VOLUME 3 NUMBER 1 40p

SCIENCE FICTION MONTHLY

SPACE 1999
special illustrated feature

New Stories From
David Grigg
and
Jack Williamson

PLUS
Amazing SF Art
Anthony
Roberts
Jim Burns
Eddie Jones
and
Bruce Pennington

SCIENCE FICTION

NEW ENGLISH LIBRARY MONTHLY

SCIENCE FICTION

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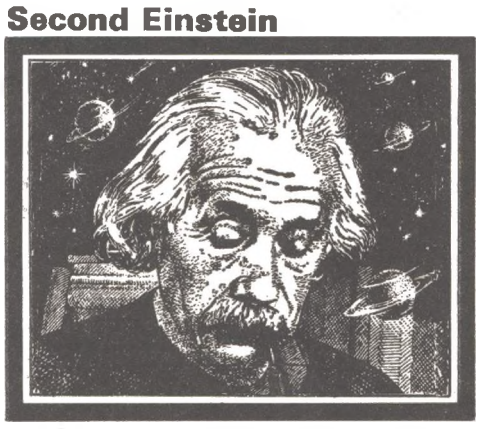
Second Einstein



Quite a cosmopolitan issue, this one. Three pieces of original fiction and each from a different continent: Jack Williamson, an American who needs no introduction, has contributed 'The Highest Dive'; David Grigg is a talented Australian author who has produced 'Deep Freeze', a story originally commissioned for the AussieCon issue but for which we couldn't find space; and from our own green and pleasant land CD Renmore who has put his scientific background to good use and written 'Second Einstein' (you may remember Mr Renmore's factual article on extraterrestrial life in *SFM* Vol 1 No 11).

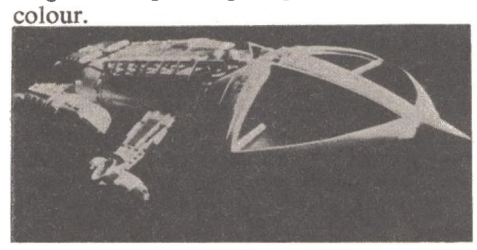
Space 1999

John Brosnan has managed to get an article together about *Space 1999* just in time to catch the end of the series on tv. We've wrapped his words around two pages of stills from the programme to make a mini pull-out *Space 1999* special. If you're a fan of the series you'll love it; if not, don't be deterred, the article should be read by all *serious* students of television criticism. It's funny!

Peter Weston

After a gap of two months you can now read Part Three of Peter Weston's investigation into space travel as a sf theme; he's got quite technical this time, although most of the space drives mentioned haven't left the drawing-board yet.

That's all for the present, but next month's issue and the one after that, and the one after that, etc, etc, are going to prove irresistible. Making allowances for both the English and American postal services, next month we'll be publishing a special Kelly Freas issue with an interview, an appraisal of his work and TEN of his magnificent paintings reproduced in full colour.



Looking Forward

Talking of special issues, we intend to feature Robert Silverberg in the March issue, the one that comes out just before the Easter SF Convention at which he is Guest of Honour. At the moment, sf author Brian Stableford is engaged in writing a critical account of Silverberg's works which we hope to accompany with a new short story.

Going on from there, we intend to publish special issues devoted to robots and UFOs; interviews with DG Compton and Harlan Ellison; a special French issue with stories and illustrations from France (in translation, of course); a science fact article on gravity which is more than apples dropping on your head; a history of sf film taking over from where John Baxter's book *Science Fiction in the Cinema* left off; a retrospective look at Jefferson Airplane/Starship (the most sf-orientated group around – as some will have it); an illustrated series about future transport, and lots more American sf artist interviews. How lucky can you get?

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SCIENCE FICTION BOOK REVIEW

A Pictorial History of Science Fiction Films

By Jeff Rovin

Published by The Citadel Press; £6.50

Reviewed by John Brosnan

It is just that; a pictorial history of science fiction films and little else. It's silly to be disappointed by a book that lives up to its title but I can't help feeling that author Jeff Rovin would have produced a much more valuable book if he'd put more work into the text accompanying the photographs. As it stands, the book is just a catalogue of sf films with, in most cases, one paragraph devoted to each film. The main exception is an extended piece on *Things to Come* but this, so Rovin tells us, was written by Alan Asherman, the same person who supplied all the stills for the book. I can't understand why Asherman didn't write the whole book himself as his piece stands head and shoulders above the rest of the written material.

Nevertheless, Rovin has done a fairly exhaustive job, including a number of films that have been missed in other sf filmographies, and his comments on each film, though too brief and often couched in wince-making prose, usually hit the mark. There are exceptions, of course. For instance, I disagree when he says of *2001: A Space Odyssey:* 'The special effects and art direction, though universally praised, are, in fact, overrated. Although nothing in the terms of the film's Cinerama size had ever been attempted with similarly complicated effects, films such as *Forbidden Planet, This Island Earth* and Disney's fanciful *Darby O'Gill and the Little People* are much more slick and less obvious.'

What rubbish! While I agree that the effects in the three films he mentioned were very impressive, especially in *Forbidden Planet,* I cannot agree that they were more effective than those in *2001*. It wasn't just the Cinerama process that made them different from the effects in previous films but the actual techniques used to create them. Stanley Kubrick meticulously avoided using such techniques as the blue-screen travelling matte system, matte paintings or cycloramas which, though they often give colourful and impressive results, usually destroy the realism of a scene. Instead, Kubrick insisted that all the mattes should be hand-produced and that the backgrounds, where necessary, consist of three-dimensional model scenery rather than paintings. One only has to compare the sequence in *This Island Earth* where the flying saucer lands on the alien world, which was basically a matte painting, with the one in *2001* where the spherical spaceship lands on the moon, to see which one is less obvious. Certainly *This Island Earth* is a great special effects film but in an entirely different way to *2001*. One is impressed by the effects in the former because of their spectacular artificiality, while in *2001* one is impressed at just how realistic special effects can be.

While still on the subject of *This Island Earth,* Rovin makes another statement with which I disagree. He says of the film that it was, 'Another classic, epic in scope and intellect ... it has everything, fine actors, a mature, sturdy script, a realistic, terrifying monster and flying saucers ... the production is never dull or condescending.' Having recently had the opportunity to view it again I'll agree that it wasn't dull and that it had at least one flying saucer but as for the mature and sturdy script ... not at all! The script was sub-*sub*-comic book level and contained some of the most unwittingly hilarious dialogue ever to be heard in sf film. I think this must be one of the films that Rovin saw during the golden glow of his impressionable youth but hasn't seen since.

Another area of disagreement is his description of *The Day the Earth Stood Still.* Rovin writes:

> 'It is a brilliant film about a visit from space by Klaatu and a ten-foot robot named Gort. Klaatu makes the voyage to warn Earth that continued misuse of space and atomic weaponry will result in our total obliteration. Mincing few words and wasting little time, he demonstrates his power on a minor scale by shutting down all man's electrical energy for half an hour. Before returning to space he delivers the finest soliloquy in sf film history, "Soon one of your nations will apply atomic power to rockets. Up to now we have not cared how you solved your petty squabbles. But if you threaten to extend your violence, this Earth of yours will be reduced to a burnt out cinder. Your choice is simple. Join us and live in peace. Or pursue your present course and face obliteration." '

That is the finest soliloquy in sf film history? I hope not. To begin with it wasn't a soliloquy; Klaatu wasn't talking to himself in that scene but addressing a large crowd of people. Now while I consider *The Day the Earth Stood Still* to be an above-average sf film I've always felt that its basic premise undermined its message about the dangers of atomic war and that this is demonstrated by Klaatu's final speech to us natives. I just find it very difficult to accept that this supposedly peace-loving alien society can justify its disapproval of Earth's warlike ways when it threatens violence on a scale that even *we* haven't achieved yet. Nor do I consider their solution – of submitting to the rule of a group of implacable, authoritarian robots – to be very attractive. But, apart from all that, it's still an enjoyable film and the flying saucer is very nice to look at.

Of course, putting all my quibbles about the text aside, the photographs are the main thing in this book and in that department I can find no faults. There are 450 included in the book and, while many of them will be familiar to people who collect film books, the standard of reproduction is high. Perhaps £6.50 is a bit much for a nostalgic trip through the sf film field but considering the high costs of publishing these days it's not too bad for such an elaborately produced book. There is also the added bonus of the fascinating little pieces of esoteric information that Jeff Rovin scatters throughout the book. For instance, did you know that the green slime monsters in *The Green Slime* were really blue? Or that Leonard Nimoy appeared as an alien invader in a serial called *Zombies of the Stratosphere* made as long ago as *1952*? The mind boggles.

Hello Summer, Goodbye

By Michael Coney

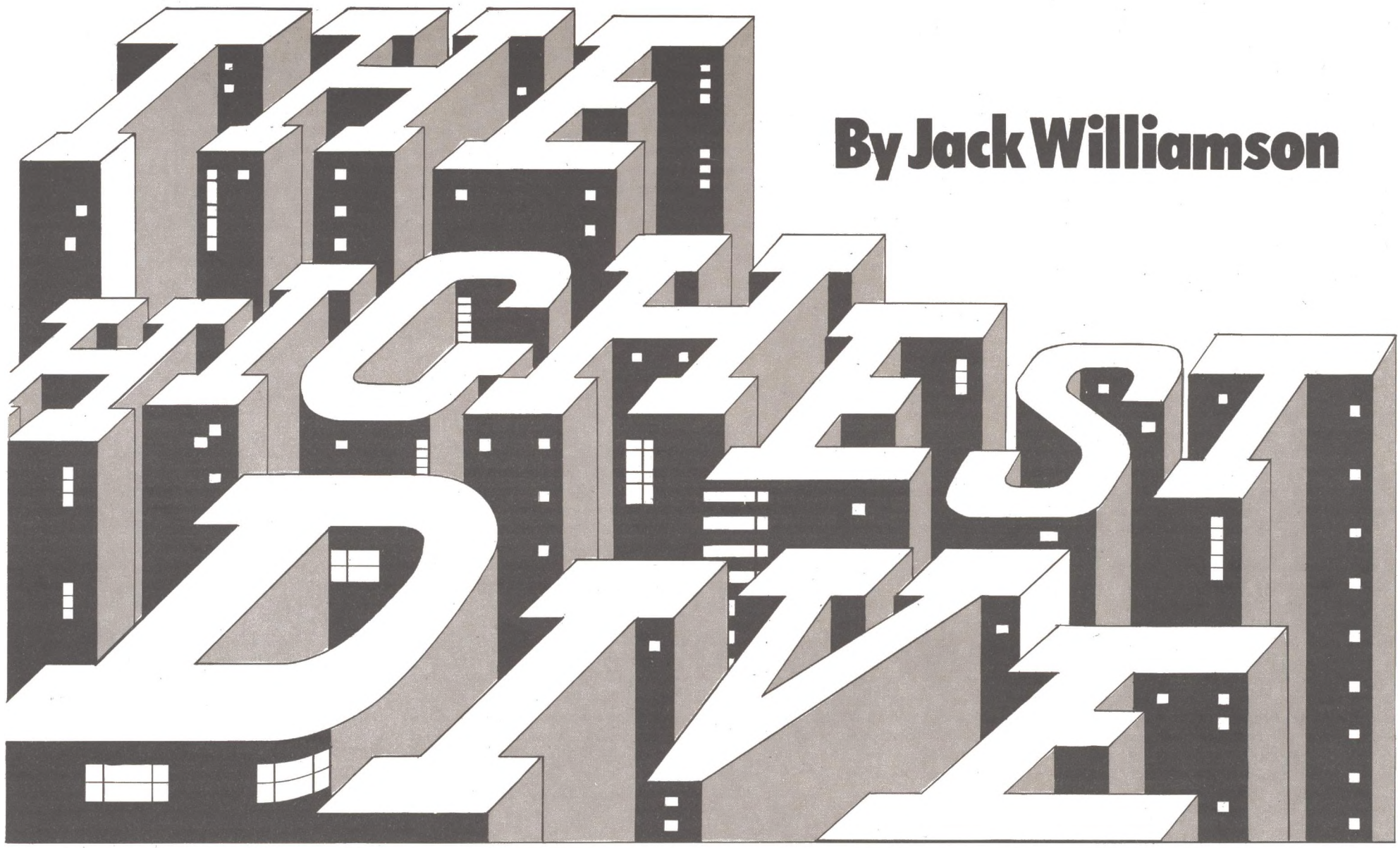
Published by Gollancz; £3.20

Reviewed by Malcolm Edwards

In a brief prefatory note, Michael Coney says that his latest novel is: 'a love story, a war story, a science fiction story, and more besides.' That describes it in a nutshell. *Hello Summer, Goodbye* is set on another world and all its characters are aliens – though they are aliens so human in their thoughts and actions that (apart from a few oddities like going insane if the temperature falls below a certain point) they might as well *be* human, and it is difficult not to visualise them as such. To take its three elements in reverse order: it is the science fiction story of a planet which follows a very elongated elliptical orbit around its primary, so that temperature changes are extreme and there are, in particular, some very unusual annual tidal effects. It is a planet with its share of odd creatures: the fierce grume-riders; the ice-devils which lurk at the bottom of pools; the shaggy, semi-intelligent, empathic lorin. The war story concerns the conflict between the world's two great nations, Erto and Asta, with the Astan forces steadily overrunning Erto. The love story is about a young Ertan, Drove, holidaying at the seaside town of Pallahaxi and falling in love with a local girl called Browneyes (ugh!). And it is indeed much more besides, but I have no intention of spoiling Mr Coney's carefully-plotted story by revealing his surprises.

This is a fine, entertaining story: the sort of novel which won't win any awards, but will give a lot of readers a lot of pleasure. It is, furthermore, a story which carries an unexpectedly strong punch: it starts out quite lightweight somewhat marred by the love story, which occasionally tends to the gooey, and builds its way to a powerful climax which is none the less surprising for being the only logical explanation of what has gone before. Michael Coney has not been writing novels for long, but he is proving a remarkably consistent and amazingly prolific performer with a real talent for constructing tightly-knit plots; and he seems to have established a name, a style and a string of credits in the batting of an eyelid. When I try to think of precedents, I can only come up with John Brunner at the outset of his career ... but I would rate Coney higher than Brunner (as he was then). I do wish that he would stop setting his novels in dressed-up versions of English fishing villages, but I'm sure he will, in time.

Hello Summer, Goodbye is one of his best novels to date, and that makes it very good reading.



By Jack Williamson

THE roaring woke him from a crazy dream of wild bulls bellowing. He sat up in the dark, tight with a shock of fear. One dim red light glowed over vague shapes around him, but they looked strange. His breath stopped, till he remembered that the red light was there to mark the shelter exit.

Then everything came back—Atlas, which people called 'the impossible planet' because it was a million times too big to be a planet at all; the Galactic Survey camp, where the shuttle ship had dropped him two Earth-days ago; Komatsu and Marutiak, the human spacemen with him.

'The pack began quivering in his fingers. When he held it hard to his ear, he caught faint words in Komatsu's raspy voice. ". . . tornado . . . wild weather common . . . shelter pit . . . get there quick . . . hang on, kid!" '

But he couldn't understand that roaring, which had been the bellow of bulls in his dream. It battered his body, ached in his bones, dazed his brain.

'Komatsu!' He shouted, but he couldn't hear his own voice. '*Komatsu*!'

When he tried to listen, all he could hear was that near and steady thunder, always louder, louder, louder. Nothing moved in the shelter. The other men were on duty, maybe away from camp. He was all alone.

In his mind, that roar had become the yell of a black angry monster larger than Atlas. But he tried not to panic. Groping in the dark, he found the hard little disk of his voice-pack, slung from his neck.

'Spaceman Mayfield . . .' His scream seemed fainter than a whisper, and he cupped both hands to shield the pack. 'Mayfield to Komatsu. What is the noise?'

His question seemed suddenly stupid. Maybe cowardly. He didn't want Komatsu thinking Atlas had been too much for him.

'Spaceman Max Mayfield,' he called again. 'Requesting instructions.'

The pack began quivering in his fingers. When he held it hard to his ear, he caught faint words in Komatsu's raspy voice, '. . . tornado . . . wild weather common . . . shelter pit . . . get there quick . . . hang on, kid!'

Briefing him after he landed, Komatsu had talked about the weird weather of Atlas and pointed out the shelter pit under the floor. He got his bearings now from the exit light and jumped for the pit.

He jumped too hard.

New on Atlas, he had forgotten how he had to move. He found himself floating in the dark above his bunk, grabbing at nothing, waiting for the weak gravity to pull him down. Before he could reach anything, the wind hit.

The blast of noise hurt his ears. The breath burst out from his lungs. The exit light winked out. Something hit him. Something spun him. Something seized him, crushed him.

No monster, of course. He knew it was only a torn scrap of the shelter, wrapped around him by the freakish gusts. But it was bad enough. It pinned his arms and covered his face. He couldn't see, couldn't breathe.

He thought he would soon be dead.

As he spun through the air, his mother's face came into his mind. Her voice came through the howling storm. 'When you're dying,' she was saying, 'your whole life comes back in a single flash.'

He wasn't sure that was true, but many thoughts rushed into his head. For a while he tried to wriggle out of the stiff fabric around him, but his strength gave out. Finally, he just let past things flash back.

He thought of the morning at breakfast, long ago on the small Earth, when he first told his parents that he was going out to Atlas with the Galactic Survey.

'Max Mayfield!'—when his mother used his full name, he knew she was angry—'We thought you were happy, here at home. We thought you loved poetry and maths.' He saw she was about to cry. 'Why didn't you t-t-t-tell us?'

'We were hoping you might decide to stay here at the park and be a wilderness ranger.' Speaking at the same time, his father frowned severely. 'What's on Atlas?'

'Riddles.' He put down his fork and tried to explain. 'Nobody knows how anything could be so big. It's like a planet, but five thousand times as far around as Earth. I'll be on a survey team, looking for its secrets.'

'Out on Atlas?' His mother's mouth gaped open. 'With those space m-m-m-monsters?'

'Please, mum!' He grinned at her tight face, but she wouldn't smile. 'Ozark Wilderness is a nice quiet hiding place for us and the animals—if we're afraid of the future. But I've been hiding long enough. This is a new century, and I want to live in it. We have new worlds to know, and new friends in space.'

'Giant spiders! or worse!' She shivered. 'I can't abide 'em!'

'Maybe they do look queer, but you've got to admire their brains.' He tried and failed to make his father nod. 'They've taught us a lot of new maths. I'm glad they need us on Atlas, because I want to know them better.'

'Need *you*?' His mother sat sadly shaking her head. 'Why?'

'Because it's rough,' he said. 'Too rough for most of them. They hope the human teams will be tough enough and bright enough to survive there—long enough to find out what Atlas really is.'

'You flabbergast us, son,' his father said. 'Because you've always been such a bookworm. If we're upset, it's just because we're afraid Atlas will be too much for you.'

'Maybe I'm afraid, too.' He had to nod. 'But still I want to go. Because Atlas is a riddle, the biggest riddle in the Universe. I want to prove I'm good enough to tackle it.'

At that point his kid brother had come stumbling sleepily into the kitchen. The name of Atlas worked him into whooping excitement.

'You going *there*? Wow-wee! Tell about it.'

They all listened while he talked about the space folk he had met and the terminal on the moon where his training would begin and the trans-sleep shots he would be taking for the long trip to Atlas. His mother was sniffling at first, but his father was soon patting her hand and they finally said they were proud that he had been chosen to go.

Atlas was nine thousand light-years from Earth, but he had slept through the flight. The orbital station where he woke was strange enough, but his training had got him used to the feel of null gravity and the queer odours of space people.

Now, waiting to die in the core of that bellowing storm, he remembered his first glimpse of Atlas, when the mission planner guided him into an observation bay. The sight shook him up.

Atlas was too big.

Still a million miles ahead, it was too big for him to see. His own Earth, at that distance, would have been a little blue-and-white marble. Atlas was endless. It was a hazy floor, mottled dark and bright, stretching out and out for ever. Above it, space was a dead black dome.

'It . . . it gets you!' Its boundless flatness was too enormous for his mind to grasp. 'What kind of world, what kind of *thing* can be so big?'

'Your mission is to help us find that out.'

The planner's human voice surprised him. Far from human itself, the space being had picked up not just the language but also the voice of Dr Krim, the black-bearded linguist he had known on the moon.

'All we can see from here is the top of the clouds,' the planner said. 'You'll be a thousand miles below; with its low gravity, Atlas has a very deep atmosphere. The clouds never break to show us anything. Down there, we hope you can see what it really is.'

He looked down, wondering what the clouds were hiding.

'We have theories enough,' the planner said. 'Your team will be gathering facts to help us pick the best one. Are you ready to be briefed?'

'Ready.'

The briefing officer looked like a big silver starfish, but, like the planner, it spoke with the rich and ringing human voice of Dr Krim. Its sour odour made his stomach churn, till he looked away and tried to remember his training on the moon.

'I'm Spaceman Mayfield,' he managed to say. 'A human volunteer . . .'

He wanted to go on talking about himself, because being human made him a stranger on the orbiter. He still felt weak and giddy from the trans-sleep serums, and all these new things were coming too fast. He wanted to think about hiking with his father to holograph the wilderness creatures. About teaching chess to his kid brother, who was learning a strong end game. Even about the shelf of poetry in his room—he had enjoyed knowing the real Dr Krim, because they both liked Robert Frost.

But the briefing officer wasn't interested in Earth.

'You'll be in danger, down on Atlas.' Dr Krim's deep voice boomed out of its silver-scaled queerness. 'Nothing will ever be quite what you expect. Your instructions are to move with care, observe with intelligence, report every fact at once. Your first problem will be the gravity.'

The mass of Atlas, the creature explained, was too small for its size, too small to fit any reasonable theory at all. His weight there would be only a pound and a half. Unless he learned to use the hold-ropes, even a good breeze could blow him away.

Looking aside, he listened to the few known facts about Atlas, most of them hard to believe. He learned what his work would be in the team. Finally he had to look again, because the briefing officer was holding out the voice-pack.

'Wear this. All the time. Use it. We'll be listening.'

He took the pack from its snaky arms and tried to grin in a friendly way toward its single central eye, which looked like a huge mound of dark-green gelatine. After all, it wasn't half so strange as Atlas was going to be.

Whirling now in the heart of that howling storm, he was barely aware of the suffocating tightness around him. Yet a dim pain nagged him. He knew he ought to be doing something to earn his place in the team. Komatsu and Marutiak were probably hurt. He ought to be helping them. At least he ought to be reporting to the orbiter. But he had no breath for speech, no strength or will for any effort at all. He let his mind flash back to his landing on Atlas.

He had been watching from the pilot bubble as the shuttle slid down through endless miles of fog. The first thing he saw was a long dark blur, dividing hazy pink from misty blue. Then the world beneath the fog came slowly into focus, like an image in a lens. The blue became a dark mountain ridge, queerly long and straight. The pink became a flat reddish desert, grey-spotted with low mounds like piles of ashes. The blue was a flatter desert, the colour of old ice.

Finally he found the camp on the ridge. The shelter was an inflated dome of yellow fabric. Yellow hold-ropes made a wide web around it. His new teammates crawled out across the web to meet him, looking like yellow spiders in their survival gear.

He was glad to be with men again but dismayed at the way Atlas had crippled them. Both looked ray-burnt, drawn, grim. Komatsu had lost one leg. Raw red scars were splashed across the face and throat of Marutiak, the sub-chief.

The shuttle had brought big spools of new rope, crated instruments, bales and cases of supplies. Before it took off, it gave them a pick-up date.

'Be here.' Though it carried no human crew, its robot controls had been programmed to speak with the voice of Dr Krim. 'We're shutting down this camp, because the orbiter's moving out of shuttle range. The director expects you to find useful information before we come back to pick you up.'

The date meant nothing to Max at first, because he was still wearing the Earth-time watch his parents had given him for graduation. He translated it out of galactic time, while he stood watching the shuttle climb and vanish into the clouds, and he found that it would be his birthday, just two weeks off. That made him think of the cake his mother would have baked, if he had stayed on Earth. Dark sweet chocolate iced with white . . .

'Let's go, kid,' Komatsu said.

Marutiak was picking up a great bale that should have weighed a ton. Max jumped to help, and drifted in the air till Marutiak left the bale floating and turned to toss him the end of a rope.

'Thanks!' he gasped.

Marutiak pointed at his red-scarred throat, and Max realised that his voice had been destroyed.

'Hang on, kid,' Komatsu rasped. 'Always hang on. Enson forgot—he's the man you came to replace.'

He pulled himself after them toward the shelter, halfway swimming. Komatsu stopped at the door and raised his voice above the lazy cat-purr of the air-pump.

'We stand watches. One man off and two men on. On duty, we run the experiments and report to the orbiter. Off duty, we stay inside and get what rest we can. On or off, we keep alert. Down here, kid, you'll learn that Atlas makes the rules. If you've got the brains and guts to play the Atlas game, you'll be okay.'

He had tried to play the game, but Atlas was a tough opponent. His first real problem came when Komatsu asked him to come for a swim. Tired and sweaty after the long flight down, he agreed eagerly, but he wondered where the water was. Komatsu led him along a yellow rope to the edge of the ridge.

'You first.' Komatsu waved him ahead. 'Dive.'

'Huh?'

He saw no water anywhere. The ridge was nearly flat on top, flaked and cracked with time. Ropes stretched along its rim. The reddish desert lay far, far below. Feeling bewildered, he looked back at Komatsu.

'There's our pool.' Komatsu leaned out to point straight down. 'The only open water we've found on Atlas.'

He gripped the rope and looked. The time-worn wall of something like black rock dropped straight down so far it made him giddy. At last he found the pool—a small round mirror of bright blue water tucked under the very foot of that frightening cliff.

'It's deep enough.' Queerly casual, Komatsu pointed at another hand-rope, stretching from their feet to a rock down in the pool. 'We climb that to get back.' He grinned at Max. 'Want me to go first?'

'You've got to be kidding!' Max stared at his dark, gaunt face. 'We're too . . . too high!'

'Just a thousand feet.' Komatsu's grin grew wider. 'About the same as ten at home. You fall slow here, kid. With air resistance, your terminal velocity is about fifteen feet a second. From any height, you never fall faster. Watch me.'

He peeled off his yellow suit, moved to the rim in a lazy, one legged dance, floated over it. Max leaned out to watch him drifting slowly down, arms spread like wings to guide him. He was a long time in the air, and his body had dwindled to a far dark speck before he broke the blue mirror of the pool.

Waiting, Max shifted his cramped hands on the rope. The clouds looked darker and lower. The desert of ice and the desert of ashes made no sense. Atlas had begun to seem a harder riddle than ever.

Komatsu came back at last, gliding up that long rope. His scarred body was already dry, and one leg seemed enough for him, here on Atlas. Still grinning, he waved toward the jumping place.

'Next?'

'No!' Max couldn't help shivering. 'Not . . . not now!'

'Later, if you please. But do it, kid. For your own good. Enson never learned to dive. That's why he never got back when he was blown away.'

'Later.' Max felt miserable. 'I'll try . . . later.'

Komatsu had been nice about it, maybe too nice. He took Max around the camp to explain their duties. Weather instruments and automatic cameras and radiation meters were scattered across the ridge. Hand-ropes led down to more experiments on the ashes and the ice.

'What are we finding out?' Fighting his dread of the dive, Max came back to that monstrous riddle. 'What *is* Atlas?'

'Ask the orbiter.' Komatsu nodded toward the dark sky. 'All we do is report the instrument readings, which never make much sense. If you want to believe the seismographs, there's half a mile of ice or rock or radioactive dust spread over a thin shell of something else, maybe matter in some new state, with nothing underneath.'

'The tornado hadn't dropped him anywhere. It left him high; he was afraid to guess how high. The mountain ridge had become a fine dark line far beneath, dividing rust-red desert and dull blue ice. He was alone in the eerie sky of Atlas!'

Komatsu waved at a yellow wind-sock.

'Just watch that, kid. We get the worst weather in the Universe. Hot winds off the desert. Blizzards off the ice. Tornados two hundred miles tall. When the big winds hit, better hang on. Enson didn't.'

He said no more about the dive. On watch with him, Max hammered pitons into the ice to anchor the ropes to a new seismic station. On watch with Marutiak, he put on heavy radiation armour and strung new rope across the desert to reach and test a low cone of grey-glowing dust. Atlas still kept its big secret.

Suddenly, now, Max was breathing again. The bellow of the twisting winds had died, long ago. He knew he had been unconscious, and he wondered where the storm had dropped him. He felt surprised to be alive.

The stiff shelter fabric was still rolled around him, but not quite so tightly. Cramped and numb at first, he squirmed and wriggled, twisted and crawled, until he could look out. What he saw jolted him cruelly.

The tornado hadn't dropped him anywhere. It had left him high; he was afraid to guess how high. The mountain ridge had become a fine dark line far beneath, dividing rust-red desert and dull blue ice. He was alone in the eerie sky of Atlas.

'Spaceman . . .' Only a hoarse whisper came when he tried to speak into the voice-pack. He shut his eyes against the terrible emptiness under him, and tried again. 'Spaceman Mayfield to Orbiter.'

'Orbiter recording.' Dr Krim's duplicated voice boomed instantly into that high silence, human and anxious. 'We had lost contact. Please report.'

'You won't believe it. A tornado has thrown me into the sky'.

'Atlas is always surprising. Just tell us what you see.'

'Not much. The ice—flat and dark and endless. The desert—just as endless. And there—the storm!'

The funnel was a thick reddish snake writhing out of a boiling cloud, dragging across the red-and-grey desert. Still watching it, he began to feel cold air rushing up around him. He looked for the fabric scrap the wind had wrapped about him and found it high above, already left behind.

'I . . . I'm falling!' Terror gripped his throat. 'A hundred miles . . . it's a hundred miles down!'

'We're very lucky, if you can see anything from that elevation.' The copied voice turned happy. 'Evidently the storm has lifted the clouds. You have a rare chance to see what Atlas is.'

The wind of his fall felt colder on his face, and fear of it froze him. His teeth chattered. But he tried to remember his training, tried to remember Komatsu's polite brown grin, tried to fight that terror.

Moving hands and arms against the rush of air, he learned to guide himself. A naked human aircraft, he tipped himself into a slow spiral above the bare flatness of ice and ash-like dust. At last, as the storm moved on, he found something it had hidden.

'A city!' he shouted into the voice-pack. 'The ridge where we camped leads into it like a road. Wait! I think it *is* a road—two miles wide! The buildings—they must have been as high as I am now. Great queer shapes. All ruined. Broken. Falling. Black with fire—or maybe time. Because the city's old. Old . . . old and dead!'

He stopped to stare at its desolate wonder.

'Go on! Describe what you see.'

But that blackened, shattered city was too huge and old and strange for any words of his. Dr Krim's bearded face had come into his shaken mind, and now he recalled the human linguist reciting Robert Frost. Two haunting lines came back:

Some say the world will end in fire,
Some say in ice.

Atlas, he thought, had somehow ended in both.

'Mayfield!' the pack kept booming. 'Tell what else you see.'

'Nothing.' His first excitement had begun to die. 'I'm too far off, and the clouds are sinking again. The tower-tops are already hazy. Sorry I can't see more.'

The pack went dead, thumped on again.

'Mayfield, what you've seen may be the final clue we needed.' The copied voice had a sudden human heartiness. 'Congratulations! The survey director says your report confirms his best theory. Atlas is an artificial object, designed and built by high intelligence.'

'Who could build a world . . .?' The notion jarred him. 'A world the size of Atlas?'

'We don't know yet.' The voice drummed fast. 'But natural planets are not efficient as dwellings for life They catch too little sunlight. They expose too little surface for unit of mass. The director thinks that Atlas is the matter from a system of planets, rebuilt into a hollow shell, maybe only a mile or so thick. The job took engineering know-how we can barely begin to imagine. But it gave the builders a million times more living space.'

'They aren't living now.' Max looked at the dull clouds rolling back to cover that lost, gigantic city. 'I think . . . I *know* they're dead.'

'The director believes their energy ran out. The ice you see covers most of Atlas. The ash-like stuff is probably waste from the old nuclear power plants. We can't be sure, till we make more landings.'

The pack thumped off and on.

'The shuttle will be returning at once, to rescue survivors. If you're at the camp, you'll be picked up.'

'I'll be there—if I can find the camp.'

The voice from the disk was still Dr Krim's, but somehow not quite human. 'If you fail, Spaceman Mayfield, the director wants you to know that you have earned our gratitude.'

The pack went off again, and he banked his shivering body into a slow circle above dark ice and dull dust. He couldn't find the camp. When he looked again for that dead city, it was gone. The rising wind grew colder. His face felt leather-stiff, and tears began to blur his vision. His spread arms grew numb and clumsy. He had trouble controlling his glide.

Yet one spark of triumph glowed in his mind. Even if he died here, Atlas hadn't really been too tough to crack. Even its huge size had turned out to be a sham. It was hollow, just a sort of cosmic bubble.

He nursed that warming thought, to keep himself alive. The glide down took a long time. Shreds of cloud began to form beneath him, hiding ice and dust. His last hopes began to freeze. He wanted to quit trying . . .

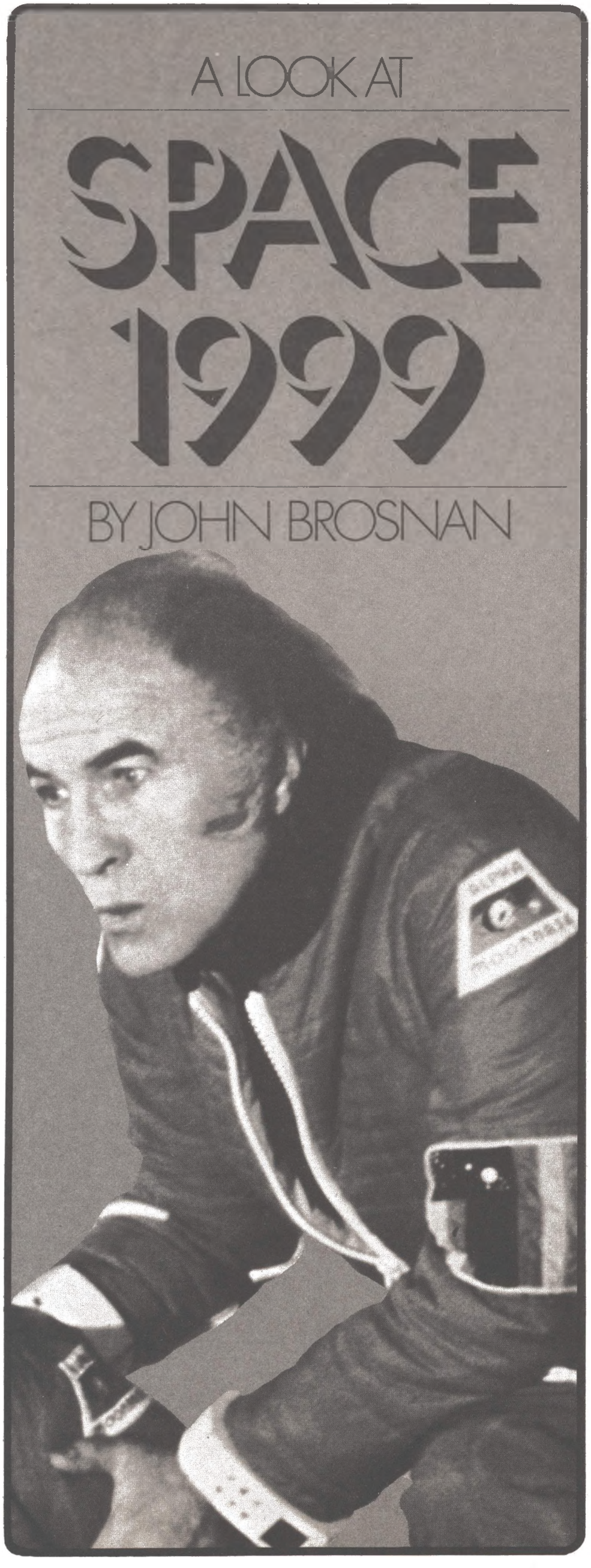
But then, beside that endless ridge that once had been a road, he saw a small, bright glint. He dived toward it, into the freezing wind that came off the ice. The ancient road grew wider, wider, until at last he made out the web of yellow ropes—and two tiny spider-figures, waving at him.

From a hundred miles up, he dived into the clear blue pool. To his numb skin, it felt almost warm. He paddled stiffly to the edge, hauled at the guide-rope with both clumsy hands, slid up it toward the camp.

The pack thumped on again. The tornado had caught Komatsu and Marutiak out on the ice, Krim's voice said. With the guide-ropes blown away, they'd had trouble getting back. But they were safe now, and the shuttle would be picking all three of them up.

'Nice dive, kid!' Komatsu was waiting with Marutiak at the top, and their happy hands helped him over the rim. 'You're OK.'

ATV's most recent science fiction series is just coming to the end of its run. Will it return to our screens again in the same way as *Star Trek* and *Dr Who*? In this article JOHN BROSNAN takes a closer look at *Space 1999*



'*Space 1999* swings right out of any conventional sci-fi dimension,' raves the ATV press release, 'at the same time taking advantage of all the scientific facts that are known, such as the existence of a phenomenon known as a "black sun", a mass of gaseous substance developing into an impenetrable ball from a burned-out asteroid, with such tremendous gravitation that it pulls everything into it, even light. Anything near it simply disappears. It upsets all theories of existence, even time. This provides the background to one episode. Time ceases to have any meaning. The players find themselves in eternity, with the sudden conviction that the whole Universe is a living thought.'

Yes, and no doubt contained in the mind of Sir Lew Grade. The above waffle unfortunately gives a true insight into the sort of fuzzy thinking that was behind *Space 1999*. Anyone hoping that the producers might make even a small attempt to be scientifically accurate would have been immediately brought down to Earth (sorry) after reading all that about a 'black sun'. Now, I've heard of neutron stars and black holes but a *burnt-out asteroid*? Out of which science text book did they get that one, I wonder.

'Space is full of unexpected objects', continues the press release unashamedly. 'There is always the risk of collision with asteroids and other planets. Every day brings new and frightening danger.' (Quick, duck! Here comes Jupiter! Whew, just missed us!) 'And there is drama on the moon itself, between the people on it, with the birth of the first baby in space and the human relationships. These are real people, not puppets there simply to provide the elements for gripping science fiction adventures. Moon Base Alpha is no small complex. It is a colony of its own, consisting of 300 men and women who have been working on scientific tasks. This provides a deep well of characters who need to be seen in only one episode. And there are beautiful girls by the score to fulfil the various tasks from nursing to control operators.' Wow, not only characters but beautiful girls as well! But the key sentence there is the one about them being real people and not puppets—a less than subtle attempt to persuade the reader that the producers have put their puppet days well and truly behind them and are now concerned with human relations. The producers of *Space 1999* are, of course, Gerry and Sylvia Anderson, the husband and wife team that made all those successful puppet series like *Supercar* and *Thunderbirds*.

Gerry Anderson originally started in the film industry as a cutting-room assistant before progressing to a television director. During this period he became interested in puppets and decided that great advances were possible in the field of puppet films. After fifteen years in the industry he formed his own company A P Films and began making puppet films for television utilising a host of sophisticated electronic techniques, including the synchronisation of puppets' lip movements with the dialogue. It was at this stage that Sylvia joined the company as a general assistant and her tasks soon included helping to write the scripts, providing the voices for many of the characters and directing the dialogue. She was eventually promoted to Company Director and then became Mrs Gerry Anderson. The company produced several series of puppet films, such as *Supercar, Fireball XL-5, Stingray, Captain Scarlet and the Mysterons, Joe 90, The Secret Service* and their best known show, *Thunderbirds,* all of which were financially successful. The shows were always technically impressive but tended to be rather bland in their scripts and lacked that charming eccentricity that is usually present in so many British children's programmes. One reason for this was that the Andersons, aiming at the American tv market as well as the British, were forced to keep the stories palatable for overseas consumption (it also meant that the puppets always spoke with grating pseudo-American accents).

In 1969 the Andersons made *Doppleganger,* a live action sf film full of fine special effects but with a weak script and poor characterisation, defects which were to be repeated in their first live action tv series, *UFO*. In the latter it almost seemed as if the actors were deliberately made up and costumed to resemble puppets as closely as possible and at times you could swear you saw strings. Unfortunately, despite their protestations to the contrary, they still haven't been able to create any real flesh-and-blood characters for *Space 1999*, or at least they haven't in the few episodes I've seen at the time of writing, despite having the services of a much better group of actors.

The three principal characters are John Koenig, the commander of Moon Base Alpha, played by Martin Landau; Dr Helena Russell, chief of the medical section, played by Barbara Bain; and Professor Bergman played by Barry Morse. Describing Koenig the press release says: 'As a man, it might be said, there are two streaks in him. One is his computer-like mind, highly efficient and tending to be ruthless. The other is an introspective strain which is apt to make him moody. He has been married but devotion to duty has led to the break-up of his marriage, a scar that still has searing moments for him and affects his cautious relationship with women.' Well, I've been keeping a close watch for one of those 'searing moments' but so far no luck. Perhaps they're saving them up for later in the series. Actually I have a sneaking suspicion that with Koenig they were trying to produce a Mr Spock-type character, what with his computer-like mind and so on, and in fact Landau was probably cast in the role because of his slight resemblance to Leonard Nimoy.

Dr Russell, according to the press release, is also something of an emotional cripple. Of her it says: 'She has been married but her husband, whom she met at medical school and who also became involved in space medicine, has disappeared on a space mission. Nothing has been heard of him again and she is, to all intents and purposes, a widow. Emotionally, she has retired into the womb of her job but is still nevertheless very feminine . . .' Armed with this exclusive information, I've also watched Miss Bain closely to see how she is going to convey this womb-retreat plus femininity situation, but again I've watched in vain.

As for Professor Bergman, well he's pretty straightforward compared with the others. 'He is to some degree the father-figure of the key personnel on Moon Base Alpha. To some extent, he is very much the proverbial professor. He has a brilliant mind which has been responsible for a number of developments in space science, but he is unworldly in many practical matters.' Apart from that his main problem is that he has a mechanical heart which . . . 'because it responds more slowly to nervous stimuli than does a normal human heart, reduces his reactions to most emotional stresses. Whatever the situation, he is almost entirely physically immune from panic'. Just as the script writers are almost entirely immune from logic. If anyone can explain to me how a sluggish heart is going to prevent its owner from experiencing panic I would like to hear from them. The adrenalin might not be pumped through the system so quickly but I would imagine that the only way you could prevent the brain from experiencing fear or panic would be to shut off the blood supply completely—which wouldn't make for a very lively character.

OK. I know *Space 1999* is supposed to be a children's show and that to expect it to have three-dimensional characters would be somewhat naïve, but *Dr Who* is also a children's show and while its characters are only two-dimensional at best, they at least possess a certain amount of charm and warmth—ingredients that have always been lacking in any Anderson production.

So much for the characters; what about the stories? Well, so far I've only seen three episodes and the first one was obviously an exception as it had to establish the characters, the settings and the situation all at once as well as show off many of the special effects. The effects, which I shall discuss in more detail later, were extremely good and often up to the standards of those in *2001: A Space Odyssey*. However unlike the makers of *2001* they didn't have the services of an Arthur C Clarke to point out scientific inaccuracies, with the result that anyone who knows anything at all about science would have winced several times during the proceedings.

The first episode concerned the detonation of atomic waste dumped on the dark side of the moon which acted as a rocket motor and sent the moon hurtling out of its orbit around Earth and into deep space. All very impressive and spectacular but there were a few small flaws in the scenario; the first one being why there would be atomic waste dumped on the moon in the first place. Obviously, if one is going to the trouble and expense of putting it in a rocket and blasting it off the Earth, it would be more logical, and cheaper, simply to leave it in outer space rather than burn up more expensive fuel by landing it on the moon where it would remain a threat to human life. Nor, of course, would any sensible group of scientists store it in such quantities that it would be possible for it to reach critical mass and explode. Not that the stuff exploded in the normal way—the writers skirted around a lot of tricky questions by having the Moon Base scientists unable to detect the build-up of

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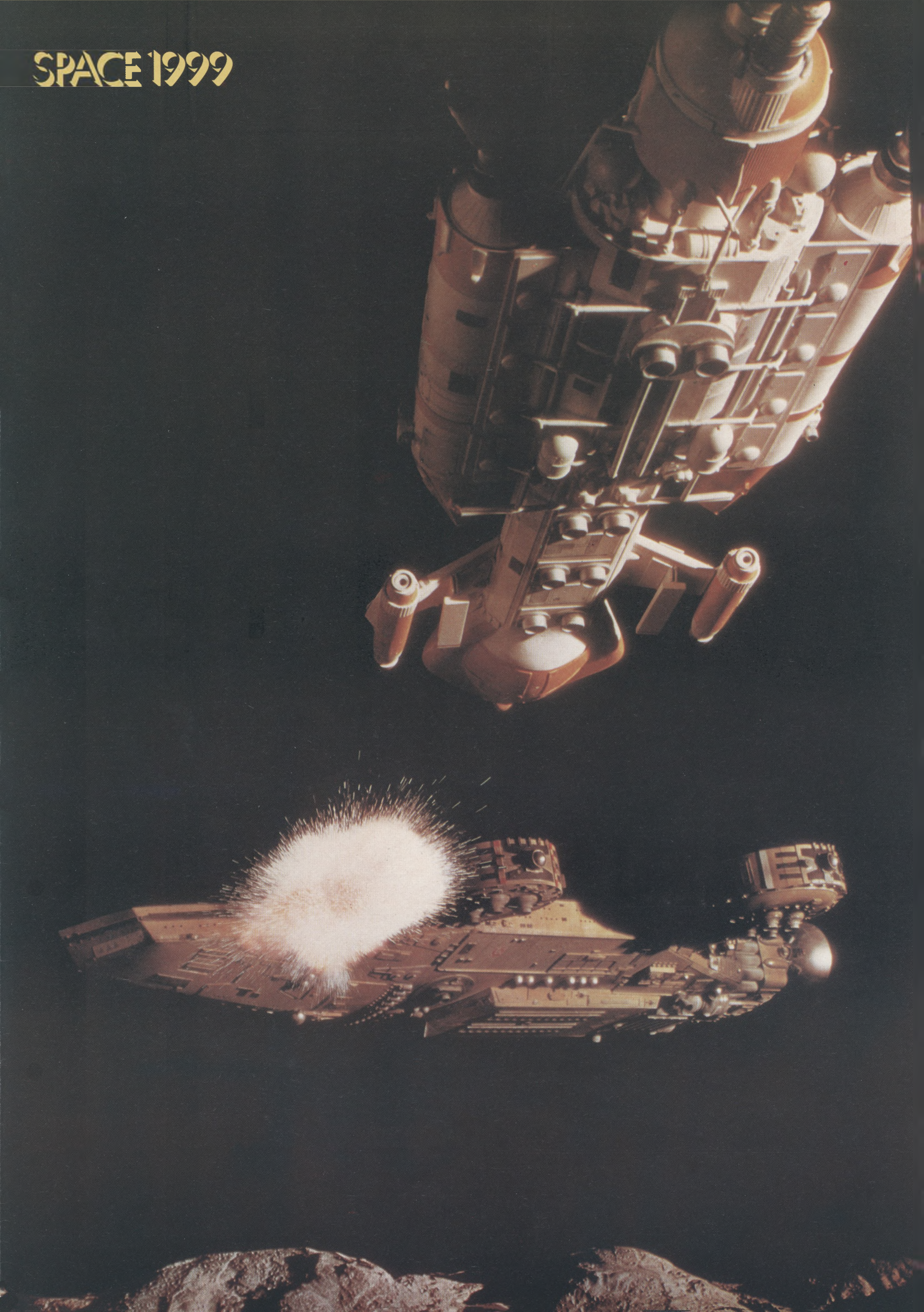
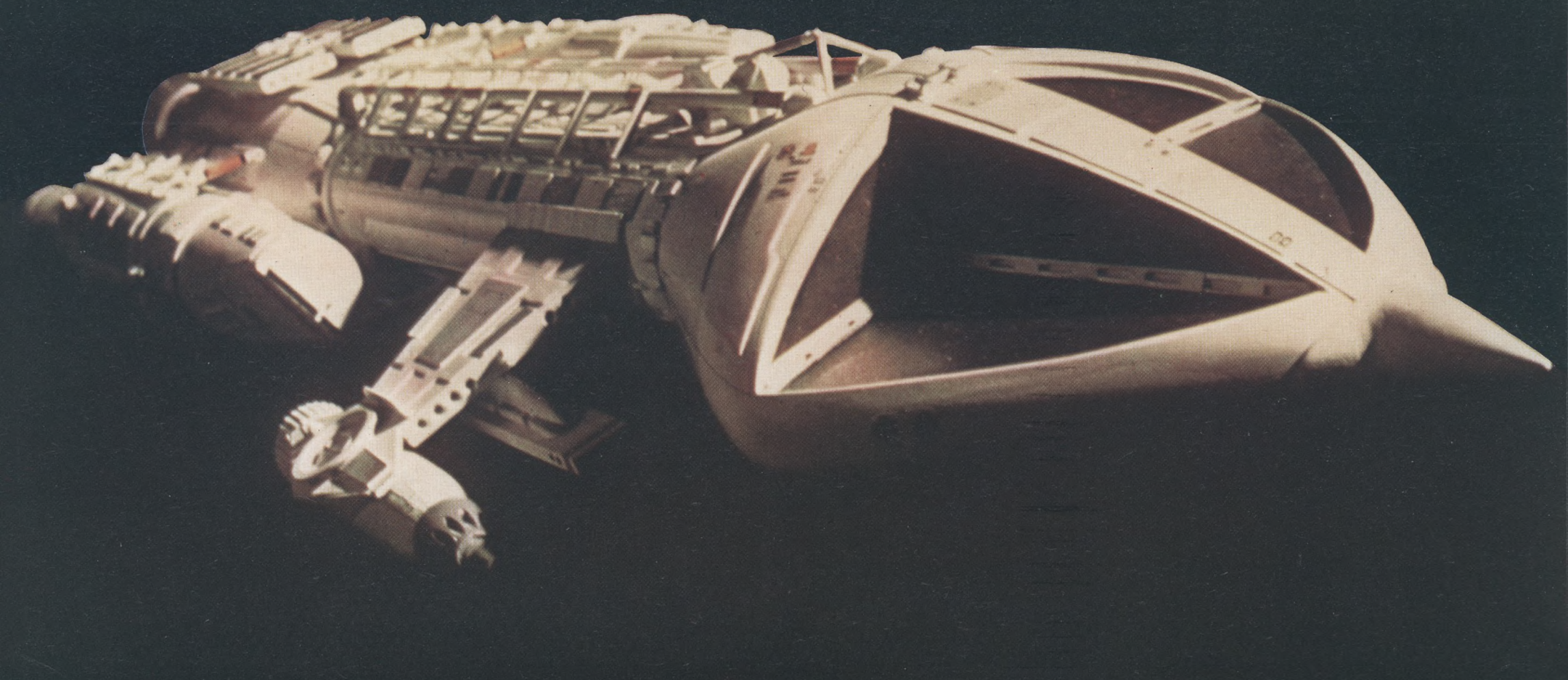
SPACE 1999



SCIENCE FICTION

NEW ENGLISH LIBRARY MONTHLY

BEYOND APOLLO BY BARRY MALZBERG
PAINTING BY ANTHONY ROBERTS OF YOUNG ARTISTS (COURTESY ORBIT BOOKS)



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SPACE 1999

radiation because it manifested itself in a *magnetic* form. Sneaky stuff, this atomic waste! Anyway, after it exploded it sent the moon hurtling into space so fast that the base personnel were actually pinned to the floor by the acceleration. Not only that, but radio contact was soon lost with Earth, which gives you some idea of just how fast old luna was supposed to be travelling. At least the script writers were clued-up enough to mention that the mother planet experienced a few twinges of physical remorse, such as earthquakes and floods, as the moon zoomed away at a rate of knots.

Anyway, the first episode ended with the bewildered Moon Base personnel realising that they had begun what appeared to be a long journey and that from now on they would be all on their own, apart from that 'deep well' of guest stars hidden away somewhere and all those beautiful girls by the score. So I expected the second episode to spend some time showing how the various characters were facing up to the situation and how they were learning to adapt to the knowledge that they would never be able to return to Earth, but no, all this was completely ignored. Instead it was straight into a new story without any apparent link between the two episodes. This second episode produced one of the first guest stars from that deep well, Ian McShane. He played an unfortunate technician who was impregnated by a mysterious, glowing force from Out There which turned him into a total heat absorber, freezing to death anyone he touched. After some futile attempts at assistance, Koenig and his men were finally forced to blast him with their ray guns, which had the effect of turning poor McShane into something resembling a roast potato on legs. Despite this setback he still managed to enter one of the atomic reactors and blow it, and himself, sky-high (or I should say space-high). The glowing force then rose from the ruins and wafted its way heavenward. No one had any idea what the thing could have possibly been but Professor Bergman made the curious suggestion that they may have witnessed the birth of a new star! So that's how those things get started.

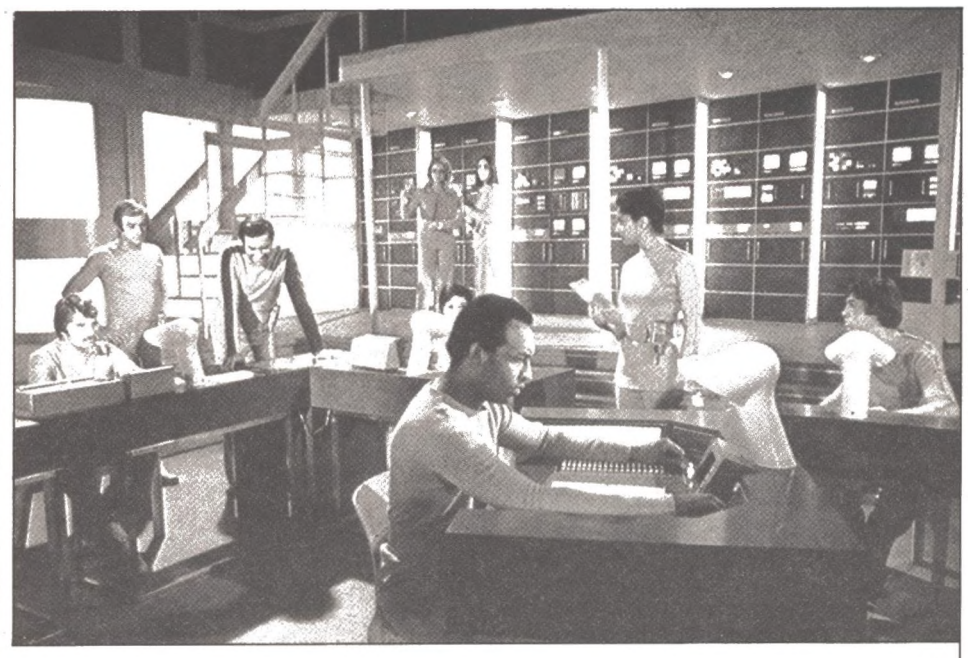
As an sf plot it was an old one, but then most sf plots are these days. Unfortunately it wasn't handled with any originality though I did like the scene where McShane was walking along a corridor and causing the lights to wink out eerily as he pased by. Actually, it could have been any episode of *Star Trek*, albeit a rather lavish one. The third episode, however, was something different and took *Space 1999* out of the realm of pseudo-scientific gobbledegook and into that of pseudo-*mystical* gobbledegook. It started off conventionally enough with our wandering moon being threatened by an asteroid which the Moon Base personnel were obliged to destroy with a number of atomic bombs. But the resulting cloud of atomic dust obscured the approach of a large planet until it was almost too late (that's the trouble with outer space, you never know when a planet is going to sneak up on you). As it was too large to blow up Koenig and his crew decided to lay out a string of atomic bombs in the area between the two worlds in the hope that the shock waves from the explosions would act as a buffer (*shock* waves in outer space? Once again the mind boggles). But before the bombs could be detonated Koenig's ship was swallowed (yes, swallowed) by a larger one from the mystery planet. Inside it Koenig found himself face to face with Margaret Leighton, in a black veil, who informed him that she was queen of the planet below and that he must stop the planned explosions. She also told him that their meeting together had been determined aeons ago far up the backwaters of eternity and that the moon and her world were fated to collide but no harm would come to the Moon Base inhabitants. Well, Koenig swallowed all of that without too much trouble (so much for his 'computer-like' mind) and returned to the Base to pass on the bizarre information to his companions. Quite understandably they were not too impressed by what he had to tell them and decided that he had flipped his wig. After pretending to follow his orders they put him under sedation but the old Queen managed to warn him telepathically about what was going on. Koenig then succeeded in preventing the bombs from being detonated with the result that the two worlds got closer and closer until they touched. But instead of the expected collision the mystery planet then just simply disappeared (poof!) leaving the moon untouched. The episode ended with the Moon Base people looking awed and mystified by it all, while the viewer was left simply mystified. Even *Star Trek* at its silliest never got *that* silly.

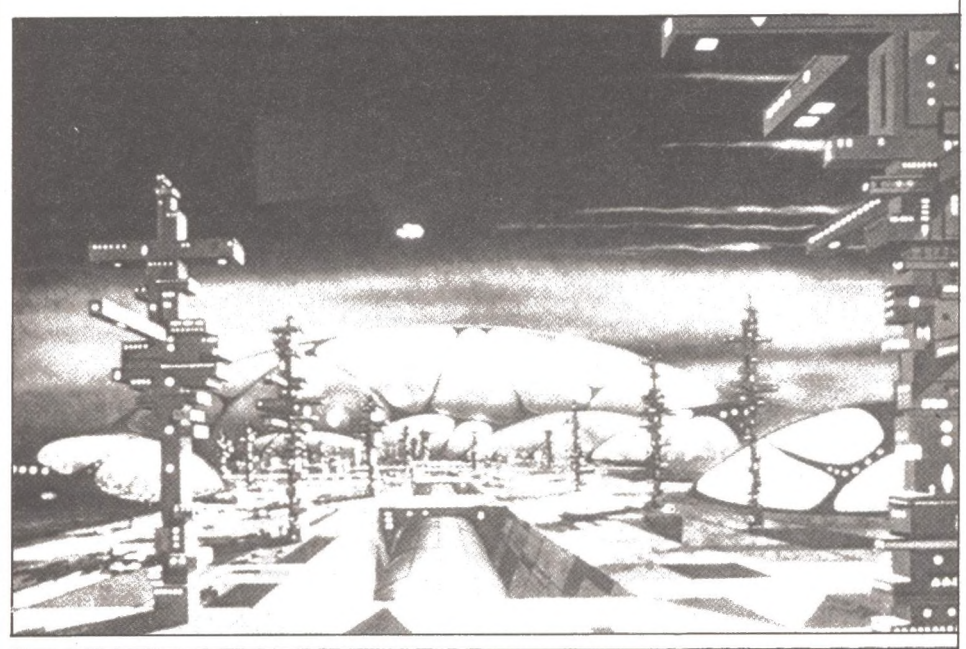
Can one say anything good about the series at all? Yes, thank goodness. The special effects, as I mentioned earlier, are very impressive thanks mainly to Brian Johnson, the effects designer. Johnson started in special effects in 1958 when he joined Les Bowie, one of Britain's top effects men, as an assistant. After a two-year stint in the Air Force from 1959 to 1961 Johnson rejoined Bowie who by that time had formed his own company, Bowie Films, which specialised in effects work. Bowie Films was basically a group of freelance effects men working together and according to Johnson nearly three quarters of all the British experts were involved at one time or another. In the mid-sixties, when freelance work became scarce, Johnson left Bowie Films to work with the Andersons' company which at that time was starting work on *Thunderbirds*. During this period Johnson became involved with the producton of *2001: A Space Odyssey* and spent almost two years working on various aspects of the effects as part of the large team of effects men under the supervision of experts Wally Veevers, Con Pederson, Tom Howard and Douglas Trumbull. The influence of *2001* is more than evident in the design of both the sets and models used in *Space 1999* but, of course, the vast difference in budgets and available time has meant that the methods used in creating the effects have also differed greatly. Johnson feels that some of the shots in *Space 1999* stand up to *2001* in quality but he admits that a few of the shots are 'absolutely diabolical' (so far I haven't noticed any of these). Actually, despite *Space 1999* looking much more impressive than the Andersons' previous live action series *UFO*, the budget for the effects on the present series is much less and Johnson's team of twelve men is also only a fraction of the number that worked on *UFO*. Yet Johnson and his men have succeeded in producing some of the best special effects ever seen on television, and as far as televised *sf* is concerned, their work is certainly a huge improvement on that which appeared in *Star Trek*.

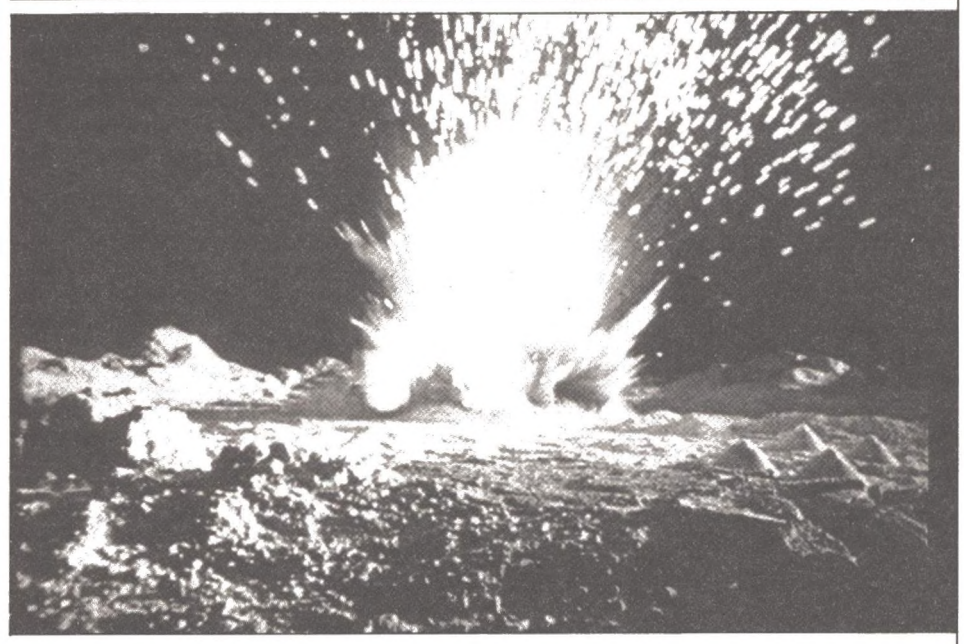
Talking of that series, Johnson said: 'In that the basic model of the starship *Enterprise* was fourteen feet long but when you see the material they got, they might as well have used one only three feet long. I like *Star Trek* but when you watch the re-runs it's obvious that many of their effects were cheaply done and now seem dated.' Unlike *2001* which employed a model spaceship over fifty feet long the largest model ship in *Space 1999* is only four feet long. The Moon Base itself is twenty-four feet wide which is really quite small for such a detailed model and one that is supposed to represent an area two miles in diameter. In filming small models the rule is to film as fast as possible otherwise they will seem to move jerkily. The models in *Space 1999* are filmed at 120 frames a second using high-speed Mitchell cameras. This is five times normal speed but even so Johnson doesn't think this is sufficient, if it wasn't so expensive (naturally you use up film five times as fast) he would like to film at much higher speeds. But he does believe that shooting models in an outer space setting is a big advantage. Against a totally black background, apart from the stars, models seem much more realistic than when they're photographed against a setting which includes blue sky, model trees and so on. There's also the big advantage that there's unlikely to be any water shots in space, something that always causes effects men to tear their hair in frustration as there is never any way one can miniaturise water for the camera. No matter how cleverly built the model is, the illusion is always spoilt by the floating droplets of water. 'That's one of the first things I said when I started on *Space 1999*,' said Johnson. 'Under no circumstances do we have any water.'

The man who has the job of executing all of Johnson's effects designs is Nick Allder who began his career as an assistant rostrum cameraman with a film company making commercials before he switched to special effects (some of the feature films he has since worked on include *Khartoum, A Man for All Seasons, The Battle of Britain* and *The Music Lovers*). Other important members of the *Space 1999* technical team are Cyril Forster, the special effects art director, and Keith Wilson, the art director for all the full-scale sets and also the costumes. The sleek, futuristic Moon Base sets were constructed on a modular principle so that they could be fitted together in an almost endless number of variations, with the result that the producers get a wide variety of sets for the price of one. It just seems a pity that this wealth of technical and artistic talent couldn't have been utilised for something rather more worthy than *Space 1999*.

From the three episodes that I have so far seen I think one can form a fairly accurate picture of the series as a whole—competent actors, exceptional effects and impressive sets all wasted through weak scripts—though it's always possible that later episodes will prove me wrong. It's a shame that the producers couldn't have employed a genuine science fiction writer or, failing that, someone who knows something about science to act as a technical advisor (such as the way that Dr Christopher Evans is the adviser for *The Tomorrow People*). As it is, a marvellous opportunity to produce an effective science fiction tv series has been apparently wasted.







NEWS BY JULIE DAVIS

British Science Fiction Association
The British Science Fiction Association, which was moribund for fifteen months due to problems with the committee of the time, is now alive and well. A new committee has taken over and the affairs of the society have been put in order. *Vector*, the magazine of the BSFA, is to be published five times a year, together with a newsletter. Issues 69 and 70 appeared in August and November respectively and No 71 was published before Christmas. Annual subscriptions to the BSFA, entitling the member to receive *Vector*, newsletters, a Yearbook and other publications, is £3. All enquiries about the BSFA or applications for membership should be addressed to: David Symes at Green Pastures, Kentisburyford, Nr Barnstaple, North Devon EX31 4NN.

Anyone who wants to see a sample copy of *Vector* should send 50p to the editor: Christopher Fowler at 72 Kenilworth Avenue, Southcote, Reading RG3 3DN.

All enquiries will be dealt with efficiently and without delay.

Are Space Colonies Feasible?
If Man was to become sufficiently motivated today, in a few decades a large contingent of the human population could be living in luxurious colonies in space. This scenario, originally envisaged by Professor Gerard O'Neill, a nuclear physicist, is now being actively pursued by members of the L-5 Society; a society devoted to the study of space colonisation at the L-5 libration point of the earth-moon space system. A branch of the L-5 Society was recently formed in the UK and people interested in joining these studies are urged to contact the UK co-ordinator, Phillip J Parker, at 24 Fifth Avenue, Kidsgrove, Stoke-on-Trent.

The space colonies would have a virtually unlimited clean source of energy, an abundance and variety of food and material goods, freedom to travel and independence from large-scale government. The initial colonies would provide living accommodation (of a luxury standard) for up to 10,000 people and would provide plenty of jobs, shops, schools, libraries and other buildings. The colonies would also have their own rivers and lakes, stocked with fish, parklands (with birds, animals, trees) and there could even be hills and possibly mountains. Is this just a fanciful dream? No! The space engineering ability exists today and many detailed technical reports are now flowing out of universities and organisations in the USA, where the concept was born. There are participants in these studies from such institutions as the Massachusetts Institute of Technology, California Institute of Technology, Princeton University, New York Polytechnic and, even, the space agency, NASA.

The first stage of the space colony, called Model I or 'Sunflower', could be built before the end of the 1980s. It would require about 500 space shuttle vehicle launches (one of which is due to make its first space flight in 1979) over a period of five years to place into position the initial 10,000 tons of material and the 2,000 engineers necessary to build the space colony. About 200 mining engineers would be sent to the Moon, to set up a mining colony, from where they would ship out the abundant lunar minerals that would be required to complete construction of the 'Sunflower', 10,000 people colony. It is calculated that the first 'Sunflower' colony would be about half a mile in length and 600 feet in diameter and would weigh around 500,000 tons. Two similar cylinders make up the colony and they would rotate, once every 20 seconds around a compression tower and tension cable, to provide artificial gravity. A large dish-shaped collector would receive abundant solar energy and convert it into electrical energy while three large planar mirrors, running at an angle of about 60° from the colony provide direct sunlight into the 'valleys' of the space colony.

This initial space colony, costing about £10,000 million, would be the centre from where larger and better space colonies would be built using resources mined on the Moon or from the Asteroid Belt. Some of the Model II colonies (built by the 10,000 people of Model I) could be about 16 miles long, 4 miles in diameter and house up to 100,000 people. They would take up to six years to build. Hence, it can be seen that the Model I sets the scene for a 'bootstrap' process whereby future colonies become independent of Earth for construction.

Star Trek MiniCon
Star Trek fans will be pleased to learn of a one-day Star Trek mini convention to be held in Leeds on 14 February this year. For further details write to Mrs Kathy Owens of 43 Southlawn Road, Holmchurch, Essex.

SF IN THE CINEMA

The Ultimate Warrior
Reviewed by John Brosnan

It's long been a tradition in Hollywood movies that when the hero is being pursued on foot by a horde of villains he should always be accompanied by a woman who stumbles and sprains her ankle at a crucial moment. However, in *The Ultimate Warrior* poor Yul Brynner gets saddled with one who slows him down by having an attack of labour pains! Not that this perturbs Brynner, who plays the warrior of the title, for more than a moment or two. Not even pausing to boil water he delivers the baby in about five seconds flat while practically on the run, then calmly despatches several of his pursuers with the same knife that he had just used to cut the umbilical cord.

In a way *The Ultimate Warrior* can be described as the first Kung Fu science fiction film. There's not really any Kung Fu in the film but it does follow the usual formula of that *genre*: two opposing camps each with their own champions who, after a series of skirmishes, fight it out to the death in the final reel, and it was produced by Fred Weintraub and Paul Heller, the same team that made the Bruce Lee epic *Enter the Dragon*. But *The Ultimate Warrior*, written and directed by Robert Clouse, is far superior to that film; it's hard, brutal and cynical but it's also rather good science fiction and, most important, it's an *unpretentious* sf film, which is pretty rare.

It's set in New York of 2022, a city which is in a state of rampant decay, and concerns a group of people who have banded together in a barricaded street for mutual protection against the bands of thugs who roam outside. Their leader, played by Max von Sydow, is called the Baron (the film was originally entitled *The Barony*) and the story begins with him deciding to hire the services of a sort of super-samurai who has been advertising his availability by standing immobile outside a nearby museum for two whole days. This is Yul Brynner, of course, who is remarkably well-preserved for a man who will soon be 60 years old. He quickly proves his worth to the commune by killing several of the marauding street people with hardly a flicker of expression on his face. This sort of role suits Brynner down to the ground, he may not be the world's greatest actor but he's very good at looking imposing. In this film he plays the same sort of irresistible force that he did in *Westworld* and he does it so well you really do believe he's capable of casually despatching the thirty or so men he does during the film (I lost count at around twenty). However, in *Westworld* he was supposed to be a robot whereas in this he is flesh and blood, something he graphically proves in the film's grisly climax.

What I particularly liked about the film was it's lack of sentimentality (except for a lapse at the end). The people in the compound turn out to be just as cruel and stupid as the people outside and even their humanistic leader makes mistakes and is capable of callousness, while the saintly plant-lover who grows their food turns into a raging killer when someone steps on his tomatoes.

The reason for the world's decline into this savage state is kept vague but whatever happened it was apparently sudden – an impression suggested by a rather disturbing sequence in a New York subway tunnel when Brynner and the girl pass an exit gate jammed with a huge pile of cobwebbed skeletons. The catastrophe has also affected vegetation as there is cannibalism in the countryside as well as in the city and it is only the commune's plant-lover who has succeeded in getting seeds to sprout again. It's with these seeds that Brynner and the girl go off, surrounded by unfortunate clichés, to start a new world.

The Ultimate Warrior makes *Rollerball* look like 'Stars on Sunday' and while it may be just another nasty, exploitation film, at least, unlike *Rollerball*, it isn't hypocritical about its intentions.

PAPERBACKS ON TRIAL COMPILED BY MAXIM JAKUBOWSKI

†: Atrocious. ‡: Bad. *: Mediocre. **: Average. ***: Good. ****: Very Good. *****: Masterpiece.

		BRIAN ALDISS	MARTIN AMIS THE OBSERVER	JOHN CLUTE MAGAZINE OF F & SF; NEW WORLDS	MALCOLM EDWARDS SF MONTHLY; FOUNDATION	M JOHN HARRISON NEW WORLDS	MAXIM JAKUBOWSKI NEW SCIENTIST; NEW BEHAVIOUR; SF MONTHLY	PETER NICHOLLS FOUNDATION	HENRY-LUC PLANCHAT L'AUBE ENCLAVEE (FRANCE)	CHRIS PRIEST	BRAM STOKES DARK THEY WERE AND GOLDEN EYED
(QUARTET)	THE EMBEDDING IAN WATSON	***	*****	*****	***	*	****	*****	*****	****	
(PAN)	FRANKENSTEIN UNBOUND BRIAN ALDISS		****		****		**	*****	***	*****	****
(PANTHER)	THE DISPOSSESSED URSULA LE GUIN	****	***	****	*****	*	*	*****	*****	*****	*****
(QUARTET)	THE FIFTH HEAD OF CERBERUS GENE WOLFE	*	***	****	*****	***	****	*****	*****		***
(PANTHER)	CRASH J G BALLARD	‡	*****	***		‡	*****	****	****	*****	****
(SPHERE)	TACTICS OF MISTAKE GORDON DICKSON			****		***	**	***			****
(NEL)	THE INVERTED WORLD CHRIS PRIEST	**	*		***		****	****	***		*****
(CORGI)	The Doors of His Face, The Lamps of His Mouth ROGER ZELAZNY	*	**	***	***	***	***	*****	****		****
(PENGUIN)	FINAL STAGE FERMAN & MALZBERG (ED)			****	***	**	**	***			****
(CORONET)	THE DURDANE TRILOGY JACK VANCE		**	***	***	*	**	****			*****
(QUARTET)	IMAGE OF THE BEAST & BLOWN PHILIP JOSE FARMER		**	***	‡	**	***	*	***	†	*****
(CORGI)	ALL THE STARS A STAGE JAMES BLISH	**	***	**	*	†		**	***		
(NEL)	STOPWATCH GEORGE HAY (ED)	**	***		†		*	**			***
(BANTAM)	DHALGREN SAMUEL DELANY	‡		*Intent ****Concept		†	****			*	†Plot *****Writing
(PAN)	THE EIGHTY MINUTE HOUR BRIAN ALDISS		***	*	*	‡	†	***	****	*	

ON THE WAY TO THE STARS

PART THREE

INTO THE ABYSS

BY PETER WESTON

Space travel, always a favourite science fiction theme, will one day enable us to reach the stars

In my lifetime some bold explorer will reach lonely Pluto and look beyond to the far stars. But can we ever hope to cross that tremendous abyss?

Science fiction writers certainly think so. Most space stories these days are set a very long way from home, and answers were suggested long ago to the problems of crossing these enormous distances while remembering the comparatively short lifetimes of human passengers.

Much will depend upon our technology. We don't know how fast our ships will be able to travel but in the last few years some ideas are starting to crystallise about possible propulsion systems. So let's consider four ways in which sf authors have voyaged to the nearest other star, Alpha Centauri.

Type of Spaceship	Propulsion method	Likely velocity	Duration of trip
1. Generation ship	Ion drive? Fusion engines? Photon drive?	Less than 1% of light speed (about 2,000 miles per second)	Centuries
2. Suspended animation concept	Fusion engines? Solar sails? Nuclear pulse-jet?	Up to about 20% of light speed	Decades
3. Relativistic starship	Interstellar ram-scoop?	Over 50% of light speed	3-5 years subjective time
4. FTL drive	Space-warps? Tachyon Drive?	Light speed or some multiple	Instantaneous?

All of those propulsion methods are good science fictional concepts, but it is a sign of the times that all have now been discussed in respectable scientific journals. We are in about the same stage regarding interstellar travel as was the possibility of a moon-rocket at the start of the century. The technology does not yet exist, but we are beginning to understand how to do it.

'At the speeds reached by the Apollo astronauts, over 25,000 mph, it would take an impossibly long time to reach other star systems, perhaps tens of thousands of years'

In 1941 Robert Heinlein's two linked stories 'Universe' and 'Common Sense' dazzled readers with the idea of a gigantic spaceship in which generations of passengers had been born and died during a voyage between the stars, and over the years had long forgotten their origins and their destination. He was not the first writer to use the idea, though his version is the one most remembered, and he was certainly not the last. The stories are available as *Orphans of the Sky*, and a half-dozen later writers have played variations on the same theme, most notably perhaps Brian Aldiss in *Non-Stop* and Samuel R Delany's *The Ballad of Beta-2*.

At the speeds reached by the Apollo astronauts, over 25,000 mph, it would take an impossibly long time to reach other star systems, perhaps tens of thousands of years. Theoretical advances in prospect promise to shorten that time and perhaps within this century we may be able to attain as much as 1% of the speed of light—over three hundred times faster than Saturn V.

It is still a snail's pace on the cosmic scale; a trip to Centauri would still take centuries. Clearly our astronauts will die of old age unless we can make a ship big enough to support them and their descendants through all the long years of the journey. It could be done. Simak's 'Target Generation' clearly follows the classic pattern of an immense metal cylinder, miles in length, in which an inward-looking culture has come to regard Earth as a myth; as with Heinlein's story, the Ship is the Universe.

Millions of tons of metal, hundreds of people, animals, plants, a full closed-cycle ecology to be maintained for so long! But what a sterile environment! In many ways, how much like a great ringing prison in which whole generations must spend their life sentences! No wonder that in sf the voyage invariably goes wrong; there are mutinies, the ship descends to barbarism and all knowledge of their purpose becomes forgotten.

In the last few years writers have found ways to improve conditions; spaceships after all do not have to take the orthodox form and it would be far better to create a genuine miniature world in which life would not be all that different from a normal planetary environment.

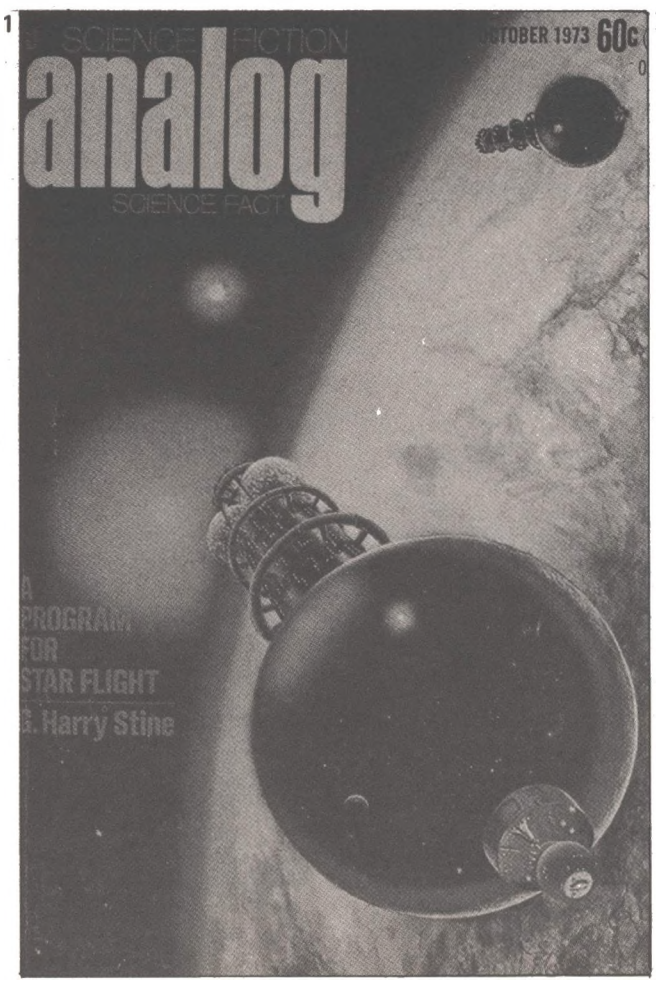
The previous article (*SFM* Vol 2 No 10) described Larry Niven's inside-out asteroids. As Niven himself has suggested, it would be quite feasible to boost such a planetoid into interstellar space, a true generation ship. It would be a home-from-home among the stars except that if the inhabitants wanted to see the sky they would need to descend into their cellars!

Arthur C Clarke's *Rendezvous with Rama* describes just such an object; and, as another variant, Harry Harrison's *Captive Universe* is written with an inside-viewpoint as one of the human cargo gradually discovers his purpose.

From generation ship we increase our speed by an order of magnitude so that the journey time to Centauri drops to forty to fifty years. That is still a very long time to be trapped in a steel coffin. Ah yes, says science fiction, but if people can be put into a state of suspended animation their

1 Colony starships in orbit around their target planet. Each ship carries up to 2,000 people on a voyage that may last for generations (1973)

2 A slightly less realistic impression of a similar 'ark of space'



need for food, air, water and so on will drop dramatically, and they will perhaps spend only a few months of the voyage awake, on watch, and sleep the remaining years away.

Even though we have no way of inducing hibernation in man, it's an attractive idea. Cordwainer Smith uses it in 'The Lady who Sailed the Soul', in which passengers travel frozen while a lone pilot guides a vast ship powered by solar sails that are thousands of square miles in area. A similar combination of cold-sleep and solar sails appears in Niven and Pournelle's recent *Mote in God's Eye*, while a first-class treatment is given by Poul Anderson in *Orbit Unlimited*.

And then on to the next rung in the velocity ladder. At speeds of 50% that of light, the consequences of Einsteinian physics become increasingly important. Time itself starts to play tricks.

Something known as the Lorenz-Fitzgerald equation means that for those actually *inside* the starship a journey will not take as long as it seems to the outside world. The effect does not really begin to become noticeable until these high speeds are reached, but then internal, subjective time begins to diverge more and more from external, objective time. The whole subject is quite complex but it does allow extremely long voyages to be undertaken within a human lifetime, *if* the vessel can go fast enough. At 95% of the speed of light the round trip to Centauri takes six weeks, but nine years will have passed on Earth!

Poul Anderson has made better use of this idea than anyone else. In his novel *Tau Zero*, his ship approaches ever-nearer light-speed though it can never reach it:

> '*Leonora Christine* stormed through the galactic nucleus in 20,000 years. To those aboard the time was measured in hours. They were hours of tension while the hull shook and groaned from stress, and the outside view was little more than a blinding, blazing fog.'

In the end billions of years pass outside while only seconds elapse within the vessel. Anderson has also explored the social consequences of the 'time-dilation' effect. In a series of stories beginning with 'Ghetto' in 1954 he portrayed the society of the 'Kith', men and women who crew the starships over the centuries and become completely divorced from the culture of the day; outcasts, cut loose in an unfriendly future.

'Oddly enough the idea of space-warps has recently been given a fresh impetus by the theoretical conception of black holes in space which, if they exist, are genuinely spots where the laws of the universe break down'

Other authors to use relativistic effects include Robert Heinlein and L Ron Hubbard. In the Heinlein novel, *Time for the Stars*, one of a pair of telepathic twins goes aboard an exploratory torch ship while the other stays on Earth. They provide the only system of communication possible across the vast spatial distances. But when the twin returns he is still a young man, while the other is 89.

Hubbard's *To the Stars* was one of his last novels (1950) before he abandoned science fiction for Dianetics. It shows all of his strengths and weaknesses in this story of the privateer *Hound of Heaven* and its hard-bitten crew. Like Anderson's Kith, these star-folk become alienated from the rest of humanity; and their lives degenerate into piracy and plunder. The relativistic effects are well shown, but in one quaint passage it's clear that Hubbard's understanding of Einstein is limited; he thinks of the speed of light as some sort of arbitrary limit, like the 70 mph restriction on a motorway:

> ' "Keep her at least two thousand miles short of Constant", he said, stifling a yawn. "The Deuce has got hot atoms back there all of a sudden. She came up within a thousand half an hour ago and I check-blasted back. I'm bored." '

Finally we come to the subject of FTL drives, ways in which our starships can get around the restrictions of the physical Universe and travel faster than light.

It's worth noting that at present there is no known way of doing this, and only in the last few years have scientists even begun to concede the possibility that maybe, one day, something will be invented to do the job. This has not prevented sf writers from conceiving a weird and wonderful array of FTL gadgetry; in fact it has almost become a point of honour for any major author to concoct his own pet vocabulary. Thus we have Isaac Asimov's hyperspatial jumps, Gordon Dickson's phase-shifts, Cordwainer Smith's planoforming, and so on. Lester del Rey is said to deliberately dream up a new device for each story; for example the following description (from 'Superstition', *Astounding* 1954):

> 'The space-denial generators hummed on monotonously, maintaining the field around the ship where space almost ceased to exist, leaving a subfractional connection with the universe and using the "suction" resulting from imbalance to drive them.'

In Poul Anderson's novel *The Long Way Home* (*Astounding* 1955, and recently reprinted in paperback) a space-drive is discovered which is apparently instantaneous in effect. An experimental ship is built and launched and travels some 5,000 light years among the nearby stars, only to discover upon returning to Earth, that the drive is *not* instantaneous after all. Although no time elapses for the crew during their journey they have only travelled at the speed of light and 5,000 years have passed while they have been away. There can be no return, and the novel describes the way in which these twentieth-century Americans attempt to adjust to the strange and decadent world of the future.

Murray Leinster's 'Med Ship' series has something better —an overdrive which propels ships at about thirty times the speed of light. Even so, a journey to another star would still take an appreciable time; six weeks to Centauri for instance. Leinster also adds a refinement to his stories which as far as I know is unique; the landing grid.

This is a half-mile high, ground-based web of girders which draws power from the ionosphere and puts out a force field to bring ships down from orbit to the surface. It avoids the need for messy chemical step-rockets or clumsy boosters.

Hyperdrives and overdrives abound as we penetrate deeper into classic science fiction, but to avoid making matters too easy for their protagonists most authors stipulate these will not work in a strong gravity field and ships must head for the outer parts of a Solar System before cutting in their FTL systems. In Niven and Pournelle's *Mote in God's Eye* there is in fact a specific location around each star, the 'Crazy Eddy Point'.

From here it is only a short step to another much-loved device, the space-warp. In most versions the theory suggests it is possible to travel between certain points in space, places where the structure of the universe is in some way warped or distorted. Examples can be found in Bob Shaw's *Night Walk* and, particularly well done, in Heinlein's *Starman Jones*. Here the idea is that a starship must be travelling in precisely the right direction at the correct speed when it hits one of these 'gateways':

> ' "We're getting up close to the speed of light, up against the Einstein Wall; pretty soon we'll be squeezed through like a watermelon seed between your finger and thumb and we'll come out near Theta Centauri fifty-eight light years away." '

Oddly enough the idea of space-warps has recently been given a fresh impetus by the theoretical conception of black holes in space which, if they exist, are genuinely spots where the laws of the universe break down. First among the stampede of authors to collar this concept was probably Joe Haldeman in 'Hero' (*Analog*, 1972) and in his subsequent 'Forever War' series of stories. His ships dive into these 'collapsars' and emerge somewhere else.

There is one more step. This is interstellar travel by means of matter transmitter. Two important treatments of the idea are Poul Anderson's 'We Have Fed Our Sea' (*Astounding*, 1958), in paperback as *The Enemy Stars*, and Robert Heinlein's *Tunnel in the Sky*. Both however, overlap from the theme of this series and will be discussed at more length in a forthcoming article on the whole subject of matter transmission.

'A solar sail is really a sort of photon drive because it reflects light in the same way as a conventional ocean-going sail is driven by the wind'

All of the sub-light propulsion methods we have discussed are basically rockets of one sort or another, even though they are far in advance of present-day primitive chemical boosters.

An ion drive for instance, pushes electrically-charged particles to very high speeds and throws them out at the rear of the spaceship to provide forward thrust. Highly efficient, it can be used continuously for long periods, but for interstellar journeys this does not seem very practical because it would take such a very long time to build up the high velocities required.

A photon rocket would emit photons—individual quanta of light—rather than ions, and might be more effective except that no one has any idea how to build such a device save for a vague idea that lasers might help. A solar sail is really a sort of photon drive because it reflects light in the same way as a conventional ocean-going sail is driven by the wind.

The two most immediately-promising concepts are the nuclear pulse-jet and the interstellar ram-scoop. The first got as far as a NASA study entitled Project Orion, and it would basically involve the rapid detonation of H-bombs at the rear of the ship, pushing it forward on the resulting shock waves. Even now the British Interplanetry Society is working on a detailed design study of a star-probe using an engine of this sort, It could then suggest, be built within today's technology.

Ram-scoops will be familiar to readers of Larry Niven's 'Known Space' series, and they also propel *Leonora Christine* in Anderson's *Tau Zero*. The concept seems sound; even between the stars there is a certain amount of gas and at high enough speeds it could be swept up and burnt by a suitable vessel. The great advantage of the ram-scoop is that its speed does not depend upon the amount of fuel it can carry, and for that reason it may ultimately be the most promising idea of all. Of course, there are still a few minor details to attend to; how to build a fusion engine, for example, and then how to generate an electro-magnetic 'scoop' able to collect interstellar matter. But no doubt these problems will be solved in good time!

'Rockets can only boost for a few hours because of their need to carry enormous amounts of fuel, but a space drive putting out a constant IG can reach Venus in only thirty-six hours and Neptune in nine days!'

What we really need at the moment is a true space drive. We need something which does not depend upon the rocket principle of throwing out reaction mass but in some way acts directly upon the 'fabric' of space-time.

Science fiction abounds with such gadgets and in 1960 it seemed for a moment as if one might have actually been invented. John Campbell was highly enthusiastic about the 'Dean Drive', a contraption of revolving weights and levers which he thought could be an antigravity machine. Needless to say Dean's unit didn't work, though it had some interesting side-effects, and a similar experiment seems to have been carried out recently with precessing flywheels by Professor Eric Laithwaite of Imperial College, London.

Campbell's publicity led to a spate of stories around the idea of a reactionless drive, of which Harry Harrison's excellent *The Daleth Effect* is a late example. For Campbell pointed out, correctly, that it would not be necessary to retain the orthodox conception of a spaceship as a torpedo-shaped streamlined cylinder. If the load can be lifted slowly and steadily from the ground, almost any old air-tight box will serve! Why not a modern atomic submarine, Campbell suggested?

He showed that at constant acceleration the planets come within easy reach. Rockets can only boost for a few hours because of their need to carry enormous amounts of fuel, but a space drive putting out a constant IG can reach Venus in only thirty-six hours and Neptune in nine days! At the same acceleration it would take about a year to reach close to the speed of light. How about mounting such a drive upon Larry Niven's hollow asteroid and setting off in a *really* big spaceship?

Still, even this is not new in science fiction. In 1950 one of Campbell's own authors, James Blish, was describing how entire cities could travel between worlds (in book form as the 'Cities in Flight' series). His 'spindizzies' are among the most obliging of all inventions, providing not only a space drive but enabling the cities to ignore the restrictions of speed-of-light and at the same time producing as a bonus a useful force-shield to hold in the air and shield out radiations from interstellar space.

Eventually Blish started to move entire worlds around—the 'dirigible world' of He in *Earthman, Come Home* and *Clash of Cymbals*. This too is a popular idea among our authors. It is also found notably in the short story 'Mother of Invention' by Tom Godwin (*Astounding* 1953), where they use magnets, and in a little-known piece of Campbell's own, the only one he wrote after 1938, entitled 'The Idealists' (1953). In the latter it is found that spatial 'wakes' are left after planets had been moved over seventy thousand years earlier! Other good treatments can be found in Fritz Leiber's *The Wanderer*, (1965), not to mention the world-smashing exploits of Edmond Hamilton and Doc Smith!

As for Larry Niven, he shows (in *Ringworld*) an entire system of five worlds, the puppeteer 'rosette', being flown in formation right out of this Galaxy altogether. But for the ultimate, as usual, no one can top Arthur C Clarke as this passage from *City and the Stars* will make clear:

> 'They had assembled a fleet before which imagination quailed. Its flagships were suns, its smallest vessels, planets. An entire globular cluster, with all its solar systems and all their teeming worlds, was about to be launched across infinity.
> 'The long line of fire smashed through the heart of the Universe, leaping from star to star. In a moment of time a thousand suns had died, feeding their energies to the monstrous shape that had torn along the axis of the Galaxy, and was now receding into the abyss . . .'

In the final part of this series, 'Galactic Empires', we look at the sort of societies man will establish when he succeeds in reaching the stars.

3 A ship is brought down from orbit by Murray Leinster's famous 'landing grid'

4 Given a true space drive, a modern atomic submarine makes an ideal spaceship!

5 With a *really* powerful device it is possible to lift whole cities into interstellar space!

6 Almost the ultimate in spaceships: the self-maintaining artificial world written about by Larry Niven and Arthur C Clarke

3

analog

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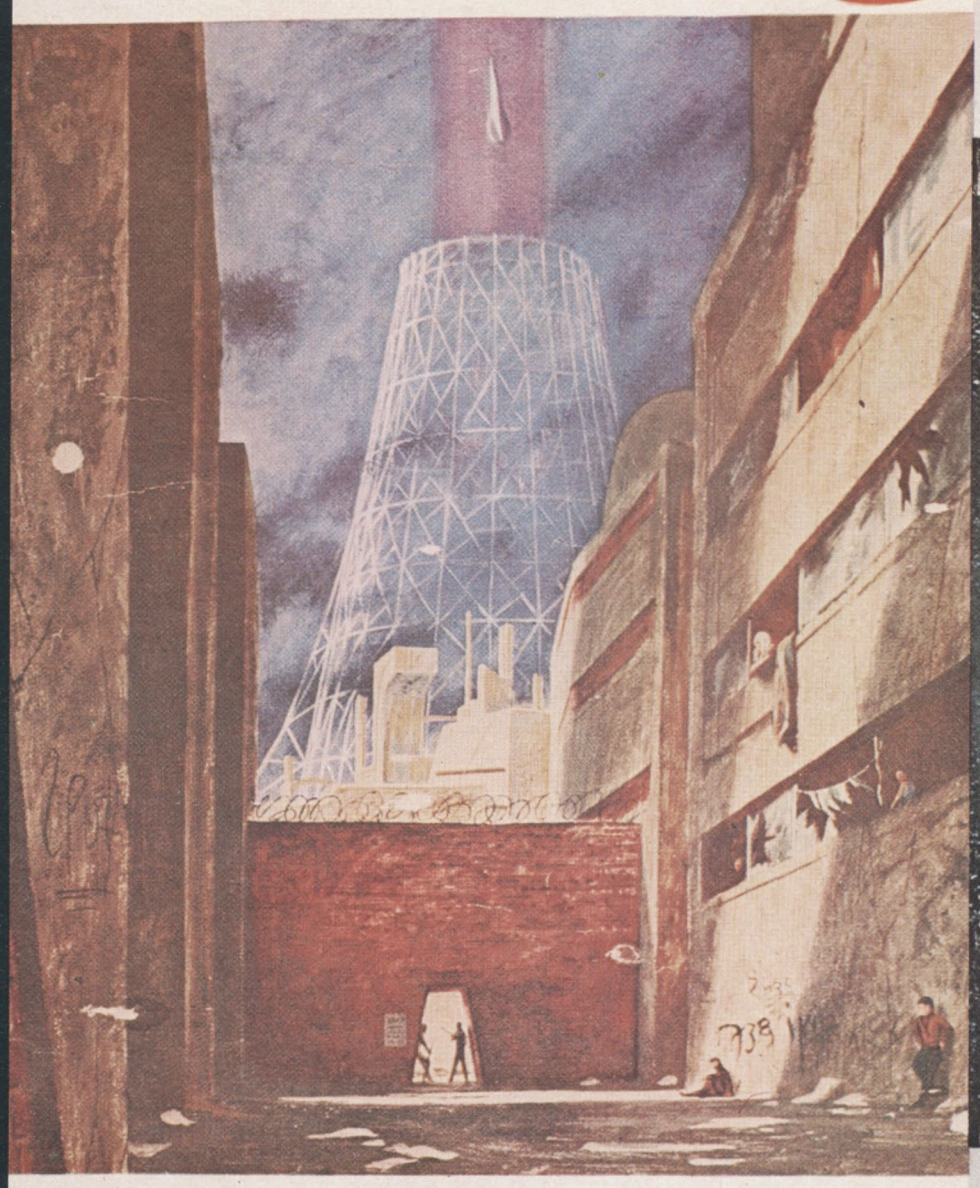

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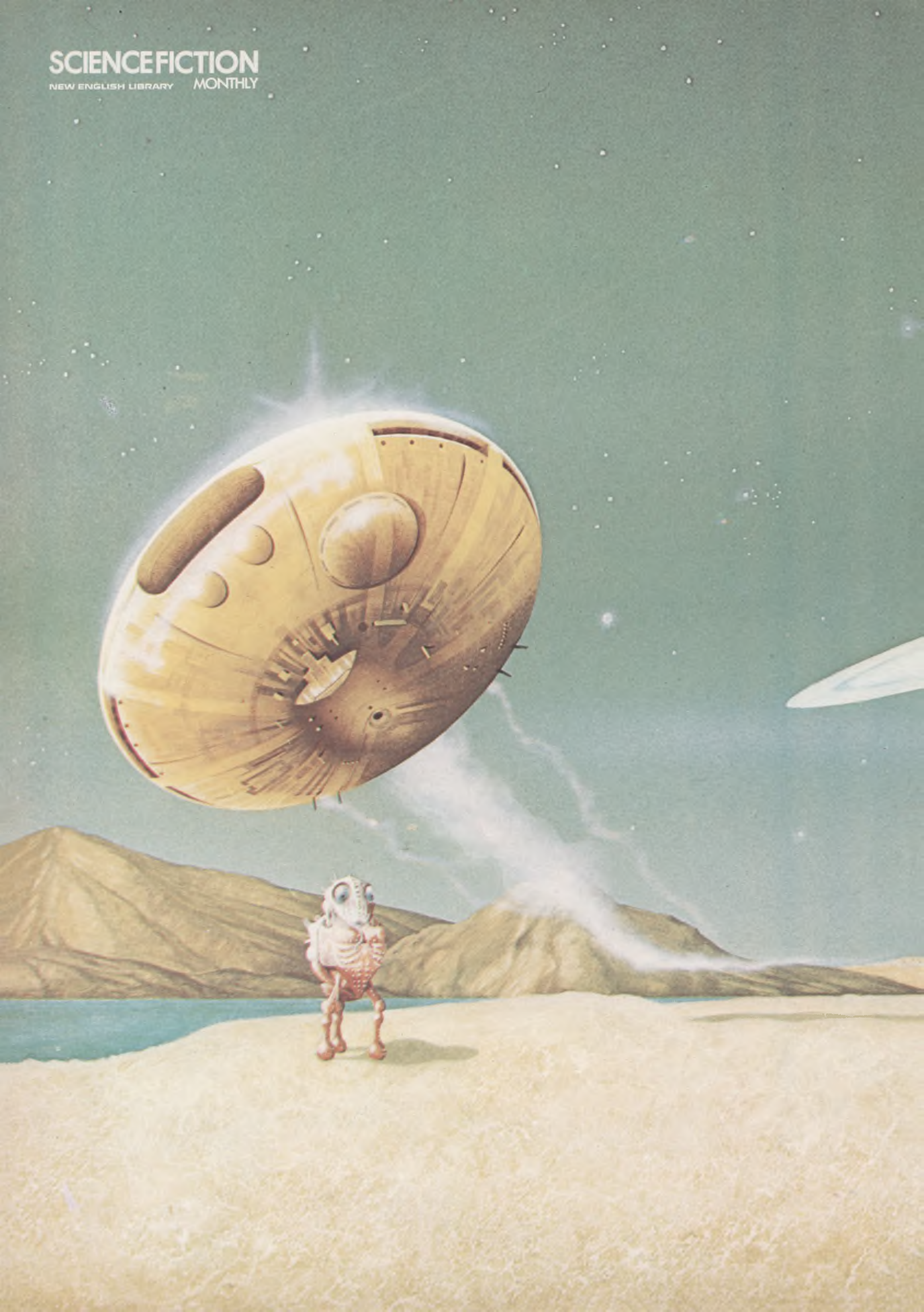

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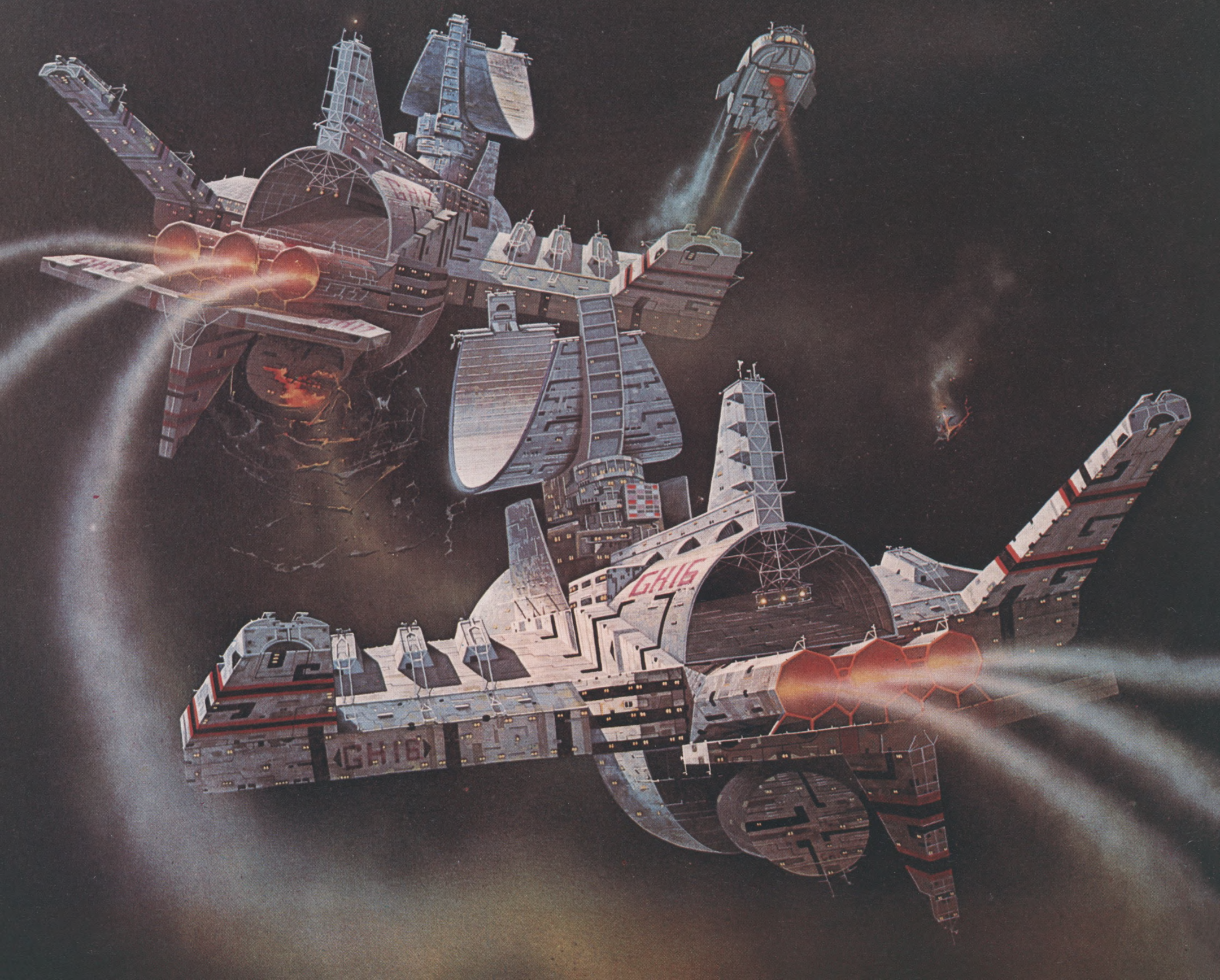

SCIENCE FICTION BOOK REVIEW

Imperial Earth
By Arthur C Clarke

Published by Gollancz; £3.50

Reviewed by Peter Weston

Arthur Clarke's last novel won every possible award in science fiction. Hence, the appearance of a new book must be an event, even though paradoxically this is both better than *Rendezvous with Rama* yet less likely to attract the same sort of attention.

For nearly thirty years Arthur Clarke has been chronicling man's progress into space. As our capabilities have moved outward so has the scope of his stories, and now for the first time he has become intimately involved with the Saturnian system—in particular with the moon Titan, which for a variety of reasons he proclaims will be the key to the solar system.

Our hero is one of the ruling family who for nearly a century have managed the Titanian colony, and the book is largely a diary of his first trip to the Mother World. But wait a minute, this sounds familiar. And it is. *Imperial Earth* is an exact one-for-one reverse of Clarke's *Sands of Mars* (1951).

Remember the earlier book? Martin Gibson is a bookish sort of individual who travels on a revolutionary new space liner to inspect the Martian colony. He keeps a diary and nostalgically remembers a past love affair. After landing on Mars the rest of his time is spent exploring the oddities of the colony world, to be surprised (as we are) at the end when a completely unexpected scientific surprise is unveiled.

That's the plot of *Imperial Earth* except that Duncan Makenzie (sic) comes *from* the colony *to* Earth. 'Plot' is really the wrong word, for there is none; the book substitutes the novelty of the world of 2276 for more orthodox drama and adventure, and on the whole with considerable success.

Earth certainly has changed, for instance, and has become in many ways a Utopia. Clarke doesn't go into the details but it's clear that, after the upsets of the present century have subsided, the world has been thinned down to a mere half-billion individuals, and poverty and disease are finally banished. In the United States interbreeding has produced a uniform coffee-coloured stock that causes Duncan to be envied for his own darker colouring; and thus, only in chapter seventeen do we realise he is in fact a negro!

Sorry to spoil the surprise; but there's little dramatic effect around this revelation, and I couldn't but wonder how much more impact Robert Heinlein might have put into the scene. Instead of Clarke's somewhat coy banter we would have had something like:

> '"Hey, you black bastard!"
> Duncan smiled at the unexpected compliment.'

Much more *zap*! The same with a preceding scene where our hero takes his first car ride:

> '"I hope all those other cars are on automatic," he said anxiously.
> Washington looked a little shocked. "Of course," he said. "It's been a criminal offence for—oh, at least a hundred years—to drive manually on a public highway. Though we still have occasional psychopaths who kill themselves and other people."'

Very bland, Arthur. A touch of lecturing shows through rather too obviously, although as I've tried to suggest there *is* quite a lot to lecture about. Rather better done are the love affairs, and for almost the first time the spectre of male homosexuality appears in British science fiction. It's a long way from the timid little off-stage romancing of *Sands of Mars*, and yet . . . and yet . . .

Duncan Makenzie has a bit more life than the stick-figures of *Rendezvous with Rama*, but he is still an insipid observer, passive, a cold fish among his fellow men. He does nothing, says nothing, to earn our respect or interest. He is merely an adenoidal diary-keeper, the foil through which the Master explains his vision of the Universe. He does nothing . . . and thereby hangs the tale, for there *is no* story, yet there could have been the makings of a good one. That is the failure of *Imperial Earth*.

Yet it is still a better book than *Rama*. More imagination, more effort at characterisation, more feeling that Clarke *means* this version of our future. This is the way it could possibly be.

All the same, is it less likely to attract attention? For *Rama* came when there had been no new Clarke novel for a long time, when the moment was right for him to be honoured, justly, as one of our greatest sf writers. *Rama*'s awards were given not for the book itself but as an expression of appreciation of the many past stories which were not so honoured at the time. This new title will be judged on its merits; and they are mixed.

No, of the three novels mentioned in this review the best, by a considerable distance, remains the 1951 title, Arthur Clarke's *Sands of Mars*. Funny, that.

The Man in the High Castle
By Philip K Dick

Published by Gollancz; £3.20

Reviewed by Malcolm Edwards

Of all sf themes, the parallel worlds concept is perhaps the most difficult to carry off truly successfully. Inventing an alien world is child's play compared with the task of creating and bringing to life a convincing world based on some divergence in our history. It isn't attempted very often—not altogether surprisingly—and there are perhaps only three novels in which it has really been made to work. The first of these is Ward Moore's sadly-neglected *Bring the Jubilee;* the most recent is Keith Roberts' superb *Pavane*. But the greatest of the three (a judgement which Keith Roberts' adherents might challenge) is *The Man in the High Castle*.

The basic situation is quickly explained. The Axis won World War II and divided the planet between them, though the alliance quickly became uneasy as the Japanese returned to normality while the Nazis went on to ever-greater horrors. America is split in three: the Nazi-ruled Eastern seaboard, the uneasily neutral central region, and the Japanese-occupied Pacific coast, where most of the novel takes place. Simple enough; but thereafter *The Man in the High Castle* becomes a triumphant exercise in avoiding the obvious, and thereby achieving remarkable plausibility. Other stories about the Axis winning the war inevitably concentrate on German expansion and insanity, but while this is an important part of the background of Dick's novel, it is sketched in with a few crucially effective details. *The Man in the High Castle* depicts the subtle impact of Japanese culture and philosophy on the conquered American people, and does it with consummately persuasive skill. Dick focuses on the ordinary lives of various individuals—Robert Childan, owner of a store selling high-class examples of traditional American ethnic art to the curious Japanese; Frank Frink and Ed McCarthy, struggling to set up their own jewellery business; Mr Tagomi, an official with the Trade Mission on the Pacific coast—and builds up a beautiful mosaic picture of his world. It's easy enough to work out the gross political differences of a world like this; the difficult part is to turn it into a world which people actually live in. Dick does this so well that characters like Mr Tagomi and Robert Childan remain the most successful in any of his fiction.

The novel follows several different strands of incident, but the central thread is its discussion of the reality of this world—or of any other—a familiar Dickian preoccupation. A new best-seller is being discussed everywhere. It is a novel called *The Grasshopper Lies Heavy*, and it describes a world in which the Allies won the war (*not* our world, I hasten to add; Dick is more subtle than that). Does the novel represent some fundamental truth about the universe? As the *I Ching*—the instrument of Chinese philosophy consulted as an oracle by most people in this society—does? Again, Dick does not bash the reader on the head with obvious and simplistic answers; he assembles a complex argument and lets it speak for itself.

(I feel, incidentally, that there's a nice element of wish-fulfilment in the *donnée* of this book. After all, the author of *The Grasshopper Lies Heavy* is the other-world *doppel-gänger* of the author of *The Man in the High Castle*. And *his* book is a best-seller, on everybody's lips . . .)

Science fiction is full of 'classics' which make a great initial impression but don't stand up to rereading. *The Man in the High Castle* is one of those rare books which actually improves on second reading. Dick writes with more care, albeit less exuberance, than in most of his novels, and the result is a finely-wrought novel that is one of the best in all science fiction. When it was first published in 1962 it received a lot of praise and a Hugo Award, but it has been out of print for many of the subsequent thirteen years, both here and in America. Now, still completely fresh and alive and in its first hardcover edition in this country, let's hope it at last gets the readership it deserves.

The Robert Sheckley Omnibus
Edited and introduced by Robert Conquest

Published by Penguin; 80p

Reviewed by Peter Linnett

Science fiction is not a genre noted for its humour. Sf writers seem more at home in the straight dramatic style, describing the horrors of the futures they see with due solemnity. That this is not the only approach to such subject-matter is illustrated by the work of several isolated writers, the most notable of whom is Robert Sheckley. He too foresees a rather dismal future for mankind, but his approach is humorous, satirical, amused at the situations we get ourselves into with the aid of our burgeoning technology.

Sheckley fully deserves the accolade that is conferred by an omnibus edition of his work, and we owe Robert Conquest our thanks for compiling one. The collection, which opens with a notably intelligent and germane introduction by Conquest, contains the novel *Immortality Inc* and twelve short stories, all of which date from the 1950s, when Sheckley was at his most prolific.

Immortality Inc is a good vehicle for his exuberant talent, but it is in his short stories that Sheckley really excels; his fiction is best taken in bites rather than as a full meal. Some of his best are here, including the marvellous 'A Ticket to Tranai', which Conquest describes as 'the *Erewhon* of the space age', the perfectly constructed 'The Store of the Worlds', and the ironic 'Pilgrimage to Earth'. Irony is a recurring motif in Sheckley's stories; his characters repeatedly find themselves tripped up by fate or the machinations of others, as in 'The Prize of Peril' or 'Something for Nothing'. His heroes are always ordinary men, slightly naïve, and not quite at home in the world they live in. Many of Sheckley's stories show his ordinary men reacting to extraordinary events, and that is a large part of their appeal.

What is perhaps most attractive about Sheckley is the exuberant comic manner in which he delineates the worlds he creates, eg the scene in *Immortality Inc* in which the hero, Thomas Blaine, scans a newspaper of the future world into which he has been catapulted:

> 'A poltergeist was believed responsible for several industrial fires in the Chicago area. Tentative exorcism proceedings were under way.
> Doppelgänger activities had increased in Berlin.
> A mob in Spenser, Alabama, lynched and burned the town's two local zombies. Legal action was being taken against the mob leaders.
> A bill was introduced into the House of Representatives to outlaw all hunts and gladiatorial events. It was defeated.'

But the comic is not Sheckley's only method, as Conquest notes, and there are enough stories to illustrate his other approaches. He can write offbeat mystery ('Ghost V') as well as sf in the grand tradition ('Specialist'). 'The Store of the Worlds', which offers a new twist to an old theme, is one of my favourite Sheckleys, and I'm glad to see it included here.

This is a superb volume and, at nearly 400 pages, excellent value. My only complaint concerns the selection. All the contents date from the 1950s: surely Sheckley's production since then warrants attention? *Omnibus* gives a picture of the excellent writer Sheckley was twenty years ago; has he not progressed since then? Many readers will want an answer to that question, especially as the book is directed towards non-sf readers, but *Omnibus* gives none. (Interested readers are referred to Sheckley's collections *The People Trap* (1969) and *Can You Feel Anything When I Do This?* 1972)). This omission aside, however, *Omnibus* is a winner.

The Jonah Kit
By Ian Watson

Published by Gollancz; £2.60

Reviewed by Malcolm Edwards

Ian Watson's novel, *The Embedding,* was, by common consent, one of the most impressive first novels in the field for many years. It did, however, arouse doubts about whether Mr Watson might prove to be a one-book wonder. Was *The Embedding* such a pyrotechnic novel because its author had poured all his worthwhile ideas into it? The answer which *The Jonah Kit* provides is an emphatic 'no'. Ian Watson is clearly here to stay.

Nevertheless, it isn't such a successful book. Like *The Embedding* it attempts to knit into a consistent intellectual fabric various disparate elements; unlike *The Embedding* it drops a lot of stitches. On the one hand, we are given the astronomical research which has yielded the shattering information that the universe we inhabit is not the real thing at all, but a sort of after-image of it; on the other hand we have experiments with electronic mind-transplants, and the programming of a whale with a human mind in order to investigate strange aspects of the behaviour of whales.

Try as he does, Mr Watson just doesn't succeed in fitting these two themes together, though he devises all sorts of linkages in an attempt to achieve unity. On the other hand, the speculative material is once again very good, and Mr Watson makes a brave attempt to take us inside a whale's head. His only problem now would seem to be that of finding a successful literary matrix for his intellectual exuberance. Meanwhile, though he is far from being one of the best *writers* in the field, he is one of those most worth reading.

The Wizard of Anharitte
By Colin Kapp

Published by Panther; 50p

Reviewed by Malcolm Edwards

This is a novel which starts quite well, continues interestingly, but ultimately falls apart in your hands. Anharitte is the chief city of the planet Roget, and a vital staging-post for galactic commerce. The maintenance of interstellar free trade requires that its society, which is feudal and slave-supported, should remain stable. Therefore when the ruler of one of its five dominant Houses—the mysterious Diondaizan, the Wizard of the book's title—starts doing unprecedented and outlandish things like educating his slaves, Tito Ren, agent of one of the free trade companies, sets out to stop him. The novel is the story of their struggle. A complicating factor is the presence of forces from the planet Rance, which has a reputation for annexing planets to its empire under the guise of sending 'disaster teams' to help sort out civil disturbances.

Now it is admittedly odd to read an sf novel built on the premise that the need to maintain free trade is paramount. ('Freedom and Free Trade are merely different aspects of the same idea of liberty,' intones one character. I suppose he's right—but it's a funny idea of liberty, nevertheless.) Leaving such thoughts aside, however, the story proceeds entertainingly for about three-quarters of its length, until it reaches a familiar, but satisfying point of crisis. Communication with other worlds is cut off, and the Rance 'disaster' expedition is on its way to obliterate the majority of the population. All seems lost. What is *supposed* to happen next is that some unexpected but logical solution is found. What *actually* happens is that Kapp pulls a rabbit out of a hat, and the story is stopped dead in its tracks. From then on it begins to stagger around until it ends up at a point so far removed from the beginning that what happened then turns out retrospectively to have been irrelevant. In a nutshell, Kapp is good at developing situations, but not very good at resolving them. Figures of menace are built up, and then just swept aside in a moment. Major conflicts turn out to be irrelevant because the two sides are actually after the same thing. Reaching the end of this book, even with all the motivations finally revealed, it is impossible to think back and ask yourself why the characters acted as they did, and come up with a satisfactory answer—except that otherwise there would have been no novel.

DEEP FREEZE

BY DAVID GRIGG

'It had taken much of his time and money to put him here. It had taken ingenuity as well as money. Bribing the doctors to write the reports saying he had an inoperable, terminal cancer; using his influence to ensure that Eternity did not check those reports; paying his lawyers to set up a fund he could legally draw on when he was resurrected; and, most importantly, blackmailing the technician to set the controls of his Eternity machine to awaken him a mere thirty years after he had entered the chamber'

It was done. With care, yet without compassion, they laid the cold body in the tomb, and stood back. The lid of the coffin, silent and steady, closed on his face.

Jason Mydwell was dead.

Some say that death is like a sleep without end. So then, Mydwell slept, and dreamed the long dark dream of eternity as the years passed unreckoned.

Yet Mydwell's rest was not that of the blessed, and his body did not pass into the dust from which it came. And his sleep was not without end. There came a time when he awoke.

His awakening was slow. Time after time, his mind came almost to consciousness and then drifted back into thoughtless sleep, like a cork bobbing to the surface of water and then dipping back again. But at last, his thoughts became clear.

I've cheated them.

It was his first thought, and he clung to it and used it to keep his mind afloat.

I've cheated them. All the fools, the hangers-on, the backbiters, all those wearying associates: and that hopeless bitch, my wife. Dead, or ancient. And Mydwell is alive.

There was a dull, ruddy light, and he lay for a long time seeing only that. There was a soft strumming noise somewhere near his head, and a cold, sharp smell of chemicals. He was cold. Finally, he raised his hands before his face—they were white, and the veins stood out clearly—and raised them until they met the cold, resistant surface of glass. He pushed, and the coffin lid swung open.

He sat up. The chamber was lit by a dim red light, like the safety light in a photographic darkroom. In the crimson glow, he could see scores of glass-topped coffins stretching away from his own on either side, and in rows before and behind him. The floor was made of metal sheeting, networked with holes. Through the holes, beneath and above him, he could dimly make out other floors like this one. The chamber was stark and bare of ornament, and the bloody light disturbed him. Mydwell found himself frowning.

He swung his legs over the side of the coffin and dropped a few inches to the floor. His muscles protested and quivered. He stood shakily and realised that he would have to take things carefully now. Even Lazarus must have been wobbly on his legs when he was first raised up. It was not a common experience.

Now he noticed the thin coating of dust on everything. The air-conditioning system was obviously not working as well as it could. The air felt dry, dead, tomb-like. Probably, once this level was filled up, no one ever came down to check all was correct, and that was negligence. Mydwell had paid money and more to the company which called itself Eternity, and he decided that as one of the few customers of that organisation to be in a position to complain about the service, he might well set up a suit for negligence against them, thereby beginning his new career. The thought was amusing, and pleasant, and, for the first time since he had awoken, he smiled.

His legs stronger now, he set off down the long aisle past the rows of frozen corpses. Agony and sorrow were etched deeply into most of the marble-hard faces of the dead, but Mydwell passed them by. His concern was with life, not death. He had felt no pain, borne no sorrow.

At the end of the corridor was an elevator. He pressed the call-button, and then cursed when no answering light came on. It might be night-time outside, and the machinery turned off. He turned to the narrow staircase, and began to ascend.

Much of his time and money had been used to put him here. Years before now, he had devoted his wealth and his forcefulness to escape from a world which had begun to tire him.

He reached the next floor. More coffins.

It had taken ingenuity as well as money. Bribing the doctors to write the reports saying he had an inoperable, terminal cancer; using his influence to ensure that Eternity did not check those reports; paying his lawyers to set up a fund he could legally draw on when he was resurrected; and, most importantly, blackmailing the technician to set the controls of his Eternity machine to awaken him a mere thirty years after he had entered the chamber.

Again, more coffins stretching away, some of them empty, with their lids standing open.

Now, thirty years later, his wife and friends dead or dying, he would be a free man. And most of all, the world would have changed enough to make life interesting again.

More and more empty coffins: they stood in rows, as though awaiting the dead. He walked slowly up one more flight of stairs, his heart pounding. He had ascended seven floors. At last the sign on the stairs read GROUND FLOOR. He walked away from the stairs. Here, too, were glass coffins, most of them open and empty. The red light still prevailed. His white robe was made scarlet by the light.

At the end of the long corridor of coffins was a hatchway. Part of the information he had extracted from his blackmailed technician was the operation of this hatch. But he had no need of that information: the hatchway stood open. White daylight spilt into the corridor, making a harsh, colourful contrast against the red-lit chamber. Something was wrong.

TONY MASERO

'The sun shone harshly down on desolation. Something huge and monstrous had sat down upon the land, grinding buildings to dust and smashing the hills flat'

He paused, then walked forward rapidly towards the hatch. Just before he reached it, he stopped still. Above the hatch was a time-recording device, marking off the years, days and minutes. The seconds moved smoothly on as he watched. But it was the figure recording the year that had stopped him.

He had been betrayed.

Not thirty years, but nearly two hundred had passed since he had entered the chamber. His blackmail victim had taken a long-delayed revenge, and Mydwell had been delivered into a dark night far longer than he had planned. Two hundred years! . . . He stood still, his fists clenched, overcome with shock.

The hatch still stood open, and he hastened to it. Outside that doorway should have been the administrative and reception areas of Eternity. The scene that met his eyes was terribly different. He stepped outside, into the bleak sunlight.

A white glare dazzled his eyes, reflected brightly from tumbled stone and dry, dusty earth. He shaded his face, waiting for his sight to adjust.

The sun shone harshly down on desolation. Something huge and monstrous had sat down upon the land, grinding buildings to dust and smashing the hills flat. Blocks of whitened stone, the remnants of the massive Eternity Centre, lay tumbled roughly about, shattered and split like the bones of some fossil prehistoric monster. The white glare melted into a ruddy ochre in the distance, like the colour of powdered brick. Trees long dead were fallen in lines pointing away from where the city centre had once been. The sky was blue and cloudless—and nothing stirred.

Mydwell stood stunned for a time. He felt as though he was standing on the shore of some great dry ocean, fearing to plunge into it lest he drown. He clung to the edge of the hatchway and shuddered.

Eternity had built well. The chamber lay massive, rooted deep in the ground, and still intact, with its stone covering peeled away from it by some cataclysm. Those within it, sleeping through the ages waiting for a cure, would sleep undisturbed until the sun grew dim. Deep under the chamber must be a power generator which kept the lights and the cooling equipment supplied. Time would not touch the frozen dead.

After the shock had subsided, he began to notice other details of the dreadful landscape. Grass grew yellow and straggled here and there, straining up out of the rubble towards the sun. Stunted shrubs dotted the white ground, and against the blue dome of the sky he could see the dark dot of a bird moving in great slow circles.

He walked back into the blood-red catacomb in despair, and wandered aimlessly for a time around the topmost level. There were few frozen bodies here: most of the coffins were vacant. He noticed also that the dust here was disturbed and patterned. Animals had clearly been at least this far into the Centre. Mydwell leaned heavily against one of the coffins for a moment. Confusion filled his thoughts; he had not planned for this. All of the things he had worked for, all the assumptions of value on which he had based his life and the hope on which he had founded his dreams, had been suddenly swept away, leaving behind only desolation.

The coffin he leaned against had an occupant. Through the cold-misted glass Mydwell could see the oval face of a young girl, deathly pale and drawn, with her eyelids closed. She looked at the same time innocent and tragic, as the drowned Ophelia might. He turned away.

He came at last to an open room with lockers lining its walls, where the immediate personal belongings of the dead were kept. All the lockers carried names, and he found his own quickly. His thumbprint on the lock opened it, and he looked within. His clothes, shoes and briefcase were there, of no use to him now. But then, he looked at his bare feet, and reached into the locker and brought out the shoes.

He stood again at the entrance hatch of the chamber. He stepped out, and walked cautiously through the rubble. Somewhere there must be other humans alive. Clearly, there had been a catastrophe, but, if grass and crows could survive men might well have done the same.

Hours passed, and the declining sun turned the tumbled blocks into a patchwork of light and shadow. Mydwell, having walked for kilometres through the rubble towards the city, returned in defeat to the chamber, sitting half-buried in the dust like a giant metallic canister. No life, except a few scavenging crows, and the stunted, yellow-leaved shrubs climbing out of the dead land. Only the twisted, rusted metal and shattered stone stretching towards the western horizon. Hunger had begun to claw at his stomach, and there was nothing to eat.

'Suddenly, with the force of a blow, he realised that he need not be alone. He was surrounded by the thousands of people within the Eternity chamber, frozen in their coffins'

He was about to go inside the chamber again when he saw a skeleton, covered to its bony waist in sand. He went over to look at it, and scuffed some of the dust away with his foot. A woman, by the shape of the pelvis. He stood up from his examination, and glared bitterly at the setting sun. He kicked at the skeleton in anger, and the skull came loose and rolled and rattled down the dusty slope. The last rays of the sleepy sun painted the metal of the chamber red, and he stepped inside to the darker redness of the emergency lights.

He looked out of the open hatchway and saw the sun passing down behind the great dead plain where the city had once stood, and felt anguish tear at his heart. When the light outside had gone, he shuddered and turned away.

The hatch would not close. A piece of rock had long ago become wedged in the doorway and would not move. He ignored the door and walked back further into the chamber. He sat down on the floor.

It took him some time to identify the emotion that he felt most strongly at that moment. It was simple loneliness. As a rich man, he had been used to crowds of retainers and visitors, used to large parties in his manor, used to the overcrowded streets filled to overflowing with the poor and starving. Now it seemed that he was totally alone for the first time in his life. The feeling was unbearable.

Suddenly, with the force of a blow, he realised that he need not be alone. He was surrounded by the thousands of people within the Eternity chamber, frozen in their coffins. Thinking of them as corpses had kept the idea from coming to him earlier. All he need do was revive one or more of the sleeping bodies and he would have company: someone to talk to, to reason with, to help him survive in this dead world.

Mydwell stood and looked around. There were only a half-dozen or so occupied coffins on this level. He walked over to the nearest one. Again the face of the drowned-Ophelia girl stared vacantly up at him, pathetic and sad. He looked at the controls located at the bottom of the coffin, beneath the name plate. They were simple enough. He pressed a button, turned a timing control, and then stood back to wait.

Time passed slowly as the temperature inside the coffin rose gradually and the cold-misted glass became clear. Tiny needles entered the skin of the girl and forced in life-arousing chemicals. Her heart began to pump again and colour came back into her cheeks. Time passed. At last, she stirred and awoke, and looked into Mydwell's eyes. She was confused and empty of memories for some minutes, but at last, she spoke.

'Have they found a cure, then? Am I cured?'

Mydwell's heart contracted. He had not thought of this. 'No,' he said. 'No, they haven't found a cure.'

The girl was distraught and panic-stricken for a moment. 'Why . . .?' she began; then stopped, not understanding.

'Can you stand?' he asked. Somehow, with emotions foreign to the Jason Mydwell who had lived two hundred years ago, he felt concerned, responsible for the girl. He felt almost afraid of himself.

The girl sat up cautiously, still frowning in puzzlement and peering through the dim light. He helped her to her feet, and held her as she walked unsteadily forward. He took her to the hatchway and made her look out into the darkness.

'There was a city out there,' he said.

'Yes, of course . . .'

'I awoke some hours ago . . . some malfunction of the machinery,' he lied. 'I came up here and looked outside. There isn't a city out there any longer.'

'What? What do you mean?'

'Nuclear warhead, I'd say. But it's gone.'

'And I'm not going to be cured of my cancer?'

Mydwell hesitated. 'No.'

'Oh God!' she bent her head and wept. Mydwell could not console her. She was young, perhaps 20, and very beautiful. Mydwell found himself aroused, and felt ashamed. Her sobs seemed to go on for ever, and she left him and huddled in a corner as she wept. Mydwell sat on the floor again, and kept his thoughts to himself. At last, her tears stopped, and when he looked she had fallen asleep. After some hours, he too was asleep.

'And in the valley was a ragged trail of half-naked sun-browned men, walking and chanting at the same time. They wore ragged breeches about their legs, and ornaments and body paint on their torsos'

In the morning, he showed her the scene outside the hatchway. She looked out for a time, and then turned away and padded on bare feet into the chamber. Mydwell, feeling helpless, left her and went out again.

His hunger was now almost unbearable. He knew that men could go for many days without food and not die, but he had been used to eating regularly every day. Hunger to Mydwell had been missing breakfast. Now his stomach held his attention in a relentless grip. He must find food, or die. He walked around the chamber this time, heading away from the city centre. Far enough away from the centre of the blast things must be better.

Half an hour's walk away from the chamber, he saw the tribe.

He had come to the top of a rise above a small valley. The broken blocks of stone and brick, evidently tossed many kilometres by the blast, were fewer here, and the valley showed patchy spots of grey-green grass. On the horizon, hills filmed with the blue of distance showed themselves. And in the valley was a ragged trail of half-naked sun-browned men, walking and chanting at the same time. They wore ragged breeches about their legs, and ornaments and body paint on their torsos. Their hair was black and bushy. Women and children trailed at the rear.

Mydwell stood still, watching. In his mind were surprise and elation, but his stomach had its own thoughts. If there were men alive, there must be food to be had; that was what his guts told him.

The savages had not yet seen Mydwell, standing stone-still on the rise. They continued their way along a faint trail, approaching him. At their head was a figure garbed even more strangely to the eyes of the watcher on the hill, crowned with a skull-helmet, and garbed in a hairy coat. A necklace of bones was about his throat, and he led the chanting of the tribe by beating with his hand on a small drum he carried.

To Mydwell, however, the strangest thing of all was that these savages, unlike those he had seen in his own day, were not dark-skinned African negroes or Australian aboriginals, but, beneath their tan, white and thin-lipped like himself. The effect was curiously disturbing, like something obscene or grossly out of place. He decided to watch no longer. He yelled out something incoherent but loud, and waved his arms.

The effect was startling. All at once the savages—Shaman, men and women—looked up at Mydwell standing there in his white hospital gown, made loud cries of panic, and turned to flee. Mydwell yelled again, and they ran all the faster. The only individual who did not run was the Shaman, who walked backwards at a rapid pace, rattling his necklace and baring his teeth at the vision, his eyes showing their whites. Then he too turned and fled along the dusty track. In a moment, there was no one to be seen.

Mydwell, frustrated and worried, climbed down the slope to where the savages had been. Some of them had dropped the packages they were carrying, and he crouched to examine one. Inside were a number of bone carvings, a sharp flint knife, and some strips of roasted meat. He grabbed at the meat and bit into it gratefully. It tasted odd, but welcome. Soon his stomach stopped complaining, and he took all of the meat he could find in the few packages there and carried it back towards the chamber.

The girl was huddled by the door of the chamber, looking out with blank eyes. He gave her some strips of meat, and she ate slowly and in silence. Mydwell feared that the shock of her situation, together with the knowledge of her fatal illness, had turned her mind and made her reason spill. He did not press conversation, hoping she would soon regain normality.

'Her voice suddenly dropped almost to a whisper. "Put me back, please. I want to go to sleep again. Please . . ." And she began to weep again'

The day passed, and Mydwell explored the nearby area for anything of value. As the sun began to sink again, she came to him inside the vault, and looked up with reddened eyes.

'What's going to happen?' she asked.

It was hard in the saying, but he said it. 'I don't know.' Then, as her gaze wandered, 'There are savages out there. I stole the meat from them. They have a source of food . . . I thought . . . perhaps we could awaken some or all of the people here in the Centre, and then maybe together we could get something going: civilisation. Anything would be better than what those savages have.'

She looked up at him pathetically for a long moment.

'No,' she said. 'Don't you remember? All of us are dying here. We are dead already, all of us. How can we bring life to anything?' Her voice was becoming louder, hysterical. 'And me . . . I'm going to *die*! And it's going to hurt, damn it! Why did you have to wake me up? Why me? Why couldn't you let me stay asleep, and never know? She was shouting now, and Mydwell had her by the shoulders, trying to calm her.

Her voice suddenly dropped almost to a whisper. 'Put me back, please. I want to go to sleep again. Please . . .' And she began to weep again.

He could think of nothing to say. He kept silent, and took her back to the coffin, helped her in, and turned the controls on once more. She closed her eyes, and the cold gradually returned and misted the glass lid. Ophelia was once again given a Christian burial. He leant on the coffin, looking at her childlike face, and wept. He had not done so for very many years.

The dawn broke over the landscape like a red, hurrying tide of light. Mydwell sat and watched the shadows of the rubble ebb away. There were clouds on the still dark, western horizon, and the chance of rain. He sat and watched, alone. Somehow he felt incomparably more alone than he had before he had woken the girl. A heavy weight, like a great chain, seemed to hang about him, and he was forced to drag it along with him in slow, plodding steps.

The scraps of meat he had stolen from the savages were gone. He had no choice. He had to find the savages again and try to make a friendly contact this time. They must know how to survive in this blasted world. Perhaps further away from the city animals still ran wild. Or the savages must have rediscovered husbandry and agriculture. He had to find out. The alternative of placing himself back in deep freeze he did not see as a possibility, any more than he would have seen suicide as a way out. It was not in his nature.

At last, then, Mydwell set off again, away from the desert that had been a city, and found the trail where he had seen the savage people the day before. The air was cold, and he shivered in his gown. It would rain before long. Indeed, the first heavy drops came thudding into the dust at his feet. Eventually, the downpour began, and he was soaked, but he kept walking along the trail, towards the only hope that he had left. The sun came out and dried him, and he walked on.

He came on the village suddenly. He thought of it as a village, but really it was no more than a cluster of skin tents and open campfires. Children ran about naked, and women sat sewing rough garments. The men stood around, talking in an odd tongue. Rather than walk into the village and frighten them all, Mydell stood quietly at the edge of the crude wooden compound and waited until he was noticed.

There was general consternation then, and the women leapt up and ran around staring at him and wailing. But there was less panic this time, and eventually the nervous Shaman approached Mydwell, bowing to the ground, and rattling his bones and speaking many prayers. Mydwell waited. The wizard close up was equally as odd as at a distance. He was painted garishly, and bones pierced his ears. White scars were all over his body. Mydwell could see him shaking in fear, but being forced forward by his need to uphold his reputation.

Finally, he was close enough to touch. The Shaman stared wide-eyed at Mydwell's face, and then prostrated himself full-length at Mydwell's feet. Mydwell, instinctively realising what was required, bent down and lifted up the wizard. A relaxed moan came from the watching crowd of primitives. Jason smiled. The Shaman grinned, and the crowd ran forward to surround Mydwell, cautiously reaching out and touching his robe, his hands.

An unorganised, wild celebration began, with much beating of sticks and atonal singing and frenzied dancing. Mydwell sat surrounded by it all, in the place of honour, feeling hungry. In a quiet moment, he made sign language at the Shaman, seated at his side. Food. The Shaman nodded and frowned. He made a sign to one of the women, who went off and returned with a small bowl of wild blackberries. The Shaman made grunting noises, and waved his hands vaguely. Apparently this was all the food available in the village at the time. He must have interrupted a hunting party the day before.

Mydwell was regarded by all of the savages with awe. He could see oft-renewed astonishment in their faces as they watched him. The Shaman seemed to be the most astonished and disturbed of all.

After a time, the Shaman made signals indicating that they would go hunting for food again, this time with Mydwell as a bringer of good luck. Mydwell agreed, although he did not relish the effort that he would probably be forced to make. His feet were already blistered with his walk out to the village. But if he expected to eat these peoples' food and live with them he would have to prove himself valuable in some other way than just as an object of supernatural fear.

Before the hunting party left, the Shaman performed a strange ceremony. He took a long, sharp flint knife, kissed it, and raised it to the sun. The primitives looked on expectantly. Then suddenly, the Shaman raised the knife in both hands above his head, and with a shout, plunged it into the earth. The crowd yelled. Mydwell was merely confused.

'When he again opened his eyes the tribe was lined up in front of the entrance to the Eternity Chamber. He frowned in puzzlement. The tribe apparently regarded the object as a sort of shrine'

The ceremony over, the sweating witch-doctor grabbed Mydwell's arm and brought him to the head of a ragged procession of men and women. The whole tribe evidently went on the hunting trips. They were armed only with bone clubs and knives of flint.

They set off, Mydwell ambling along at the side of the short-legged Shaman, in the direction of the city. In the still cloudy sky, crows circled above them. Mydwell now was content to be led: his own resolve and control of events had disappeared. As they walked, he realised how tired he was getting. Hope that he could rejoin human company had kept him going on the way to the village. Now, his aim at least partially achieved, his body was letting him know its complaints. And he began to think again of the sad Ophelia-girl whom he had put back into her coffin the night before. He realised with a start that he had not even asked what her name was. He had a feeling of deep loss, and yet he did not understand why.

At some point, he must have tripped and fallen, and the Shaman ordered some of the stronger savages to hoist Mydwell to their shoulders. In spite of the jolting ride, he found himself drifting off to sleep. He awoke for a moment when the tribe came to the rise beyond the little valley where Mydwell had first seen them, and he saw again the metal colossus buried in the sand that was the Eternity Chamber. And beyond, lit with the grey cloudy sky, the plain that had been a city. A fragment of poetry came into his mind, *Look on my works, ye Mighty, and despair!* . . . The tribe raised their bone clubs high, and marched on. Mydwell dozed again on the shoulders of the sweating men.

When he again opened his eyes, the tribe was lined up in front of the entrance to the Eternity Chamber. He frowned in puzzlement. The tribe apparently regarded the object as a sort of shrine. That would explain their awe of him: he must be like a walking ghost to them. The Shaman marched towards the hatchway, and motioned Mydwell to follow. He got down from the shoulders of the men and did so.

And still he did not guess.

It was not until they were inside the chamber, in that dim red light, and the Shaman was standing next to the cold coffin where the sad girl lay, that Mydwell began to understand, and a feeling of horror began to steal over him. And when the Shaman opened the glass lid and stood poised with his stone knife ready, Mydwell knew.

He leapt forward in horror and disgust and terror to grasp the Shaman by the neck and shake him, trying by his action to remove the terrible knowledge he had come to. The Shaman, startled, cried out, and the men of the tribe grappled with Mydwell and tore him away from the witch-doctor, who stood coughing and spluttering for some moments before he resumed his position.

Mydwell struggled in the arms of his captors, but they seemed to have lost their awe of him after his attack. The sacrifice went on.

Food? There was plenty of food, there for the taking. Food enough to keep a small tribe alive for many years. All that meat . . .

The crows outside descended in a black cloud, waiting for the scraps.

SCIENCE FICTION MONTHLY

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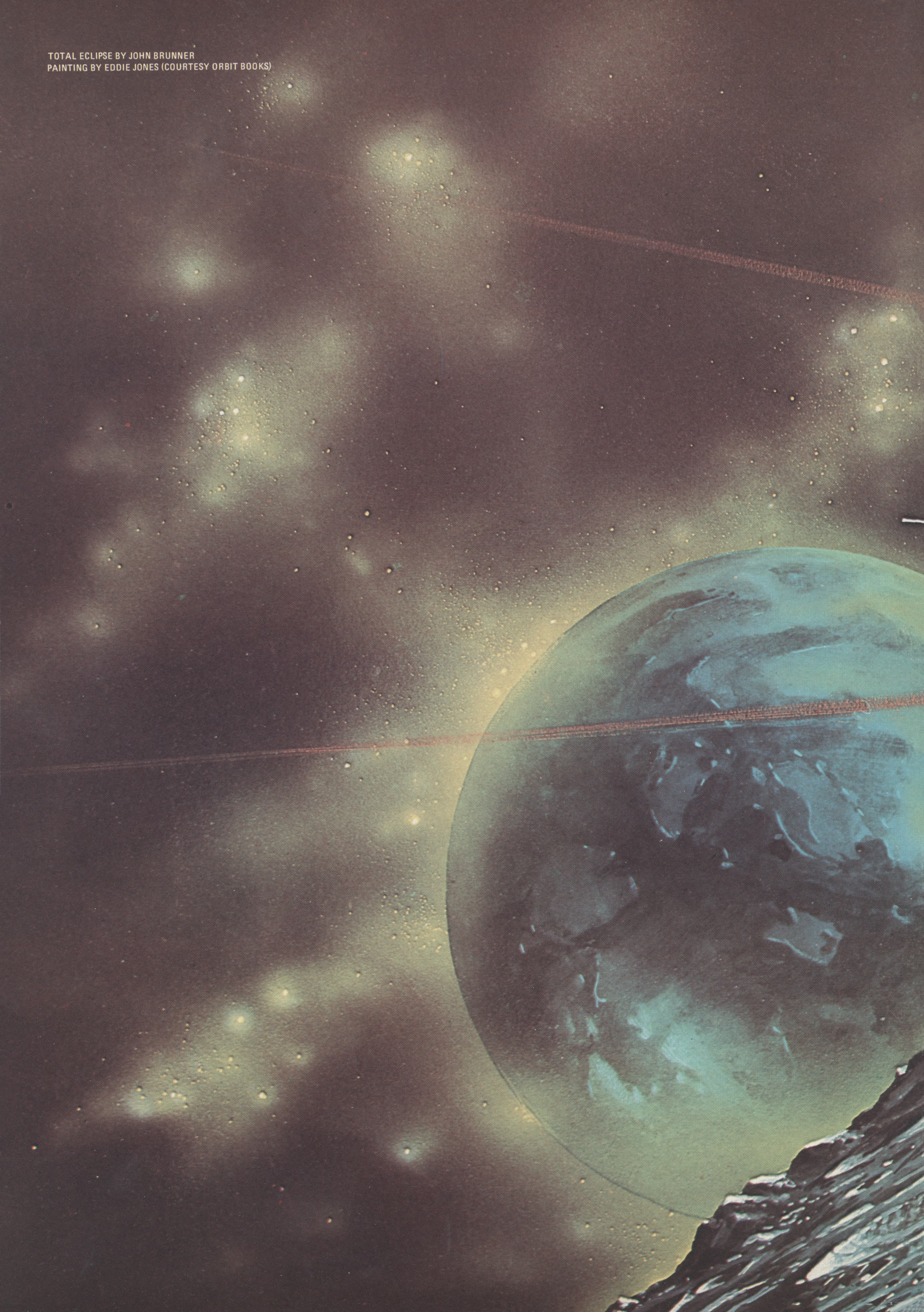

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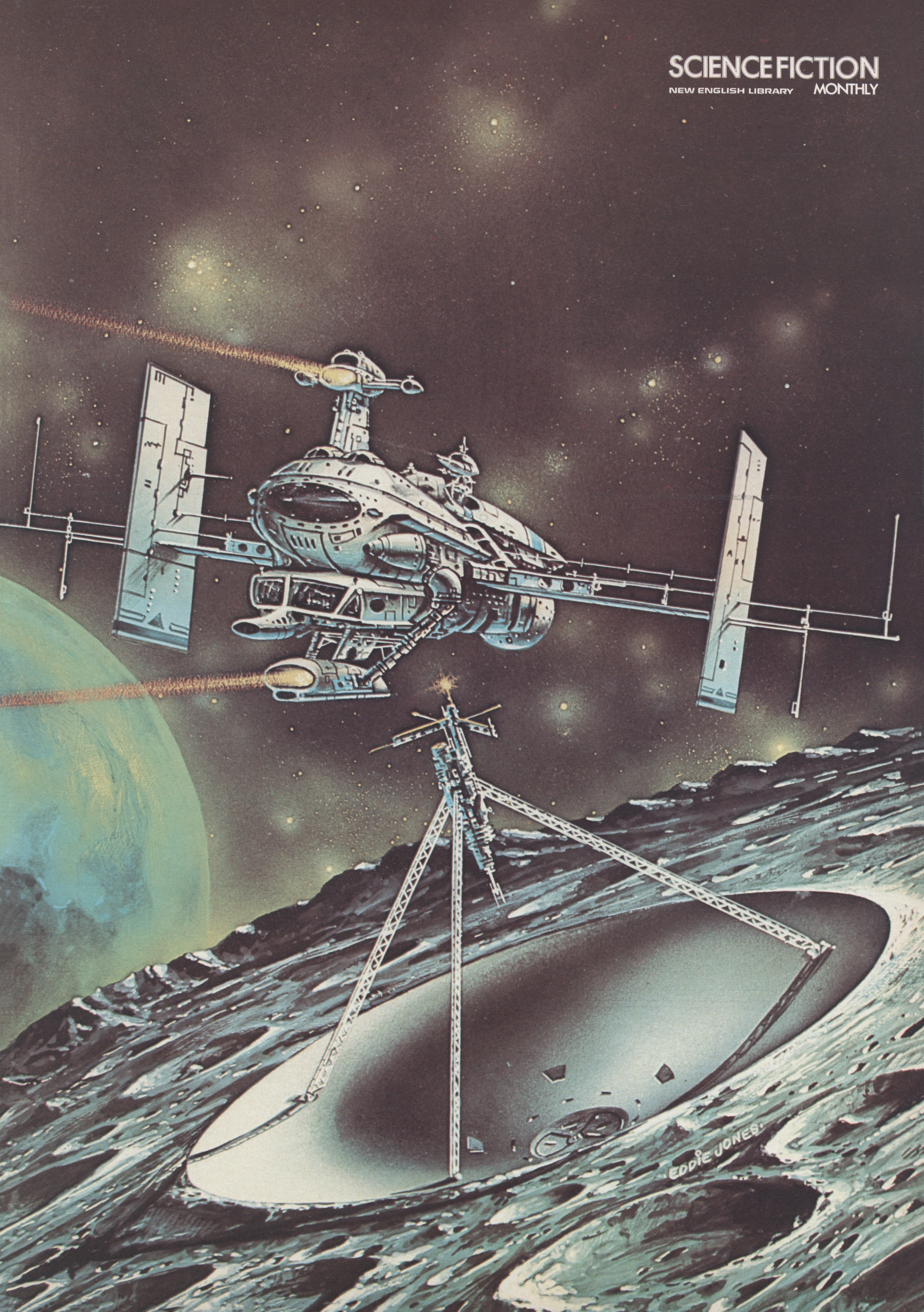

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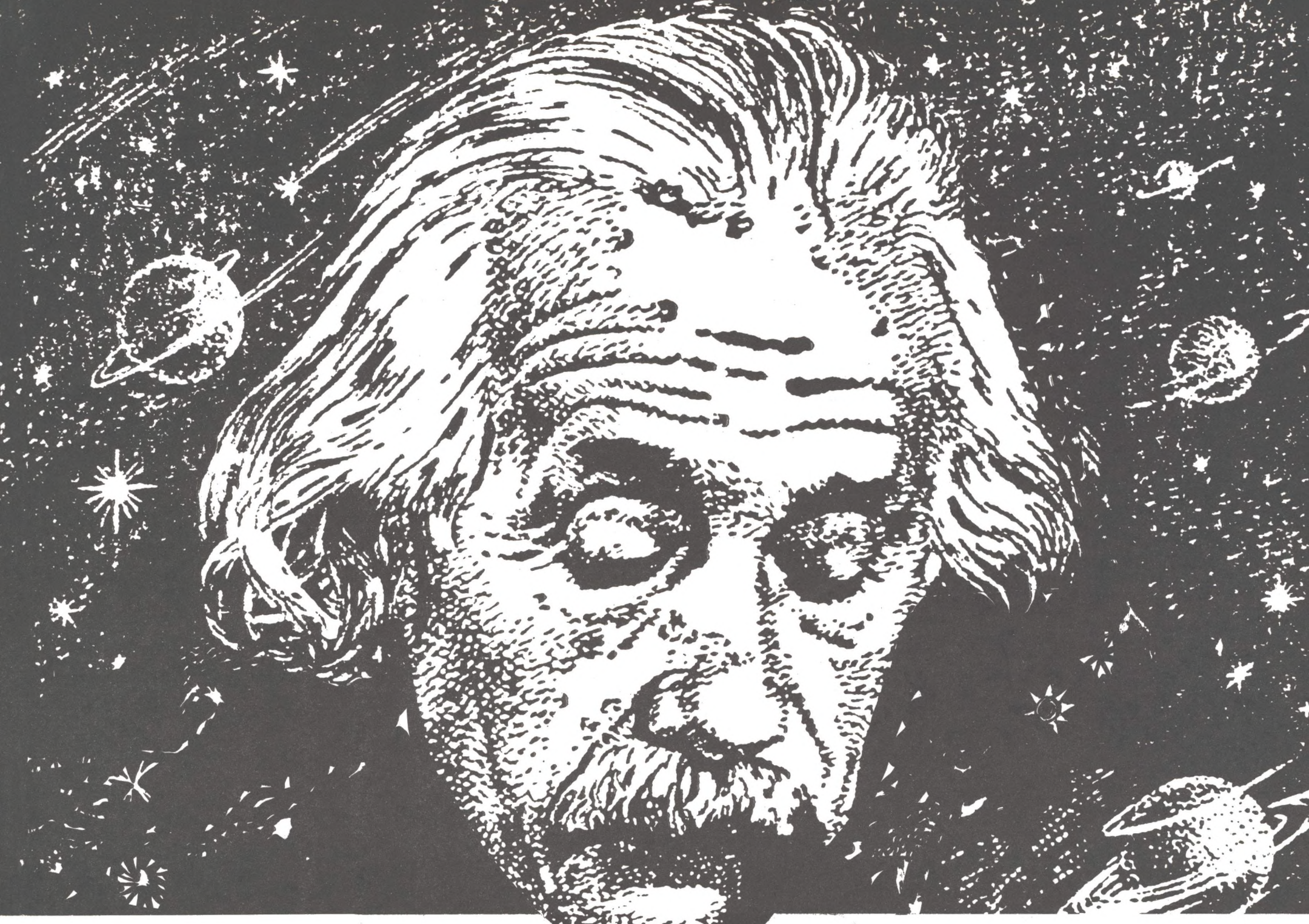

SECOND EINSTEIN

BY C D RENMORE

HE WAS THOROUGH, competent; but his manner showed that his heart was not in it. He set up the tracking locus for the Schmidt, then for the reflector. His fingers were on the teletype keys but his mind was somewhere else. What the hell, anyway? What if he pushed the wrong key and the 'scopes failed to track correctly? Blurred pictures, that would be all. He needn't get worked up about that. Just wait for another clear night and re-run the whole thing. The stars would still be there.

The university wouldn't fire him: it was hard enough to get technicians who were prepared to spend long periods alone in mountain observatories.

Lionel White was a square peg in a—well, to be more accurate he was an HPS man in an astronomical observatory, which amounts to the same thing. He paused while the teletype chattered back at him. The dialogue between them was routine, monotonous; but he was grateful for that. After all, that was part of the idea: to find somewhere peaceful and private, away from it all. He had brought his books, his manuscripts, his rejected thesis and his wounded pride all the way up the mountain with him. He would show them, all right; every one of them, especially Haynes. But he needed time, seclusion; and even more he needed to keep away from *him*.

The teletype was still quibbling; he stabbed at the keys again and it stayed quiet this time, apparently satisfied.

He had started, at Haynes' request, by outlining the main thesis, which he called his Creative Correlation Hypothesis. In its simplest and most compact form, this hypothesis said that, in scientific research, if a discovery isn't made by person A, then it will be made by person B, eventually. The task Lionel White had set himself was to make a quantitative analysis of the progress of physics to date and then extrapolate the results into the future'

Damn them! How *could* they reject such overwhelming evidence out of hand? Had Haynes even *read* his thesis? Couldn't they see that the sort of detail they wanted was simply irrelevant to the point he was making? As an HPS man, he was concerned with the total picture, the whole perspective; something that Haynes seemed absolutely incapable of appreciating. Maybe he shouldn't have lost his temper with the man. Correction: he definitely shouldn't have lost his temper.

For the hundredth time, he re-lived the interview; every detail was still there even after five long years. He had started, at Haynes' request, by outlining the main thesis, which he called his Creative Correlation Hypothesis.

In its simplest and most compact form, this hypothesis said that, in scientific research, if a discovery isn't made by person A, then it will be made by person B, eventually. The task Lionel White had set himself was to make a quantitative analysis of the progress of physics to date and then extrapolate the results into the future.

In the very earliest days of science, progress depended completely on the appearance of isolated geniuses such as the early Greek philosophers. After Aristotle and Plato, however, science stagnated for over a thousand years before receiving any further impetus worth mentioning. The new push came from the mind of Copernicus; then followed the great strides of Tycho, Kepler and Galileo. These advances

in human understanding were traceable directly to particular men for whom the world had been waiting for hundreds or even thousands of years. Their contributions were crucial, independent and largely uncorrelated, either because they lived at different times or places, or because they simply failed to communicate effectively with one another.

The observatory, chilled by the night air entering through the great slit in the dome, went about its pre-programmed work as oblivious of its single occupant as he was of it. Lionel White's frown deepened as the memories flooded back.

He had been warming to his topic by then, and Haynes could not have squeezed a word in even if he had wanted to. After Kepler's time, there began a recognisable communication and interaction of sorts within the field of science: people in different parts of the world were working on similar problems at the same time and telling each other about their progress. Science had a frontier that could be identified, and there was correlation between individual efforts. Examples of this abounded; persons A and B were now *living contemporaries*. Each knew something about what the other was doing, and tried to do it better or earlier. Rivalry and competition entered the scientific scene in earnest—and they came to stay.

Haynes had interrupted at this point to ask for specific instances. White had plenty of them. Newton had invented the calculus; but so had Leibnitz, independently. Adams and Leverrier both deduced the existence and the position of the planet Neptune from perturbations in the orbit of Uranus; each without access to or knowledge of the other's work. And so on: if person A had not done it, then person B would. The time delay had shrunk from millenia to centuries, from centuries to years, and from years to months. In the twentieth century the correlation and the pace rose steeply: within weeks of one another, Schrödinger and Heisenberg had formulated different descriptions of the atomic world which Dirac then promptly showed to be equivalent. On a lesser scale, independent research groups from different parts of the world found themselves filing patent claims on identical topics within hours of one another. The pace was terrific.

Up to that point in the interview, Haynes (who had an unfortunate nervous habit of blinking furiously with one eye and not at all with the other) had indicated by nods and grunts that he agreed with the general drift of White's argument. But then White had gone further and, perhaps too enthusiastically, given his conclusion: that once the correlation of scientific effort exceeds a certain threshold, the tide of knowledge will advance at an average rate that is almost independent of individual brilliance. In particular, individual geniuses no longer set the pace of scientific progress. The massed attack on the frontier of science will progress, said White, at an average rate that even a Newton or an Einstein could not match.

Haynes seemed about to explode, but subsided sufficiently to be merely condescending in his reply. 'Look here, young man, you had better get one or two things straight. Firstly, you can't measure an Einstein or a Newton in multiples of lesser men. That would be as ridiculous as to suggest that two men each with an IQ of 100 are as good as one man with an IQ of 200. Secondly, you're being too superficial in judging the equivalence of two peoples' work. You said that Heisenberg's matrix mechanics were essentially equivalent to Schrödinger's wave equation. Would you care to justify that in any detail? *Any* detail?'

White stared at the floor, as if seeking inspiration there. Even if he could answer Haynes' question in detail—which he could not—it was the wrong question! Utterly beside the point. Haynes, who was twenty years his senior, had spent all his professional life digging himself deeper and deeper into the same mental rut; or so it seemed. It was for precisely this reason that White had chosen History and Philosophy of Science for his doctoral research rather than continue in physics, where he had been an undergraduate in Haynes' department. It began to dawn on him as the interview progressed that he was simply not getting through.

But he couldn't just give up without a fight; this was the crisis that he had been working towards for three hard years. He *had* to stand up for himself. With a visible effort, he marshalled his thoughts and began.

'I take your point, of course, sir. But look at it in this way: will you grant that over ninety per cent of the scientists who ever lived are still alive today, in 1976?'

'Certainly.'

'And that the combined resources of all the laboratories on Earth are sufficient to conduct literally thousands of related experiments on virtually any aspect of modern physics?'

'With some reservations, yes; but what are you getting at?'

'Simply this, sir: the probability of a major breakthrough depends on the number of scientists and the number of experiments; plus of course a correlation factor which will in general be complex. Although their experiments will not all be inspired ones, eventually someone, somewhere, *will* do just the experiment that an Einstein or a Newton would have suggested. And, of course, they will make the same discovery. There are many millions of scientists now, and highly correlated efforts can produce results that no one person can achieve.'

White sat back, feeling that all this was no substitute for the fuzzy-set mathematical analysis in his thesis; but there simply was not time to go through all that. He dared not risk asking Haynes outright whether he had taken the trouble to read the thesis!

'Are you seriously suggesting that if Einstein or Newton had never lived, we might still have advanced to the state of our present knowledge in physics?'

Haynes now resumed the attack with something approaching personal animosity.

'There are flaws in that. Just because someone does the right experiment it does not follow that they appreciate its significance. In fact, if they did the experiment more or less at random we have an independent probability to consider altogether: whether the significance of the result will be appreciated by a non-Einstein or a non-Newton at all. The combined probability that the same person will both do the right experiment and appreciate its significance is just about zero, I should think. Are you seriously suggesting that if Einstein or Newton had never lived, we might still have advanced to the state of our present knowledge in physics?'

White took a deep breath. 'I *am* suggesting that as a distinct possibility; and further, I think that we might possibly be even more advanced than we are today.'

Haynes stared at him in contemptuous disbelief. That, to White, was the last straw. It was now obvious beyond the least doubt that Haynes had not bothered to study the arguments set out so painstakingly in the bulky thesis he now held in his hands. If he had read them, he would have seen that particular issue worked out in complete detail to its admittedly surprising conclusion. Haynes had completely ignored the impact of the integrating computer networks now in operation, which could analyse and disseminate all the experimental data—often with what looked very much like human insight. But the battle was already lost as far as his PhD was concerned. He felt sick.

Suddenly all his stored-up tension and sense of injustice found its release, and he said things to Haynes which, even in retrospect, five years cooler, made him blush from ear to ear. He lost his temper and his PhD as well. There would be no second chance after that.

It had not been a fair trial, and the bitterness burned him still.

In the observatory, Lionel White's hands were sweating even in that cold night air. Cursing to himself, he cast an unseeing glance at the teletype console and walked quickly towards the little room he used as a study. He must go over the arguments again, get still more data, get it published; and get back at Haynes. So much for impersonal, detached research; here was a driving force infinitely stronger: the desire for personal revenge.

Had he taken the trouble, he could have seen the ugly hulk of the Fornax patrol-ship through the slit in the dome. As it was, he was far too absorbed with the Creative Correlation Hypothesis to notice the faint odour of chlorine which accompanied his visitors until it was much, much too late.

THE FORNAX did not visit Earth any more often than was absolutely necessary in the interest of efficient cropping. When one is responsible for the surveillance of a thousand star systems with embryonic civilisations, there are strict limits to the attention that can be spared for each. Earth had been visited every three thousand years or so since the last Ice Age, and so far no interference had been necessary.

On previous occasions the Fornax had always been observed and sometimes attacked. The attacks were, of course, completely ineffective. They never troubled to try to conceal themselves or their purpose; why should they? Their comings and goings were regarded by primitive humans as miraculous and supernatural events, and caused a great stir locally at the time. But when the patrols had left and the first-hand witnesses scattered and died, the accounts became amplified and distorted; they found their way into the myths and folk-lore of many Earth cultures as stories about winged chariots of fire, demons and suchlike. They were classed together in the popular mind with witches, black magic and visits of the gods. These particular gods waited for a hundred generations between visits, and evidently did not concern themselves much with human affairs.

Earlier patrols had collected a few live specimens and samples, taken note of cultural levels, cranial development, and so on. It had not been necessary to take any drastic action—until now.

The surveillance pattern was well-established, and had minor variations depending upon the particular life-form being monitored. The telltale signs were always remarkably similar on planets supporting carbon-based oxygen-breathing life with bipeds as the dominant species. In the case of Earth, a receiving station placed in orbit slightly beyond Pluto waited for the first radio signals. There is a curious irony in the way that many life-forms announce their existence to the rest of the universe by spewing coherent electromagnetic radiation in all directions as soon as they have learned to generate it. It does not seem to occur to them that their survival as a race might depend upon anonymity.

By intercepting and studying the transmissions, and checking them against past survey reports, the Fornax were able to analyse and then re-synthesise the languages used. With cybernetic computers as interpreters, they could communicate directly with the dominant species on any planet supporting intelligent life. It was not always possible to spare a patrol ship just when it was needed. If there was any delay, the second danger signal would appear: the spectrum of fission and fusion products in the planet's atmosphere. That was the time to act at all costs, for the race who masters the energy of the stars is a very short step from the interstellar drive. The Fornax could not afford to let any species get much beyond its own solar system, because that might mean the loss of the greatest weapon of all: the weapon of surprise.

The Fornax technique for dealing with potential competitors was in principle very simple indeed. It left no scar and caused no devastation; it left no clue to show what had happened. It involved no direct conflict where precious Fornax lives might be put at risk. And in a million years of galactic domination, it had never failed.

The first step was to capture a live specimen of the dominant species who could (and therefore most assuredly would, after persuasion) help them choose their targets with precision and economy.

THE BODY FLOATING UPRIGHT in the specimen tank was that of a naked man in his middle thirties, except that in place of a head there seemed to be an octopus whose tentacles reached out and over the edges of the tank into the dark recesses of the ship. The body of the octopus was an opaque spherical helmet, completely enclosing the man's head and blocking off all sensation of sound and vision. The tentacles were tubes, wires and fibres performing a variety of functions concerned with the life-support and sense-data channels to the brain. A piped supply of air ensured that the man would not suffocate in the chlorine-laden, acidic atmosphere of the Fornax ship. The octopus appeared to be floating on a sea of syrup; for, below the seal at the neck of the helmet the entire body was immersed in a chemically inert, viscous liquid maintained exactly at normal body surface temperature.

The effect of all this was to isolate the man from all communications to the senses except those which the Fornax chose to supply. Escape was not merely impossible: it was literally unthinkable. The best way to keep a captive is to prevent him from knowing that he is in captivity. In the very unlikely event of the helmet being wrenched off, revealing the surroundings, death would follow in a few seconds from corrosion of the lungs, quite apart from the lack of oxygen. No specimen had ever escaped alive from the tank of a patrol ship on cropping duty; and this was to be no exception.

The viscous, treacly liquid protected the

specimens from themselves as much as anything else; sudden movements, voluntary or otherwise, were impossible. Sustained kicking, squirming or threshing quickly produced total exhaustion against such resistance. Mental resistance was more (but only slightly more) of a problem. But the Fornax, with a million years of experience, had ways of dealing with that as well.

THE TANK WAS EMPTY. A puppet had been put to work. The college buildings stood grey in the gathering dusk, and a cold wind stirred flurries of autumn leaves in the Great Court. Horses and carriages lined the street outside; the loading was proceeding in frantic haste. In the autumn of 1665, when the unseen, incomprehensible tide of death known as the Great Plague was spreading from London, the University at Cambridge was closing down and would remain closed for more than a year.

The exodus was almost complete. Frock-coated figures, muffled against the cold, carried bundles and trunks, manuscripts and books to be taken away. Students and dons alike, equals in distress if in nothing else, scurried back and forth with their possessions. They spoke little; and there was something strained, almost furtive, about their comings and goings. A few cases of the plague had already been reported in Cambridge.

Into this turmoil wandered a man who belonged to another age. He moved like a sleepwalker; his badly-fitting clothes, torn from a dying beggar in Trinity Lane, did not attract so much as a second glance from anyone.

As if jerked by an invisible string, the man seemed suddenly to wake up, and began questioning the carriage-drivers; but his manner of speech caused them some alarm and so he contented himself with a question of the single word 'Woolsthorpe?'

Eventually he was directed to a short passageway and through a gate into Trinity Lane where a pony and trap were waiting, the driver fidgeting with his whip while the passenger, a man in his early twenties, delayed over some trifling matter. The stranger walked quickly up to the pony and, before the driver had realised what was happening, fondled the animal's ears and pushed some lumps of sugar into its mouth. The pony was grateful, and no harm seemed to be done. The driver was too agitated to ponder the matter further, and in any case the stranger turned immediately on his heel and strode purposefully towards the end of Trinity Lane through which the pony and trap must pass on its journey to Woolsthorpe.

'The stranger took the young man's head between his hands and slowly bent it back until he heard the neck snap. Then he rose quickly and appeared to busy himself with the driver, who was lying groaning a few feet away'

The trap had started to move off before he reached the main street, the driver and pony moving carefully amongst the bundles and trunks which still littered the narrow lane. Then a remarkable thing happened: the pony appeared to go completely mad.

Its eyes burned, its nostrils flared; with an agonised scream it plunged forwards, scattering men and baggage like so many ninepins. It had almost got to the main street when the trap overturned after striking a pile of baggage, throwing both occupants heavily onto the unyielding cobblestones.

First on the scene was the stranger, who happened to be standing near. He went straight to the passenger, who was lying unconscious on his back, hidden from the view of others by the overturned trap. His injuries looked serious, but he was still breathing. The stranger took the young man's head between his hands and slowly bent it back until he heard the neck snap. Then he rose quickly and appeared to busy himself with the driver, who was lying groaning a few feet away.

By that time, others had arrived. Their interest centred wholly upon the fate of the passenger, and there were cries of despair when he was found to be dead. The stranger seemed to relax and lose interest in the driver at this point. No one challenged him as he moved away into the deepening shadows; but a fragment of conversation reached him: '. . . if Mr Newton had lived, we might have known something'.

In spite of the deep conditioning, the mention of that particular name forced a gasp from Lionel White and burned into his memory. Within a few seconds, however, the shock was dissipated and the implanted instructions regained control. He found his way back, through the semi-darkness near the gateway in Trinity Lane, to the point of his original appearance. There was no sign of the beggar; he might have crawled away, but more likely he had died and been taken away in the dead-cart with other plague victims.

A number of passers-by were to swear that they had seen a ghost in Trinity Lane that evening, and not without good reason.

AGAIN, THE TANK WAS EMPTY. The assassin had been sent on his second, final mission through time.

Reports in the local press of 1891 were necessarily vague and inconclusive, except upon one point: the senseless brutality of the crime.

Albert, a 12-year-old boy, had been found dead in his uncle's workshop; killed by being pushed onto a lathe while the machine was working. Nothing had been stolen and no other damage was done. What could be the motive for such a crime? Was it the work of a madman? If so, what had become of the murderer? The whole incident offended the sense of decency—especially in a progressive city like Munich. One might hope for better things in these enlightened times, they said.

A formal enquiry was held; but in the absence of motive, suspects, no witnesses, its conclusions were predictable. One interesting point did emerge, though: several people had noticed an apparently drunken man wearing odd clothing who was loitering near the side entrance to the small electro-technical factory run by the two brothers Jakob and Hermann. This strengthened the belief of many that the murder was indeed motiveless; but they still had the problem of what had happened to the stranger afterwards. He had never been seen before, and was not seen again after the morning of the murder. Albert was buried amidst much mourning, and kindly neighbours came to comfort the Einsteins in their loss.

The verdict: murder by a person or persons unknown.

'Visions, horrible visions, swirled around him. Foul murders, terrible disease, helpless puppets jerking backwards and forwards in time . . . their strings were world-lines . . . and their masters ruled the universe'

THE DOME of the observatory glowed suddenly like a beacon at the top of a gigantic, dark tower as the first rays of the morning sun struck the top of the mountain. A black, irregularly-shaped object detached itself from the shadows on the peak and rose vertically and silently until it became a speck against the dawn sky. There were no witnesses of its departure.

Inside the observatory, Lionel White was slumped across his desk, shivering uncontrollably, his breath rasping. The light hurt his red and inflamed eyes. There was a thunderstorm in his head, every crash a burst of pure agony, tearing his brain apart cell by cell.

Visions, horrible visions, swirled around him. Foul murders, terrible disease, helpless puppets jerking backwards and forwards in time . . . their strings were world-lines . . . and their masters ruled the universe.

'My God, what have I done?' his voice was a choked whisper, slurred by a badly swollen tongue.

The vision circuits were off, but the sounds alerted his secretary. The woman's voice, anxious, seemed to come from all round him.

'Privacy class A violation, sir, you must do as I say. You are ill.'

No response.

'SIR, YOU ARE ILL!' This time the tone was imperative and the volume slightly higher than the threshold of pain. He groaned and managed to sit up, though he nearly passed out again with the effort. The voice came again, lashing him into action: 'GO TO THE COUCH. YOU MUST GET TO THE COUCH.'

He forced his eyes open, and tried to discover where the voice was coming from. He wondered dimly why they were shouting at him. He saw the couch and succeeded in staggering over to it before collapsing in another spasm of blinding pain. Sobbing with the effort, he dragged himself onto the low couch, one arm and a leg still trailing on the floor.

The pressure sensors in the padding gave his secretary enough information to map his body and place the first needle in position. The depth was a little too great; he winced as the point grated on bone, withdrew a few millimetres, and then released the stimulant. The colossal boost hit him within a few seconds and enabled him to respond to the next order, which was delivered at normal volume this time.

'Lie on the couch properly; on your back, arms straight down your sides. Now relax while I get the poison out of your system. You can speak if you like, but don't try to move.'

He had not the slightest intention of trying to move. He felt for a moment as though he were floating on air, not part of the world any more. Then the pain slammed into him again, sending a shudder through his whole body. But the needles and the sensors were beginning to have an effect.

Vaguely, as his faculties began to return, he remembered that he had not seen the person who had administered the injection. He framed his words with care, his swollen tongue and slight dizziness combining to produce the sort of precise, slurred speech that comes from a man who is drunk and knows it. 'Where . . . are . . . you?' he managed to say.

'My central processing unit is in the basement of this building. I have some peripheral facilities here in your private rooms, such as the interspace communications link, library facilities and, of course, the medical couch where you are now.'

He felt that he had not fully understood the reply; but the voice was reassuring, confident and somehow familiar. He felt better and more relaxed already. Then without warning his mind was invaded again by images of nightmare scenes, human puppets, and behind it all a cold, calculating malevolence which he found the most frightening of all.

He fought to understand what it might mean . . . were these genuine memories or just the products of a delirious imagination? There were names, too . . . names he had got to find out about. Slowly, painfully, he coaxed the memories back into conscious recollection. The fever was still with him, and a terrible weakness, but his mind at least was clearing. He tried to frame the words.

'Newson, Newston . . . Newton. Isaac Newton. Who was he?'

'Can you be more specific, please?'

'Something to do with . . . science?'

'There is no record of any Isaac Newton in my memory; and I have access to all documented human knowledge, as you know. Could you have been mistaken in the name?'

'There was . . . another one. Insteen . . . no . . . Einstein. Who was he?'

'Einstein. Yes. A man called Jakob Einstein was granted a number of minor patents on electric motors in 1894 and 1896. No other records under that name.'

'Oh.' White was confused. Something *had* been there; shadowy, elusive, just below the surface of his consciousness, but sinking now, sinking fast. With a jolt he realised that he did not even remember what had prompted him to ask about those names. Surely *something* must have been there. He opened his eyes properly, the light did not hurt so much now, and looked around him. Yes, it was familiar; or at least he thought it was—it was so hard to disentangle the dreams and the nightmares from the memories.

Without quite knowing why, he suddenly asked, 'Who am I?'

'That, if I may say so, is a remarkable question,' replied his secretary in its sleekest feminine voice. 'It strengthens my conviction that you should resist the temptation to make class A privacy directives unless there is a genuine need. A directive at that level increases my threshold of inhibition to the point where I may not attempt to communicate with you unless your life is in danger. But, to answer your question: you are Dr Lionel White and you are 35 years old. You are universally acknowledged to be the greatest living theoretical physicist.

'At the age of 15 you successfully combined Poincaré's theory of general relativity with the Dirac uncertainty equation to produce the first unified field theory. It is still the best such theory we have.'

Lionel White began to say something, then thought better of it. The secretary continued in a matter-of-fact voice.

'Five years later you postulated the essentially two-dimensional nature of time itself, and the consequent existence of interspace. You also made three crucial tests of the theory, which were all successfully carried out. It was during the third test that the Fornax probe

beyond the orbit of Pluto was discovered and sabotaged. It is almost certainly accurate to say that your work alone gave us the means to stem, and then eventually reverse, the tide of Fornax galactic domination with minimal loss of human life.

'You are famous for your eccentricities. One of them is an obsession with a now defunct sport known as clay-pigeon shooting; your interest even extends to the use of crude chemical explosive cartridges in a situation where I at least would regard ultrasound projectors as the obvious choice. Another, more endearing trait is your practice of keeping human servants, including a butler . . .'

Lionel White was sitting upright now, his mind sharp and clear. The therapeutic needles, penetrating his body in a programmed sequence from within the padding of the couch, had done their work well. He suddenly realised that he was listening to a recitation of his own life story. What on earth for? He did not keep an expensive secretary just to . . .

'Sir: an urgent interspace message from the battle cruiser *Ganymede,* now in synchronous orbit. May I complete the link?'

'Of course.' In fact, he was mildly annoyed that anyone should disturb him in his private mountain retreat. It was probably his brother. The stereocast flickered as the reference beam stabilised and then he was face to face with the solid image of his brother, Jon, commander of *Ganymede.*

'Sorry about this, Lionel, but you should hear about it before the press get to know. First I'd better ask the obvious question: we know you collect clay pigeons and human butlers, but have you added vintage battleships to your list lately?' There was no hint of a smile on his face.

'Good heavens no, Jon. Nasty things, anyway. Liable to go off without warning.'

Jon frowned. 'That's what I thought. Well, you're not going to like this. We've just caught a bunch of Fornax who say they *didn't know the war was over.* How they managed to stay undetected for so long beats us, and has us worried. But there's worse to come: they turned up *inside* our defence screen.'

At this, Lionel White was genuinely shocked and his face showed it. The defence screens were supposed to be impenetrable; he had designed them himself. He was wrapped in thought for a few seconds, then asked, 'You did say they were caught, not killed?'

'No, they're OK. Spewing hydrochloric acid everywhere, so they must be in good shape, by their standards. They were first detected directly above your mountain, at an altitude of about a hundred kilometres, by the polar orbital fort. They didn't respond to warnings, so we clipped their drive unit with the laser cannon and brought them in. They made one hell of a fuss, but surrendered when we threatened to feed them oxygen instead of chlorine. Seemed to think they had been cheated somehow. It took us a long time to convince them that the war was over, and even longer to get it across that *we* had won. We're interrogating them now.'

'Thanks, Jon. I'll work on it.' The image vanished.

He sat back in the couch, which had now moulded itself to allow him to sit comfortably upright. Deep in thought, he pulled over an electro-scribe from the desk and plugged the lead into his secretary's nearest input socket. 'Solve these with the assumption of orthogonal world-lines first; we'll see where that gets us.' He began to write equations.

He was too absorbed to notice the gentle tap at the door, but of course his secretary did.

'It's the butler with your morning tea, sir.'

'Oh, yes. Open the door please.'

The panel slid silently to one side, admitting a middle-aged, immaculately clad butler carrying a tray with his master's morning tea and biscuits. His manner was distinctly, almost painfully, deferential, as befits a manservant who knows his place in the world. He put the tray down carefully beside the couch.

'Will that be all, sir?'

White glanced briefly up from his equations.

'Yes, thank you Haynes; you can go now. And by the way, Haynes, you should get that eye put right. They can cure those things quite easily now, you know. Secretary: put me on class A privacy again, please.'

THE QUERY BOX

CONDUCTED BY THOMAS SHERIDAN

Readers' questions on any aspect of science fiction are dealt with in this regular feature by Thomas Sheridan, who is internationally known as one of the foremost experts on the medium. Address your questions to THE QUERY BOX, 'Science Fiction Monthly', New English Library Ltd, Barnard's Inn, Holborn, London EC1N 2JR. They will be answered as soon as possible.

THE GREATEST
I am an avid reader of the works of John Wyndham, in my opinion the greatest sf author since HG Wells. I have sixteen of his books (as listed) and would be grateful if you could tell me of any others.
Stephen A Murray, Camperdown, Dundee

All you seem to lack is *The Best of John Wyndham* (Sidgwick 1973; Sphere pb 1973), which included a complete list of his works, also given in *SFM* Vol 1 No 9, in which Walter Gillings presented him in the series 'Modern Masters of SF'. To these lists must be added the more recent collection, *The Man from Beyond* (Joseph 1975); and if you are a completist you also need *Tales of Gooseflesh and Laughter* (Ballantine 1956), the US version of *Jizzle* (see Query Box, *SFM* Vol 2 No 7), and *The John Wyndham Omnibus* (Joseph 1964), comprising his first three novels: *The Day of the Triffids, The Kraken Wakes,* and *The Chrysalids.*

BARSOOM AND AMTOR
Would you please list all Edgar Rice Burroughs' Mars and Venus novels?
T Jacobs, Aylesbury, Bucks

You will find these listed in detail, with the rest of his works, in the *Edgar Rice Burroughs* centenary magazine published by *NEL* last August. Copies are still obtainable.

FRITZ UND THEA
Could you tell me if Fritz Lang of *Metropolis* movie fame ever wrote a book of the film or any other books? I have the feeling he may have been a famous author in his day.
Graham Cronin, Lisson Green, London

The German film director wrote the screenplays of some of his early movies, such as *Destiny* (1921), before collaborating with Thea von Harbou, who later became his wife. She was the author of the novel on which the film *Metropolis* (1926) was based, and which was published here in 1927 by the Readers Library. She also wrote the book of the film *The Woman in the Moon* (1929), the novel *Spies* which was filmed as *The Spy* (1928), and several other screenplays, before Lang went to America.

Metropolis was reissued in the USA as an Ace paperback in 1963, but I have never heard of the Moon novel being reprinted since it sold by the thousands in Woolworth's in the Thirties at sixpence a copy. For a complete study of Lang's movie career see *The Cinema of Fritz Lang,* by Paul M Jensen (Tantivy 1969).

COOPER'S CORONETS
Is it possible to get hold of Edmund Cooper's novels, *Seed of Light, The Tenth Planet,* and *The Slaves of Heaven?*
Patrick Smith, Kirby-in-Ashfield, Notts

Seed of Light was published here by Hutchinson in 1959; the same year it appeared in the USA as a Ballantine paperback. It is now hard to come by, even through specialist dealers. *The Tenth Planet* appeared in 1973 from Hodder, who have published most of Cooper's work here and issued his most recent novel, *The Slaves of Heaven,* last January. These two titles should be available in due course as Coronet paperbacks.

A comprehensive survey of Cooper's output by James Goddard appeared in *SFM* Vol 2 No 4. If you're intrigued by the Coronet series concerning *The Expendables* which started recently with *The Deathworms of Kratos,* you may care to know that these stories will appear in America by-lined Edmund Cooper instead of Richard Avery . . .

WHO WAS WHO?
I have a book called *Through the Barrier* by Pel Torro. Could you say who this author actually is?
Peter J Wills, Naylorsfield, Liverpool

I referred your query to authors' agent Philip Harbottle, who has made an intensive study of the sf magazines and pocketbooks, mostly devoted to 'space opera', which burgeoned here in the 1950-60 period and featured writers who often used several names. He confirmed my suspicion that 'Pel Torro' was almost certainly a pseudonym of the prolific R Lionel Fanthorpe, whose work was confined to the John Spencer publications *Futuristic Science Stories, Worlds of Fantasy, Wonders of the Spaceways, Tales of Tomorrow* and Badger Books. They also ran *Supernatural Stories,* which was still appearing monthly in the Sixties, long after the other magazines had stopped.

Fanthorpe's novels and short stories probably ran into hundreds, appearing under such pen-names as Lionel Roberts and Trebor Thorpe as well as under 'house names' (used by several contributors to the same publications) like AA Glyn and AJ Merak. Emerging from the maze still slightly puzzled, researcher Harbottle adds: 'It would be an almost impossible task, and one scarcely rewarding, to identify who did what.'

Your prolific correspondent, Mr Covell (*SFM* Vol 2 No 10), seems to be in danger of choking on his own spleen. So *The Female Man* makes him angry, angry enough to forbid discussion of a book and then go on to hurl abuse at it and the author – an example of masculine illogic perhaps? *The Female Man* made me angry as well, though, I'm sure, for very different reasons. I am not a 'feminist' in the accepted sense of the word nor do I wish to chase the subject of women's lib into your columns, but I feel that it is up to someone, preferably a woman, to take up cudgels on behalf of Ms Russ and her book. Mr Covell states that the author is an 'idiot'. That is his own private view. I am not acquainted with the lady and would therefore hesitate to form so harsh a judgement. However, I fail to see anything idiotic in the views she expresses in *The Female Man.* Admittedly, she exaggerates, but hyperbole has always been the legitimate tool of any writer or speaker who is trying to make a point; and Ms Russ has, at least for me, succeeded in making her point.

The Female Man has some of the qualities of a fable but there is an element of truth in it which brings the reader up short. I realise that the men in the novel are grotesque parodies of the men most women know (and love?) but, nevertheless, we women recognise them only too well. Man at his ghastly worst – being patronising when he means to be nice, man incapable of thinking further than his balls whenever he's in the company of a woman. There are many men, I know, who are not like this but, unfortunately, Ms Russ' prototypes still live and breathe and inflict themselves upon us.

Of course *The Female Man* is sexist. That is the whole point of the book. Try altering all the females to males as your correspondent suggests. You will end up not with a work expressing the male chauvinist point of view but with a work expressing nothing at all – incomprehensible claptrap. You could possibly rewrite Asimov, and many others, reversing the sexes . . . but Russ? It's unthinkable, what she says about the sexes is valid only one way; and it *is* valid. Perhaps you have to be a woman to realise it. Maybe she goes too far but she does succeed in shocking readers, both male and female, into an open awareness of what they already secretly know to be true; namely, the injustices and indignities the sexes inflict on each other. In our society the main victims are women, but it can work both ways. Ms Russ' 'heroines' are generally as unpleasant as her 'heroes', the women's excuse is that they are more sinned against than sinning.

Meanwhile, it would help if people refrained from childish abuse. It may be comforting to affix names like 'male chauvinist pig' and 'female chauvinist sow' to those whose views we do not share; such a method of classifying individuals means that once we've put an individual in a convenient category we can stop considering and evaluating what they have to say. A lazy man's (or woman's) way out!

Remember George II's comment on General Wolfe, 'Mad is he? Then I wish he would bite some of my other generals.' *Mutatis, mutandis*: 'Female chauvinist sow, is she . . .'
Ann Looker (Aylesbury, Buckinghamshire)

Your correspondent Ian Covell seems such a pleasant chap that I would hate to be forced into arguing with him. I would love to be convinced by the clever sophistry of his argument that Edmund Cooper's clearly self-contradictory remarks were really perfectly consistent all the time, but I'm afraid my mind refuses to bend quite far enough.

I suppose I should apologise for having enjoyed *A Far Sunset* eight years ago. I didn't *actually* say that I thought it represented the direction in which sf ought to go. I happen to enjoy, for example, the stories of Leigh Brackett, but I would hate Philip K Dick or J G Ballard to start copying her. In fact, oddly enough, I don't happen to look upon sf as a single object to be steered in a particular direction, as though it were a car.

It's strange that Mr Covell should demonstrate such hatred for Joanna Russ' views, as expressed in *The Female Man,* and yet should apparently wish to defend Edmund Cooper's views, which he admits are 'reverse-identical' to Ms Russ'. I am equally out of sympathy with both of them, though I can see, sadly, that it is the attitudes of people like Mr Cooper which produce over-reactions like Joanna Russ'. What it is that produces Ian Covell's over-reactions is another matter – but that's his problem.
Malcolm Edwards (Harrow, Middlesex)

I have a great interest in the subject of UFOs, as well as science fiction, and I would appreciate it if any *SFM* readers could supply me with any newspaper cuttings of UFO sightings or photographs of UFOs for my collection.

Two years ago I compiled a project on UFOs, a copy of which was sent to the magazine 'Interplanetary News' and ever since then I have been addicted to this fascinating subject. Would it be at all possible for *SFM* to publish any articles on UFOs in future issues? I'm sure there are many people, apart from myself, who would be interested to read about flying saucers.
Clive Luff (Gosport, Hants)

Ed: Plans are in progress at the moment to produce a special issue of *SFM* devoted to the topic of UFOs. We hope that it will include photographs of sightings as well as several articles on the subject.

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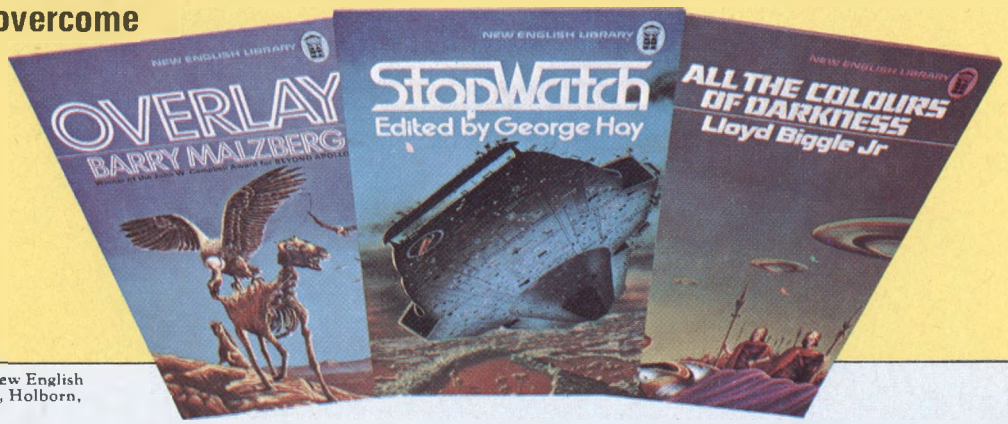

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