, many other Earth-humans on the medical staff?'

If you mean like Murchison, Conway thought smugly, *the answer is no.* Aloud, he said, 'We would welcome your help, of course. But you do not know what you are letting yourself in for, Lieutenant, and you keep asking about the Earth-humans on the staff. Are you xenophobic, even slightly? Uncomfortable near extra-terrestrials?'

'Certainly not,' said Brenner firmly, then added, 'Of course, I wouldn't want to marry one.'

Prilicla began the slow shakes again. The musical trills and clicks of its Cinrusskin speech formed a pleasant background to its translated voice as it said, 'From the sudden flood of pleasant emotional radiation, for which I can see no apparent reason in the current situation and recent dialogue, I assume that someone has made what Earth-humans call a joke.'

At Level 103 Prilicla left to check on its wards while the others supervised the transfer of the great, stiff-winged bird into the storage chamber. Looking at the swept-back, partially folded wings and stiffly extended neck, Conway was reminded of one of the old-time space shuttles. His mind began to slip off on an interesting, but ridiculous, tangent and he had to remind himself that birds did *not* fly, in space.

With the patient immobilised under one full G of artificial gravity it still took another three hours before Murchison had everything she wanted in the way of specimens and x-rays. In part the delay was caused by them having to work in pressure suits because, as Murchison put it, there would be little risk in observing the patient for a few more hours in airless until they had worked out its atmosphere requirements with exactness—otherwise they might simply end by observing its processes of decomposition.

But their information on the patient was growing with every minute that passed, and the results of their tests—transmitted direct from Pathology by the portable communicator beside them—were both interesting and utterly baffling. Conway lost all track of time until the communicator chimed for attention and the face of Major O'Mara glowered out at them.

'Conway, you arranged to see me here seven and one half minutes ago,' said the Chief Psychologist. 'No doubt you were just leaving.'

'I'm sorry, sir,' said Conway, 'the preliminary investigation is taking longer than I estimated, and I want to have something concrete to report before seeing you.'

There was a faint rustling sound as O'Mara breathed heavily through his nose. The Chief Psychologist's face was about as readable as a piece of weathered basalt, which in some respects it resembled, but the eyes which studied Con-

way opened into a mind so keenly analytical that it gave the Major what amounted to a telepathic faculty.

As Chief Psychologist of a multi-environment hospital he was responsible for the mental well-being of a staff of several thousand entities belonging to more than sixty different species. Even though his Monitor Corps rank of Major did not place him high in the chain of command, there was no clear limit to his authority. To O'Mara the medical staff were patients, too, and part of his job was to assign the right kind of doctor—whether Earth-human or e-t—to a given patient.

Given even the highest qualities of tolerance and mutual respect, potentially dangerous situations could still arise through ignorance or misunderstanding, or a being could develop xenophobia to a degree which threatened to affect its professional competence, mental stability, or both. An Earth-human doctor, for instance, who had a subconscious fear of spiders would not be able to bring to bear on a Cinrusskin patient the proper degree of clinical detachment necessary for its treatment. And if someone like Prilicla were to treat such an Earth-human patient...

A large part of O'Mara's job was to detect and eradicate such trouble among the medical staff while other members of his department saw to it that the problem did not arise where the patients were concerned. According to O'Mara himself, however, the true reason for the high degree of mental stability among the variegated and often touchy medical staff was that they were all too frightened of him to risk going mad.

Caustically, he said, 'Doctor Conway, I freely admit that this patient is unusual even by your standards, but you must have discovered a few simple facts about it and its condition. Is it alive? Is it diseased or injured? Does it possess intelligence? Are you wasting your time on an outsize, space-frozen turkey?'

Conway ignored the rhetoric and tried to answer the questions. He said. 'The patient is alive, just barely, and the indications are that it is both diseased—the exact nature of the disease is not yet known—and suffering from gross physical injury, specifically a punctured wound made by a large, high-velocity projectile or a tightly focussed heat

beam which passed through the base of the neck and the upper chestal area. The wound entrance and exit is sealed by the black covering or growth—we still don't know which—encasing the body. Regarding the possibility of intelligence, the cranial capacity is large enough not to rule this out, but again, the head is not disproportionately large for the mass of the being, which is too deeply unconscious to radiate detectable emotion. The manipulatory appendages, whose degree of specialisation or otherwise can give a strong indication of the presence or absence of intelligence, have been removed.

'Not by us,' Conway added.

O'Mara was silent for a moment, then he said, 'I see. Another one of your deceptively simple cases. No doubt you will have deceptively simple special requirements. Accommodation? Physiology tapes? Information on planet of origin?'

Conway shook his head. 'I don't believe that you have a physiology tape that will cover this patient's type—all the winged species we know are light-gravity beings, and this one has muscles for about four Gs. The present accommodation is fine, although we'll have to be careful in case of contamination of or from the chlorine level above us—the seals to storage compartments like this are not designed for constant traffic, unlike the ward airlocks——'

'I didn't know that, of course.'

'Sorry, sir,' said Conway. 'I was thinking aloud, and partly for the benefit of Surgeon-Lieutenant Brenner, who is visiting this madhouse for the first time. Regarding information on its planet of origin, I would like you to approach Colonel Skempton to ask him if it would be possible for *Torrance* to return to that area to investigate the two nearer star systems, to look for beings with a similar physiological classification.'

'In other words,' said O'Mara drily, 'you have a difficult medical problem and think that the best solution is to find the patient's own doctor.'

Conway smiled and said, 'We don't need full cultural contact—just a quick look, atmosphere samples and specimens of local plant and animal life, if *Torrance* wouldn't mind soft-landing a probe——'

O'Mara broke the connection at that point with a sound which was untranslatable and Conway, now that they had gone as far as they could with the patient without the path reports, suddenly realised how hungry he was.

THREE

To reach the dining hall reserved for warm-bodied oxygen breathers they had to travel through two levels, none of which required protective suits, and a network of corridors crowded with entities which flapped, crawled, undulated and occasionally walked past them. They were met at the entrance by Prilicla who was carrying a folder of green path reports.

As they entered the last Earth-human table was being taken by a bunch of crab-like Melfans and a Tralthan—Melfans could adapt themselves to the low stools and the Tralthans did everything including sleep on their six elephantine feet. Prilicla spotted an empty table in the Kelgian area and flew across to claim it before the party of Corps maintenancemen could get there. Luckily it was beyond the range of their emotional radiation.

Conway began eagerly leafing through the reports once he saw that the Lieutenant was being shown by Murchison how to balance on the edge of a Kelgian chair within reach of the food he had ordered. But for once Brenner's attention was not on the shapely pathologist. He was staring at Prilicla, his eyebrows almost lost in his hair-line.

'Cinrusskins prefer to eat while hovering—they say it aids the digestion,' explained Murchison, and added, 'The slipstream helps cool the soup, too.'

Prilicla maintained a stable hover while they concentrated on refuelling, breaking off only to pass around the reports. Finally Conway, feeling pleasantly distended, turned to the Cinrusskin.

'I don't know how you managed it,' he said warmly. 'When *I* want a fast report from Thornnastor the most he will let me do is jump two places in the queue.'

Prilicla trembled at the compliment as it replied, 'I insisted, quite truthfully, that our patient was at the point of death.'

'But not,' said Murchison drily, 'that it has been in that condition for a very long time.'

'You're sure of that?' asked Conway.

'I am now,' she answered seriously, tapping one of the reports as she spoke. 'The indications are that the large punctured wound was inflicted by a meteorite collision some time after the disease, that is the barnacles and coating material were in position. The coating, which flowed into and across the wound, effectively sealed it.

'As well,' she continued, 'these tests show that a very complex chemical form of suspended animation—not just hypothermia—was used and that it was applied organ by organ, almost cell by cell, by micro-injections of the required specifics. In a way you could think of it as if the creature had been embalmed before it was quite dead in an effort to prolong its life.'

'What about the missing legs or claws?' said Conway, '*and* the evidence of charring under the coating in the areas behind the wings? And the pieces of what seems to be a different kind of barnacle in those areas?'

'It is possible,' Murchison replied, 'that the disease initially affected the being's legs or claws, perhaps during its equivalent of nesting. The removal of the limbs and the evidence of charring you mention might have been early and unsuccessful attempts at curing the patient's condition. Remember that virtually all of the creature's body wastes were eliminated before the coating was applied. That is standard procedure before hibernation, anesthesia or major surgery.'

The silence which followed was broken by the Lieutenant, who said, 'Excuse me, I'm getting lost. This disease or growth, what exactly do we know about it?'

They knew that the outward symptoms of the disease were the barnacle-like growths, Murchison told him, which covered the patient's tegument so completely that it could have been a suit of chain mail. It was still open to argument whether the barnacles were skin conditions which had sprouted rootlets or a subcutaneous condition with a barnacle-like eruption on the surface, but in either event they were held by a thick pencil of fine rootlets extending and subdividing to an unknown depth within the patient. They

penetrated not only the subcutaneous tissue and underlying musclature, but practically all of the vital organs and central nervous system. And the rootlets were hungry. There could be no doubt from the condition of the tissue underlying the barnacles that this was a severely wasting disease which was far advanced.

'It seems to me that you should have been called in earlier,' said Brenner, 'and that the patient was sealed up just before it was due to die.'

Conway nodded and said, 'But it isn't hopeless. Some of our e-ts practice micro-surgery techniques which would enable them to excise the rootlets, even the ones which are tangled up in the nerve bundles. It is a very slow procedure, however, and there is the danger that when we revive the patient the disease will also be revived and that it might progress faster than the micro-surgeon. I think the answer is to learn as much as we possibly can about the disease before we do anything else.'

When they returned to the patient there was a message waiting from O'Mara to say that *Torrance* had left with the promise of preliminary reports on the two solar systems nearest to the find within three days. During those three days Conway expected to devise procedures which would remove the coating and barnacles from the patient, arrest the disease and initiate curative surgery so that the scoutship's reports would be needed only to prepare proper accommodation for the patient's convalescence.

During those three days, however, they got precisely nowhere.

The material which encased barnacles and patient alike could be drilled and chipped away with great difficulty and an enormous waste of time—the process resembled that of chipping out a fossil without inflicting damage, and this particular fossil was fifty feet long and over eighty from tip to tip of its partially folded wings. When Conway insisted that Pathology produce a faster method of stripping the patient he was told that the coating was a complex organic, that the specifics they had devised for dissolving it would produce large quantities of toxic gases—toxic to the patient as well as the attending physicians—and that the shell material of the barnacles would be instantly dissolved by

this solvent and that it would not be good for the patient's skin and underlying tissue, either. They went back to drilling and chipping.

Murchison, who was continually withdrawing microspecimens from the areas affected by the rootlets, was informative but unhelpful.

'I'm not suggesting that you should abandon this one,' she said sympathetically, 'but you should start thinking about it. In addition to the widespread tissue wastage, there is evidence of structural damage to the wing muscles—damage which may well have been self-inflicted—and I think the heart has ruptured. This will mean major surgical repairs as well as——'

'This muscle and heart damage,' said Conway sharply. 'Could it have been caused by the patient trying to get out of its casing?'

'It is possible but not likely,' she replied in a voice which reminded him that he was not talking to a junior intern and that past and present relationships could change with very little notice. 'That coating is hard, but it is relatively very thin and the leverage of the patient's wings is considerable. I would say that the heart and muscle damage occurred before the patient was encased.'

'I'm sorry if . . .' began Conway.

'There is also the fact,' she went on coldly, 'that the barnacles are clustered thickly about the patient's head and along the spine. Even with our tissue and nerve regeneration techniques, the patient may never be able to think or move itself even if we are successful in returning it to a technically living state.'

'I hadn't realised,' said Conway dully, 'that it was as serious as that. But there must be something we can do . . .' He tried to pull his face muscles into a smile. '. . . if only to preserve Brenner's illusions about the miracle-workers of Sector General.'

Brenner had been looking from one to the other, obviously wondering whether this was a spirited professional discussion or the beginning of some kind of family fight. But the Lieutenant was tactful as well as observant. He said, 'I would have given up a long time ago.'

Before either of them could reply the communicator

chimed and Chief of Pathology Thornnastor was framed in the screen.

'My department,' said the Tralthan, 'has worked long and diligently to discover a method of removing the coating material by chemical means, but in vain. The material is, however, affected by intense heat. At high temperatures the surface crumbles, the ashy deposit can be scraped or blown away and heat again applied. The process can be continued safely until the coating is very thin, after which it could be removed in large sections without harm to the patient.'

Conway obtained the temperature and thickness figures, thanked Thornnastor and then used the communicator to call the maintenance section for cutting torches and operators. He had not forgotten Muchison's doubts regarding the advisability of attempting a cure, but he had to go on trying. He did not *know* that the great, diseased bird would end as a winged vegetable, and he would not know until they knew everything possible about the disease which was affecting it.

Because the heat treatment was untried they began near the tail, where the vital organs were deeply buried and where the area had already been disturbed, presumably by the efforts of their medical predecessors.

After only half an hour's continuous burning they had their first stroke of luck in three days. They discovered a barnacle which was embedded upside down in the patient —its bundle of rootlets fanned out to link up with other barnacles, but a few of them curved down and past the rim of its shell to enter the patient. The surface rootlet network was clearly visible as the flame of the torch burned the rootlet material into a fine, incandescent web. One of the briefly incandescent rootlets pointed towards a barnacle which was larger and differently shaped.

Patiently they painted both objects and their immediate surroundings with the cutting torches, brushing away the crumbling layers of coating until it was wafer thin. They cracked it, carefully peeled back the remains of the coating and lifted away two perfect specimens.

'They are dead,' asked Conway, 'not just dormant?'

'They are dead,' said Prilicla.

'And the patient?'

'Life is still present, friend Conway, but the radiation is extremely weak, and diffuse.'

Conway studied the area bared by the removal of the two specimens. Beneath the first was a small, deep hollow which followed the contours of the reversed shell. The underlying tissues showed a high degree of compression, and the few rootlets in evidence were much too weak and fine to have held the barnacle so tightly against the patient. Something or somebody had pressed that barnacle into position with considerable force.

The second, and different, specimen had been held only by the coating, apparently—it did not possess rootlets. But it did possess wings folded into long slits in its carapace and so, on closer inspection, did the first type.

Prilicla alighted beside them, trembling slightly and erratically in the fashion which denoted excitement. It said, 'You will have noticed that these are two entirely different species, friend Conway. Both are large, winged insects of the type which require a low-gravity planet with a thick air envelope—not unlike Cinruss. It is possible that the first type is a predator parasite and that the second is a natural enemy, introduced by a third party in an attempt to cure the patient.'

Conway nodded. 'It would explain why type one turned on to its back when approached by type two . . .'

'I hope,' said Murchison apologetically, 'that your theory is flexible enough to accept another datum.' She had been scraping persistently at a piece of coating which was still adhering to a smaller slit in the barnacle. 'The coating material was not applied by a third party, it is a body secretion of type one.

'If you don't mind,' she added, 'I'll take both of these beasties to Pathology for a long, close look.'

For several minutes after she left nobody spoke. Prilicla began to tremble again and, judging by the expression of Brenner's face, it was at something the officer was feeling. It was the Lieutenant who broke the silence.

'If the parasites are responsible for the coating,' he said sickly, 'then there was no earlier attempt to cure the patient. Our heavy-gravity patient was probably attacked on the light-gravity planet of the flying barnacles, they sank

in their rootlets or tendrils, paralysed its muscles and nervous system and encased it in a . . . a shell of slowly feeding maggots when it wasn't even dead——'

'A little more clinical detachment, Lieutenant,' said Conway sharply. 'You're bothering Prilicla. And while something like that may have happened, there are still a few awkward facts which don't fit. That depression under the inverted barnacle still bothers me.'

'Maybe it sat on one of them,' said Brenner angrily, his feeling of revulsion temporarily overcoming his manners. 'And I can understand why its friends dumped the patient into space—there was nothing else they could do.'

He hesitated, then said, 'I'm sorry, Doctor. But is there anything else that you can do?'

'There is something,' said Conway grimly ,'that we can *try* . . .'

FOUR

ACCORDING to Prilicla their patient was, just barely, alive, and now that the barnacles were known to be the attacking organisms and not just surface eruptions, they and their coating must be removed as quickly as possible. Removal of the tendrils would require more delicate and time-consuming work, but the surface condition would respond to heat and, with the barnacles removed, the patient just might recover enough to be able to help Conway to help it. Pathology had already suggested methods for restarting its paralysed life processes.

He would need at least fifty cutting torches operating simultaneously with high-pressure air hoses to blow the ash away. They would begin burning on the head, neck, breast and wing-muscle areas, freeing the patient of barnacle control of the brain, lungs and heart. If the heart was in a terminal condition emergency surgery would be necessary to bypass it—Murchison had already mapped out the arterial and venous processes in the area. And in case the patient twitched or began flapping its wings, they would need the protection of heavy-duty suits.

But no—Prilicla, who would be monitoring the emotional radiation during the op, would need maximum pro-

tection. The others would have to dodge until it could be immobilised with pressors. If emergency surgery was necessary, heavy-duty suits were too cumbersome, anyway. As well, the communicator would have to be moved to a side compartment in case it was damaged, because the adjoining levels would have to be alerted and various specialist staff would have to be standing by.

While he gave the necessary orders Conway moved briskly but unhurriedly and his tone was quiet and confident. But all the time he had a vague but persistent feeling that he was saying and doing and, most of all, thinking all the wrong things.

O'Mara did not approve of his proposed line of treatment but, apart from asking whether Conway intended curing or barbecuing the patient, he did not interfere. He added that there was still no report from *Torrance*.

Finally they were ready to go. The maintenance technicians with cutting torches and air lines hissing—but directed away from the patient—were positioned around the head, neck and leading edges of the wings. Behind them waited the specialist and medical technicians with stimulants, a general purpose heart-lung machine and the bright, sterile tools of their trade. The doors to the side compartments were dogged open in case the patient revived too suddenly and they had to take cover. There was no logical reason for waiting any longer.

Conway gave the signal to begin only seconds before his communicator chimed and Murchison, looking dishevelled and very cross, filled the screen.

'There has been a slight accident, an explosion,' she said. 'Our type two flew across the lab, damaged some test equipment and scared hell out of——'

'But it was dead,' protested Conway. 'They were both dead—Prilicla said so.'

'It still is,' said Murchison, 'and it didn't fly exactly—it shot away from us. I'm not yet sure of the mechanics of the process, but apparently the thing produces gases in its intestinal tract which react explosively together, propelling it forward. Used in conjunction with its wings this would help it to escape fast-moving natural enemies like the barn-

acle. The gases must still have been present when I began work.

'There is a similar species, much smaller,' she went on, 'which is native to Earth. We studied the more exotic types of Earth fauna in preparation for the e-t courses. It was called a bombardier beetle and it——'

'Doctor Conway!'

He swung away from the screen and ran into the main compartment. He did not need to be an empath to know that something was seriously wrong.

The team leader of the maintenancemen was waving frantically and Prilicla, encased in its protective globe and supported by gravity nullifiers, was drifting above the man's head and trembling.

'Increasing awareness, friend Conway,' reported the empath. 'Suggesting rapidly returning consciousness. Feelings of fear and confusion.'

Some of the confusion, thought Conway, *belongs to me...*

The maintenanceman simply pointed.

Instead of the hard coating he had expected to see there was a black, oily, semi-liquid which flowed and rippled and dripped slowly on to the floor plating. As he watched the area where the flame was being applied, the stuff rolled away from one of the barnacles, which twitched and unfolded its wings. The wings flapped, slowly at first, and it began pulling free of the patient, drawing its long tendrils out of the bird until it was completely detached and it went blundering into the air.

'Kill the torches,' said Conway urgently, 'but cool it with the air hose. Try to harden that black stuff.'

But the thick, black liquid would not harden. Once initiated by the heat the softening process was self-sustaining. The patient's neck, no longer supported by solid material, slumped heavily on to the deck followed a few seconds later by the massive wings. The black pool around the patient widened and more and more of the barnacles struggled free to blunder about the compartment on wide, membraneous wings, trailing their tendrils behind them like long, fine plumes.

'Back everybody! Take cover, *quickly!*'

Their patient lay motionless and almost certainly dead, but there was nothing that Conway could do. Neither the maintenancemen nor the medical technicians were protected against those fine, harmless-looking tendrils of the barnacles—only Prilicla in its transparent globe was safe there, and now there seemed to be hundreds of the things filling the air. He knew that he should feel badly about the patient, but somehow he did not. Was it simply delayed reaction or was there another reason?

'Friend Conway,' said Prilicla, bumping him gently with its globe, 'I suggest that you take your own advice.'

The thought of fine, barnacle tendrils probing through his clothing, skin and underlying tissues, paralysing his muscles and scrambling his brain made him run for the side compartment, closely followed by Brenner and Prilicla. The Lieutenant closed the door as soon as the Cinrusskin was inside.

There was a barnacle already there.

For a split second Conway's mind was like a camera, registering everything as it was in the small room: the face of O'Mara on the communicator screen, as expressionless as a slab of rock with only the eyes showing his concern; Prilicla trembling within its protective globe; the barnacle hovering near the ceiling, its tendrils blowing in a self-generated breeze, and Brenner with one eye closed in a diabolical wink as he pointed his gun—a type which threw explosive pellets—at the hovering barnacle.

There was something wrong.

'Don't shoot,' said Conway, quietly but firmly, then asked, 'Are you afraid, Lieutenant?'

'I don't normally use this thing,' said Brenner, looking puzzled, 'but I can. No, I'm not afraid.'

'And I'm not afraid because you have that gun,' said Conway. 'Prilicla is protected and has nothing to fear. So who . . .' He indicated the empath's trembling feelers. '. . . *is* afraid?'

'It is, friend Conway,' said Prilicla, indicating the barnacle. 'It is afraid and confused and intensely curious.'

Conway nodded. He could see Prilicla beginning to react to his intense relief. He said, 'Nudge it outside, Prilicla,

when the Lieutenant opens the door—just in case of accidents. But gently.'

As soon as it was outside, O'Mara's voice roared from the communicator.

'What the blazes have you done?'

Conway tried to find a simple answer to an apparently simple question. He said, 'I suppose you could say that I have prematurely initiated a planetary re-entry sequence...

The report from *Torrance* arrived just before Conway reached O'Mara's office. It said that one of the two stars had a light-gravity planet which was inhabitable while showing no indications of advanced technology, and that the other possessed a large, fast-spinning world which was so flattened at the poles that it resembled two soup bowls joined at the rims. On the latter world the atmosphere was dense and far-reaching, gravity varied between three Gs at the poles to one-quarter G at the equator, and surface metals were non-existant. Very recently, in astronomical terms, the world had spiralled too close to its sun and planet-wide volcanic activity and steam had rendered the atmosphere opaque. *Torrance* doubted that it was still habitable.

'That supports my theory,' said Conway excitedly when O'Mara had relayed the report to him, 'that the bird and the barnacles, and the other insect life-form, originate from the same planet. The barnacles are parasites, of course, with a small individual brain capacity, but intelligent when linked and operating as a gestalt. They must have known that their planet was heading for destruction for centuries, and decided to escape. But just think of what it must have taken to develop a space-travel capability completely without metal...'

Somehow they had learned how to trap the giant birds from the heavy-gravity polar regions and to control them with their tendrils—the barnacles were a physically weak species and their ability to control non-intelligent hosts was the only strength they had. The birds, Conway now knew, were a non-intelligent species as were the tendril-less beetles. They had taken control of the birds and had flown them high above the equator, commanding maximum physical effort to achieve the required height and velocity for

the link-up with the final propulsion stage—the beetles. They also had been controlled by the barnacles, perhaps fifty to each parasite, and they had attached themselves to the areas behind the wings in a gigantic, narrow cone.

Meanwhile the bird had been shaped and paralysed into the configuration of a supersonic glider, its claws removed to render it aerodynamically clean, and injected with the secretions which would arrest the processes of decomposition. The crew had then sealed it and themselves in position and gone into hibernation for the duration of the voyage using the bird's tissue for life-support.

Once in position the propulsion cone comprising millions of insects, hundreds of thousands of which were the intelligent controllers, had begun firing. They had done so very evenly and gently, so as not to shatter or crush the narrow apex of the cone where it was attached to the bird. The beetles could be made to deliver their tiny modicum of thrust whether they were alive or dead and, even with their ability to seal themselves inside a hard coating, the propulsion controllers had not lived for very long—they also were expendable. But in dying they had helped an organic starship carrying a few hundred of their fellows to achieve escape velocity from their doomed planet and its sun.

'... I don't know how they intended to position the bird for re-entry,' Conway went on admiringly, 'but atmospheric heating was intended to trigger the organic melting process when they had braked sufficiently, allowing the barnacles to pull free of the bird and fly to the surface under their own wing-power. In my hurry to get rid of the coating I applied heat over a wide area of the forward section, which simulated re-entry conditions and——'

'Yes, yes,' said O'Mara testily. 'A masterly exercise in medical deduction and sheer blasted luck! And now, I suppose, you will leave me to clean up after you by devising a method of communicating with these beasties and arranging for their transport to their intended destination. Or was there something else you wanted?'

Conway nodded. 'Brenner tells me that his scoutship flotilla, using an extension of the search procedure for overdue ships, could cover the volume of space between the

home and destination stars. There are probably other birds, perhaps hundreds of them——'

O'Mara opened his mouth and looked ready to emulate a bombardier beetle. Conway added hastily, 'I don't want them brought here, sir. The Corps can take them where they are going, melt them on the surface to avoid re-entry casualties, and explain the situation to them.

'They're colonists, after all—not patients.'

THREE ENIGMAS

by

BRIAN W. ALDISS

Brian Aldiss last appeared in New Writings in SF *in 1964. His talents which have recently been so successfully displayed to a wider public here dazzlingly create a distorting mirror which reflects in an off-centre and out-of-focus reality the way things might have been had they not been as they are—and by things we are at liberty to imagine existence, life, causality, love and even science fiction.*

THREE ENIGMAS

INTRODUCTION

HERE are three of my Enigmas. Consider them as paintings, as Tiepolo's engravings crossed with de Chirico's canvases.

I have written other Enigmas and shall write more. When I have written fifty, the best of them can be collected and published as a book.

Consider that statement. Its author appears to operate securely within well-defined parameters; his chart of his known world plainly contains at least a portion of the future. One would not suspect from the statement that the world in which he operates is full of ambiguities, of alternatives that open and close like sliding doors.

Yet so it is. The author of the statement has chosen to make assumptions. He operates on the basis of those assumptions just as navigators of old operated on the assumption that the Pole Star was fixed. That assumption worked, although it was totally erroneous—the Pole Star travels millions of miles a year on its ineluctable errands. Which was something the ancient navigators could never guess.

So with these other assumptions. They are probably incorrect in ways we cannot attempt to understand. And that is the assumption which underlies the Enigmas: that the world is a stage on which we, the players, have no adequate means of determining the nature of the drama in which we enact our bit parts—despite various dogmatic assertions on the subject from Religion or Science.

I. THE ENIGMA OF HER VOYAGE

AS we sat there, bound and helpless, a music of unknown kind moved through the ship towards us. Captain Callard walked over to me and stood in the Aptorex position, smiling as required.

'Your new planet is in sight, Lemmor,' she said. 'Soon we shall seek the answer to all your internal enigmas. How do

you plead at this continuous moment of cerebral time?'

'I have told you, I may now de-husband myself when you please,' I answered. 'Pleasuring is not the all of my life. Things have been achieved.'

'We shall see,' she said absently. Somewhere an alarm was pleading in a low and intense song, filling the cabin air with ultra-violet.

Callard moved over to the keyboards, depressing switches. Beyond the vision-screens swam my enigma planet which I had named Benecundria. Our ship had travelled across many sound years—385 million sound years—at many multiples of sound-speed per second, increasing mass as it accelerated, until our mass had been within 0.981 of the universe itself. What large thoughts we had thought then, galaxy-encompassed! Now, under deceleration, the flow of our consciousness returned to us, foaming back down the sound-years from their near infinite journey, chilling us with news of dusty epochs of our being, shrinking us. Soon we would be on Benecundria, human-sized once more, vulnerable to all that was.

We could never return. Experience was a barrier technology could never overcome. The conceptual universe had captured us.

'Five minutes,' Callard said, 'In density, Lemmor!'

I obeyed. When I awoke, our great ship was down. All the Investigators were being released, prepared to walk out on Benecundria's 'surface'. Only I, as creator of the enigma, must remain aboard. As each Investigator passed me, she bowed and smiled.

They filed out on to Benecundria, to stand on that unending slope I had devised. Even the Husbands would be alert.

At one of the ports I stood, feeling a sadness that what had been private was now public, part of the endless domain of extending human sensuous experience. My time was short now, my mission accomplished.

The Investigators were now caught in the ultra-mundane perspectives of my conception. Some of them were gesticulating in an attempt to amplify body-image.

For me, only one thing was left. I strode to the interior of the ship along the moving walkway. I entered the room of the Husbands.

There were some ten thousand of them in our reservoir, swimming like young frogs, frog-sized in the vat of lubricants and nutrients. Lying on a couch, I released my personal Husband from the secret recesses of my body, cupping him in my hands.

I took him over to the reservoir, let him slip into the fluids, watched him flipping down into the depths until he was lost among the little crowding hairless bodies.

Faintness was overwhelming me. The song was back. Soon I would be part of it. And my enigma—part of the greater enigma of human existence.

II. I Ching, Who You?

While the next day was still blank with the mists of dawn, Thwarn descended and entered the window of the room where dinner had been held on the previous night. He waited as contained in his assumptions.

The air of the room was rich and heavy with the aroma of prawn, flesh, and rice, spiced with a tang of rotting fruit left in the discarded wine bowls.

The only girl Thwarn remembered was resting in one corner, among the greys where eternity started edging in. The arrangements and precisions of her face startled him anew. They gazed at one another across the spoiled bowls and soiled cloths. She spoke first.

'Procedures for a Webi Hexagram?'

That loved and dreaded warmth was stealing over him.

'I have a demarcation in Wandrei. Could we agree on that?'

She hesitated, then came forward, nodding her head slightly.

Without touching, they cleared a space on the largest table. Thwarn drew feathers and laid them on the table. He was intensely aware of her gaze, fixed like his on the configuration of the feathers as they lay, light as breath, heavy as fate, this way and that, decreeing the day till daylight died.

Feathers ruled the world.

'Can you dispute it—fire-bird with tail immersed and two spaces in the wood?'

'But the tiger appears in the field . . .'

'Yes,' he agreed with relief. His interpretation of a tiger in Wandrei was ambiguous, but a time to proceed was indicated. He put his arms about her and kissed her on the lips. What had been a momentary intention became prolonged as her strength and youth moved through to him.

'The fire-bird seems to be leaping up, but is still in the deep,' she said breathlessly, when they broke away. 'Try Redistribution!'

With one long nail, he swirled the feathers, the two black, the three brown. Again they studied the juxtaposition. The mists remained beyond the window.

'Carrion!' she said eagerly. 'And there the trigram for trees and mountains.'

He stared lovingly at her, drinking her gaze. 'You spoke of the Webi Hexagram—in conjunction, this trigram could lead to a consequent inferiority.'

She hopped eagerly on to the table.

'You don't understand. Yesterday, too, the tiger appeared in the field. So I am encouraged to try and cross the great stream.'

They stared into one another's eyes, stared at life inscrutable, stared at all possible alternatives.

'Perhaps the minor regulations will be controlled by authority,' he said quietly. Given good assumptions, he should discover who she was in a few days.

Thwarn stretched his wings for flight, ruffling ribbons on the rice-entrenched carcasses. Then he launched himself through the open window. His girl followed, out into the currents of dawn.

The two vulturine figures headed for the mountains of their hexagrams.

III. The Great Chain of Being What?

THREE distinct things happened, but in no sequence; time was squeezed from them, leaving them flat. They happened apart, but were instantaneous within the honeycombed frozen expanse of Wartlinger's mind.

The first thing was: he was opening the door, saying to himself as he did so, 'I will always be alien here, never able

to take for granted the way doors open in this distant place, for this one betraying detail alone grinds at me continually.'

The detail was a small one. The lock and handle of the door were on the same side of the door as the hinges. The lock simply rendered the hinges inoperative; the handle, when twisted, activated springs which forced the door open, so that no muscular exertion was required by whoever or whatever passed through there. All perfectly simple. And normal. Normal here.

The second thing was: he was through the door and looking beyond, saying to himself, 'However strange these people seem, there is a place for me among them. My options are to get along with them or not.'

There were many people. They stood on the wild shore, endlessly active, working in groups or pairs. Many could be seen far out in the shallow estuarine waters, still working. Some were alone, practising poses or executing sarabands with arms above their heads. Most of them were engaged in unpacking huge boxes from which, amid much straw and other waste, they withdrew smaller boxes. Most of the available space was taken up by boxes, giving it the appearance of a vast disorderly camp-site. Some of the boxes lay in the water, sinking by degrees.

Among the litter were notices. NO CALCULATING IN PUBLIC. IT IS INACCESSIBLE TO WARP ON THE GLASS. PENURY: NO SPOTS. QUESTIONS BEING ENACTED: DO NOT DISTRIBUTE. POLICE DO NOT BEND. THIS SIDE OUT.

Wartlinger was among the people. Most of them had arms and legs. Some of these limbs were in good supply, though often they were rudely fashioned from whatever material was easily available. Their bodies also appeared to be constructed of cannibalised spare parts. Their heads were generally shaped like lemons, the surfaces made from some plain material like calico. On the calico was painted or printed their expression. Most of the expressions were blank; others were smiles or frowns or moues of astonishment, determination or ferocity, crudely indicated.

The movements and gestures of the people appeared uncertain and hasty, though there was no sign that they were aware of any impediment. Most of them seemed positively to enjoy the proximity of their own kind.

Wartlinger observed that some of the boxes they were unpacking contained fresh people, who leaped to life as soon as they were uncovered. The boxes were arriving over the water, presumably washed in by a slight tide. The water had a hard unhealthy look to it, as if made of countless myriads of microscopic plastic balls.

The third thing was: the closure of the door in some fashion brought darkness everywhere. To Wartlinger this darkness seemed, like the water, artificial in a way not easily definable, as if it too were made from endless minute black balls. It felt gritty against his pupils. As he closed his eyes, he noticed that the beach was empty. All the people had gone. Only the old boxes remained, discarded on the shore or sinking in the sea.

These three distinct things happened not in any sequence but instantaneously, as if all in one picture. It was perfectly possible to say that the gritty darkness had fallen even before he opened the door, perfectly possible to say that boxes rose from the sea bed, perfectly possible to say that none of the busy people stirred from where they stood. Time was squeezed from the happenings. They occurred apart, but were coincidental within the expanse of Wartlinger's mind.

He removed the brain cell slide from his head and switched off the projector. As he sat thinking about where he had been, he glanced at the title of the slide. It was called EXISTENCE.

He took up the next slide. It was called HEREAFTER. He switched on the projector and inserted the slide in his head...

WISE CHILD

by

JOHN RACKHAM

The twenty-five years between seventeen and forty-two, we are told, pass at an accelerating rate, so that from a staid and normal one second per second as one enters this period life seems to whirl along at many times that speed as one is ejected out the other end. Some people call the unhappy results of this phenomenon the generation gap. The happy results are known as experience. But how to convey that experience and hurdle the gap if you were faced with problems over and above those of the ordinary human being?

ALAN LOMAX stood by the window to watch his wife Milly reach the garden gate and pull it open. The slight breeze touched hair that was still golden, disturbed her fashionably brief skirt against legs that were still very much worth looking at. She was still, he mused, a nicely attractive person in a thoroughly reliable, negative kind of way. She passed through, clicked the gate shut, and paused just a moment to wave before going off to the village. Lomax was quite genuinely fond of her, but as soon as he had made the looked-for gesture at the window and turned away, he dismissed her entirely from his thoughts. There were documents on his desk, and his son Michael watching, and wondering.

'I didn't think my 'A'-levels would be all that interesting to you, Dad,' he said now. 'Or was there something else you wanted to see me about?'

'There was something else, yes, but of course I'm pleased that you've done so well, Michael. I may not have shown very much interest in your work at school, but that was simply because I didn't want you to feel that you were under any pressure, that I was expecting anything great from you. I was, for all that. Every father does expect his son to do well. In that respect I'm quite human.' Lomax spoke quietly and with precision, as if delicately weighing each word before letting it escape. His slight smile, the keen steadiness of his observation as his son now looked just a little bit guilty, all these were part of his habitual appearance and behaviour, a 'part' that he had been playing for many years. Michael was obviously stuck for something to say. Lomax came to his rescue smoothly.

'These examination results,' he took up the papers briefly, let them fall again, 'are only the beginning, of course. You'll want to go on, to University, to degrees ... and then what? Any particular aims or ambitions?'

At seventeen, Michael Lomax was lean, almost frail, with

the pale skin and jet black hair commonly regarded as Semitic. Already he had acquired some of the older man's habit of guarding his thoughts, but the gleam of enthusiasm in his eye was quite visible as he said, 'It might be a bit of a surprise for you, but yes, I know what I want to do. Anthropology. You know? Social science? What makes people tick?'

'It doesn't surprise me in the least. That is the 'something else' I wanted to have this talk with you about. To explain to you why it is out of the question.' Lomax made that careful smile again, put up a palm to stop the immediate protest, went around his desk and to his son, then gestured to the comfortable Chesterfield in the corner. 'Come and sit. We have a lot to talk about.'

Michael sat unwillingly, looking sullen. Lomax turned words over in his mind, seeking the best approach. Perhaps a question would serve. 'Tell me,' he invited, 'just how much you actually know about me, and the kind of work I do. Briefly, that is.'

'About you? You're my father. You're a lawyer ... at least, you give people technical advice on legal matters. A consultant, And you write books, fiction, under a pseudonym. I suppose they are good. They sell, anyway. I find them dull, thick with moralisings and preachings!'

'They aren't aimed at you or your generation. Not yet. But anyway, you'd expect, wouldn't you, that of all people I should have little difficulty in getting an idea across to anyone?' Michael hunched his shoulders in unwilling agreement, looking somewhat puzzled now. 'And yet,' Lomax went on, 'I have something to tell you that is so strange, *will* be so unexpected to you, that I have difficulty knowing how and where to begin, how to present it to you so that you won't think I'm joking. 'So,' he watched the boy's expression critically for the right length of time to hold it back, 'I'll just give it to you point-blank. It is just this. You are not human!'

Michael went blank for a moment, then came a smile that anticipated some pay-off. But then after several seconds of waiting the smile grew strained.

'You're serious? It's not a joke, some kind of catch question?' Lomax didn't bother to answer, but waited. 'It's

ridiculous! Of course I'm human! You're not trying to make something out of ... whatever you may have heard me say at some time or other...?' Lomax let him go on, waited patiently. 'What do you mean, not human? I eat and sleep, I breathe ... prick me and I bleed, as Shylock said. If I'm not human then what?'

'Ah!' Lomax nodded and sat back, clasping his hands in his lap. 'What is the term for an entity that resembles a human in every superficial way?'

'I dunno!' Michael scowled at it. 'Unless you mean humanoid?'

'And humanoid means...?'

'Well ... anything that looks like a human, but not human in origin. Is that what you mean? It can't be. I've lived here in this house all my life! I was born here! Unless...' and the sudden inspiration made his expression fall open in astonishment, '... you mean ... you? You're not human?'

'That's it!'

Michael got up, crossed the room to the window and stood, looking out. He stood very still. 'Not a joke,' he mumbled, 'so either you're raving mad ... or it's some kind of test. I dunno what you're hoping to prove. My intelligence, is it? The exam results ought to do that. So what am I supposed to say? You're not a robot, that's obvious. Nor yet an android. Biochemistry hasn't got that far yet. So what's left? The supernatural?' He swung round in sudden consternation. 'It's not that, is it?'

Lomax chuckled easily. 'Not that. I am neither djinn, goblin nor demon. Nor vampire, werewolf or any of the other things.'

'Then there's only one thing left, so far as I can see.' The youth came back to the seat and perched, his expression now a kind of disgust. 'You're not going to try to tell me you're from the stars, or something?'

'And why not?'

'Oh no!' Michael groaned, looking away. To Lomax's keen eye he was visibly struggling not to be rude and abusive. This was a forthright generation, he reflected, and riddled with disillusion too. He tried to remember himself at seventeen, when he had received the same shattering

news from his father .. but that was a long time ago, and Michael was still struggling. 'What am I supposed to believe, that you're a Martian, or a Venusian, or something?'

'Now you're being impertinent, and silly!'

'What d'you expect?' Michael was shrill in his rejection. 'All that stuff about space-travel, flying saucers ... nobody with any sense takes that seriously any more! Not now!'

'And now,' Lomax stood, growing slightly impatient, 'now you're being obstinate. And rather stupid. Shall I put it more clearly? You are saying, in flat contradiction to many of Earth's acknowledged experts and philosophers, that this is the only inhabited planet ... the only planetary system in the whole universe that has given birth to advanced intelligence.'

'I never said that!'

'Didn't you? It sounded remarkably like it to me. Wasn't there a notorious Astronomer Royal who said something along the same lines? Space-travel is utter bilge ... I believe?'

Michael went red. 'That's not the same thing at all. He was talking about travelling as far as the Moon, and anybody with any sense knew that it could be done, long before anyone did it. And anyone with any sense has to admit that there must be other intelligences somewhere ...'

'But ...?' Lomax supplied the word that was in his tone.

'But it just isn't on. The travel, I mean. The distances!'

'You're inconsistent.' Lomax sat again, settled back, adopted his familiar pose of calm rationality. 'If you are prepared to assume there are other intelligent entities in the universe, you must also assume that their development levels vary. If you can put aside the conceit that Earth is the only intelligent planet, you must also put aside the idea that the human level is the ultimate so far. Don't you agree?'

Lomax watched the boy keenly, seeing the struggle, the indecision. At precisely the right moment he spoke again. 'Does it matter about the technical details? Suppose you assume that what I am saying is true, that I am alien, from another world, and proceed from there. Or, to get at least one detail precise, not me personally. My grandfather. However else you may be wrong about the travel between

one star and another, you are correct in that it is difficult. Expensive in time and effort. So we are few, and rare.'

'All right.' Michael hunched his shoulders resignedly. 'If you like. But what's it all for, then? Why are you here and what are you supposed to be doing? When do you take over?'

'It's nothing like that!' Lomax snapped, then caught at his impatience carefully. 'This is not fiction, with spies and fifth columns and all the high adventure trimmings. Not at all. Nothing spectacular. For instance there is very little biological difference between ourselves and humans. And this should hardly surprise you. Chemistry is chemistry, all over the universe. Similar problems evolve similar answers. There were several proto-human types on Earth at one period, but only one of those had all the necessary survival points. The same thing happened on several other planets with Earth-type characteristics, and will eventually happen on all of them. Of course you're familiar with the basic tenets of Darwinism, and the effects of pressure on survival?'

'Who isn't? But I didn't know you were well up on that stuff!'

'Which merely helps to make my point, that you know very little about me in fact, and that I am successful in passing as an ordinary human.' Michael was starting now to lose his total rejection attitude, becoming interested in spite of himself. Lomax smiled inwardly. 'Darwin was quite wrong in one area. Physical fitness to survive may indeed be selected out by the pressure of danger and enemies on all sides. But perpetually running for your life is hardly the best environment for developing the mental and spiritual qualities of life. On other worlds, not nearly as inherently violent as this, the humanoid pattern is considerably ahead of Earth in its wisdom. That is quite a long story, and I won't go over it all here and now.' He rose and crossed to his bookshelf, took down a pair of gold-embossed volumes and brought them to Michael.

'Trevelyan's History of England?'

'Dummy covers. These two volumes contain a full account of the many expeditions made to Earth by our people, dating as far back as five thousand BC. The script is

easily learned, and there is a full glossary. Study them carefully, at your leisure. But these books are not to leave this room, on any account. Remember that.' Michael's eyes were wide now as he watched the books being laid aside.

'You still haven't told me what it's all about, what it's for?'

'In a sense we are missionaries. Our exploratory visits to Earth, even in the very early days, showed a pattern that has been amply confirmed since. Man is explosively progressive, but with a crippling bias. All the emphasis is on physical effort, physical power, physical science. I am not condemning,' he added hastily, 'at all. I merely point out that Man is very like a giant in his potential for progress, but like a child in his mental growth. And that is a fatal, one might say lethal, combination.'

'Hang on a bit! Now *you're* being inconsistent!' Michael thrust his head forward in sudden objection. 'We're still here, aren't we? In a bit of a mess, God knows, but we still survive. Clever people have been prophesying doom and disaster for centuries ... but we are still here. What d'you mean, lethal?'

'Take the human stance by all means, for the purpose of debate, Michael, but please do not identify with them. And let me answer your question with another. Why is it that humanity can talk of ethics, of fair play, of sympathy, empathy, logic and reason, even common-sense ... can talk of these things with a great deal of passion, but has the greatest difficulty in putting them into any kind of practice? And where do you suppose these ideas came from? And why is it that they have to be *taught*, always? Man has never needed teaching how to be violent, warlike, destructive, that is inherent. The peaceful, non-violent and rational approach to living has always been some "teaching" or other. Consult your history, or the case-books of the social science you're interested in.'

'You mean ... you aliens ... have been...?' Michael backed away from the idea that so obviously filled his mind. 'Christ? Buddha? Confucius? People like that ... were aliens?'

'Not in the least. That is not how it's done, at all. In the early days we made that kind of mistake, became promi-

nent, and met the fate that so often befalls missionaries. Now we are wiser. We infiltrate. We live as humans. We breed true, father to son ... or not at all. We preserve and pass on the ancient wisdom, and the old powers, but we stay on the fringes, exerting delicate pressure, introducing new ideas, fostering them. Call it back-seat driving, if you like. We have been copied many times by crack-pots and frauds, of course...'

'What kind of powers?' For an instant there was naked greed in Michael's face, and Lomax winced. In that moment he wished vehemently that he could 'look' into his son's mind and see what was going on there, but the old ethic was too strong. One didn't do that except where it was unavoidable and in the course of duty. And, of course, the lad was seventeen years a human. It was understandable that he would be saturated with human values.

'I wish you had asked first about the ancient wisdom.' Lomax said it quietly. 'Peace on Earth. Goodwill. The sacredness of life...'

'That's religion!'

'So it is. The basic tenets of every religion of any substance this world has ever known. Think of this. Amenhotep the Fourth, Amos, Hosea, Zarathustra, Lao-Tzu, Buddha, Confucius and Socrates ... all happened within the space of a thousand years. That was one of our major operations.'

'What about the powers?'

'You are going to be disappointed, Michael. You think of power in the human way. I suppose I shouldn't blame you. Men have leaped as far as the Moon. Soon they will be starting a colony on Mars. They will carry weapons in either hand. Modified weapons will take them there. Ideas of conquest and violence will go with them. They are slow to learn. If they ever gain the ability to leap beyond this system, and reach our planet, for instance...' Lomax sighed, 'We would be helpless against them. We have powers, but not of that kind. We are a non-violent people. Our powers make it so. I have never struck you, nor even used harsh words against you. Not because I am an indulgent parent, but simply because I am incapable of violence. Our powers are not of that kind.'

Michael began to look incredulous again. 'Talk,' he said, with the edged wisdom of the young, 'is cheap enough. What powers?'

'Men fly, with the aid of brute machine force. We levitate. Men talk to each other over distances, again with machines. We speak mind to mind. Man runs in the herd, sharing responsibility and intelligence alike. We are always individuals, each his own master, each with his own responsibility. Such powers are useless against naked aggression.'

'You mean you couldn't put up any kind of resistance?'

'You'll understand better when you've been "opened", Michael.'

'Opened? That sounds . . . painful. Is it?'

'I don't think you're ready for it. Seventeen is the usual age, but I think it might be better to wait a little while, give you a chance to think for yourself.' Lomax saw the beginning of open contempt and rejection appear on the young face across from him, and sighed. 'Very well. Think of this. Take a shot-gun. Point it at a rabbit, up there on the moor. What do you feel? Weight. Shiny wood stock. Cool metal. A trigger. Perhaps a synthetic thrill of anticipation. Aim. Pull the trigger. The rabbit dies. What did you feel? A shock of recoil. A noise in your ears. That's all. But now . . . put away the gun. Reach with your mind, touch and feel the mind of the rabbit, with its quick darting pulses of hopes and fears. Join with it. See what it sees, Feel what it fels. And then . . . kill it . . . with your mind. You can. But you won't do it, any more than you could take one hand and crush it with the other. Because it will be exactly as if a part of you had screamed in agony and died. That is why we do not fight, cannot fight, not even to save our lives.'

He watched his son's face intently, and was appalled by what he saw there in plain view. 'Are you trying to tell me that you can do that, with your mind, Dad? Can you?'

Lomax stood, suddenly out of patience with the whole business. 'I think that is quite enough, for today. We will talk more about this another time.'

Alone again, he returned the code-books to the shelf, went to his desk and sat, pondering the interview, wondering where it had gone wrong, trying to remember how it

had been at his own initiation. According to the old teachings the young mind always found its own way to a state of curiosity about origins, and the initiation was merely a matter of resolving and explaining the questions that were already there. Then came the ceremonial 'opening', and then the mind-to-mind companionship and training into a new kind of life. Lomax pulled open the private drawer of his desk, took out the delicately carved old box, opened it and picked up the precious, well-worn, hand-made device that he had inherited from his father and that had lain unused all these years, waiting for this one time. There was no magic in it, merely a key that undid a padlock on a chain that kept the mind prisoner. But that mind had to know that it was a prisoner, had to want to break free.

But Michael hadn't shown that urge. Lomax had a sudden twinge of sympathy for the boy. This was a curiously confused age. On the one hand doom stared Man in the face whichever way he turned and there was no future. On the other Man was at last and with many a fumble and shiver beginning to explore the mysteries and resources of his own mind. It was tantalising and frustrating to have to stand by and watch. One itched to intervene and say, 'Look, this is the way, this is what you do!' But the history-books were eloquent witness to the folly of that. Crucifixion, burning at the stake and lifetime confinement in institutions were out of date now, but electro-shock, neuro-surgery and lobotomy were equally horrifying fates.

Lomax turned the device over in his fingers. It was very simple, after all. Merely an accurately-tuned sonic pulse, aimed at a certain spot in the brain, to effect the rupture of a single group of synapses, the hymeneal membrane that stood between immaturity and adulthood. Cut that and the higher-level personality stepped forth, complete and needing only to develop its full potential. A key like this, but tuned to a fractionally different frequency, would do exactly the same for an Earthling.

How simple it would be to give them *that* secret. And how criminally foolish. It would be like placing an open razor in the hands of a baby.

A week later, to the day, Michael volunteered the suggestion that he wanted to discuss their 'secret' further. Again

Lomax watched his wife go off to the village, strictly in her little groove. Poor Milly. Dear Milly, all the same. Blonde, placid, well-meaning, perpetually fighting against her dread of growing plump, thoroughly pre-occupied with the minutiae of her small life. A good woman. She would never know that he was to drive a wedge between her and her son. She would put it down to eccentricity. 'Just like his father' she would say, and think no more of it. Subtle differences were lost on her. But not on Michael. He had obviously been thinking about them.

'How *are* we different from humans, Dad?' he asked, as soon as the door was safely shut after him.

'You've been looking. At least you took me that seriously, after all. And you didn't find anything. That's rather obvious, isn't it? We'd never have been able to survive all these centuries on Earth if the differences were in any way obvious!'

'But what differences?' Michael was impatient of subtlety.

'We have low tolerance of ultra-violet ... can't stand very much direct sunlight. We have better than average sight in a dim light. We have fewer sweat glands. We do not go bald, ever. We live longer than the human norm ... which can be a problem. Nothing very spectacular,' he added as the disappointment showed. 'But we do have completely unhuman brain patterns. An encephalogram would betray either of us, at once!'

'What good is that?' Michael demanded scornfully, and Lomax was baffled at the reaction.

'I don't understand you!' he admitted. 'What did you expect, some kind of trade-mark?'

'It's not that. But how am I ever likely to get near an encephalograph, for Heaven's sake?'

'I see!' Lomax felt a chill. 'You don't believe me. My word isn't good enough for you. Have I ever lied to you, Michael?'

'It's not that either.' Michael was unhappy but resolute. 'I can't take something like this just on words. I need some kind of proof. Evidence that I can test for myself. Otherwise it just doesn't mean anything, not just hearing you say it. That's not reasonable!'

For a moment Lomax felt helpless. This was utterly unforeseen. The boy was even more retarded than he had feared. Michael became intense, his brows coming down to a thin black bar across his forehead.

'Those powers you were talking about. Telepathy. And levitation. Can you really do them? So that I can see?'

Lomax came as close to anger as it was possible for him to get. Then he made himself relax and be calm. 'I am shocked and distressed,' he said quietly, 'but I will not blame you, Michael. The fault is in this turbulent and confused age in which you've grown up. When you are "opened" I hope you will let me help you . . .'

'Can you do it?' Michael interrupted rudely.

'As I was about to explain, I can do these things, but I cannot demonstrate telepathy to you. I cannot enter your mind unless you invite me. To do otherwise is completely contrary to our ethic. Even with a human we are forbidden except in the process of delicate reformation towards some crucial effect. We do not merely mouth *our* ethics, my son, we *live* by them!'

'In other words it's all talk!' Michael was rude, angry . . . and visibly disappointed. 'And you expected me to believe it?'

'I can, however, demonstrate levitation to you.' Lomax stayed cold and deliberate. 'Please understand, I do this only because you make it necessary. For us, demonstrating power is something . . . not done. It is as if you were asked to stand up in class and pray. Or something equally embarrassing. However . . .' and he relaxed, took a slow and deep breath, and 'reached' inside in a certain way. This was something he did once a week, in privacy, as a solemn rite. It felt wrong to do it before a witness, but it was familiar nevertheless. That inner door opened. Perspectives changed. Even his son's anxious, unbelieving stare, seemed unimportant.

'Like this,' he said, and thrust the room down so that he hung in mid-air, six feet or more clear of any solid support. After resting there a moment he brought his chair back under him. 'Or this,' and Michael's head snapped around to see the index volume of the Britannica slide from the shelf and float until it hung in front of him. He backed from it.

'Grasp it!' Lomax ordered. 'Grip it tight. It won't hurt you.' The youth ventured a hand, then the other. The book was immobile. 'Now hold it ... if you can,' he said, and commanded the book back to its place on the shelf. Michael struggled. His chair went over. His feet dragged and slid. The book went back to its place as if he had not been there. There were small beads of sweat on his face as he put the chair up and sat in it. Not all the sweat was from effort. 'I could have lifted you into the air just as easily,' Lomax said, 'but that would have been an offense. This, you see, is power that must not fall into the wrong hands. Like this, for instance...' and a pencil lifted from his desk and came to rest over the waste-basket. Lomax thought about it, released the chemical bonds that held the wood together, and a fine yellowish dust drifted down into the basket. Then he did the same for the graphite, and it fell slowly as a dark smoke. Michael stared, hardly breathing.

'You will appreciate, of course, that I dissipated the heat when I neutralised the chemical bonds. Otherwise we'd have had a tidy explosion.' Lomax eyed his son critically. 'I could have broken the nuclear patterns just as easily, with enough energy-release to blow most of this district off the map. And that is why we are a non-violent people. With this kind of power there has to go responsibility.'

Michael found a shaky voice from somewhere in his throat. 'Will I be able to do ... like that?'

'Not at once, no. The usual rules still apply. Crawl, walk, run and fly, in that order.' Lomax put aside his uneasiness at his son's utter disregard of the idea of responsibility. 'But you'll begin to learn just as soon as you've been opened.' He got out the key, let the lad handle it, talked to him about its technicalities and function, and in this instance, at least, he found nothing to complain of. Michael was no longer afraid. He was ready.

'Hold it so, against the forehead. That's it. When you're ready, take a breath, close your eyes, press that stud. That's all. You should see a very brief flash of light, a needle of pain that will come and go so quickly you'll hardly notice. And you may feel a little giddy, or unreal, afterwards. But that is nothing. It will soon pass. The rest comes with practice, and is no more difficult than learning to whistle...'

Lomax watched, saw his son sit still for a long breath. Then he opened his eyes, put the instrument carefully down on the desk, got to his feet ... and almost ran from the room.

'He knows now,' Lomax whispered to himself, putting the precious instrument carefully away. 'Poor lad. It will take him a while to work up the courage to admit himself wrong, but he will come to it. And accept the burden that goes with it. I remember how I felt. Give him time. He will open to me, when he's ready.' He smiled as he anticipated that first timid reaching, the first real 'person-to-person' awareness with his own son. Compared with that, speech was like trying to talk to a deaf idiot in a thunderstorm.

Late the following day, Lomax was in a fit of abstraction, his idle eye wandering as he searched for an appropriate reference in his legal memory. And he saw a gap in his bookshelf. It took a moment or two before the thing registered. The code-books were gone! He was on his feet, over to the shelf, and his fingers stupidly in the gap before the enormity of the thing came home to him. Michael had taken them, no doubt of it. In the next moment he opened the door in his mind, swept the house with awareness. Michael was not at home. Chill at heart he followed his senses into the lounge, where Milly sat watching the faces of the congregation singing on television.

'Michael?' she looked up at him in mild wonder. 'Why, he went up to town. Yesterday afternoon. Didn't you know? Some exhibition, I think he said it was. And staying overnight with a schoolfriend. Is something wrong, dear? You look quite pale!'

'Was he carrying a package?'

'His suitcase, of course. Nothing else that I know of.'

Lomax managed a smile, muttered an inanity, left her. A more critical sweep with his mind, now, assured him the books were not in the house. He returned to his study in a daze. It was an effort to make himself accept that it had actually happened, that Michael had taken the books ... away to London! It was disaster, nothing less. The fact achieved, he had to struggle with the why of it. Standing strickenly by his desk, another dreadful thought welled up from the chaos in his mind. He dragged the drawer open.

The 'key' was gone too. He sank into his chair, forcing his mind to be calm, building the pattern that was to be used only in dire emergency, to cry out to the others, the small band of brothers scattered all over the world, knowing even as he formulated the call that there was nothing they could ... or would ... do. They would not jeopardise ten thousand years of patient guidance and effort for the sake of one dispensable member. He let the pattern collapse again, looked up as there came a timid tap on his door and Milly's anxious face.

'Michael's home, dear, and there are some men with him. They want to see you. I'm afraid he must be in some sort of trouble. They look dreadfully official.'

Lomax composed his voice, his mind. 'Show them in, Milly. Let's get it over with.' The phrase was dreadfully apt. It was all over. Lomax knew that much even before the tall man with the unsmiling eyes had shown his identity card.

'Gibbons. Home Office,' he said briskly. 'Sorry about this, Mr. Lomax. We shall have to ask you to come along with us. I believe this is yours?' He produced the 'key' from his pocket. Lomax glanced at it briefly, then at his son. Michael's face was a curious mixture of fear, excitement ... and hatred, all at the same time.

'It's mine.' Lomax admitted quietly. 'I won't give you any trouble, I promise. I'll come with you. But may I ask ...'

'Watch it!' Michael broke in shrilly. 'He might fly away, or strike you dead ... or something!'

'You fool! You utter, stupid fool!' Lomax spoke not in anger but in disgust at his son's incompetence. 'You didn't understand, did you?'

The colour flooded to Michael's face. His mother clutched his arm as he made a half-step forward angrily. 'It's all a swindle. Lies! That thing ... that somic projector ... it didn't work!'

'You mean ... nothing happened to you?' Lomax was shattered.

'Of course it didn't. You lied to me. That's why ... I had to have proof of some kind!'

'I don't understand!' Lomax turned to the Home Office men. Gibbons cleared his throat raspingly.

'Seems he went straight to a hospital, sir. That's where we found him. Talked his way in, somehow. He was having brain-readings taken. The staff-man was humouring him, but he called us just the same. Called the police, anyway, and they got us in on it. He gave us the whole story, and the books. And this thing he calls a key.'

'What will happen to him?' Lomax asked, wondering if there was still some way in which he could absolve Michael, from ignorance perhaps.

'Nothing to him. We will want his signature on the record, of course. There might even be a reward. It depends on what we find out about you, sir.' Gibbons was urbane, but there was nothing soft about his eyes. 'We have reason to believe you may be an alien. I have a warrant...'

'But ... I don't understand. You are arresting me ... rewarding my son?'

'Your "son",' Gibbons said it with emphasis, 'is as normal as I am. The brain-readings proved it. Now, sir ... if you're ready...?'

And then Lomax understood. And looked at his blonde, pretty, negative wife, her blue eyes as clear and placid as a china doll's.

'I always thought there was something funny about you,' she said. And Lomax managed to smile.

'You'll never know just how funny, Milly. I hope Michael will forgive you. Some day. Shall we go, Mr. Gibbons?'

THE RULES OF THE GAME

by

DONALD A. WOLLHEIM

A most eminent editor and publisher in the sf field here appears in the guise of author and this is particularly proper in this volume of New Writings, *for Donald A. Wollheim was a close friend and business associate of John Carnell for very many years. Between them they introduced a considerable number of British authors to the US sf public. Here, Donald A. Wollheim is concerned to investigate the tune, played according to the laws of our science or someone else's, that the Piper will call next.*

'So you were sent out here, actually all the way down here to hot Guyana, just to write a funny story about our Guyanese spaceship that has no engines!' Dr. Desai laughed in his mild way, sipped another sip of that strong tea which the East Indians of his little country like to imbibe. 'A curiosity story to fill some space on an idle Sunday in the great Northamerican newspapers.'

'Well,' I said, endeavoring another taste of the tea and wishing the doctor had a yen for a tall Rum Collins such as I had had a couple days ago in the only decent bar in Georgetown, 'to tell you the truth, I was covering a whole series of stories in this area—the West Indies, Surinam, Northeastern Brazil, and so on. You I heard about in Georgetown while trying to do an article on your infernally confusing local politics. It seemed a good excuse to get away from the coast and into the backland mountains, especially with the storms that are coming in so frequently and the tides and all that.'

The slight-bodied, brown-skinned Hindoo nodded and looked across his verandah. It was indeed pleasant where we were—high atop a plateau rising above the jungles that stretched between us and the coast of what had once been British Guiana. 'Ah, yes,' he said in that sibilant way characteristic of even the most educated of his race, 'the storms and the unusual tides. Very odd for this part of the continent. They usually go north, those storms and hurricanes, to bash about among the wealthy people in Florida or the rebellious ones in Cuba. Things, you did notice, were different this year.'

I nodded. 'That's so. Covered the big damage in Curaçao last week. Got some nice shots and the home papers played it up. You have had an inordinate amount of shipping wrecked the last few days—I suppose as a result of the winds.'

'Not quite, not quite,' he said. then hastened to clarify, 'I

mean not just due to the winds. There have been seismic tremors beneath the waters, some slippage of the coastal shelf perhaps set off by the unusual tides.' He sipped more tea, apparently meditating, then spoke up on a different tack.

'You are in a strange profession. Other people's troubles are your good news. You write them up and consider yourself happy.'

I shook my head. It was comfortable here after the long sweaty hours riding through the narrow bumpy winding road of the stinking wilderness below. It was cool, it was vibrant, there was air that had the ozone the tropic jungle lacked. 'Everybody says that of newspapermen, but really we are only curious creatures. I think we are just restless men who like to travel about and see the sights—and make someone else, such as our publishers, pay for it. Naturally we have to find excuses that will result in news stories. We are not just travel writers, you know.'

'And you heard of this crackpot who built what they call a spaceship because some of our citizens in our quaint capital have tried to make a thing of it. The States has mighty spaceships. Great Russia has spaceships ... and, lo!, tiny persecuted Guyana now has one. True, it won't fly, but what is that to our black men and our brown brothers who need to be diverted from their troubles.' Dr. Desai finished his drink suddenly, set it down.

'Yet you have been here resting after your trip and still you have not seen this fabled vessel, this anomaly of the astronauts, this soon-to-be-joke of the newspaper syndicates up north. Shall we talk about it, or shall I show it to you and talk while we do so?'

I pulled my feet up, got ready to rise seeing that the doctor was also about to do so. 'Let's do both,' I said. 'You show it to me, tell me what you wish, and I'll ask any questions that come to mind.'

We both got up. I noticed the wind was getting a bit gusty, the steady breeze had begun to shift and come in bits and spurts, and I now smelled a faint trace of oil in the breezes. I assumed it came from whatever plant the doctor had set up to build his device.

We went down the steps of the verandah, walked along

the path in front of the wide one-storeyed house and around to the back, brushing aside the tangle of bushes that, like all clearings, tried constantly to close in on the home and swallow it. But I was interested now for I saw that the house concealed a large excavation behind it, and nestling in that excavation was the locally famed Guyana spaceship.

Whatever the doctor had in mind—and that I was dealing with a mystical crackpot I had known from the start, for what else would you expect from an isolated wealthy Hindoo in a year like this—the thing was certainly not designed like the Saturns and the Atlases and the ICBMs and all that. It made our various Mercury and Apollo capsules look like tiny toolsheds. This thing was a globe, a darned big one when you got close to it, all metallic and shining, set with a number of small closely impacted bulls' eyes windows, ringed with bands of enforced metal, and without the slightest sign of rocket engines or fueling tanks or any other visible means of propulsion.

I looked at it, standing on the edge of the excavation, with a slight puzzlement. Somewhere I had seen something like it before. There were two or three servants around, carrying things into the pit and up a narrow ladder to an open circular portal in the equatorial band of the metal globe. Loading it, apparently, with the doctor's personal belongings—one chap had a pile of books, which must have been scooped up from the doc's library.

'You look almost as if you were getting ready to take off,' I said, pointing to the book-laden carrier. 'But everyone says the thing has no engines . . . and I see none, at that.'

Dr. Desai stood there, his hands folded in front of him, and beamed at his creation. 'I think we may be taking off very soon now,' he murmured softly. 'And as for the engines, the power will be supplied from elsewhere.'

Yippee, I thought, here comes the mysticism. The word elsewhere, like the words beyond, destiny, and divine will, are the keys to this. Another Ufologist, I bet, but with a twist that will help get me a story. Then it hit me. The resemblance of the globe, that is.

'Hey!' I said. 'That looks like the kind of globular spaceship the science-fiction magazines used to have back in the

days when anti-gravity was the big thing. Have you invented an anti-gravity engine, then?'

'No, no,' said Dr. Desai. 'That would be impossible right now. Maybe tomorrow it will be possible, but while the whole Earth sits at the bottom of a vast gravity well, nobody can experiment with counter-gravity measurements. But the rules may change. The rules may change.' He paused, looked at me. 'I will give you your big story because nobody will print it anyway. The rules are about to change ... and that is what this Guyana spaceship is for. To take advantage of that change. You see, you have all looked it from the wrong angle. Think of this not as a spaceship—a thing to be propelled by itself against the forces of nature, but more as a lifeboat, a Noah's Ark, I think you would call it in your Biblical tales.'

I looked at him. There was a sharp blast of wind again and the scent of petroleum was stronger on it. 'There must be a reduction plant nearby, doctor?' I asked. 'Or are your men really fueling it anyway. I smell something a lot like rocket or aeroplane fuel.'

The little brown man smiled enigmatically. 'What you smell is coming from elsewhere; there are no oil plants near here. As for the secret fueling, I do not deceive you. Come, I show you the inside; you will find no fuel tanks.'

We walked down to the bottom of the excavation—there was an incline—and walked over to the hanging ladder. The looming body of the globe was as big as a five storey house and remarkably well constructed. One could see evidence of the amateurs who had been enlisted to build it, for the rivetting and the caulking were not the slick stuff one saw at Cape Kennedy, but had the appearance of the loving polish put on by cabinet makers. Watertight, I had no doubt at all. Probably spacetight, too.

We climbed the ladder and went into that big enclosed globe and I was impressed. It was a well equipped complete home indeed. It had floors and the equatorial and upper floors were designed to be fine dwelling quarters, with rooms for work and rooms for leisure, upstairs bedrooms, and so on. The lower half was storage, just storage, and fully loaded too. Loaded with cases of food and canned goods, with generators to keep up the airconditioning and

heating and lighting, and supply power for the storage of deep-frozen foods, and all that.

But of engines for propulsion and tanks for liquid hydrogen, I saw nothing. There was a jeep, neatly crated, and other crates which held, the doctor said, a small airplane, bicycles, a boat ... These, he said, had all been adapted to electric or steam drive—he did not want to stock any petrol aboard.

The thing was built like a spaceship otherwise. Insulated walls, self-regenerating water cycling equipment, and it was evident that the doctor must have spent most of his fortune on constructing this thing in the last few years. I looked at the rugs on the living room floor and the desks in the laboratories, and I looked at the easy chairs rivetted to the floor by the little impregnable windows, and I heard the soft talking and occasional laughter of what undoubtedly were the doctor's wife and children and maybe concubines upstairs—though he did not offer to take me upstairs.

'You seem to have already moved out of your house,' I said finally. 'You give the appearance of getting ready to take off,' I added, sitting myself down in a chair and fixing the doctor with my eye. 'But how and where? With all due respect, Doctor Desai,' I said, suddenly, taking my journalistic chance to get down to the nitty-gritty, 'none of this makes sense to me.'

The doctor was not offended. He held up a finger for a moment's pause, went across the room, and I heard him make his way to the open portal. I could see through the little window near me that the sky was clouding up, that the trees were showing agitated signs of increasingly strong gusts of wind, and the servants were no longer in sight. I heard a whoosh and a clonk somewhere and realised the doctor must have shut the surface door against the winds. I smelled that same petroleum odour on the draught that preceded his closing it.

He came inside, looking a little perturbed, his eyes gleaming. Ah ah, I thought to myself, the old kook touch is coming now. But he settled down into a chair, nodded. 'It does not indeed make sense to you,' he said. 'It cannot because it does not make sense at all in the old rules of science. But that is because you have a fixed view of those rules. You

have not applied to the universe the rules which you Occidentals so naturally apply to the things of mankind. You are not seeing straight. Like all the Western world, with one wonderful exception, you have a mental dichotomy.'

'And that exception is?' I asked, leaning forward, waiting for the hook.

Dr. Desai smiled. 'When I say it, you will say in your head *crackpot* and feel that you are right. But I will say it anyway—the word is Velikovsky.'

Yugh! He was right. I had the word. But I had no choice. I'd sit it out.

'So let us say Velikovsky, and say that your Western scientists reject his studies because what he says happened thousands of years ago are nonsense according to the laws of science today. Let me hasten to say, the scientists are right. They could not have happened according to the laws of science those great men studied.

'But, you see,' he waved a finger at me, 'what had all that to do with poor Velikovsky? Velikovsky was a student of the Bible, a student of archaeology, of ancient lore and of the stories handed down by people who claimed to be eyewitnesses to world-shaking wonders. He did not invent any laws. He merely recorded, noted the contradictions with modern viewpoints, and worked out logically the only explanations for the curious events that all our ancestors swore by. To account for the Flood, for the things seen in the heavens, for the craters of the Moon and Mars, and the deposits of oil on Earth, for the appearance of flaming swords in the sky, and the sun standing still in the sky, for the disappearance of lands and the strangeness of the Evening Star, he simply put all the observations of our very human ancestors together and said it must have been this way.

'That the way he said it had to be, made no sense at all with the laws of mathematics, of astronomy, or reaction and action, of gravity, was not his business. It was irrelevant. Either all of humanity was lying five thousand years ago—or they were not.'

'And if they were not, why then it was the laws of science that were—no, no, don't outguess me—not wrong, but *different*, in those days.' Dr. Desai leaned back, nodding.

Outside, the sky was darkening and a storm was coming up.

'The laws of science do not change,' I said; me, with my college education and my passing grade in college math.

'Why not?' said Dr. Desai. 'You forget some of the very axioms on which all science is founded. One of which is that everything stated as a law is an approximation taken from observed evidence. Another real law of science is that everything does change, everything is in a constant state of motion, everything is always in flux, things evolve, life alters constantly, molecules are always moving, nothing, absolutely nothing is stable. And that being *so*, then the laws of science must be constantly shifting themselves to adapt to the ever-altering realities of nature.'

I was about to argue, but the doctor glanced out the window, held up a hand, shook his head. 'Let me continue my thoughts now. Time is moving too rapidly outside.

'I said also that you Occidentals always knew that rules are made for changing. It is the first law of your political game. Your politics are always played on the grounds that whoever owns the board can change the rules to prevent losing the game. We in Guyana can testify to that a hundred different ways. You know our history.'

And I did know their history. Here was a country, ruled and owned by Britain and heavily infiltrated by US capital, whose population was about fifty per cent East Indian, about forty per cent Negro, and the rest white and mixed native stock. It had divided politically along purely racial lines, and the party that consistently got the majority was naturally the East Indian one. But that party had been led and directed by anti-imperialists, Marxists, Communists or what have you. And Britain was not going to let this country become independent under that type of political thinking. Britain, at that time, was the owner of the political game board. So the British changed the electoral rules, kept changing them, and the East Indian Leftists kept winning, until finally the British figured out a set of a rules and system of score-keeping that guaranteed that the minority party must win—and only after it did win, did the British and the Americans turn the game board over to a 'free' Guyana. Simple politics, and yet, in the context of the doctor's remark, something perhaps strangely frightening.

Whoever owns the board can change the rules.

It happens every day in politics. If our party runs the city, we gerrymander the districts, we make special restrictions on who can vote and who can't, we count the ballots ourselves—but we always change the rules as long as we can to keep the game our property. It's played all the time everywhere. Let the official constitution start to hurt the people who own the plantations and suddenly there is a military putsch—which somehow is always on the side of the land and property owners. It's the history of Latin America and Africa—and the rest of the continents too if you look carefully.

That's the way human society has always functioned. It is a *natural* law of human society.

So, Dr. Desai's argument went on, if it is a natural law of the way we humans do things—and we humans are living molecules respondent to chemistry and physics and the movements of the planets in the heavens—then it would appear that this law also applies to all the universe.

When things start going against the Owner, he changes the rules.

'The rules were last changed some five thousand years ago. Before that it was possible, within the existing laws of the universe—which were not the same as those today—for a planet to tear away from its orbit, to dash like a flaming sword through the Solar System, shattering Mars and Luna with rocks, spouting petroleum down on Earth, and slamming hell on into Venus, stopping its rotation, starting it swirling slowly backwards, a burning hot mass of magma with a chunk of alien rock jammed into its heart and its atmosphere a dust-choked mass of cosmic debris.

'That done, the universe found itself working under the rules of science today. Because it could not have happened under those rules, the scientists said that the eyewitnesses of all humanity five thousand years ago were simply all fools.

'But they were not more fools than we are today. And it did happen. They have discovered the evidence for Velikovsky over and over again—and it does not fit their current mathematics and current astronomies.'

I began to sweat. I don't know why, but suddenly I felt definitely uneasy. This man was not a crackpot—I knew

who he was. He was not even a theologian. His doctorates were in physics and chemistry and medicine. He had not gotten rich by being stupid. Dr. Desai meant it. And outside that damned window the sky was black and wind must have been howling.

'But what has this to do with this structure? This so-called spaceship?'

Dr. Desai followed my glance to the window.

'The rules are about to change. You must understand one more truth that the Occident does not like to accept because the first ones to propound it as a doctrine were two of those non-board-owning trouble-makers. That is what Karl Marx and Frederick Engels called the laws of Dialectics. One of which is that change does not come slowly but suddenly. That a pot has heat applied to it but when it comes to a boil, it does so suddenly. That when a rule is about to be changed, when a situation is due for a qualitative change, the need for it accumulates slowly and almost invisibly, but at a certain critical point, it moves with vast speed, suddenly, violently.

'And the time is come for the old laws of the universe to be changed. Mankind has been playing the game and has been playing against the Owner, but has been slowly learning to master the old rules. In doing so, we have changed the atmosphere of the Earth, we have made radioactive every particle on this Earth—a process that began in 1945 and has never ceased. We have altered our own life cycles to benefit us—to the detriment of all other forms of life—and we have begun to fill up space with particles of our planet, landing them on other worlds, setting them up in orbits, and so forth. We are using up the stores of petroleum deposited during the last cataclysm. We are overflowing the lands and invading the seas.

'For those who had eyes to see—and unfortunately that seemed to be me and me alone—the laws of nature were being readied for alteration again. The Owner of the board cannot afford to lose the game, not while he can change the rules. So the rules are being readied for changing.

'Realise that the things we knew to be so only fifty years ago are not so any longer. Nature is a game played by cheating—and the biggest cheat is the Owner of the board.

'We in Guyana learned this with our sweat and blood and our government is still today an absurdity set up by aliens who owned and still own our land. What more natural than that I should be the one to see what is coming? And realise that it is close, very close.'

I was sweating profusely now, not because the room was hot, but because the room was beginning to rock slightly, and outside a thick rain was dashing against the side of the great metal globe—a rain that was curiously heavy, *oily*, swirling in iridescent masses that must surely be coating the outside.

'This is not a spaceship or maybe it is,' Dr. Desai said now, leaning back. 'I regret that you must perforce remain with us, but the change is coming now—suddenly and violently, and it is raining petroleum from the skies, and the grounds are rising up now to take new conformations to fit the new rules of science. I do not know what they will be, but I think that an alteration of gravity may be among them. There is evidence that before in mankind's existence gravity was different—recall the huge blocks of stone by which the Incas built castles that modern engineers could not duplicate?

'We may float on a sea of oil. We may float on an ocean of lava. We may float in space. Or we may sink into the Earth. But my family is safe and I shall ride through to the dawn of the next age of the universe.'

Dr. Desai dug into the arms of his chair, and I saw that there were safety belts, and I found the ones on mine and we buckled ourselves in. The great globe rocked from side to side and then the oil drops slid away from the bulls' eye windows and the globe rolled slightly over and I saw the whole of Guyana below us, aboiling and aseething with seas of gleaming sludge, and tossing with flotsam that were jungles and the oceans rushing in where there had been no sea bottoms and sea bottoms coming into view where there had been only oceans and with the heavens ablaze with moving, burning stars, the Guyana spaceship rose high upon the crest of the torn-away atmosphere, and I would never get my damned story into the New York newspapers now.

MONITOR

by

SYDNEY J. BOUNDS

When the early lunar explorers returned to Earth they were subjected to a rigorous programme of quarantine checks. Nowadays, with the remainder of the series of Apollo lunar-landings, the returning crews are allowed immediate contact with the terrestrial biosphere. When Homo sapiens reaches out to the stars for how long will quarantine checks need to be applied? And—what form will they take?

ARTHUR SAXON paused on his way to the death chamber. It was not an official name, but he thought of the outermost satellite that way; perhaps because, no matter how he tried, he could never forget the airless void on the other side of the hull. Living on Starport scared him.

He paused to look out through an observation panel at the hard unwinking specks of colour that were the stars, searching for the sun. It was not hard to find. Even this far out it had the aspect of an arc lamp, small and brilliant but without heat.

Saxon had one compensation for having been co-opted to Starport Authority. At forty, he was grossly overweight and it was nice not to have to drag mounds of surplus fat around in a one-G environment.

He continued to an airlock and punched a wall button to summon a cab. A light flashed green and he cycled the lock and went directly through to the cab's seat. Only one satellite concerned Saxon and the pilot recognised him.

'R. I., Mr. Saxon?'

He nodded, chins shaking like jelly. The cab broke connection and jetted away.

Starport lost its fleeting illusion of safety when viewed from outside. It looked fragile and, even a short way off, its city-size dwindled to the aspect of a child's toy seen against interstellar gulfs. Orbiting beyond Pluto, the original doughnut was obscured by a galaxy of satellites built on to and around it; an orbital city of cylinders and spheres, bristling with antennae and armament.

The cab jetted through the complex, passing a dockyard where lights blazed over a starship being fitted out, a fusion generator, space-suited construction men building yet another extension. Starport would never be complete. Men were forever changing and enlarging it.

R. I. loomed across his horizon. Reception Investigation. The death chamber. The outermost satellite was isolated;

spy-eyes recorded and relayed every detail that went on inside. In an emergency it was programmed to open to space at an instant's notice, and no known life form could take that. Saxon felt sick with fear; would the controllers give him time to get clear?

His pilot matched course and velocity, latched on. Saxon went through the lock to the guardhouse, showed his pass. Two security men checked it as if they'd never seen him before.

'Okay, Mr. Saxon—go ahead.'

He moved easily in the artificial half-G. A dossier waited on a desk and Saxon sat down and read it carefully. He'd found it didn't pay to skip routine. The name on the cover:

Eric Drummond

Drummond, astronaut, three weeks returned from the furthest out trip yet, hunting (as men always hunted) planets suitable for colonising. He'd gone alone on a fast one-man scoutship. He had a wife, two children and a sizable fortune waiting for him back on Earth (pilot's pay mounted astronomically). There were photographs, fingerprints and retina patterns for identification. Medical had cleared him. A note (in red) informed that part of the scoutship's tape had been destroyed; accidentally Drummond claimed—but it left a gap that only the astronaut could fill. And if it were not an accident...?

Saxon pushed the dossier aside and reviewed its content in his mind. He sat back and stared thoughtfully at the viewing screens giving a permanent and recorded scene of what went on inside the inner chamber.

It was a laboratory. Eric Drummond—alone—sat in a reclining chair, eyes closed, listening to Holst's suite *The Planets*. He appeared relaxed; jockey-sized with nut-brown wrinkled skin, wearing only a pyjama suit.

Saxon glanced at the wall chronometer, decided there was nothing to wait for. He crossed to the lock and a security man operated it for him. He entered a corridor. At the far end was another lock which opened automatically and he passed through.

The single room was circular, domed, small for the size of the satellite; a lot of equipment had been built into its

double walls. There was a bed and an EEG console. It was warm, discreetly lighted, with continuously cleaned air.

Drummond rose casually, switching off the music. 'What now? They've practically taken me apart already.'

Saxon smiled a fat disarming smile, seated himself in an outsize chair. 'I'm your night nurse, Eric. Call me Art, if you like. Feeling sleepy?'

Drummond stared at him, measuring him. 'No, not yet.' A pause. 'You play chess, Art?'

'I can move the pieces around. I'm not good, but I'll play if you want.'

The dossier had mentioned that Drummond was a good player, that much of his time aboard the scoutship was spent studying tactics.

The astronaut set out the pieces. 'Chess helps me relax, Art. I'll sleep like a baby afterwards. You take white.'

Saxon moved a pawn to king four. Drummond countered; for a man who claimed chess helped him relax, he had total concentration and it was not many moves before Saxon was in trouble.

'Check,' Drummond called.

Saxon wriggled out of it, knowing his opponent had the edge; knowing too that spy-eyes relayed every move to the control satellite, that experts would be evaluating Drummond's game.

Drummond finished it quickly with a trick ending; promoting a pawn and unexpectedly naming it a knight. 'Mate,' he said, yawning. 'Guess I might as well turn in, let you earn your money. What are you testing for?'

'Routine stuff.'

Smiling, Drummond nodded acceptance and stretched out on the bed.

Saxon rose, trailing a bunch of wires from the EEG, and taped the electrodes in place on the astronaut's skull, face and chest, tested out. The ink needle traced an alpha rhythm.

Drummond's voice came, uneasy. 'Brain washing? Sleep deprivation?'

'Nothing like that.' Saxon put warmth into his voice, reassurance. 'This gadget is simply an electroencephalograph.

It writes out your brain waves and tells us when you're dreaming.'

'You could watch just as well outside.'

'True.' Saxon moved back to his chair across the console and settled himself comfortably, his attitude making clear he had no intention of giving any explanation.

'Okay Art, I suppose you know what you're doing. G'night.'

'Pleasant dreams, Eric.'

Drummond became drowsy and the pen jiggled irregular slow waves. As he slept they turned into big slow waves. His eyes remained still, throat muscles tense, heart regular.

Saxon waited for a dream to start, no longer concentrating on the steadily moving pens; they were watched from outside. He had another job, one that only his unique talent could perform. And as no-one else with his talent had yet been located, it looked as if he might be on Starport some time.

Starport Authority held every returned starman until he'd been cleared down to the last test men could devise. No-one was allowed through to Earth till it was proved he was harmless. The station was more than a staging post to the stars; it was a barrier between Earth and the unknown. There were many risks; a new germ that could cause plague; an apparently innocuous plant might turn out to be a habit-forming drug. A new idea. Thinking could change out there; values and morals changed. Starport checked ruthlessly for anything which might upset the status quo.

Arthur Saxon was Earth's ultimate monitor, the final check on what had come back from the stars. His word could turn Reception Investigation into a death chamber.

Saxon had the strange ability of sharing other people's dreams. Not telepathy, not strictly empathy; though possibly related to the last, experts claimed. It was more than just listening in—he became the dreamer, experienced every illogical detail that welled up from the dreamer's unconscious. Starport Authority had snapped him up as the ultimate monitor; to check the dreams of returned astronauts for deviation from human.

He glanced at the EEG chart. Drummond's throat muscles relaxed, rapid eye movements begun. The astronaut was

moving into paradoxical sleep. Saxon closed his eyes, waited .. then he was dreaming Drummond's dream with him.

He felt a sudden bodily jerk. He was falling, falling endlessly through deep space illumed by flaming suns. The suns were abruptly blotted out as though he were plunging down a well, into darkness. With a splash he hit water and submerged and began to swim, a slow rhythmical breaststroke. He sank down and down into the depths, experiencing no difficulty in breathing. The deeper he went, the lighter it became. The water had a translucent glassy look and waves surged against him. He had no sensation of gravity; his body floated. Presently he touched bottom, sand and pebbles, and stopped swimming and began walking. Coloured weeds danced in unseen eddies; fish came to investigate him. He moved between fantastic rock shapes, apparently carved, to a coral grotto where a dark cave loomed. The water grew ice-cold and an open shell cut his foot. It stung...

The dream-scene faded slowly and Saxon opened his eyes and stirred himself in the chair. He studied the EEG charts, now recording normal dreamless sleep. On the bed, Drummond lay still, eyes closed lips parted in a faint smile.

Saxon decided the dream could be normal and made a note to that effect, his note instantly relayed to the watchers in the control satellite. Normal? It took fine judgment to decide what was normal in dreams...

Saxon had previously been employed in a mental hospital, sharing the dreams of patients for the doctors. He'd had a lot of experience and believed he could tell normal from abnormal now. His talent he had been born with; and it came as the biggest shock of his life to learn that other people could not share dreams as he could.

As a boy he had been fascinated by the simple dreams of dogs and cats. He had learnt to be wary of city traffic when he was in danger of sharing another's day-dream. He had learnt to shun cities and crowds.

So... normal? He began to wonder about a married man returned from a lone voyage—and no sex dream. Perhaps that would follow. Perhaps. Added to the scoutship's miss-

ing tape it built a stronger suspicion in his mind. He made a fresh note, instantly relayed outside.

The EEG recorded an irregular heart beat. Drummond dreamt and Saxon was traversing a maze.

The maze baffled him completely at first; until he began to appreciate its spiral form and listened to the voice in his head that told him repeatedly to keep turning to the right to reach the centre. It was important, for a reason he couldn't grasp, to reach the centre of the maze. The walls had colour yet he could not name that colour. There was no obvious source of light and yet he saw. The walls were solid, fashioned from stone slabs, slotted one into another; the space between them narrow so that he brushed against sides, found them hard and unyielding. The roof was low and he was forced to stoop. His back ached. His feet slap-slapped on the bare stone floor, echoing through the labyrinthine corridors, the echo vanishing and reappearing at each turn, multiplying. The spiral seemed to wind tighter. The walls flowed on endlessly...

The dream dissolved and Saxon blinked and stretched and studied Drummond's EEG pattern. It seemed normal. But a maze symbol? He racked his memory but could not recall encountering a dream precisely like this one before. There was an odd, almost ritual quality about it.

He reported a feeling that something lay hidden in the dream. Rising, he waddled over to the bed and stared down at Drummond. The astronaut slept peacefully. Saxon returned to his chair, looked round the quiet domed room. He thought of the Controller, finger alongside a button that would open the shutters to airless space, and shivered.

Drummond dreamt again. And Saxon was back in the maze. He continued to turn right, as if he'd been programmed. It was the same maze, a continuation of the previous dream. Stone walls hemmed him, forced him to stoop. He followed the serpentine passages as they wound inward, turning right at each junction. Time had no meaning. He kept on, feeling he must soon reach the mystery at the dead centre of the labyrinth.

Drummond moved out of his dream into orthodox sleep. Uneasy, Saxon reported his return to the dream maze,

apparently at the same point he had left it. There was something disturbing about that.

A red light flashed on the console, making him jump. It was rare for anyone to interrupt him. He answered the call.

'Controller here. Are you all right, Saxon?'

'I'm all right so far.' He puzzled over the maze symbol. What could it signify? Death and rebirth?

'We're unhappy with this subject. Do you want to pull out?'

Saxon studied the readings again. Nothing had changed; everything appeared normal. He looked across to the bed where Drummond slept innocently.

'I don't think so. Not yet anyway.'

The chart changed, registering rapid eye movements.

'Well, give yourself time to get clear——'

The Controller's voice faded as Saxon was sucked into the astronaut's dream world. He was back in the maze and turning right at a corner, right again. The roof pressed lower and his back ached. The stone walls moved closer together so that he had to squeeze his way through. He sensed it was important to reach the centre, vitally important. Pressure built up inside him, driving him forward.

He was close to the centre now and his excitement grew. He was drawn relentlessly into the heart of the spiral maze as if in the powerful current of a whirlpool. Deeper and deeper he was drawn in.

There was an image in his head, like a second dream; an image of himself in yet another maze that went on for eternity. And perhaps that dreamer had an image of a maze in his head also. In this double-dream, he pursued miles and miles of tortuous corridors and his legs ached and his feet were sore. It was as if he looked down from a height on a toy labyrinth, watching himself follow the spiral; penetrate to the dead centre and crawl bug-like into one small empty room at its heart.

His heart pulsed, reverberating in the enclosed space, echoing through stone passages. It was a drumbeat, growing louder. He reached the centre of the maze, crawling on hands and knees, and squeezed through a narrow aperture to arrive in a small room.

But this room was not quite empty. It contained one artifact, a highly polished mirror.

He stared at the blank walls, the solid floor, the low roof. There was nothing else, only the glittering mirror, and so he looked at it. Despite the lack of any obvious source of light he saw his reflection there . . .

Something was wrong. It took him a moment to realise what it was and, in that moment, something wrenched at his mind. Then he was being sucked down in a whirlpool of darkness with the memory of that mirror reflection impressed on his mind. It had not been Drummond's reflection, but his own.

Light.

His limbs trembled and his mind grappled with shock. He was back in the lab, looking across at Drummond. Only it wasn't Drummond. Shock turned to horror as he realised he was looking up at the console and the man on the other side was too fat to be the astronaut. This man sat in an armchair, watching him, pudgy lips curved in a faint smile.

The fat man rose and waddled towards the door.

Desperately Saxon tried to rise. Wires hampered him. There were electrodes fastened to his skull, face and chest. As he tore at them to free himself he learnt that he was now wearing a pyjama suit.

The dream had turned to nightmare.

He babbled incoherently as the fat man calmly pushed a wall button and waited. The door of the lock opened, closed again, and Saxon was alone.

Trailing wires, he staggered upright as a voice echoed over the intercom, a voice that could only be his own :

'Drummond is alien. Destroy it.'

THE TIME WAGER

or: AN EXTRAORDINARY EXTRAPOLATION OF JUVENILE ZEAL RESULTING IN A MAGNIFICENT LEAP FORWARDS (OR BACKWARDS) INTO FUTURE (OR PAST) TROUBLE OF A NOW-TOO-WELL-UNDERSTOOD AND RIGHTLY DETESTED ORDER OF HUMAN ENDEAVOUR.

by

JOHN KIPPAX

Delving into the cloudy mysteries of the far past is as much in the competence of sf as exploring the far stars over on the other side of the galaxy. New theories continue to be elaborated to explain just how humankind emerged to its unique position on this planet—the return to the sea, the distaff-side evolution, the helping hand from space—but, just perhaps, this cheeky speculation is the way it was—or will be.

THE TIME WAGER

OR: AN EXTRAORDINARY EXTRAPOLATION OF JUVENILE ZEAL RESULTING IN A MAGNIFICENT LEAP FORWARDS (OR BACKWARDS) INTO FUTURE (OR PAST) TROUBLE OF A NOW-TOO-WELL-UNDERSTOOD AND RIGHTLY DETESTED ORDER OF HUMAN ENDEAVOUR.

'I WANT two dollars British each way on Morning Star, three o'clock race at Kempton Park.' Summers, though a sixth former at Revell's, showed no condescension to Hardacre, a boy four years his junior.

Jimmy Hardacre said: 'One dollar limit in any one day. It's a rule. Protects some people from their own folly. Here.' He handed back one dollar. Outside, the school was chattering its way from assembly to classrooms. Sunlight streaked through the tall library windows, lighting Hardacre's red hair and the blond mop of Louis Cousteau, who kept the accounts for the enterprise. Cousteau handed Summers his betting slip.

'OK,' Summers said. 'You convinced me.' He walked out, bound for his first class of the morning.

Hardacre said: 'Let's pack up. Mustn't be late.'

'Please sir, may I make a suggestion?'

With his light pencil poised in his hand, Professor Julian Ferrier Birthwhistle turned from the glazed screen to face his class. One could not help being pleased with these British boys, whatever ruderies they got up to in their spare time. They were—every one of them—as sharp as tacks. At Revell's School, in the county of Dorsetshire, parents were charged staggering fees for the education of their (male) young. But cash was not the governing factor. If there were sufficient pupils to pass the entrance examination for the fifty per cent 'free places' in the school, then to Revell's they came, and parents in poor circumstances didn't pay a cent. Hatchery for eggheads, thought Birthwhistle——

'Yes, Hardacre?'

He was a slim boy, about thirteen years old. He was round-faced, red-haired and grey eyed. He looked rather like an intelligent angel. 'Couldn't we observe the Cro-Magnon jawlines better if you were to draw them without superimposition?'

The question was polite; JFB considered the idea. 'Yes, it does make it a bit jumbled, like that.' He pressed the erasure switch. 'We'll start again.'

'Thank you, sir.'

JFB recommenced his skilful delineation of the characteristics of the skulls under discussion. He was not left in peace for more than a minute.

'Sir.'

'Yes, Hardacre?'

'Do you follow the Windgassen or the Muller theory of sequential development in this particular epoch?'

JFB kept his face straight, but, internally, he felt a twitch. He reflected that well, anyway, he had his fare back to the States. On the other hand, there was prestige in having taught at Revell's. 'I am sure,' said their American professor, 'that I am not going to follow your red herring and start a wild-goose chase——'

The class liked that. He continued.

'We are not going to drag through either of those. Neither are we going to try another theory of our own. One of these years some good and learned men on the time strip will find out the truth.' He addressed Hardacre. 'You really are a very persistent young person. Don't you ever make allowances for errors?'

The reply was quite sincere. 'For other people, yes sir. Not for myself.'

JFB shook his head in wonderment. But then he reminded himself that this Hardacre was the son of B. H. Hardacre, whose comparatively small engineering firm had set new, awesome standards of accuracy throughout the world.

JFB could take some comfort that they thought well enough of him on his own campus, to nominate him as an exchange teacher in Britain. It was an honour, it was a responsibility. A good report from the headmaster, and pos-

sibly a little research in his own field might be just what was wanted. Revell's had always been regarded as a very sound, well-established school, and now it was even more prosperous with the discovery of uranium and platinum by the deeply-probing prospectors, on school land. The dollars accrued and accrued, and the governors never said how much, and seemed to do very little about it.

JFB said to Wolstenholme, senior biology: 'With all that cash—and it must be a very large amount—think what a complete rebuilding programme could do. Think of the pupils you would attract from all over the world.'

Wolstenholme nodded. He was a thin, dried up man with an odd smile. 'Your point of view, of course. That isn't the way we like to do things. Firstly, we are a totally independent school; secondly, we believe that study must take a man along his own path, even to the butte of cock-eyed eccentricity; thirdly, a good wine needs no bush.'

'Bush?'

'A saying we have.'

'Meaning Revell's doesn't need advertising.'

'Exactly. You may not know it, but this school's old boys, aged between twenty five and forty, have, in the last fifteen years, made a forty per cent greater contribution to the gross national product than any comparable group.'

JFB said, mildly: 'Please don't think that I want to teach anyone here his business.'

'My dear fellow, no one here would think that of you. Take your time, and be a little more relaxed. You'll find that there is a very good atmosphere which permeates all through the school; you'll become reorientated quite easily.'

One afternoon JFB took a long meditative walk down the drive which was bordered by giant Wellingtonias. Then he turned at the rhododendron bushes towards the fives courts. Curious, that, he thought. Play it indoors, it's squash; play it out of doors and it's fives... Then he heard the sound of glass being violently shattered. It was repeated, and again. The disorderliness of the sound caused him to hurry. He had had little experience of punishment, but if this should be deliberate——?

At the eighth small crash he rounded the fives courts and

saw, upon the wall which separated school from road, four bottles half a metre apart. Inside the school grounds for certain and probably outside as well was a scattering of glass chips.

Hardacre fitted another ball-bearing into the catapult leather and let fly; nine bottles down, then ten, eleven, and at the final crash JFB thought it wise to speak. 'Hardacre.'

'Sir?' The boy's face was devoid of guilt.

'What about all that broken glass?'

'Oh.' Hardacre seemed to consider this.

'The danger,' JFB said. 'I think you should clear up the debris. Also, hand me your catapult.'

The boy was a model of calm obedience.

JFB reported the matter to Hardacre's form master, a large and beefy classics man named Jock Wilson, who regularly coached the young gentlemen of Revell's through the blood and mud of that ferocious game called Rugby, a sport certainly designed for ruffians but played by Revellians, who actually seemed to enjoy it.

'Oh,' Wilson said, 'at it again, is he? I'll see to that young shaver. Just a little more encouragement, that's what he needs.'

'Encouragement?'

'Exactly. My first cease-and-desist order seems to have been forgotten. Therefore, he must be reminded.'

JFB thought that it all sounded very matey until, to his horror, he happened to see Hardacre bending down in the corridor to receive six swingeing strokes of the cane from Wilson. The good American professor felt slightly numb with misunderstanding. The master thought nothing of it, the boy expected it, and there was no sign of anger in the mien of either donor or recipient. The British—how was one to begin to understand them?

JFB had that small idiosyncrosy in his work, that he loved to draw with light pencils. Within the limitations of his subject, he had an impressive skill. He could not hide his satisfaction at the newly completed drawings of three skulls which, according to his own opinion and that of high specialists, just ante-dated *Pithecanthropus Erectus*. JFB

knew, wisely, that there was a fascination in seeing the pictures appear under his skilful hand; more, it was educationally sound for him to match his voice in commentary with the work he was doing. There was no sleep learning at Revell's; the head didn't believe in it, the staff were not keen, and JFB knew better than to be the sole advocate of what seemed generally to be regarded as a heresy. And finally, JFB wanted to achieve his promotion by right of conquest.

'Sir?'

JFB did not have to turn round at once. 'Yes, Hardacre?'

'Do you consider those drawings to be quite accurate?'

JFB said, with every outward sign of calm, 'They are sufficiently clear to elucidate my main points. Or don't you think so? What is the real question you are asking?' JFB could feel the hush of attention from the rest of the class.

'Sir, is it not possible in your sketches that between the penultimate sketch and the Pithecanthropus there may be another? Shigeti has suggested that, if the assumption of transitions proceeding at the same rate can be countenanced, then this might well be so.'

'You have read Shigeti, Hardacre?'

'Only in translation sir.'

'How did you find him?'

'Not easy, sir.'

'A remarkable understatement. Notwithstanding what the wise Dr. Shigeti wrote, I think we should remember that the wisest masters of this our study are still short of evidence about many things.'

It was a good lesson.

Morning break was from eleven ten to eleven twenty five. JFB was drinking his tea in the common room, when he overheard Wilson's voice, somewhat raised.

'Little blighter. You'd think he was in training for something! Potting at bottles with a compression rifle, round the back of the fives courts. Again, mark you, after I gave him six over that damned catapult!'

He answered a question which JFB didn't catch. 'Oh, no. No, indeed. This time I won't wallop him. Too serious. Must be, with a boy of his standing and achievement. The guv'-

nor will have to know, and the visiting head-shrinker, I'd think.'

JFB joined the group. Wilson said: 'Hello, JFB. You changed your mind over the problem child?'

JFB answered with care. 'I don't think he is, you know.'

'What is he, then?' Wolstenholme asked.

'Boys of that age can pick up odd ideas like a dog catching fleas; of course, it's anti-social, and must be looked into.' He asked Wilson: 'Is he a good marksman?'

'He could earn his living at it. He shot the necks off, about three centimetres down. Each one; did it as fast as he could pull the trigger.'

'It's in the blood,' JFB suggested, and got a glare from Wolstenholme for the unscientific expression.

'It is, you know, it jolly well is,' Wilson said.

The headmaster was speaking. He was a quiet, firm kind of man whose judgments were reasonable; JFB respected him for this, as well as for the five sets of abbreviations after his name; here was a scientist who had turned to teaching and was being paid at something like his true value.

'Mr. Birthwhistle, our young friend has been examined very thoroughly by Doctor Meyer, who says that there is nothing wrong with him beyond a certain need to express an aspect of his personality, which must be—ah—channelled away by some logical means.'

'By what means, sir?'

'We will cross that bridge when we get to it. Each example of this phenomenon must be treated on its merits. There is no need to relax discipline.'

JFB raised an eyebrow.

'Further,' went on the head, 'this special passion for accuracy may very well fit in with his future, be sublimated, in fact, in the happiest manner possible. These are all reasonable guesses. I pointed out to Doctor Meyer that, unless he presented a special *caveat* about Hardacre, if a situation arose in which the boy disobeyed school rules he would have to be reminded in the manner I think most fitting. By the way, that rifle has been sent home to his father.' He smiled at JFB. 'We mustn't make too much of

this thing.' He opened a drawer. 'Ah, there's something else.' He handed JFB a paper. 'Your chief called for an interim report on you. There's your copy.'

Julius Ferrier Birthwhistle took the paper. He began to read it. He became pink. He read more, and became pinker. Finally he looked up and beamed at the headmaster.

'Well, Mr. Birthwhistle?'

'I—er—hardly know what to say, sir. It's very generous of you. You—ah—certainly give me a standard to maintain.'

'Rubbish. If you'd turned out to be a stinker, I'd have said so in as many words.' The head handed him another document. 'One of your small dreams is about to come true. Read that.'

The other jumped to conclusions. 'Oh! Have the governors decided to instal a time transport?'

The head snorted. 'The governing body remind me of a crab; they make up their minds and then go sideways. But they are prepared to shell out some of the gold from our coffers for that.'

'Party of eight,' JFB said, his eyes glistening.

'With you in charge. Here are nine time visas; get them filled in, will you?'

Had JFB been just the merest fraction more exuberant, he might have leaped for joy. 'Wonderful! This is for the anthropologists?'

'And biologists. Talk to Wolstenholme. You'll have to select——'

Crash!

A sharp smacking sound was followed a tenth of a second later by the smashing of a pane of glass in the headmaster's study window; he leaped from his seat; small pieces of glass crunched under his feet. 'Now, if that was young Hardacre again, he will get an imperial lashing from me.' Frowning, the head peered out.

'Sir,' put in JFB mildly, 'if he hit your pane he could have missed his target.'

The head picked up a five millimetre ball bearing. 'Or else he hit his target first time and we got the ricochet. Whichever master is on duty today, he will have to get to the bottom of this. I will not, cannot have...' He broke off,

staring across the verdant sward which seven centuries of greenkeepers had brought to perfection. Walking towards the school came Jock Wilson; in his mouth was a tightly-clenched pipe, and in his right hand was a tightly-clenched James Hardacre. The headmaster opened a window and listened.

'Whatever you say now, young 'un, will do you no good. You will receive it good and hard from the chief himself, so shut up and take your medicine like a man.'

The headmaster closed the window with a sigh. From a cupboard he selected a supple cane, more than a metre in length. 'I think, Mr. Birthwhistle, that you had better go. This is going to be an unhappy occasion for us all.'

JFB had just finished marking some essays, not quite satisfied that he knew all the subtleties which separated the English and American versions of the same language.

A knock at the door.

'Come in.'

The door opened, and there stood Hardacre, his round face resolute. 'May I speak to you, sir?'

'Certainly.' JFB felt no annoyance at all at the boy's appearance. 'Come in and sit down.'

He closed the door, and sat down on the edge of the chair, wincing slightly.

'The time trip, sir. Is it on?'

'Ah, so that's leaked out, has it? Yes, it's on.'

Hardacre seemed distressed. 'You'll be—you'll be choosing the chaps to go, sir?'

'Yes.' JFB knew that he was not helping, deliberately.

Hardacre's face showed relief. 'Oh, that's good.'

'I'm glad you think so.'

There was an awkward pause, not helped in the least by the severe, pinched expression on JFB's face.

'Sir . . . will I be going?'

'The headmaster has the final say.'

'But—what I mean is, sir—it's qualifications that count isn't it?'

'Oh yes. Yes, indeed. And not only academic qualifications, Hardacre. What might be called unauthorised extra-mural studies may also have some influence on decisions.

Like the destruction of the headmaster's study windows.'

'That. Oh, that was just a ricochet, sir. I'm a better shot than that!' He looked pleadingly at his professor. 'Couldn't we have an exam to decide who goes and who doesn't? I do want to come, sir. Really I do. And if you're going to try and choose our time at the life-or-death point? Just imagine, if we arrived at exactly the right time...' He was standing, now, searching JFB's face. 'Wouldn't it be marvellous to see man on two feet?'

'It would indeed.'

'Sir, am I going?' The yearning in the boy's voice was unbearable.

JFB stiffened. 'You know that I cannot answer that question. When the names are published, it will be by the headmaster's decision.' He added kindly: 'You must see that, after all your larks, I can't answer your question?'

Hardacre walked listlessly to the door, and went out. For a moment JFB sat, feeling a heel. But he had done the only possible thing. The list he had submitted to the headmaster did *not* contain Hardacre's name. It was something which had exercised JFB's considerable mental equipment for several hours. What would the head think of him if he included this boy in the list? A boy who, though of great ability, was simply not reliable, had not the fundamental conformity to match that ability? Even considering the undoubted fact that the British still held the view that eccentricity equalled originality equalled wit equalled ... It was a serial equation without a resolution, and it was not favourably regarded by the American professor, who found it even more annoying when he had to admit that he, now, had a thorough liking for the school, and had the feeling that the school liked him.

'Damn!' said Julius Ferrier Birthwhistle.

A tap at the door.

'Come in.'

Loder, a sixth former, entered. 'A note from the headmaster, sir.'

'Thank you.' JFB took it, opened it as the sixth form student closed the door. It was the list he had submitted to the headmaster, and, as he read it, he hardly knew what to say, or to think. The last name on the list which he had

written out was Louis Cousteau; it had now been scored through, and initialled by the head, who had replaced it with the name 'James Hardacre.'

JFB said to himself: 'Julius, my boy, maybe you are just beginning to learn why only a selected few ever become principals, deans or headmasters. It must be instinct; there is no reason in the matter.'

And he realised, with some wonder, that he was glad that the head had made the decision. A momentary flash of doubt entered his mind, but was gone as soon as he remembered the headmaster's glowing opinion as expressed in the interim report to the dean. They couldn't take that away from him.

Eight pupils and JFB were seated in what looked like an anodised-aluminium freight elevator. Each was clothed in a silvery coverall, each sat in a padded chair, with belt and shoulder straps.

A gentle female voice was speaking to them, a soothing voice.

... 'Upon your arrival you will find yourselves sitting in the middle of what seems to be an unsupported four metre roadway of metal, which floats on antigrav about three metres from the ground. It draws its power from the sun. You must keep your coveralls on, because these adjust for your comfort in the matter of body temperature. There must be strict observance of the rule demanding that you remain on the roadway; you must do nothing to influence the flow of time at the point in time to which you will be taken, which has been calculated with little more than a month's leeway. There is nothing to fear from any living creature. In the first instance, the road is invisible to them, and, secondly, should a living being approach to within ten metres of the road, a self activating force screen will gently push the creature away. Be ready to obey your party leader, with whom we shall keep in touch, and remember that there is no cause for alarm.'

The soft voice spoke in the plug in JFB's left ear. 'Just nod if you're all ready, Mr. Birthwhistle.'

JFB, his whole body vibrating with excitement, managed a small nod.

The voice continued. 'Now, all you have to do is to relax, which is easy. Take yourselves back to the time when your mothers held you gently until you went to sleep, fearing nothing, feeling completely relaxed . . .'

The travellers found it easy to comply with the suggestion.

'You have arrived.' The sweet voice spoke in his earphone and JFB awoke as though from a pleasant catnap. Everything was as they had predicted, and the first smiling face he noticed was Jimmy Hardacre. He knew that the boy thought that his American professor had put him on the list. JFB felt a pang of remorse.

But he was in charge of the school party. Did not that imply that the head thought well of him . . . ?

He started work. 'Now. This open country before us is comparable in many ways to the African savannah of our own time. However, the greener grass and thicker foliage of the scattered trees indicates higher precipitation. The very large one about a hundred and fifty metres from us appears to be a predecessor of the baobab as we know it. The trees have foliage down to within a metre and a half of the ground, which may well indicate that no herbivores with long necks have yet developed . . .'

He stopped as they sighted their first living creature.

'Eohippus,' Summers said, trying to keep his voice at its usual slightly blasé level, and not succeeding. 'Like a cross between a donkey and a tapir.'

Two more of the horse's ancestor appeared, moving faster and then more, breaking into a run.

'What's after them?'

'Sabre tooth tiger,' someone muttered, and JFB glared in the general direction of the remark, not being able to locate the pupil who was treating the whole thing as a rubbernecking tour.

Two more of the horse-like creatures joined the rout, running along a line roughly parallel to the time road.

'It's a hunt!' cried JFB, quivering with excitement, 'a hunt! It could be—I wonder if it is—we could be very lucky and see——'

They were lucky. In the very path of the fleeing animals,

figures rose to a crouching posture. They were hairy man-creatures, long of jaw, short of nose. They clasped a rudimentary weapon in one fist as they foot-and-knuckled along at a fair run. They spread out, giving cries, making a semi-circle around the eohippics. JFB, gripped by the spectacle, had his sound-on hand camera recording their noises, all of which seemed to be the repetition of two syllables, 'Yughaaa! YugHaaa!'

Now the quarry were almost surrounded by the advancing apemen; they halted, uncertain, and bayed, baring their teeth, occasionally bucking nervously as the apemen advanced, intent on the kill.

Among the pupils of Revell's school, there was a tense silence. With the apemen and their quarry, for a moment, there was also silence. Summers, behind Hardacre, pointed left. 'Hey look, there's the party of hunters who were coming after the eohippus—two groups after one lot of meat!'

Jimmy Hardacre nodded. He was fascinated, wishing that he could have brought his camera, but JFB was the only one allowed to bring official kit. 'Five of this second lot—six of the first—could be a fight.'

Next indications were that there *would* be a fight. Party A stopped, rolled their heads, bared their teeth, and stood on three limbs while using the fourth to wave club or stone.

'Yughaaaa! Yughaaaaa!' they snarled.

Party B replied equally intelligibly. 'Sheghee! Shegheeeeee!'

They fanned out, as though each was going to pick an opponent. Hardacre was working out the odds he might offer, when the party on the shining strip got another surprise. All the apemen save two sat down in a wide, wary circle.

Summers muttered: 'How about that, then, young 'un?'

'What?' asked Hardacre.

'Taking any bets?' Summers asked.

Jimmy rose to the bait, pointed out the champion of the first group. 'Bet you ten dollars big and hairy here wins.'

'Tens!' Summers said. 'My my, we have changed, haven't we! OK, ten that long 'un over there wins. Yours has got too much fat on him.'

'Got good shoulders,' Hardacre said. Indeed, he was already beginning to feel that he had been rash. But he couldn't welsh on a bet, not now. And he noticed, too, that his champion had somewhat more backside than was necessary for agility, if not for comfort.

'Shegheeee!'

'Yughaaaaaa!'

'Man of few words,' muttered Summers.

'Shurrup!' whispered reckless bettor.

'Wish they'd get on with it,' Summers said.

Came action. As though by common signal, the two apemen went towards each other, using all fours, the one gripping a club, the other ready with a half-metre length of slatey rock. Now Hardacre noticed that Summers' man was longer of arm and leg, as well as younger. Ten dollars! Ten! He who wouldn't take more than one dollar British per day from any client!

The lanky one made a sudden rush; the other shuffled back, tripped, and rolled over; his opponent was almost upon him when he did an upwards slash before regaining his feet, and stood facing the snarling visage of Lanky. Watching, Jimmy Hardacre had the feeling that for two pins his champion would turn and run, and that would be defeat, and ten dollars out of the kitty, as well as the ragging he would get from the others. Hardacre discovered, quite suddenly, that he had a streak of ruthless pride within him. If only he could go out there and give his apeman some encouragement, like a bigger club, or a better piece of stone!

Then he had an idea, and to think was to act.

'Here,' Summers said, 'you're not potting at my man——'

'Brasshead!' snorted the other. He waited until his apeman was crouching with his posterior well exposed. A ball-bearing was already within the leather of the catapult. He raised the weapon, aiming consciously at the tenderest spot of a very tender area.

He let fly.

Smack!

The apeman leaped a metre into the air with a howling yelp. Landing on his feet, with one hand holding his rear, he

looked for a moment as though he was going to drop back on all fours.

But he didn't.

Half bent, he felt the balance of his body, moved shakily and then, as though in the power of new and undreamed of forces, he straightened, cautiously. He found he could do it. He breathed deeply, thumped his chest, snarled and roared from his new and conquering height. He moved forward, gathering confidence at every step, his initial hurt forgotten, and he went hell for leather after his younger opponent, who took one look at a creature like himself behaving with such lack of propriety, and scarpered off with the rest of his tribe, snarling and yelling.

And JFB had filmed it all.

'Ten dollars,' Hardacre said.

'Look here,' Summers said, 'if you hadn't——'

'Nothing in the rules,' Hardacre snapped, 'pay up!'

So, Summers paid up, and Julian Ferrier Birthwhistle, for all his learning, never knew the why of it all. He had seen, he had recorded, and that was sufficient fame for a lifetime. No-one ever told him how *Pithecanthropus* became *Erectus*.

THE SQUARE ROOT OF MC

by

LAURENCE JAMES

The problems we face in this modern world—over-population, pollution, racism, religious intolerance and many more similar horrors—must be tackled with all the tools available. Not least in our armoury is the printed word, in various guises including reasoned polemic, vicious attack and allegory. Or as herein presented where speculation and mystery combine in an unusual way.

'YOUR Holiness, Your Royal Highness, Honoured Premier, Mister President, Right Honourable Prime Ministers, my Lords, Ladies and Gentlemen! I beg you now to pray silence for the much-respected and well-loved Ambassador from the Planet Poseidon.'

(Prolonged Applause, culminating in a standing ovation.)

Thank you. Thank you all. My friends—and I call you 'my friends' rather than repeat that somewhat tedious list of mainly honorary titles (laughter)—my friends, today is, indeed, a day of much happiness for us all. In case you need reminding of what today is, but I cannot think many of you will have forgotten, (more laughter)—it is November 14th, 2172—just two hundred years to the very day since I first came among you.

It was only a little while before, that you were even ignorant of the very existence of my world. I believe that I am right when I say that it was a young boy from United Britain who first deduced that there might be a tenth planet. I need hardly remind you of the dreadful furore that followed when we finally made our planet visible to you. Astronomers from all over your world rushed to claim it for their own. And the naming of it! Oh, oh! (Polite laughter.) It was with great difficulty, Sir, (bowing to the leader of the Eastern Bloc) that we were able to prevent it being named after one of your most illustrious predecessors. (Louder laughter.)

But, I digress a little. And I become flippant, which was certainly not my intention. Tonight, ladies and gentlemen, I fear that I may give you something which you had not expected to receive.

You will all, I know, have come here, dressed in your ridiculously anachronistic clothes, to eat a meal of quite stultifying awfulness, to gossip about your contemporaries and to listen to me make my usual polite and diplomatic

speech on the contribution that Poseidon has made to the peace and happiness of the world.

You will hope that I will be mercifully brief, so that you can return early to your palaces and fine official dwellings. You expect a series of boring platitudes to which you will make polite noises of appreciation and applaud genteely at what you think are appropriate moments. Some of you will hope to snatch a few moments of sleep. Indeed, some of you already are!

Well, my fine people, my leaders of the planet Earth, you are going to be DISAPPOINTED!!

That was simply to assure that *all* of you were now awake. (Angry murmurs.) Please. I ask only that you listen to me. Really listen. With your minds as well as with your ears.

First ... Thank you ... First, I *will* speak very briefly about the last two hundred years. In the period before I came to this planet, there were great writers of what was then called 'science fiction'. Some of them looked to a future of conflict and despair. Others, more gentle and hopeful, saw it as a challenge which man might meet. By meeting it, they felt that he could create a brave new world.

So, think back, two hundred years. The world was poised at a key point. I know that it was a moment of galactic truth. On the one hand stood the patient, blindfolded figure of peace, while the crooked shape of anarchy lurked baying in the wings.

So I came, and with me came my comrades, and we did not find it an impossible task to tip the scales in favour of the powers of light. Compare your world now with what it might have been!

Since our coming, there has been peace. By 'peace' I do not just mean that there have been no total wars that would devastate the whole planet. I mean a real freedom from war. No local conflicts, no 'police actions' as they were called. Not even a Vietnam guerilla war. Vietnam! I can see from your faces that scarcely any of you remember the word. (Murmurs of dissent) I had, of course, automatically excluded you, Mister President, from that comment.

The pollution that threatened your rivers, your seas, the

very air that you all breathed—it is no more. The birth-rate is stable and food stocks are ample. Your brave new world is not that far away from being a Utopia.

For all that, you have been grateful to my compatriots and myself, though we never desired your thanks. It was enough to do the deed for its own sake. You look upon us as magicians and wise and benevolent guardians. To the best of my knowledge, we have never done anything to make you lose one jot or tittle of faith in us. Am I right? (Silence.) Well, am I right? Can any of you think of any wrong thing we have ever done? (Murmurs of 'No'.)

Now I come to the very core of my speech. In a way it marks an ending—an ending of total trust, yet, in another way it is a beginning—a beginning of total truth. You see, that epic day, two hundred years ago was not my first visit to your planet. (Gasps and loud conversation). Quiet! Please, quiet!

In fact, my first visit to earth was *three* hundred years ago today. Yes, three hundred, not two hundred as you have always been told. I hope you will see my reasons for telling this story that has played on my mind for all this time. Today is a happy time, but I can no longer let the truth be hidden. I ask you to travel back with me for three hundred years.

Our science developed during the following hundred years but it shames me somewhat to admit that my space traveller developed a fault while travelling through the atmosphere of earth and I had to make a forced landing in the ocean.

As I plunged through the stratosphere, I estimated my position, using earthly navigational references, as 37° 24′ N by longitude 48° 19′ W. I saw that I was over the north-eastern edge of a vast expanse of very deep water, known, I discovered, as the North American Basin. My scope picked up a ship travelling eastwards at about nine nautical ... sorry ... knots, so I was able to control my angle of glide to land me about three miles ahead of the vessel. It was cloudy and dull with a hint of light rain in the air, I remember, but the visibility was not too bad.

The moment my craft settled in the water I began to shape-change. I made my ship have the appearance of a

small steam-launch, while I gave myself the body and speech of a black native of the coast of what was then one of the west African princedoms under English suzerainty. I had observed that the oncoming vessel hailed from the port of New York so I prepared a large bag of the then-current golden coinage of that nation. I had arranged suitably tattered clothing and ravaged appearance but I carefully hid the money about my person.

The ship, a two-masted sailing ship, by the way, was nearly upon me before someone noticed. I must say, though it may appear somewhat churlish about my rescuers, that it took several minutes before they had put about and hove-to about a cable's length away. You will see how easily I slip into the naval language (polite and scattered laughter)—for those of you who have no knowledge of nautical terms, I should say that the ship stopped about 608 standard English feet away from me!

They lowered their boat, which was an eighteen foot yawl and pulled through the long swells towards me. There were five men in the boat and it was the one sitting in the stern, a thin, rather tubercular-looking fellow with narrow eyes, who hailed me. I told him that I was Prince Zimbabwe and that I had been sailing my new boat near the Azores when a squall had struck and near wrecked me. All my small crew had been swept overboard and I was the sole survivor.

With some skill I conveyed to the sailor that my boating adventure had been ... shall we say, a little bit less than honest. It is common knowledge, or it was then, that Ponta Delgada on the island of San Miguel was the centre of an illicit trade with the African mainland in all sorts of commodities.

Although he wished to abandon my poor craft, a glimpse of a few dollars soon convinced the sharp-featured Yankee that it would be well to play along with me for a while. I was taken in tow by the yawl and brought back to their ship, which had lain some distance off. There followed another example of somewhat lubberly seamanship as they tried to get my boat upon the deck of their vessel. The captain, a bearded man with deep-set and somewhat fanatical eyes, was loath to have it on board, indeed he seemed

lacking in any enthusiasm at the prospect of myself on board at all. However, the first mate, for it was he who had led my rescuers, climbed nimbly over the side of the ship and engaged the captain in private conversation for some moments. The subject of their talk was not difficult to deduce.

The captain assumed an expression of guarded welcome and ordered my boat hauled on board. I clambered aboard as best I could and my craft was heaved round to the port side, just under the bows of the brig. It seemed to me that it would have made more sense to have hauled it up amidships where there was more room. However, I avoided any interference. Perhaps it would have been better if I had voiced my opinion as they made a fearful business of it.

Firstly, one of the sailors, a foreigner ... a German I discovered later ... named Gottlieb Goodschaad, had the misfortune to trap his left hand in the hoist and lost three finger-nails and a deal of skin and blood in the process. He had the traditional sailor's ability of expressing himself in florid and picturesque style.

I was a little concerned to detect that the poor fellow blamed me for his own clumsiness. I had not wished to make any enemies and here I was with my expedition to Earth not one hour old and I had already incurred the hatred of one Earthman.

Finally, after much heaving and belaying, my craft was aboard and lashed safely on the starboard side, just alongside the forrard deck house. Sadly, some of the spruce timbers were chipped out during the operation, which gave the captain some angry moments. I suppose it was about two or three feet above the water line. I remember the exact measurements of the damaged area as I proposed restitution to the captain based on a rate of five dollars per cubic foot. Captain Briggs, for such was his name, was a real tartar for detail and took scrupulous care that the damage was exactly measured. The timber gouged out was seven feet three inches in length, by one-and-a-quarter inches high, by three-eighths of an inch deep.

Before going further I should introduce you, as it were, to the crew of my rescuing vessel. The captain was named

Benjamin Spooner Briggs. A deeply-religious man, he was born in April 1835 and was the second of five sons. His wife, whose first name I never discovered, and who was never addressed as anything other than 'Mrs Briggs', even by her husband, accompanied him for this journey. Their eldest child, Arthur Stanley Briggs, had been left behind in New England to continue with his schooling. The youngest child, who was only ever called 'Baby', rejoiced in the name of Sophia Matilda and was loved by the crew for her merry antics. She was one of the most cheerful young children I think I have ever seen. The first mate, Albert G. Richardson, hailed from Stockton Springs in Maine and was just twenty-eight years old. I fear that I did not entirely trust Mister Richardson, and I think that he reciprocated my feelings.

The second mate was a splendid fair-haired Viking of a fellow, named Andrew Gilling, a native of New York, The cook and steward was another light-haired man, Edward William Head, aged about twenty-three also born in New York. He was a fiery-tempered man whose cooking made up in quantity for what it lacked in quality. The most common dish was a sort of ragout of salt beef with some ancient potatoes and onions. I fear that the palates of my companions were more jaded than my own as I never heard one word of complaint.

The remainder of the crew was composed of four German seamen from the islands of Föhr and Amru in Eastern Prussia. I believe, Mr. Premier, that Föhr now houses a large power-producing plant? I thought so. Their names were, Volkert Lorenzen, Adrian Martens, Bob Lorenzen (younger brother of Volkert) and my friend with the injured hand, Gottlieb Goodschaad, aged twenty-three. With the exception of Goodschaad, who will play a major part in my tragedy, they were all good stolid fellows.

I made the acquaintance of all of the crew during the evening meal, and I was mostly impressed with the nautical wisdom and knowledge of Captain Briggs. I attempted to find out more about his ship and, indeed, more about mankind. I was aware of the troubles between the North and South over the vexed problem of slavery and counted myself lucky to have fallen, literally, upon a northern ship where the crew were prepared to entertain a black person

at their table. If I am to be completely honest with you, I have often wondered whether my well-padded purse was not a larger factor in my acceptance than the morality of any of the crew.

The good captain was not prepared to satisfy my curiosity until I had performed a similar service for him. Again I told of my 'activities' around Ponta Delgada. As we ate, the heat from the stove in the fore-cabin was having a deleterious effect upon my health and I managed to suggest to him that I might be prepared to enter into some kind of financial arrangement with him if we could repair to his own cabin. He took the bait and invited me to squeeze past the sideboard into his own little cabin, 'for a stogie and a glass of gin'. The gin upset my metabolism more than I could have imagined and the 'stogie'—a thin cigar of doubtful origin—did little to help. I can still remember how foul it was!

In the bluff way of all Yankees, Captain Briggs wasted no time in coming to his subject. He wanted to know what I had been smuggling and what did I propose that he should do with me. I eventually hinted that it *might* possibly, just possibly, have been precious stones. That was enough to bring the light of avarice to his eyes and for the cash register in his mind to start clicking and whirring overtime. I asked him that he should keep me on board while I made necessary repairs to my craft and then, when he got nearer to the Azores, he could drop me off and no more would be said. I also asked him if my arrival on board could, somehow be omitted from the log. He jibbed at that, and it took several glasses of his execrable gin combined with a large number of my double eagles before he admitted that it was *just* possible and he would speak to the crew to make sure no-one 'blabbed'.

It was agreed that I should sleep on a makeshift cot in the corner of the galley in the forrard deck house, under the window away from the stove. I talked briefly with the cook, Ned Head, before dropping off to sleep. It seemed to me that the poor fellow was somewhat taken aback at the thought of sharing his galley with a real prince, albeit a black one! The last thing I heard as I fell into the gentle arms of Lethe was muttering coming from the adjoining

partition of the crew's quarters. I noticed the voice of Goodschaad raised, as though in anger.

The weather was somewhat improved the next morning and the captain kindly told me something about his ship. He was most proud of her, as one would expect from someone who was not only captain but also part owner. He showed me the ship's papers which revealed the owners as 'James H. Winchester, twelve twenty-fourths; Sylvester Goodwin, two twenty-fourths; Daniel T. Sampson, two twenty-fourths and Benjamin Briggs, Of Marion, State of Maine, eight twenty-fourths.'

Ned Head took me on a lightning tour of the brig. In fact, he told me that she was more correctly called a 'half-brig' or 'hermaphrodite brig', since she had two masts—the foremast square-rigged and the main-mast 'schooner-rigged', which means fore-and-aft. She had been built in Nova Scotia in 1860 and had originally been called the 'Amazon'. Ned claimed that she had once had a reputation for being an unlucky ship, as on her maiden voyage in 1861, her young master, named Robert McLellan was taken ill and died shortly after. Then, just five years ago, she had gone aground at Cow Bay, near Cape Breton.

The syndicate that bought her, apart from changing her name, had also made some major structural changes. She retained her square stern and billet head, but her length was increased by four feet to 103 feet, her breadth to 25 feet 8 inches while her depth was still a mere 11 feet 8 inches. Her total tonnage went up to 282 tons.

Over luncheon I quizzed Captain Briggs about his present journey. Ned had shown me the cargo of 1701 barrels of crude alcohol, a substance which I hoped to be able to use in the repair of my craft. Captain Briggs told me that he had sailed from New York on November 4th and was bound for Genoa, via Cape St. Vincent and Gibraltar.

After luncheon, Mrs. Briggs entertained us right prettily by playing us some religious tunes on the elegant rosewood melodeon which stood in the captain's cabin. Albert Richardson revealed himself as the owner of a pleasant tenor voice and we were all a little saddened when Mrs. Briggs had to stop as 'it was time for Baby's afternoon nap'.

I spent the afternoon in some preliminary work on my

own craft, watched surreptitiously by Richardson and a couple of the Germans. I used my unusually acute hearing and was disturbed by the words of Goodschaad. As near as I can recollect them—and, you must remember, my friends, that I am thinking back to events that happened three hundred years ago—he said: 'I fear we are turned into a charvering crib for black hussington bastards. There is no room for them in our country and there should be no room for them on this ship. We should rake his soskins and over with him!'

For the benefit of the ladies here tonight, I will not attempt a full translation of the German's idiom. Suffice it to say that he cast aspersions upon my sexual origins and abilities; suggested that I dwelt in a place of dubious morality and recommended that my money should be stolen and my corpse dumped over the side of the ship to become food for fishes. An ironic ending for an inhabitant of the Planet Poseidon, you might think! (Loud laughter).

Fortunately, Goodschaad's words seemed to meet with little approval, and I heard no more from them for the rest of the day. However, during the evening meal, I was unfortunate enough to be put off balance by the lurching of the ship and I jogged the arm of the unfortunate German, causing him to spill some exceedingly hot mulligatawny soup over his hand—yes, it was the injured one—and more of the same into his lap.

He leaped to his feet with a scream and a foul oath. Fortunately for all of us it was in his native tongue. Had it been otherwise, Captain Briggs would have struck him to the deck for he allowed no profanity in the presence of his wife. Goodschaad would not even listen to my apology but stamped off on deck, clutching the more severely wounded part of his anatomy. I could still hear him raging on the deck about me and cursing with a remarkable fluency. The mildest of his comments was that I was the diseased oddity, resulting from the pairing of a Tokyo one yen whore and a spavined Jewish money-lender. Interestingly, I noticed that all the German sailors, and Goodschaad in particular, seemed possessed of a quite unusual hatred of any person and anything Jewish. I wondered then whether this might be a characteristic peculiar to the Aryan people!

There was an embarrassed silence in the saloon after the incident which was broken by the good captain. 'I should take good care of yourself, Mister Zimbabwe (he had the sturdy distaste for any title of birth which was, and still is Mister President, a characteristic of the citizen of United America) for that man is the worst type of Kraut. He is stubborn, arrogant and will not forget a wrong. Neither does he have any love for those whose skin happens to be of a different hue to his own. If you'll take my advice, sir, you'll guard your back against him, for an accident can be mightily simple and easily arranged when one is in the middle of the old Atlantic. Perhaps you'll accept the loan of this, sir.'

Captain Briggs had gone into his cabin while talking and after some huffing and puffing he dragged out from under his bunk a rusty old sword.

'I came across this on an old battlefield and I reckon it might have done some foul deeds in its day. There were stains on it which I fear might have been blood, but I got the wife to set to with some juice of lemon and clean it up. It's still a might handy little toothpick! See here, Mister Zimbabwe, this cross of Savoy up near the hilt seems to indicate it must have been a good Italian blade once. Will you not carry it about your person as a cutlass for a few days until Goodschaad there has had a bit of time to cool his temper?'

I refused the kind offer for, as you all know, we have our own methods of fighting which are more than superior to anything that Earth can produce (Murmurs of dissent). I am sorry; I had no wish at all to open any old sores. It has been such a long time since we have needed to use any of our more military skills. Please, my friends, be patient, for my tale has run much of its course!

That evening a mist sprang up and made the ship's riding lights glow and flicker, barely visible in the gloom. I was glad that the swell had gone down a little and I borrowed a lantern from Ned to begin some of the more basic repairs to my own craft.

I heard the noises of the crew bedding down for the night. In that part of the Ocean there was little chance of a collision and there was no lookout posted. Consequently, I

was a little surprised to hear someone moving stealthily near the water breakers just aft of the mainmast.

I pretended that I had not heard anything and continued with my repair work. The fault was basic enough to make the remedy a difficult one. Much cleaning of small parts was required and I resolved to broach the subject of using some of the alcohol for this purpose with Captain Briggs in the morning.

My concern for my space-craft did not distract me from the more pressing business of the secret figure that lurked somewhere behind me. He was closer than I had thought for I barely detected the swish of a weapon and ducked almost too late. The axe, for that was the weapon, missed the top of my head by a scant couple of inches and imbedded itself deep in the spruce starboard top-gallant rail.

The assassin-manqué withdrew the blade, leaving a mighty scar in the rail. A scar which, at a later time and place, was to give rise to a deal of conjecture. I turned and grappled with the man, and threw him against the foremast. He dropped the axe and clawed at my eyes. As I had guessed, it was Goodschaad. Using a mild nerve stunner I soon had him sprawled helpless on top of the forehatch. I asked him why he had tried to kill me, pointing out that I had done him no deliberate harm, and that his only injuries had come about as the result of accidents. At first he would not answer me, contenting himself with spitting on the deck and muttering sullenly to himself. In an attempt to break the impasse I offered him a little money, but he struck it from my hand with an angry curse.

'I would not touch your filthy tin! I'd as soon have the glue from a frow's leather. You take me for a jock-gagger, do you? I tell you, Mister Zimbo-Zambo, I would sooner starve in a Bremen stews than take denaly from your black hand. The captain may have took your bribe but I'll rot 'ere I do like. The sooner you're off this clean ship with your stinking black body and your dirty ways, the better. I only wish my axe had slit your fuzzy black head from your stinking black body!!'

I attempted to calm him, but my efforts only served to exacerbate his rage. He went on: 'Don't touch me, filth. Just you wait. One day all your money will be worth noth-

ing and then the day of people like me, ordinary, clean people, will come and we will sweep all you blacks and the degenerated intellectuals and the gypsies and the Jews into the sea or into huge jails where you will all die while the country is purged. One day there will be a final solution to all of this. One day we shall find a leader (interestingly enough, Goodschaad did use the word 'Führer' for leader) who will unite all right-thinking people. You think that you are so damned clever and so safe. You and your Jewish brethren are flymy to anything crooked. You crowd out honest folk and steal our jobs and houses. The cry will come for Lebensraum and you will vanish for ever and no more will this earth be polluted!'

I was appalled by this diatribe of hatred and prejudice. If Goodschaad were typical of German opinion, then I dreaded to think what the future might hold for Europe and the rest of Earth. It was this one speech, as much as my feelings of guilt for what was soon to happen, that led me to wait for another hundred years before coming again. We all know how much better it would have been had I come earlier. I wonder though. Perhaps it was better for mankind that they should know the meaning of 'World War' so that you can better appreciate the peace which now reigns. I honestly don't know.

I let the German sailor go back to his quarters without making any further comment. I cannot believe that Captain Briggs and most of the rest of the crew did not hear our violent exchange, but no comment was made at all by anyone. To my surprise, there was not even any comment on the large gash in the rail caused by the madman's axe.

For the next seven days the voyage was uneventful. We ran eastwards, averaging about seven knots, in weather that just kept the right side of fair.

It was November 23rd. I spent much of my time working on the repairs to my craft, which proved somewhat more difficult than I had hoped, Nearly all the dirt and impurities had been removed through the good offices of the alcohol—I had contrived to use eight barrels during the operation. Sadly, all my attempts to steer clear—if I may be permitted a nautical metaphor (murmurs of laughter)—of the unfortunate Goodschaad were doomed to failure. While

swinging up the barrels, the hoist slipped and the poor fellow was struck a fearful blow by a cask which then smashed down into the hold. The fumes from this accident caused Captain Briggs to have the hatch cover left off—a state of affairs which held up till ... but I run ahead of myself. Ned Head patched up the German's cut brow with a few stitches of cobbler's twine. Little was said by anyone at the time, but I fear it made any hope of curing our quarrel quite vain.

Things were going well. My only worry about repairing my ship was the central power source. This had also been contaminated and I had to remove it and open it to check the degree of damage. As you all know, but as no person knew in 1872, the power fuel that we use on Poseidon is reliable and cheap. But, it is also fatal to any human who might have the misfortune to be exposed to it. Thus, I had to choose my moment with the utmost care.

Two days later, I thought my moment had arrived. The weather was fair and Captain Briggs had just made his entry in the log. The lower tops'l jib was set, as was the foretop stays'l. Luncheon was over and I was recovering from the eternal stew of potatoes and onions and enjoying, yes, enjoying, one of the good Captain's stogies. I had decided that, since I could not beat him, it would be wise to join him. (Laughter).

Sophia Matilda was asleep. clutching her favourite rag doll while Mrs. Briggs played us an assortment of hymns on her 'Parlour Poll'—as the crew called her melodeon. Although she possessed a certain mechanical skill on the machine, this was offset by a tragic deficiency in her repertoire.

I see from a rather marked lassitude in some of you, that I had better hasten my tale towards its conclusion.

I finished my cigar and glanced, from habit, at the clock on the wall of the saloon. Although I had been on board the ship for ten days, I never got used to Captain Briggs' strange idiosyncracy of having a clock without any hands on his wall. It was so bizarre that I never quite knew how to broach the subject with him. For me that will always be one of the great unsolved mysteries of the sea.

Suddenly, Albert Richardson, the mate, suggested that, as the weather was so fine, they should take out the ship's

boat and row round the ship. Mrs. Briggs leaped at the idea, as I knew she would, and scurried to wake 'Baby'. Captain Briggs was nothing loath and the rest of the crew followed suit. The only exceptions to the trip were myself—I pleaded excess of work on my steam-launch—and Goodschaad who, to my disappointment, cried off on account of his still wounded head.

The boat was duly lowered, and I barely had time to slip Mr. Richardson his promised ten dollars for his sterling suggestion, made, of course, at my prompting, before they all piled carefully in and pulled away.

Before returning to the delicate work in hand, I stood and watched the happy little party. The last thing I remember of them was 'Baby' standing in her mother's lap and waving to me.

... Forgive me. For a moment I was quite overcome by the sad memory...

The boat was quite close in under the port quarter when I heard a cry from somewhere up forrard. I turned at the rushing of feet but there was nothing I could do to stop the crazed German. Like me, he had used the boat trip for his own ends; but his were revenge. He had ripped away the auxiliary power unit and was dashing to the stern with it, intending to throw it overboard.

I tried to stun him, but it was too late. My power made him stumble but he had enough forward momentum to heave the power unit far out over the stern, where it splashed into the swelling waters of the Atlantic Ocean, not ten feet from the ship's boat and its crowded crew.

There was an enormous explosion as the unit hit the water and the sodium chloride reacted with the propellant. A great wave swept over the ship, flooding into the cabins and soaking all the bedding. An oar, thrown high into the air, came down on to the binnacle, smashing the compass into unusable wreckage.

As the bubbles subsided and the sea resumed its implacable motion, I scanned the area as soon as I was able. There was a deal of dead and dying marine life. But, there was no human life. None!

All that was left in thousands of square miles of ocean was myself and ... and Goodschaad. I bent over him, seeing

instantly what I had both hoped and feared. His brief exposure to the radiation from the auxiliary power source had taken its toll. He was a dying man.

I lifted him and began to walk with him along the deck. I had intended, I swear to you, to try and save him, Then he spat in my face and cursed me. I stopped and held him, while he raved at me. He tried to blame me for the tragedy and promised me that one day all who were not pure Germans would face ... the word he used was 'Endloesung' which means an ultimate or 'final solution'.

Holding him there, near the rail, I looked down at the face of this man consumed with hatred, and I thought of bluff, honest Captain Briggs, his wife and young baby. I thought of Ned and the rest of the good fellows who had just died that blasphemously sudden death. And, I dropped Gottlieb Goodschaad into the grey-green waters and I stood and watched as he drowned. I did nothing to help him. I watched him drown.

That, ladies and gentlemen, is my story. A day later, my ship was repaired and I used my main power unit to drive me back into the skies and back to my own planet. I did not wait so long before I returned because of the evil of one man. It was because of the surge of evil I had discovered in myself and which it took me so long to purge. It is for you, for all of you to decide whether I have been successful. After our rule for these many years, I have told you this true story to bring to you the realisation that you must now be the masters of your destinies and that we—no longer your god-like and infallible guides—are leaving you to stand on your own feet. Whether you walk or fall is now up to you.

There will be no farewells. I think that there is no more to be said. I suggest that you now all disperse quietly to your homes and residences. Please do not loiter and, I beg of you, let there be no public outbreaks or ceremony. It is better that it ends with quiet. I do not think there is anything else but, yes, Mr. President? The ship? No she was found, but her secret has lived till today.

Her name, Madam? Her name was the Mary Celeste.

Goodbye.

Goodbye.

THE INVERTED WORLD

by

CHRISTOPHER PRIEST

On our world if you stand in one place long enough you will find yourself in exactly the same place. The trouble for Future as well as for Gerdun Mann was to keep the city of Earth in that one spot and this could only be done at the cost of enormous effort by continually moving. There is much of Christopher Priest's enigmatic reaction to life in this infinite world he envisages existing outside the parameters of the known and familiar.

THE INVERTED WORLD

ONE

GERDUN MANN was on the Moon when they located him. He was working with some other reconstruction technicians on the remains of the Apollo 11 equipment, which had been unexpectedly wrecked by a moonquake. The first Moon landings still had a nostalgic value for tourists from Earth, and the necessary reconstruction work was slow and painstaking; the original site was now too badly damaged for re-erection of the repaired descent-stage, and the whole assemblage was being moved nearly a mile to the south. Mann was in the final stages of carefully duplicating—from photographs taken at the time—all the footprints and pieces of litter left by the original astronauts.

At the end of his shift, Gerdun drove to the temporary hostel built near the new site, took off his work coverall and life-supports, showered, ate a meal and prepared to relax for a few hours before returning to finish the work.

Gerdun Mann was a reader. There were still a few firms who printed books, catering to what was seen as a fashionable whim by a small but affluent minority. Words printed on paper were still available for those who cared to seek them out, but they were in short supply on the Moon. Once Mann had estimated that he had read everything that existed on the Moon, and that day had taken out a subscription with a firm on Earth. It was his one luxury, and he rejoiced in it. He still had seven of the books from his last consignment to read, and now he went to his room to read the last few chapters of *Dombey and Son*. He desired nothing more at that moment than privacy and solitude, and sufficient mental energy to finish the book before he fell asleep.

He was aware, about an hour later, that a craft had landed near the hostel. He ignored it. He was also aware of somebody entering the hostel, and he tried to ignore that too, even as a growing certainty in him warned that his

privacy was about to be invaded just as surely as his concentration had been. He sighed, and closed the book as someone knocked on the door.

It was Fitzpatrick, his immediate senior.

Gerdun invited him into the tiny room, noting that the man had not removed his surface-gear.

'I'm off-duty,' he said. 'I'm tired, and I'm reading.'

'And I'm sorry. I didn't come two hundred miles for nothing.'

'That's what I thought. Don't tell me, you want the module moved to another site.'

Inside his helmet, Fitzpatrick grinned and shook his head. 'Not this time, no. I've got something for you.' He turned his back on Mann. 'In the bottom compartment ... a package.'

Mann opened the compartment in the back-pack and took out a small, plastic-wrapped carton.

'What is it?'

'You've been recalled to Earth. I've issued an authorisation, and——'

'What? But I don't want to go to Earth!'

As well as a man in a life-support suit can shrug, Fitzpatrick shrugged. 'Someone there wants you to go. I gather it's important.'

Gerdun Mann looked at the package in his hand. He had lost all desire to open it.

'Listen, Joe, there isn't a single good reason why I should go to Earth. I don't want to go, I don't have to go. I've got a contract here that runs for another three years. I don't know anyone on Earth, and no one on Earth knows me.'

'They've apparently found a good reason. There's a relative they want you to meet.'

Mann stared at him with a healthy malice, then opened the packet with deliberate motions. 'I don't have a single relative alive on Earth....' He took some papers from the packet, and looked through them.

'They came on the last shuttle,' said Fitzpatrick. 'I was radioed about them this morning, and had someone pick them up for me. Don't ask me what it's all about, because I don't know. I was told by EASA that they were top pri-

ority, and that you were to return to Earth on the same shuttle.'

Gerdun Mann was staring at one particular piece of paper which was written in the familiar—though to Mann, abhorrent—combination of monosyllables and graphics that passed for contemporary written English.

'"Department of Transliteral Geophysics"?' he said. 'Have you ever heard of them?'

Fitzpatrick shook his head. 'Have you seen the names on the masthead?'

'That is what's interesting. They want me on Earth, without telling me why.' He looked suspiciously at Fitzpatrick. 'What was this about a relative?'

Again, Fitzpatrick made the awkward shrugging motion. 'It was just something they said on the radio. It may have been a joke.'

'Joe, I don't want to go. I enjoy the work and I enjoy the life. I've no ties on Earth. Give me a single good reason why I should go.'

Fitzpatrick stared round the tiny cubicle, and noted the hundreds of volumes jammed into every available space.

'Have you thought about the British Museum reading-room?' he said.

'There is that,' said Mann. 'Maybe I'll go.'

The atmosphere of crisis which had pervaded the city of Earth for the last few miles had not eased at all as Future Mann set off on one of his regular reconnaissance missions. He was not sorry to leave the city at this moment, for he, like everyone else was deeply involved in the trouble. The whole existence of the city was threatened, and so were the lives of everyone who lived there. At least Future had been given the opportunity to escape from the apprehensions for a while, and for this he was grateful.

Even so, he was faced with the regular dangers of his work, and he was not unaware of these.

He left the city, and headed north. There was only one direction in which his work took him, and it was always north. He rode his horse carefully, sensible of the fact that she was one of the seven beasts left. She had not foaled this

year, and unless another wild herd was encountered soon this too would bring another small crisis to the city.

He rode slowly alongside the rails, nodding to each of the Militiamen who stood on guard. The rails were one of the two most vulnerable aspects of the city, and they had to be guarded night and day. It was these and the cables that the enemy attacked. Today, in the wake of a relatively long period of peace—three miles had elapsed since the last attack—Future noted that the Militiamen were uneasy, that if anything the feeling of impending attack was greater here than in the city.

He rode for another half-mile until he came to the present cable-stay emplacement, and checked-out with the controller, Cable Statchik.

'How far are you going?' said Statchik.

'Seven, maybe eight miles. I hope to be back tomorrow. Routine north-survey.'

Statchik nodded. From where they were standing they could see back to the city. Already, at this short distance from Earth, the concave nature of the gradient could be seen. They looked back along the straight path of the rails, saw the three six-inch wound cables taut under the strain, disappearing under the front lip of the city to where the nuclear winches slowly wound them up. Looking at the cables always made Future nervous. He knew of the time when one of them had broken and whipped back into the heart of the city, killing eight men and injuring dozens of others.

Looking beyond the city to the south, Future could see the rail-teams dismantling the track, loading the sections on to sleds and preparing them to be hauled slowly to the north of the city where they would be re-laid once more. As Earth city moved itself forward, once again those rails would be behind the city, and once again be taken up and brought round to the north side. And at the same time the cables would be extended further and further to the north, planted in another emplacement like this one, anchored to the ground by deep, steel piles.

Allowing his gaze to move even further to the south, Future Mann saw the ground the city had already passed over, spreading up and out behind the city, moving up in an

apparent gentle slope ... up and up until it was lost in the atmospheric haze. Standing here, away from Earth city, it was possible to witness the immense size of the world, even if the mind could not encompass the concept. Further north, in the region he was about to travel, the phenomenon was even more marked. As he walked the future ground, the country he had left would rear up behind him like a wall. It took a special kind of man to survey the future, for the distortions of apparent dimensions were immense.

So it was with a mutual respect that the two men regarded each other. Mann, for he could not bear close proximity to the dables for long, and Statchik, for this far into the future was enough for him.

Future Mann remounted his horse, nodded to Cable and set off on his survey-mission.

On his way to the hospital, General Dula stopped by at the temporary field-headquarters.

'Where's Gerdun Mann?' he said as he walked in to the office. A young major sitting behind a desk jumped to his feet, saluted, then relaxed as Dula nodded to him.

'He's on his way, sir. We had difficulty locating him.'

'Where was he?'

'On the Moon, sir, working with——'

'On the *Moon*? How long before he's here?'

'He's coming immediately. Three days for the flight, and another to reach here.'

Dula frowned, and walked over to inspect a map pinned to a wall. He stared at it thoughtfully for a few minutes while the major waited.

'Is there a problem, sir?'

'Of course there's a problem. Time's the problem. We haven't got enough of it. By the time Mann's here and we've briefed him it'll probably be too late. Even then, he may not want to do it. He's a civilian.'

'We could send in another detachment.'

'That's what I'm thinking. How's the supply situation?'

The major glanced at some papers on his desk. 'I've contacted Geneva, sir. They can get a dozen more suits to us by this evening.'

'OK. Tomorrow we have another go. I don't like it, but there's no alternative.'

He turned and walked out of the headquarters. His car was waiting outside.

General Dula spent an hour at the hospital, talking to the troops who had been wounded in the previous confrontations. As general in an army unused to fighting, he wasn't accustomed to having men injured, far less to having them killed. So far, the operation had cost the army eleven men killed, and another fifty or so wounded.

Later, he returned to the HQ to plan the following day's operation.

The suits arrived that evening, as promised, and Dula tried on one himself. Trying to walk wearing it was difficult, and the idea of a man defending himself inside it was almost inconceivable. The very weight of the equipment was prodigious, and the fact that most of that weight had to be carried on the back made movement and manoeuvrability difficult.

In the privacy of his own office, the General walked up and down for a few minutes, coming to realise that as the next day's operation was probably the last attempt they would have, he was going to have to go in personally. That much at least established, he took off the suit under the anxious eye of the civilian technician and called a meeting of his staff officers. Later that night he attended a committee, comprising several members of the Department of Transliteral Geophysics—including Mosta Langham, the Director—his GOC, two representatives from the firm in Geneva producing the transliteration equipment and a handful of civilian advisers. Dula disliked committees in any event, and reserved a special dislike for committees which pressured him. He was being pressured now, and, he suspected, being eased out.

When General Dula went to bed that night he was tired, irritable and very worried.

At this point eight miles north of the city, sunrise came early. Future Mann had spent the night near the bank of the river, and was awake a few minutes after daybreak. He came out of his tent, saw that his horse was standing pati-

ently nearby and began to make preparations to move back to the city. At the present latitude the days were hot, and he wanted to be back in the city by midday. When he had eaten some food, and stowed his equipment in the saddle-bag, he glanced at the sun, shielding his eyes with his hand.

Though still low on the eastern horizon, and diffused by the atmosphere, the sun was a brilliant-white cross that threatened to blind anyone who stared at if for more than a second. The upright arms of the cross were as thin and spindly as they had ever been known, but the lateral arms were broad. Future had seen ancient drawings of the sun when it had been a thin, cool rood, but gradually the lateral arm had thickened so that mile by mile the climate had become warmer.

There was no question in the minds of the people of the city but that as Earth continued to move north the temperatures would continue to mount. This was no concern of Future's; he left such problems to the city Navigators.

His own problem was before him, beginning a few yards from where he stood and spreading as far north as his eye could see: the river.

The city had crossed rivers before, and although they introduced a new element of danger to the people of Earth, the history-books were full of the accounts of heroic crossings. There was even a Guild in the city whose sole function was to organise the traverses of such obstacles: the Bridge-Builders. Some of the greatest men in the whole history of Earth had been members of this Guild.

But never before had there been such a river as this.

Future Mann's survey had been ordered to verify the first account of the river from another Surveyor, Future Blayne. Blayne's account had been so unexpected, so incredible and anyway so unwelcome at this time of crisis that the Navigators had discounted it.

There had never been a river too wide to cross. There had always been an opposite bank, always a promise of a return to solid ground.

'In Future Mann's own Guild—the Future Surveyors—an account by one Surveyor was taken as indisputable. But Blayne had been a Surveyor for only a few miles, and was relatively junior in the Guild. For sake of protocol, Future

Mann's expedition had been said to attempt to find an alternative route from the one Blayne had surveyed, as this was an acceptable motive for a re-survey.

Privately, however, Future Mann had been ordered by his Guild Leader—Future Constant—to check the nature and, perhaps, the existence of the river.

So now Mann stood on the very bank of that river, witnessing with his own eyes the appalling breadth of the water. Using his Surveyor's eyeglasses, Mann tried again to find the opposite bank. He searched to the very limit of his vision, but could see no sign. Forty, perhaps fifty miles or more at least until haze and cloud obscured everything, and no certainty of firm ground even at that distance.

It was more than his mind could grasp. The widest river in all history had been only one and a half miles across, and that had stretched the ingenuity of the Bridge-Builders to its limit.

In the city, the Guild Leader was waiting for his report, and a special meeting of the Navigators was waiting to be convened in the event of his reporting positively.

Future Mann was in no position to waste time. After one last look at the river, he mounted his horse and set off southwards.

There was no alternative but that the city had to cross the river. It was the very nature of the continued existence of the city that it had to move north. Its path would bring it, in eight miles time, to this water, and without hesitating it would have to continue its journey. In that period, a bridge would have to be planned and built, ready for the day when the tracks ended and the water began.

Future's horse was well rested after the night, and he kept her at a steady canter across the low countryside in the immediate hinterland of the river. Further south, there was a range of hills, and he walked her up the incline. At the top, he paused, and stared south.

The land spread up before and in front of him. He glanced up, trying as a hundred Surveyors had tried before him to see the Equator ... but although the heat-haze of the day was still thin over the land he could see no more than one or two hundred miles. He shook his head. Surveyor or not, his mind was only a human one, and it was

not wide enough to accept the concept that it was theoretically possible, and literally so, to see forever.

He stared down at the ground immediately before him, as all city-dwellers did, and rode on in the direction of Earth.

His first intimation that an attack was under way was when he approached the cable-stay emplacement. There were no Cablemen in sight, and the usual signs of activity around the city were absent. Future could see that the Militiamen had been reinforced, and now they stood in a firm defensive line alongside the track.

Only the tautness of the cables indicated that the winches still turned. Still the city inched itself forward along the track ... never able to stop, never able to alter its direction from a heading of due north.

Someone in the cable-stay emplacement must have seen him, for a few seconds after he reined in his horse, Cable Statchik came running from the emplacement. He was crouching low, and wearing the heavy leather jacket that was the standard protective garment for those forced to be away from the city during a raid.

'Get back to Earth!' he shouted. 'There's an attack due any moment now.'

'Is it serious?'

'The biggest yet. Thirty or forty of the monsters ... over there!'

Statchik waved his hand in a westerly direction, and Future Mann looked that way. Sure enough, a few hundred yards to the west of the city he could just make out a group of small black figures, walking with the ungainly tread of the raiders towards the track ahead of the city. One walked slightly before the others, carrying what appeared to be a large white sheet.

'That damned sheet,' Mann said. 'What does it mean?'

'It's a banner,' said Statchik. 'It's a signal to the others to attack.'

'Do they always wave it?'

'Every time there's been an attack. Come into the shelter. Quickly! You've got only a few seconds.'

Future had not dismounted, and he looked anxiously at the city. It was nearer to the emplacement than it had been

the last time he was here, and he was trying to estimate how long it would take the horse, at a full gallop, to cover the distance.

'I think I'll try to get back,' he said.

'You won't make it.' Statchik reached up for the bridle of the horse, as if intending to lead it towards the shelter.

'No,' said Future. 'It's too important. I've got to try.'

He dug his heels hard into the horse's flanks, and she galloped forward. Statchik leapt out of the way, fell, then half-stumbled, half-ran towards the safety of his shelter.

Future paid no attention to him, knowing that if the attack could be rebuffed again the man would be safe enough in his shelter. His main preoccupation was to return to the city and report to Future Constant. What he had to say was too urgent to be delayed.

As the horse galloped towards the city, Future glanced in the direction of the raiders. They were spreading out, adopting the pattern from which they always attacked.

He looked ahead, saw that the Militiamen were ready. The front line had their crossbows armed, and aimed.

Suddenly, Future Mann realised that by an error of judgment, caused by his haste, his intended path was going to take him between the Militiamen and the raiders and that he would be caught in the cross-fire.

He was already past the first of the Militiamen, and one of the officers shouted at him to get out of the way. Directly behind the line of men was the nearest cable. With no time to make fine decisions, Future swung his horse to the left, rode between two Militiamen and headed directly for the cable. It was about five feet from the ground. At full gallop, the horse jumped.

One of her rear hooves touched the cable, and as she returned to the ground she stumbled. Future tugged savagely on the reins and managed to keep her on her feet. For two seconds he applied no direction to her, allowing the horse to find her own balance ... then again he kicked his heels into her sides and she continued her gallop towards the city.

An order was shouted and all down the line the front Militiamen loosed off their bolts. Well-disciplined, they stepped back and the second rank moved forward while the

others reloaded. Future spared a few seconds to look over at the raiders, and saw that only one of them had fallen.

Even as he looked, there was a burst of explosions, and several of the Militiamen fell. Now directly under fire, Future concentrated on his dash.

The horse was running between one of the metal tracks and the cable. Crouching low in his saddle, Future urged the horse to greater speed, seeing that the city was looming up ahead of him.

When he was ten yards from the front edge of the city, the second line of Militiamen loosed their bolts. Future had no time to see the results, for then he was under the city, riding in the dark and quiet, only the eternal creaking and groaning of the winch-drums disturbing the peace. He slowed his horse, then walked her to the bay which led up to the stables. She smelt the other horses, for now she was calm, even though breathing heavily from the gallop.

After entrusting the mare to a stable-boy, Future Mann made his way up to the main platform of the city, first to present his report to Constant and then, if necessary, repeat his message to a full convention of the city Navigators.

Two

THE day that Gerdun Mann arrived in Europe from the Moon, all military operations were stopped. Mosta Langham, the current Director of the Department of Transliteral Geophysics, had a private consultation with the GOC land forces, and General Dula and his men were withdrawn temporarily. The last expedition into transliteral country had ended badly—two men killed, another five injured—and it was now clear that there was no solution by military means. Like Dula, Langham was only too aware of the lack of time, and he was no more pleased at the withdrawal than Dula. No army likes to be withdrawn before it can succeed.

Gerdun Mann had been delayed. The shuttle from the Moon had landed him at Kennedy, and Langham had ordered that a private craft be waiting to bring him direct. Instead, Mann had taken a scheduled flight to London, and DTG agents had had to track him down again. He was on

his way now, and Langham left instructions for him to be brought to the transporter as soon as possible.

With nothing more to do until Mann arrived, Langham went to the transporter and stared at the screen. Now that Dula's men had retreated once more, there were signs of activity around the station. There were more armed men than ever before around the cables, and when a small party of people left the station and walked across to a grove of wild olive-trees to pick more of the fruit, they were accompanied by several crossbow-bearing men. They stayed away from the station long enough to pick only a few baskets of fruit, then returned in some haste to the station.

Langham moved from the screen and went outside.

There, only a few hundred yards from where he stood, was another olive-grove, identical in almost every way to the one he could see on the screen. But, beyond it, no station.

He heard the sound of an engine and looked up into the sky.

Shielding his eyes against the sun, he saw a helicopter coming towards him, and a minute later it landed a few yards from where he stood. A tall young man, carrying a suitcase and a large parcel, was helped down from the craft by two other men. Langham walked across to meet him.

'Are you Gerdun Mann?' he shouted over the noise of the aircraft.

Mann gave his suitcase to one of the two men, and walked unsteadily towards him. 'That's right.'

'Mosta Langham. I'm Director of the Department.'

'Help me, will you? I'm not used to the gravity yet.'

Langham took the man's arm and assisted him towards the transporter. He offered to take the parcel, but Mann shook his head and said he was all right. Behind them, the agent who had come from London with Mann walked with the suitcase. Langham noticed that Mann was wearing clothes totally unsuited to the climate and realised he must have come straight from London without an opportunity to change.

When they were inside the transporter, and the agent had returned to the helicopter, Langham said: 'Would you like to go to your hotel to wash and change?'

'I'm all right for the moment. I understand there was an element of urgency in this visit.'

'That's right,' Langham said. 'It can wait another hour or so. . . .'

Mann shook his head. 'I assure you, I'm not uncomfortable. I rather enjoy the heat.'

Langham regarded him, saw that he was wearing at least three layers of clothes, and concluded that it must be colder on the Moon than he had imagined.

'Very well. The situation is urgent, and the sooner we resolve matters the better. Everyone here is very grateful that you were able to come so promptly.'

'Do you mind if I sit down?'

Langham pointed to a chair in front of the screen console. 'Sit there . . . please. This is what we've brought you to see.'

He switched on the screen, and Mann sat down. As the image resolved, Langham turned a control and selected a wide-angle view of the station and the surrounding countryside.

Without further explanation, Langham called in two of his assistants from the motor-compartment of the transporter, dialled four cold drinks from the dispenser and made mental preparation—for perhaps the tenth time that day—to explain in simple terms a concept and situation that had threatened to dismay the finest brains in his own highly-specialised field. He didn't think he could do it.

The Council of Navigators was the only kind of government in the city of Earth. It had a tradition of being badly attended, but in the recent miles of crisis every session had been almost fully attended. Futures Constant and Mann had presented their report, then left. Now the Navigators had to agree on how they should act on that report.

'There can be no question,' said Navigator Olssen, the president of the Council, 'that the safety of the city is in danger. We now know that ahead of us lies the greatest natural obstacle the city has ever had to confront: a river so wide that we cannot see its opposite bank. There is no doubt in my own mind that we have to cross it. I believe that all there is to discuss is how.'

Olssen sat down, and as he had privately predicted, Navigator Jase got to his feet. Jase was the youngest of the Navigators currently in council, and had affiliated himself, in spirit if not in fact, to the movement in the city known as the Terminators.

Jase's speech was long and portentous. To Olssen's mind he covered no new ground, but in effect restated the philosophy of the Terminators: there was no apparent purpose to the city's continued journey northwards. Every mile the city covered revealed new threats to their existence. There was the fact of the gradual rise in average temperatures, the continuing threat of the raiders, the abundance of good soil and vegetation in this region. Now there was a new hazard in the form of this river. The time had come, Jase stated firmly, to turn off the winches for good, to let the tracks rust and the cables fray.

He sat down to a spattering of applause from a few of his supporters.

The traditional opposition-speech out of the way, Olssen called on Bridge-Builder Lerouex to list the possibilities. Lerouex was in attendance in an advisory capacity. An old friend of Olssen's, he was in line for a Navigatorship and had realised that he was now presented with an engineering task of a magnitude no Bridge-Builder before him had ever had to face. That morning he had ridden north with Future Constant and seen the river for himself.

After the customary compliments paid by an advisor to the Council, Lerouex got down to details. He addressed the president directly.

'Navigator Olssen, as you know we normally employ one of two methods for crossing stretches of water. The first is by erecting a platform from one bank to the other, on which the tracks are laid. The other is to construct a pontoon bridge, which floats directly on the water. My Guild would normally advise the latter for wider stretches of water, but in this case I fear that it would not be possible. The reason for this is quite simply that either method of river-traversing requires the cables to be implanted on the opposite bank to provide traction. I have seen this river for myself; it is so wide that I assure you that even if we could

locate the opposite bank we do not have cables long enough to reach it.'

'Then what do you propose?'

Lerouex shrugged.

'I see no solution,' he said. 'At least, not in terms of a bridge. It occurred to me this morning that the only possible way of crossing this water would be to convert the city into a ship ... and of course this could not be effected in the time we have available.'

A short silence followed this statement, the Council appreciating that, in effect, the Guild of Bridge-Builders was admitting defeat.

Once more, Jase rose to his feet, and pointed out that Lerouex' statement only lent weight to his point of view.

As Jase sat down again, Lerouex walked out of the chamber. He knew it was an affront to the Council, that Olssen in particular would be offended; but he saw that he had nothing more to add.

He sought out Future Mann, and found him at the rear of the city, facing south, staring into the distant past.

Mann said: 'What was the decision?'

'I don't know. I left before the debate really began. I said all I could.'

'Which was?'

'That we cannot build a bridge.'

'That's what I thought, but felt it was your decision to make.'

Lerouex stood beside him, and together they stared down at the ground moving slowly below.

'I think I know what will happen,' Lerouex said in a moment. 'The Council will decide to build a bridge. They will want a pontoon bridge, and they will try to convert the traction of the city from winch-power to direct drive.'

'Would that work?'

'It's been done before. Many miles ago. But the bridge itself wouldn't work. No one can build a bridge that long. Not in the time we have. Not with the facilities we have.'

'Suppose they decide to?'

'Then I will resign.'

Mann looked at him in surprise. 'Do you mean that?'

Lerouex nodded. They stood in silence for a long time.

'I'm not a Terminator, you know,' said Lerouex eventually. 'I know that the city must move. We cannot stop. Everything we live for depends on our continued ability to move northwards. I fear what would happen if we stopped. Our Guild is one of the oldest in the city. The first Bridge-Builder knew Destaine.'

'I didn't know that.'

'It's true. Destaine was killed very soon after the city was built. Shortly before he died he wrote the Directive, and it was to a man called Thannet that he gave it. Thannet was the founder of my Guild. Destaine's Directive says that we cannot stop, that we must not stop. Nothing must interfere with progress. If we encounter water, we cross it. If we come to a range of hills, we climb them. If we come to a deep chasm, we go round it.'

Future Mann said: 'But what if we didn't? What would happen if we stopped?'

Lerouex looked south, across the plain to the range of hills they had come through a few miles before. Behind the hills, rising up, was the low countryside beyond.

'I think we will discover that shortly. The city will have to stop. It cannot cross that water. We shall have to turn off the winches, and if the raiders do not kill us all then gradually the movement of the ground will take the city southwards. Very surely, we will be borne towards the equator. When that happens, the city will be destroyed and everyone on it will be killed.'

Future Mann frowned. He did not care to think about the city not moving. Every child born in the city was brought up with the over-riding teaching that the city must always move.

Later that day, the decision of the Council was announced. The city would not stop. A bridge would be built, and it would be a pontoon. Work would commence immediately. The winches would be converted. The northwards journey would not be interrupted.

So Lerouex' prediction was accurate ... but he did not wait to learn the consequences. An hour after the decision was announced, he formally resigned from the Bridge-Builders' Guild, and the following morning was found dead

in his room. He had shot a crossbow-bolt into his own mouth.

Gerdun Mann opted for an early night, and was conducted courteously to his hotel by Langham in person. He ate a good meal, undressed and showered. He got into bed, and opened the parcel of books he'd purchased in England. For a while he sifted through them, luxuriating in the white newness of the pages, the firmness of the bindings, the smell of recent glue in the spines. At length, he selected one and settled back to read it. He got through the first chapter, then put the book aside. For the first time in longer than he could remember his attention was distracted away from a book.

He was thinking of what he had seen through Langham's television scanner. Thinking of a world that was so like Earth—and in some senses was Earth—and yet totally strange. A mathematical abstraction of a planet that had the same volume as Earth, but possessed what Langham assured him was a surface-area of infinite size. Literally ... infinite.

'But is it real?'

'If you can believe what you see, then it is real.'

A planet with north and south poles at infinity that didn't revolve at all, and an equator which revolved at infinite speed.

'But nothing can move faster than the speed of light.'

'A sufficiently large rotating disk will have its circumference travelling at the speed of light. This world has an equator of infinite radius, and it rotates.'

'But it's not a disk.'

'It's shaped like a hyperbola.'

Again and again, Langham had instructed the camera-operator to pan his instrument to and fro. Gerdun Mann had seen the geophysics station—altered and expanded in strange ways—standing on an incline of forty-five degrees.

'That is the point of equilibrium,' Langham had said. 'The point at which gravity-stresses are the same as on Earth.'

'They're on a one-in-one slope.'

'Not there. Gravity homes in on the centre of their world; the equilibrium position is the nearest point on the surface to this centre.'

The camera panned to the left, towards the north of this world. The angle of the incline sharpened quickly—from forty-five to sixty, then seventy, then more than eighty degrees—and the resolution of the picture began to dim.

'What's the matter now?'

'Atmospheric haze. There . . . you can see the water.'

Mann looked, saw the faint glimpse of an expanse of water, seemingly flat now against the almost vertical wall of the world.

'Why doesn't it pour down?'

'Gravity homes in on the centre of the world, but it also homes in on the axis of revolution. We don't know how. It causes stresses, and distortions.'

The camera panned down and to the right, past the geophysics station and its strangely hostile inhabitants. Behind the station, to the south, the gradient flattened out quickly. Mann saw trees, hills and a small river.

'The ground looks flat there.'

'It is almost flat in our terms.'

'Then why isn't the station there? Why is it halfway up the slope?'

'It's at the point of equilibrium. Gravity homes in on the centre of the world, and on the axis of revolution . . . and on the plane of that revolution. The distortions are immense, though it would be technically possible for a man to be there.'

'So why isn't the station there?'

'Because it is safest where it is. Standing near it—as I have done—one feels as though one is on flat ground. If it did move too far to the south, then it would start to feel the effects of centrifugal force. On this world, centrifugal force is a considerable factor.'

A planet of infinite radius has its equator travelling at infinite speed, even if its angular velocity is the same as on Earth.

'It rotates once every twenty-four hours. They have night and day. Let me show you the Sun.'

The camera-operator slotted a filter into the camera, and the picture darkened. In a moment, a bright cross-shape swam into view.

'That's the Sun.'

Gerdun Mann gaped at it in disbelief. Instead of the brilliant sphere he had imagined, the Sun was shaped like a cross, the lateral arm slightly broader than the vertical.

'That is the same shape as this world?'

'Yes.'

'So it has a radius of infinite size.'

'At its equator, yes.'

'But there isn't room in the Universe for two objects of infinite size.'

'Not in our Universe there isn't.' Langham told the camera-operator to relocate the geophysics station. 'There's a Moon too. And planets. And a lot of stars.'

'All of infinite size.'

'I'm afraid so, yes.'

For a long time the camera had rested on the geophysics station. Mann had watched this with fascination, seeing the curiously antiquated machine. It had been added to and extended, and was now several times larger than even modern-day stations.

'You can see how they've adapted it. The caterpillar tracks have been removed, and the traction is provided by some arrangement with winches. Most of the superstructure has been removed, and replaced with makeshift buildings. You can't see the tracks clearly from this angle, but there are four of them. The station has wheels beneath it, and these run along the tracks as the winches wind in the cables.'

Mann had remarked to himself that it appeared as if the station were hanging on the cables, as if they prevented it from running backwards down the gradient.

'If the cables snapped?'

'The station would stop moving. They're at the gravitational equilibrium.'

'But the city is moving now. Why?'

'To stay where it is.'

Sitting upright in his hotel bed, Gerdun Mann wished that he had stayed where *he* was: on the Moon. At least there he knew how everything related to everything else, even if he spent most of his time working in brilliant sunlight that would fry him if his life-supports failed, and a vacuum that would suffocate him if he opened his face-plate. That made

an unpleasant kind of sense; but what he had seen that day made very little sense at all.

'It stays where it is by moving?'

'That's right.' Langham had instructed the camera-operator to zoom in on the underside of the station. 'It moves very slowly ... about one-hundredth of a mile an hour. The same speed, incidentally, at which this transporter we're in moves.'

For as long as he could remember his own thoughts, Mann had been used to the idea that if one stood in one place long enough one would find oneself in precisely the same place. Now he thought about it, perhaps it was this that made him like the act of reading books. If he stared at a page, it always contained the same amount of information however long he took over it. He could read something twice over, refer back if he wished. The audio-visual devices which were so popular now, though, had no such luxury; they swept you on, never letting you slow down or reconsider.

This world that Langham had shown him was like that. The ground moved. It wasn't like Earth, where everything was solid and permanent; the ground *moved.*

It came down from the north pole, moved towards the equator.

It was slow—just over one hundredth of a mile an hour—but it never stopped. Stand still long enough, and you wouldn't be in the same place. The ground would carry you inexorably towards the equator.

'If the equator is infinite,' Mann had said uneasily, 'where does the ground go to ...?'

Here Langham had looked worried.

'This is where our knowledge of this situation becomes hypothesis,' he said. 'Remember we are seeing only the northern hemisphere—if that is the word—of this world. There is a southern hemisphere too, also hyperboloid. Mathematically, a hyperbola meets its axis at infinity and crosses to a negative value. If this is so, then the ground crosses from north to south hemispheres at the equator, and moves on down to the south pole.'

'And then where does it go?'

'It reappears at the north pole, and the process is repeated.'

Gerdun Mann had rediscovered the childhood pleasures of biting his nails.

'You would think nothing of flying around the world,' said Langham. 'Fly far enough and you return to your starting-place. The difference here is that the planet does the work for you.'

He showed Mann a model of the world that one of the men had built. It was shaped roughly like a gyroscope, with tall thin poles and a sloping disk for the equator.

Langham said: 'At a distance of approximately two and a half thousand million miles from the point of equilibrium the ground is travelling at the speed of light. Beyond that we cannot see it, though it does indeed continue for infinity.'

'The planet has an effective radius of two and a half thousand million miles?'

Langham nodded.

'But that's roughly the size of the Solar System!'

'Of *our* Solar System.'

It was at this point that Mann had decided that he would, after all, appreciate an early night.

He lay back on his bed in the Oporto hotel-room, turned off the light and listened to the traffic outside. That was a new enough experience after eighteen months on the Moon. There were a lot of people out there, and that was interesting in itself. He'd like to get used to that idea alone before trying to absorb anything else that Langham could tell him.

In spite of his own expectations to the contrary, the man who had travelled a quarter of a million miles to be shown a world whose size exceeded that of the known Solar System slept soundly and without interruption.

THREE

WHEN the Council of Navigators made a decision, it was implemented at once. The same day that Lerouex was found dead, another Bridge-Builder was nominated as head of the Guild, and work commenced.

Future Mann suddenly found himself very busy.

There were few men who were accustomed to travelling north, and most of them were Future-Surveyors. Now the route across ground was clearly surveyed there was little work for the Futures to do in the normal way, and they were seconded to working with the Bridge-Builders.

The general alert against the raiders was not slackened and the heavy defence-lines of the Militiamen were not weakened in any way. Most of the other people, though, became involved in the new work. Timber was the most urgently needed commodity, and a mile before the present crisis the city had passed a heavily-wooded area. Fortunately, the trees in the region had a high cork-producing nature, and the buoyancy of this substance provided the foundations for the design of the pontoon.

Being to the south of the city, the trees were away from the normal point of conflict with the raiders, and the men and women who went out to cut the timber were escorted by only a light guard. More defence was provided for those working in the north, and at the selected place on the bank where the construction work commenced the Militiamen built a small fortress.

Privately, Future Mann had his doubts about the efficacy of the project. He had been in the city on several occasions when it had been obliged to cross water ... but never such water as this. That last conversation he had had with Lerouex had worried him; if the city could not go on and was obliged to stop, what then? Worse, if the city did go on and the bridge was not strong enough, it could founder.

But no one could see an alternative. So Future Mann worked with the others. He hauled timber, he sank piles, he waded in the shallows of the river securing the first pontoons to the shore. He trusted the Bridge-Builders because there was no one else to trust. They had their task, and they had always done it well. But several times Mann heard quiet doubts expressed in unguarded moments, and these began to erode his confidence.

At first he attributed these uncertainties to the fact that when men who normally spent a large part of their time in or around the city came this far north the strange nature of the environment often disconcerted them. He, as a Future-Surveyor, spent much of his time in the north, and grew

accustomed to the sight of the southern regions spreading out behind him. He was used to seeing the limitless northern vista, the sharp lines of the horizons dropping off to north-west and north-east. But men quickly adjusted to this, and the quiet fears of the Bridge-Builders grew more pronounced as days passed.

They were engineering fears. The strength of the pontoons. The amount of wood available. The security of the stays on the bank. The still-unresolved question of where future pontoons would lead.

Every day, Future Constant would ride out to the construction-site, ostensibly to inspect the progress of the work, but in reality to stare northwards with his Surveyor's eyeglasses, seeking the still-elusive opposite bank.

Future Mann's own doubts were reinforced when suddenly he and the other Surveyors working on the pontoon were recalled to the city.

It had been decided, as a contingency-plan, that an alternative route to the west or east would be sought. The work on the pontoons was to continue, but if a narrower part of the river could be found then the city would steer towards it.

Future then realised that the Council of Navigators was aware of the hazardous nature of the pontoon-bridge. Only once or twice in all the history of Earth had the city deviated to one side or another.

Destaine's Directive was explicit: the city must move north, due north. Any movement to one side or another must be compensated for by a return to the original path, and overall northerly velocity must be maintained.

In theory, this presented no difficulty, but in practice any deviation from true north in excess of twelve degrees put strain on the nuclear winches. A few hundred miles before, the city had deviated to avoid a mountainous region, and had moved for more than eighty miles at an angular deviation of thirty degrees, and another hundred miles at twenty degrees to return them to their original line. The damage then caused to the bearings of the traction-equipment by the necessary increase in speed was still not fully repaired.

Future Mann was instructed to explore many miles to the west of the city, and other Surveyors took other routes,

some to the west and some to the east. Mann knew that the regions he covered were sometimes thirty or forty degrees away from true north, and that even if he did find a safe route the nuclear winches might break down entirely under the strain.

In any event, his reports were the same as those of all the other Surveyors. However far to either side they explored, they came eventually to the river that lay in their path. It would have to be crossed, and there was nowhere that presented even a hint of an opposite bank.

Towards the end of the 20th Century, an Australian particle physicist named Francis Destaine developed a process which he called transliteration. When some of its effects were first publicised, the popular press latched on to it as an anti-gravity device, though in fact this was a distortion of the true state of affairs.

Treating gravitation conceptually as a field phenomenon analogous to that of electromagnetic radiation, with a 'graviton' as the supposed elementary particle, Destaine devised a field-generator which created a region of space in which normal rules of gravitation did not apply. He discovered, for instance, that gravity could be cosmically repulsive—as opposed to attractive—and it was this that earned the label of anti-gravity. In fact, the energy consumed by his field-generator was so great that there could be no practical application for what he had discovered.

It was during this period that the need for natural energy-resources became critical. Though fusion reactors were theoretically possible, no one had yet discovered a way of containing the prodigious amounts of released energy. Fossil fuels were being used up rapidly, and there seemed to be no long-term solution to the world-wide energy shortage.

It was in this climate that Destaine was working. As his generator consumed vast amounts of energy with no apparent yield, he was unable to obtain official backing. Even when he claimed to have discovered a natural transliteration 'window' on Earth, where its effects could be harnessed by his generator to produce what he said would be unlimited amounts of electrical energy, he was unable to raise the necessary funds.

Finally, by methods unknown, Destaine raised the money privately.

Obtaining permission from the Russian government, he and a large staff of researchers and technicians assembled a mobile transliteration generator in the Yakutskaya province of Northern Siberia. It was here, said Destaine, that the natural transliteration window existed.

In spite of amused contempt from other scientists, Destaine persevered with his work. Meanwhile, in lieu of large quantities of electricity emanating from Northern Siberia, normal research into conventional energy-production continued.

Approximately six months after Destaine moved to Yakutskaya, his backers announced that he, his staff and his mobile station had suddenly ceased reporting. A search of the area was conducted, but without results. A few weeks later it was established that, inexplicably, all trace of Destaine and the others had vanished.

There was much evidence of activity in the area ... particularly in the form of tracks in the snow and discarded pieces of equipment ... but of the mobile station, which weighed over sixty tons, of the eighty-three people aboard it and of Destaine and his now famous graviton field-generator there was not a single sign.

In time, the mystery was forgotten, though every now and then the media would rehearse some of the more fascinating aspects of the disappearance.

Destaine's work, though, had an unexpected legacy. The original backers, seeking to recoup some of their original investment, hired more researchers and alternative uses for the transliteral generator were sought. Finally, an adapted form of the field was found to be powerful enough to be used as a barrier in nuclear reactors, and fusion power became a reality.

Transliteral physics became a reality, too. More natural transliteration windows were discovered—though Destaine's original one in Russia was never located—and in much the way that he had speculated, large quantities of electrical power could be derived by tapping these gravitational fault-zones with a graviton generator.

There was a minor difficulty: the transliteration windows moved.

To tap the energy, the graviton generator had to be moved at exactly the same speed as the transliteration window: speeds varied marginally, but were usually in the region of one-hundredth of a mile an hour.

Then, almost one hundred and twenty-seven years after Destaine's disappearance, a new transliteration window was discovered in Northern Spain. A Destaine generator was assembled, and preparations were made to commence tapping the power. But scientific curiosity was being aroused by these transliteration windows: what was on the other side?

A firm in Geneva designed a portable transliteration generator that would allow a man to pass through. A volunteer was found ... and he passed through.

He found himself in terrain almost exactly like that which he had just left. But the horizons were wrong. The ground appeared to be concave. In one direction the ground curved up towards a distant point ... in the other it flattened out into a vast and apparently limitless plain.

And hauling itself across that plain, on a crude arrangement of tracks and cables, was Destaine's original station.

'That's the mobile generator Destaine built,' said Langham, pointing at the screen.

Gerdun Mann, now physically refreshed but suffering under some mental strain, stared at the station.

'You said it had disappeared in Russia,' he said.

'That's right. But that was a hundred and twenty-seven years ago. This transliteration window was discovered only recently, and is presumably the same one Destaine found. I told you, the windows move.'

'And the movement roughly correlates with the movement of the ground through there.'

'No, it correlates exactly. Since it disappeared, Destaine's station has covered about eleven and a half thousand miles. For more than a hundred years it has been crossing a transliteral analogue of Asia and Europe. It is now, as we are, in Portugal.'

Langham instructed the camera-operator to pan ahead of

the station. There, now appreciably nearer, was the expanse of water.

'So far Destaine's station has always been on land. The sea is not in their experience. The people in the station have started to build a bridge ... across the Atlantic Ocean!'

Four

As a Surveyor, Future Mann was intrinsically out of sympathy with the Terminator movement. He had been trained to see the ground that lay before the city as its future environment. The ground that lay behind was in the past, its usefulness fulfilled and spent. It was from the future that came the trees and crops that fed and sustained the people of Earth, the herds of wild animals that provided meat and a means of local transport.

In the past lay danger; Destaine's Directive could not be clearer.

It would be a temptation to stand in the way of our northwards progress, he wrote. *But such a temptation must be resisted absolutely. Danger and almost certain death lie to the south of us. No man nor any of his artefacts could withstand the gravitational stresses and centrifugal forces that obtain in the south. We must maintain position ... somewhere to the north lies our window to safety.*

So it was written into the very constitution of the city that the north was synonymous with safety. How then, thought Future Mann, would Destaine have confronted such a river as this? Could this be the window of which he had written?

He stood now in the crowded central square of the city, watching the Terminators' public meeting.

It was the first time in the history of the city that they had come out into the open, for by their very principles they stood for an ideal that directly contradicted Destaine's words. There had always been Terminator thought in the city, once, it was rumoured, in the person of a president Navigator. But always in the past the Terminator movement had stayed out of sight, and out of general credibility.

So many people in the city had now seen the river for themselves, or had heard first-hand reports of it, that there

was no longer any doubt that this was indeed the greatest single natural obstacle the city had ever had to face. The Terminators at last had a good case, and they no longer saw the need to hide that case from the people.

'—stop the city, destroy our winches. This is fertile soil, we need not cross any river to find better——'

It was in the Directive: *the winches must always turn.* Again: *however fertile the soil of one region, there will always be more to come.*

Navigator Jase stood silently to one side of the platform. He was not scheduled to speak, though many of those who did invoked his name.

'—the city will founder on any bridge across that river. Our Bridge-Builders are skilled, but before they have always had an opposite bank on which to lay foundations——'

Bridges must be built to cross water. Paths must be diverted to avoid high mountains or deep chasms.

'—our Surveyors have proved that we cannot avoid the river. We must stop, or we must cross that river. There is no hope of our crossing that water safely——'

At all times, we must be fully prepared for what is to come. Men must go out to the north of the city, and survey for us a safe passage. Their word must be followed absolutely.

'—the Navigators are navigating us to our destruction. Now is the time to terminate our journey before it is too late——'

I have created the Council of Navigators. In the Council I vest the safety of the city of Earth. The Council's decisions must never be questioned.

The speaker stepped down, and another climbed up to the tiny platform. During this interval, Mann tried to count the size of the audience. There had been a census in the city recently which had revealed a population of just over eight hundred people; Mann estimated that at least half that number were in the square.

The new speaker was one unknown to Future Mann. He claimed to have a scientific training, and could present scientific arguments for the case of the Terminators.

Future Mann did not give him all his concentration; he had heard many of these quasi-scientific notions before in

private. But one sentence caught his attention: a question he had never heard asked before.

'—the Navigators say that we must continue northwards, for no living thing could survive to the south. I ask you this. We are all familiar with the herds of wild animals that we often encounter, with the natural fruits and vegetables that we find. These are living beings ... they require a stable climate and a natural environment in which to grow. They come down from the north, we take what we want, and allow the rest to pass on to the south. Do *they* go to a region where nothing can survive?'

Future Mann frowned. There was silence in the tightly-packed square.

There was a long period of inactivity inside the transporter. In answer to Gerdun Mann's question—'Why me?'—Langham had been evasive for the first time.

'I can't tell you,' he said. 'But I think I may be able to show you.'

For a long period, the camera had rested on the scene of activity around the building of the bridge. A storm had blown up during the night, and in spite of the best efforts of the men there, considerable damage had been inflicted. Now, in the morning, the wind had dropped but the sea was still high. With considerable bravery, work on the bridge continued.

Occasionally, the operator panned the camera back towards the station and Langham watched the screen attentively, instructing the operator to zoom in to a close-up on selected men. After two hours of this, Langham beckoned to Mann.

'This is the one. Look at him.'

Gerdun Mann stared. Framed unsteadily in the screen—the camera-lens had zoomed in to its maximum focal length—was a man riding a horse. He rode alone towards the bridge-site, his head bent down thoughtfully.

'Recognise him?'

Gerdun shook his head .. not in denial, but in surprise. 'He looks like me.'

'That's why you were chosen. You were located by a

matching of your appearance on the central photo-ident file.'

'I don't understand.'

Langham signalled to the cameraman to keep the horseman in view.

'We've got less than fifteen days before the transliteration window reaches the coast. Before that happens, we've got to divert the station towards the window and get it through. If we don't, the people in the station—and they number several hundred—will try to float across the Atlantic on a home-made bridge. You've already seen what one inshore storm will do to the bridge.

'If they decide not to cross the water, they will be obliged to stop. The transliteration window will not stop, and it will pass on over the sea. Once that happens, we have no hope at all of rescuing them.'

'But I don't see what I can do on my own.'

Langham gestured towards the image of Mann's double. 'We want you to impersonate that man, infiltrate the station. Inside it there is Destaine's original graviton field-generator. All you have to do is switch it on ... we can do the rest from here.'

'And supposing I can't find it?'

'You will. We have plans of the original construction.'

'If it's so simple, why do we have to go to the lengths of impersonating one of the men?'

'Because it isn't that simple. We've had great difficulty in communicating with the people. We can pass to and fro through the window, but to do so we have to wear portable transliteration gear. This is bulky and very heavy, and we presume that the appearance of the men who wear it frightens the people. We've made several attempts to approach them, but we succeed only in provoking a violent attack.'

Mann said: 'These suits have to be worn all the time?'

'No. But as I said, they're bulky and it takes time and several assistants to put them on or take them off.'

'And you've never succeeded in communicating with the people?'

Langham shook his head.

'The last few attempts have been made by the army. We

issued them with hypodermic guns, hoping to stun the defenders ... but they've fought back in earnest. General Dula has lost several men, and we've had to suspend that kind of operation indefinitely.'

'What does force ever achieve?'

'In this case we hoped, in lieu of being able to communicate with them directly, that we could forcibly alter the course of the station and bring it nearer the window. Then we could bring the people through one by one. But as I say, this has had to be abandoned now. Our only hope is to activate the generator that transliterated the whole station originally and bring everyone through in one move.'

'So you want me to go in alone, and do this myself.'

'That's right.' Langham looked again at the screen. Mann's double rode on northwards, alone. 'We can't order you to do this ... all we can do is request it.'

'And if I don't?'

'We send in Dula's men again.'

'Would that work?'

'I doubt it.'

Future Mann stayed five days at the construction site, encouraged in some ways at the renewed progress of the pontoons, but alarmed by reports from new arrivals from the city. On Mann's last day at the site, Future Colne arrived from the city and spoke privately to him.

The Terminators had made a formal representation to the Council, requesting that the city be stopped and the planned crossing abandoned. After due consideration, the Council had decided to continue with the bridge. Navigator Jase had promptly resigned, committed himself overtly to the Terminator cause and was now their leading spokesman.

There had been a confrontation between some of the Terminators and a group of Militiamen, and a riot had developed. In the chaos, some of the Terminators had managed to sever one of the cables.

The city had been stopped, but only temporarily, and only long enough for the transfer to direct drive to be effected. The city was now independent of the tracks and cables, and needed only a comparatively rough-laid path on which to travel.

As a result of this the Cable and Track Guildsmen were freed from their normal tasks and were coming to reinforce the work on the bridge. Most of the Militiamen, too, were being relieved of their work. The Council considered this an acceptable risk, in view of the recent lack of raider activity.

'So it's a total concentration on the bridge from now on?' said Mann.

'Looks like it.'

They both stared at the pontoon bridge, stretching for two or three hundred yards into the water.

Later in the day, Future Mann started his return to the city. He rode alone as he always did, with some misgivings about what he would find in the city. There had never been riots on Earth before, and he was wondering what damage he would find.

In the five days he had been away the city had covered more than a mile in time and was now only a short riding distance from the bank of the river. He knew that the Navigators in their raised cockpit could see the bridge, and would be heading directly for it.

Lost in thought, worried about what he would find in the city, frightened of what the future held for him and for everyone, Future Mann did not notice the five men until they had surrounded him. One of them grabbed his horse's bridle, and forced him to stop.

'What's the matter?' Mann said, jumping to the immediate conclusion that they were Terminators. He recognised none of them.

The men made no reply, and instead led his horse to one side, away from the city. Future Mann repeated his question, but there was still no response. Mann looked in the direction in which he was being led, wondering why he should be moved away from the city.

Then his gaze fell on a large, dark figure ... and he recognised it at once. A raider!

He pulled hard on the horse's rein, trying to pull her head round, and dug his heels into her sides. She reared up, hooves flailing.

'Catch him!' someone shouted, and one of the men managed to seize hold of Mann's leg. He tried to kick free, but an instant later something hard and sharp was driven into

his shin. The man hung on, and two of the others reached for the bridle.

Future Mann found that his resistance was weakening. Slowly, the horse was brought under control ... and he slumped in his saddle. He fell sideways, and was caught by two of the men.

Fully conscious, but unable to move, Future Mann was carried towards the raider. Behind him, his horse was being led.

What followed was for Mann partly incomprehensible and partly nightmarish. The raider stood waiting, and there appeared to be a dead or unconscious raider lying on the ground nearby. This dead raider was lifted up, and fitted around his shoulders. Mann could not resist, could not struggle, but a great and uncontrollable fear swelled in him.

When the dead raider was fitted about him, he was lifted and carried once more. This time, it was for a shorter distance.

And then, totally inexplicably, he found himself in a metal room where several men stood waiting.

Five

Gerdun Mann walked through the transliteration window, and nearly fell. He had been warned that the ground would appear to change instantaneously from being level to a forty-five degree angle; but he was still unprepared for it when it came. He recovered immediately, discovering that once one was through the window the ground felt as if it were level.

A technician was waiting for him on the other side. Two more technicians followed him through the window, and the three of them helped Mann take off his transliteration equipment, a hitherto unacceptable risk. A horse was tethered nearby.

Wearing the clothes that had been taken from Future Mann, he went to the horse. He had never ridden a horse, and there hadn't been time to learn, so he was obliged to lead it.

He stood still for a moment, patting the horse's neck and regarding his surroundings. Once again he had been pre-

pared for what he was to see by what the television camera had shown him; but that was no substitute for actually being here.

To his left was the sea. He could see the shore less than a mile away, and beyond that the surface of the sea rose up northwards until it vanished in the haze. He could just hear the sound of the surf, smell the salt on the breeze that blew from the coast.

Ahead of him, and slightly to his right, was the station. Behind it, he could see the track that had been abandoned, and the last of the cable-stay emplacements.

And behind that ... the ground rose up once more. It was a dizzying, vertiginous feeling, looking at the ground as if viewed from an impossibly high cliff.

He looked away, remembering Langham's warning that some of his men had been made physically nauseated by the sight, their senses unable to comprehend the limitless nature of the surface of this world.

He paused a while longer, trying to get his bearings.

One difficulty for him was that north on this world was not the same as north on his. To the people of the station, their way led up the side of the planet, towards the infinitely distant north pole. But the analogous direction on Earth was one hundred and ten degrees away from this, almost south-west. Langham had been unable to account for this; logically, north on this planet should be north on Earth ... but that was not the way.

He glanced up at the sun, catching a glimpse of its cross-shape before the brilliance forced him to look away. He rubbed his eyes, looked over towards the station and began leading the horse in that direction.

He had no idea what to expect. He was the first man from true Earth to go into Destaine's station since it vanished. No one on Earth was even sure about what common language was employed, even though their captive had shown that he spoke a recognizable English. He had Langham's plan of Destaine's station as it was first built; but even the most superficial glance at it confirmed that it had been much changed and expanded since then.

Mann was confident, though, that he would be able to find the graviton field-generator. It was situated in the

reactor-room, in the base of the station, and it was so large a piece of equipment that it was unlikely that it would have been moved.

He walked right up to the edge of the station, passing several men on the way. One or two nodded to him, and he returned the greeting in kind. He kept his movements purposeful so that he wouldn't be detained in conversation.

He found himself at the side of the station.

The main base was some twenty feet above the ground, and beneath it he could see some of the drive machinery. The mechanism was crude. As far as he could see, an arrangement of wheels was geared up to three large winches placed deep in the centre. The wheels looked ill-suited to the work they were doing, and Mann recalled Langham telling him that once the station had been fitted with caterpillar tracks. These wheels as such were probably once the runners for those tracks.

From where he was standing, he could see no entry into the station. He walked the horse round to the station front, remembering that most of the movements to and from the station had been seen here.

Directly at the front of the station, beneath the main base, there was a wide tunnel. He led the horse in, expecting her to rear ... but she was evidently accustomed to the tunnel and walked quietly behind him.

To each side of him, Gerdun Mann now saw several doorways with staircases behind them, evidently leading up to the interior of the station. He walked for a short distance, wondering which one he should take.

Suddenly a voice called out: 'I'll take the horse, sir.'

Mann turned round. A young boy was standing a few feet away from him.

'You needn't bother with her, Future. I'll take her in.'

'Er—thanks.' Mann walked the horse over to the boy and handed him the rein.

'Are you going up into the city, sir?'

'Yes.'

'Be careful, Future Mann. There's a lot of trouble up there.'

'Trouble?'

'Fighting, and some shooting. I heard about an hour ago that they were trying to set fire to the city.'

'Is it serious?'

'Well, I hear the fires are out. But there's still a lot of fighting. Of course, you've been north a few days, you haven't seen the worst.' The boy looked closely at Mann. 'Don't worry about your family, sir. Most of the women and children have been evacuated until the trouble's dealt with. They'll be back in the main part of the city by the time we reach the bridge.'

'Where are they now?'

'They're in the hospital, sir. They're quite safe.'

'Good. I'll go and see them.'

Gerdun Mann nodded to the boy, and headed for the nearest staircase. He walked up the flight of stairs and emerged in a narrow passageway, bounded on each side by what looked like wooden buildings. Several people pushed past him, and in the near distance he heard the sound of shouting.

He walked down the passageway, and came to a slightly wider one.

Here there were many more people, mostly men. Several of them carried crossbows, and one or two held placards or clubs.

No one took any notice of him, their attention diverted towards a tightly-packed group of men at the far end of the passage. They were all shouting and waving their fists.

'What's going on?' Mann said to one of the crossbow-carriers near him.

The man looked at him. 'You're Future Mann.'

'Yes.'

'It's the Terminators, sir. Trying to reach the reactor. They want to stop the city.'

Gerdun Mann made to say something else, but suddenly an order was given and all the crossbowmen moved towards the crowd. Mann looked in the opposite direction, saw there were fewer people there. He headed that way.

He found a doorway and stepped into its shelter. From a pocket of the leather tunic Langham's men had taken from the captive, Mann took the plan. He consulted it anxiously,

trying to locate where he was so that he could reach the reactor-room.

Behind him there was a renewed outburst of shouting and he heard many people running in his direction. Mann pushed his way through the door, and found two children lying on the floor, their arms around one another.

He closed the door. One of the children burst into tears.

'Where's the reactor-room?' Mann said to the other child. 'Do you know where it is?'

The boy shook his head.

'Come on ... it's important!' There was still no response. 'Listen, do you know who I am? I'm a Future. You've got to tell me.' By now, Mann had realised that a 'Future' held a position of some importance in the station.

'Then you know where it is.'

'Tell me. Pretend I don't.'

The boy shook his head again, and Mann seized his shoulder. 'Is it by the winches?'

'It's under the cockpit,' said the girl through her tears. 'Why don't you know where it is?'

Mann went back through the doorway, and consulted his plan again. The cockpit was clearly marked as 'Control Cabin'—or at least he presumed the two were synonymous —and was situated at the front of the station. In the passageway he tried to get his bearings. He looked up, trying to catch a glimpse of the position of the sun. Instead, apparently rearing up over the city, was the countryside to the south.

It took Mann a second or two to recover from the unexpectedness of this discovery, and realise that logically the control cabin would lie at the opposite end of the station.

He walked that way, avoiding large groups of people and changing direction if he saw any signs of trouble.

He came in the end to a large wooden building that was separate from the others. There was one large entrance which was heavily guarded by a cordon of crossbowmen. Mann thought for a moment, then moved around to one side. In a narrow passage he saw two or three smaller entrances ... but almost as soon as he had turned the corner three crossbowmen came and confronted him.

'Where are you going?'

'To the . . . cockpit,' said Mann.

'Who are you?'

'Don't you recognise me?'

One of the crossbowmen said something quietly to the others.

'Sorry, Future Mann. There's an emergency on.'

The crossbowmen stood back, and Mann walked on.

He made for the first doorway, and went inside. There was a flight of steps, and he went up them. At the top there was a corridor, well lit by electricity. He walked down it, looking into rooms which had doors open. There appeared to be no one about. At the end of the corridor, another staircase.

He walked up this, along another passage and came out into a small room crammed with instruments and controls. There were five men here, sitting or standing by the instruments. One man stood in front of a window, staring forward. In his first few seconds in the room, Mann caught a glimpse of the view: it was directly ahead of the station, and the sea was now clearly visible.

The man by the window turned.

'Future Mann! You have a new survey-report?'

Mann was temporarily lost for words. Langham's interrogation of the captive had revealed that the man was a 'surveyor', but the actual nature of his work had never been clearly understood.

'I've come from the bridge,' he said in a moment. 'It won't be ready in time.'

'There are still a few more days.'

'Even so. . . . I have an alternative plan.'

The man at the window walked towards him. 'If you have no report, Future-Surveyor, you have no right of access to the cockpit.'

Abruptly, an alarm-bell rang out. A few yards away there was a loud bang, and a shout. There came the sound of running feet.

The man turned away and went to a console. 'Get back to your station, Future-Surveyor. We are too busy to be interrupted.'

Mann looked round. At the far side of the control-cabin there was another doorway, marked with a radioactivity-

warning sign. Disregarding the other men, he walked towards it. At that moment, the door through which he had entered opened again and suddenly several men poured into the room. They were holding crossbows and clubs.

'You're all under arrest!' the leading man shouted. He aimed his crossbow at the Navigator who had spoken to Mann, and stepped forward. 'The city has to be stopped. You are taking us to our deaths.'

At the intrusion, Mann had stopped by the door. One of the men was aiming a crossbow at him.

'As duty-Navigator, I order you to leave the cockpit.'

'You no longer have authority. Olssen has surrendered.'

Gerdun Mann had no wish to be caught up in a local revolution. He moved quickly, opening the door and almost throwing himself through. As he did so, one of the men loosed his crossbow. The bolt narrowly missed him, hit the door and clattered down on to some metal steps. Without pausing, Mann hurried down the steps.

He found himself in the reactor-room. He paid no attention to the reactor itself, but headed for the graviton field-generator which, according to Langham's plan, was situated at the rear of the room.

At first, he was unable to find it ... then saw a large machine covered with a sheet. He heard the sound of feet on the steps at the far side of the reactor-room.

He tore the sheet aside. He knew exactly what he had to do. Langham had shown him a simulator on true Earth, and Mann had practised many times.

Two men came down the steps and stood at the bottom, looking for him in the poorly-lit room. Mann ducked low, and turned the first of the five switches that activated the generator.

'You're under arrest, Future!' They had seen him now and were advancing on him, crossbows raised.

'Keep away! This is important.'

'Nothing is as important as stopping the city.'

Four of the five switches were open now, and the fifth one was stiff. The old generator, which hadn't been used for more than a hundred years, was coming to life. Dials moved, warning-lights came on, a cathode-ray scanner glowed vivid green.

'Stop ... or we shoot!'

The fifth switch suddenly freed, and there was a loud noise. It began as a low roar, then quickly raised in pitch. Around them, the lights of the reactor-room began to dim. Almost the whole output of the station's reactor was being used up by the generator ... taking power away from the winches, halting the long journey of Earth city.

The crossbows were raised, both aimed at him.

Then one of the men lowered his weapon.

'Future ... what have you done?'

Mann turned to face them, put up his hands defensively.

'Don't shoot,' he said weakly.

The other man lowered his weapon too.

The noise from the generator continued to mount; now it was a high whine.

'The winches have stopped,' he said. 'The Future has stopped the city.'

They ignored Mann, and went back to the steps leading to the control cabin. Mann turned back to the field-generator, it was now 90% operational, and still mounting. As the needle of the dial touched 100%, he picked up the sheet, and threw it once more over the machine.

Gerdun Mann walked out from under the base of the station and looked around.

Immediately in front of him, less than a mile away, was the sea. Beyond that, a very clear horizon. There were two ships in view.

He looked over to one side. A few hundred yards away he could see Langham's transporter, and beyond it a cluster of helicopters, ambulances and trucks. He walked towards them.

After he had covered half the distance, he turned and looked back at the station.

The people of the city of Earth were looking at the planet of Earth. As Mann had walked through the station, the Terminators were announcing that the city had stopped ... and now the people came to the side of the station, looking at a world where there were horizons on all sides. A world where the ground didn't move. Where the sun was a simple sphere.

Mann sat down on the dry soil. He felt strangely reactionless.

A few minutes later, a vehicle stopped nearby and Langham stepped out. He shook Mann's hand, congratulated him.

Mann just smiled. He didn't feel as if he had saved a world. He was thinking of all that had to be done. There were still people in that hyperboloid world: the people who had been away from the city when the generator was activated. They would have to be collected. All the people of the station would have to be rehabilitated.

Then there was the curious fact of the captive. The man who shared his name, who looked so remarkably like him. He wondered how much more than this they had in common; perhaps one of his own ancestors had been a member of Destaine's original crew.

And Gerdun Mann thought of the pile of books that lay unread in his hotel room. He hadn't forgotten those, but he was beginning to realize that it might be some time before he got around to looking at them.

THE END

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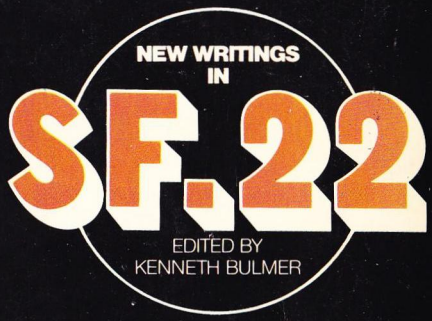

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