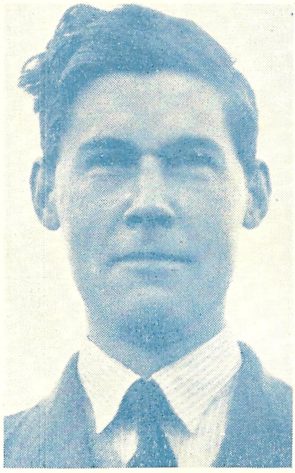
NEW WORLDS
SCIENCE FICTION

No. 33 2/-

NEW WORLDS

PROFILES

Francis G. Rayer



Under his own name and also a variety of pseudonyms 34-year old Francis G. Rayer has contributed over 1000 stories and articles to as many as fifty-three different publications throughout the years he has been writing. By far the greater proportion have been published since 1946 and mainly cover science fiction stories and scientific articles.

His most outstanding piece of fiction, the novel *Tomorrow Sometimes Comes*, recently re-published by the "Science Fiction Book Club," will "remain the most personally satisfying," he says, "having also been translated and published in France and Portugal." His short story in this issue is another facet of the complex Magnis Mensas he originally set up in his novel.

Similar to many of his contemporaries, he first became interested in science fiction literature at the age of ten "when Moon-men and Giant-Ant stories were the accepted thing. But now," he states, "I think the reading of present-day science fiction demands a certain mental liveliness and I would put readers of it as being generally of a higher intelligence level than average readers of other classes of fiction."

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CONTENTS

Novelette :		
THE STAR WALK	*by James White* ...	4
Short Stories :		
MANNA	*by John Christopher* ...	46
LOGICAL DEDUCTION	*by Gavin Neal* ...	61
THE VETERANS	*by Norman Dale* ...	72
THE ACTIVE MAN	*by Sydney J. Bounds* ...	85
EPHEMERAL THIS CITY	*by Francis G. Rayer* ...	94
Features :		
EDITORIAL	*by John Carnell* ...	2
THE LITERARY LINE-UP	... ...	93
BOOK REVIEWS	*by Leslie Flood*	119
POSTMORTEM	*by The Readers* ...	126

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Cover painting from "The Star Walk"

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Graduation Day

Science fiction, for twenty-nine years the specialised literature of the short story medium in magazine form, is now in the throes of metamorphosis. What its eventual shape will be can no longer be predicted by the many people who have guided its rather meagre fortunes through infancy and adolescence, but whatever the end results during the next few years it is safe to predict that science fiction will no longer resemble its early youthfulness.

In the past seven years since the first tentative attempts by American publishers to give the *genre* a cloak of respectability by substituting hard-covers and attractive dust wrappers in place of the one-time lurid magazine covers, the literature has grown into adulthood and has been accepted by those same publishers who once spurned it. Its destiny is no longer in the hands of the magazine authors and editors who shaped its formative years—High School is over and it has now entered the professorial academy of the reputable publishing houses, where even its early mentors are now only guests on visiting days, standing on the side-lines to smile wanly as literary honours are handed out to unknown students with new theses.

Although American publishers set the original pattern of book publication, drawing mainly upon established authors for either new material or publication of already written serials, British publishers—having experimented with those same novels on the British market—are now bringing a fresh approach to science fiction as a *literature.* A glance at the massive 734-page Spring edition of *The Bookseller*, where science fiction has at last been officially granted a separate category, is a significant pointer to the shape of novels to come. Of the thirty forthcoming titles listed for the first half of the year, ten are by writers completely new to this field, and of particular interest is the fact that even when choosing American titles for British editions the publishers in London are buying material by ' unknown ' authors—Edgar Pangbourne's *A Mirror For Observers* (Frederick Muller Ltd.), Steve Frazee's *The Sky Block* (Bodley Head), *Hero's Walk* by Robert Crane (Cresset Press) and *Dark Dominion* by David Duncan (Heinemann).

While the established publishers of science fiction such as Boardman, Museum Press, Grayson, and Weidenfeld continue mainly with British editions of American books by established authors and anthologists, with an occasional new title by a British author, publishers such as

Heinemann, Frederick Muller, Eyre & Spottiswoode and Michael Joseph have given much thought to a different and more popular method of presentation. While they could easily have dropped the designation " science fiction " from their announcements and placed such titles on their general fiction lists they evidently feel—very rightly —that their good names are more than sufficient to outweigh any stigma that may still cling to the term and their intention is that the general public shall accept science fiction *under that nomenclature* and appreciate to the full first-class novels by outstanding authors.

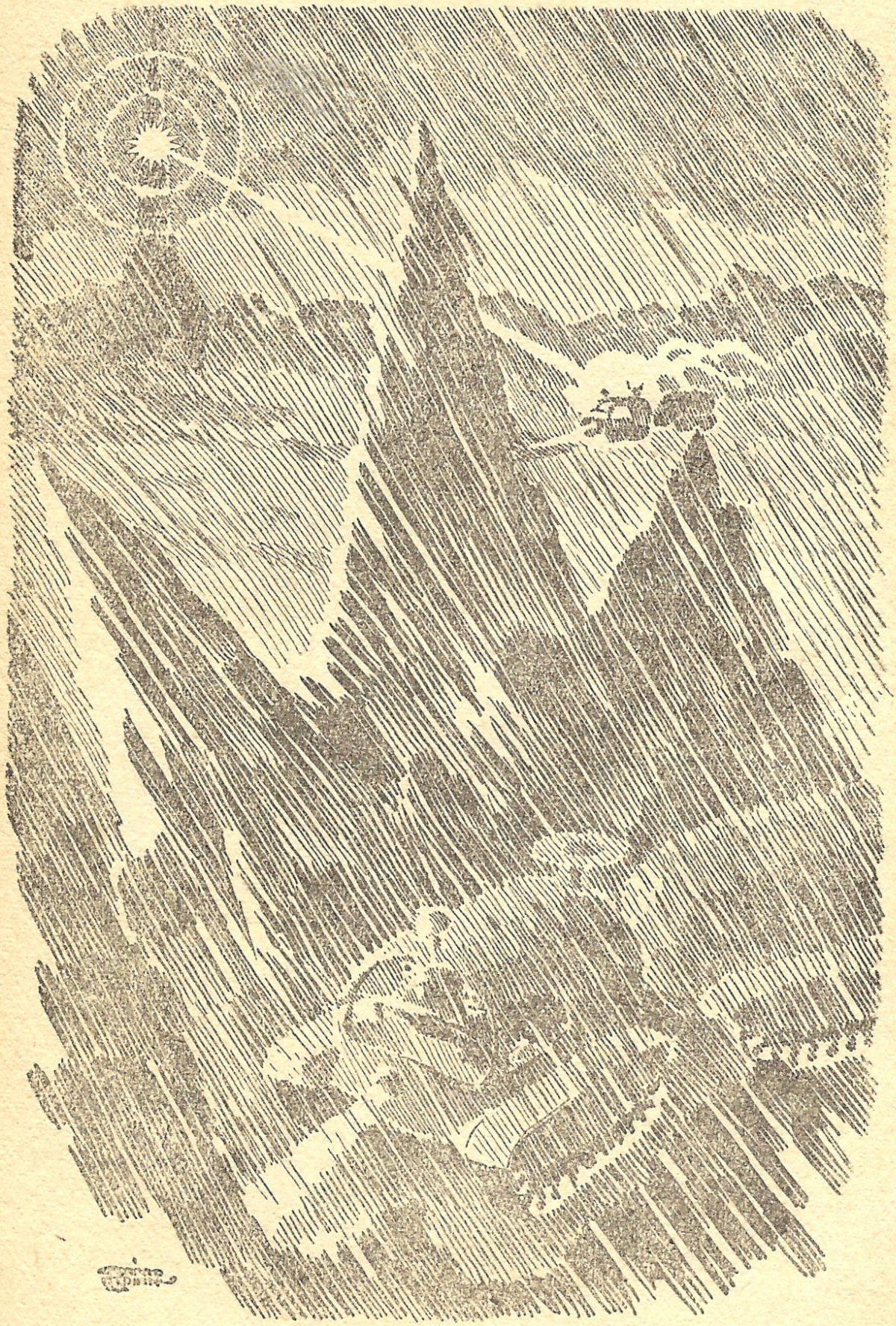
Particular mention should be made to Michael Joseph's programme, officially announced under the heading of " Novels Of Tomorrow " and edited by Miss Clemence Dane, a celebrated novellist in her own right and a veteran science fiction reader. Of the seven titles, four are new novels—*Thr Bright Phoenix* by Harold Mead, *The Year Of The Comet* by John Christopher, *The Chrysalids* by John Wyndham and *White August* by John Boland; the fifth is Wilson Tucker's exceptional novel *Wild Talent* somewhat altered from its original serial form in *New Worlds*; and the last two are very fine individual author collections, *Untouched By Human Hands* by Robert Sheckley and *The Mindworm* by C. M. Kornbluth. The collections evidently being Michael Joseph's answer to the popularity of the anthology.

This series will set a very high literary standard indeed and will undoubtedly influence the future of the medium. Even at this early stage of British science fiction publishing it is fast becoming noticeable that American publishers are now purchasing new British material for their own lists—a complete reversal of West to East book traffic !

Faber and Faber, who also join the ranks of the respectable this Spring, have a most peculiar approach to the subject. In their *Best S-F*, edited by Edmund Crispin, they are asking readers to pay 15/- for an anthology of stories taken from recent anthologies ! Each of the eleven stories has already appeared in this country in recent years—in fact, the only unread material in the book is the very erudite foreword by the editor, but I doubt whether library readers or even completist collectors will appreciate this fact.

It would seem therefore that the cloak of " respectability " will sit well on the shoulders of the prodigal child, despite the attendant problems of maturity. I can only hope that its new guardian will lavish as much care and affection upon it as Hugo Gernsback, Farnsworth Wright, O'Connor Sloane, Orlin Tremaine, John W. Campbell, Jr., Tony Boucher, Horace Gold and many other editors including myself.

John Carnell



Star Walk No. 17C was a postal area on the rim of the Galaxy. As such it was served by Courier ships bearing mail and exchanging scientific knowledge for the advancement of the far-flung colonies. As in a bygone age when the Pony Express thundered across the prairie—the mail had to go through.

THE STAR WALK

By James White

Illustrated by QUINN

I

He'd certainly picked a fine spot to land this trip, Carmicheal thought disgustedly as the creep bounced and jolted its way towards the grounded C-ship; frozen, iron-hard soil split by a maze of cracks and gullies and strewn with rocks of every shape and size. But there was a very good reason for the C-man landing in an inaccessible section, he knew; a reason good enough to make the physical discomfort of the pick-up man of no importance at all.

The C-man wanted to live as long as possible.

But the punishment certain parts of his body was taking wasn't the cause of his present anxiety. Neither was the thought of similar suffering being endured by Evelyn in the seat beside him—after all, she had more or less asked for this. What really had him worried was, what would the C-man's reaction be when he saw two people in the creep instead of one?

A basalt outcropping beside the creep suddenly emitted an ear-splitting *crack*, glowed rapidly from dull red to white incandescence, and slumped into a puddle of lava. Simultaneously the C-ship's outside speaker thundered "*Halt*!"

Carmicheal halted.

For a while there was silence. The wind, which had been steadily rising since they'd set out, gently rocked the body of the creep on its springs. Heat from the newly-made pool of lava made the car's transparent canopy on that side steam up and trickle moisture. A different kind of moisture—the cold sweat of fear—gathered on Carmicheal's forehead, and his hands were suddenly slippery on the wheel.

The madman, he raged impotently to himself; *the crazy, trigger-happy son of a*——

"There are two people in your vehicle," the Speaker roared at them. From high up on the tall grey ghost that was the C-ship a flare arced towards them and burst, abruptly augmenting the semi-dusk that the gathering storm had brought. Still unbearably amplified, the voice blared, "What is the meaning of this? Why is the woman with you?"

He suddenly knew that this whole stunt had been insane from the start. He could have talked Evelyn out of the idea, but he hadn't. Instead, like the big-mouthed braggart he was, he'd told her to come along. *He'd* take her on the pick-up trip. *He'd* show her a C-ship real close up. Maybe she'd even get to talk to the *C-man* . . . Carmicheal writhed in self-revulsion. The things a man will do to impress a girl; especially if it's the girl he hopes to marry.

C-men didn't appreciate tricks, even innocent ones. They'd no sense of humour at all. But because the C-man had identified himself on landing as Carlsen, and Carlsen had been a regular caller at the colony world Helena, Carmicheal had been sure that there would be no danger. Carlsen would know that nobody here would try to pull anything—at least, that was the way Carmicheal had figured it. And while the usual routine of sending and recording had been going on, he'd gone out in the creep to pay what was cynically referred to as the 'taxes,' taking Evelyn with him. He'd been sure of their safety, but that was small consolation now. After being almost cooked with a heat beam . . .

The voice of the C-man came crashing into his thoughts.

"Talk fast," it boomed. "And this will have to be good."

Hurriedly, Carmicheal flipped on the creep's transmitter and said respectfully, "I'm sorry, sir. But you see . . ." He talked fast and fluently, explaining the reason for Evelyn being with him, who she was, and how innocent the whole thing had been. As he talked he

felt a slow burn creep up from his neck and over his face and ears. Carmicheal was acutely aware that he wasn't talking like the brave character that he liked to appear before Evelyn. But Evelyn's opinion of him was, after all, a small thing when compared with her safety. He glanced aside at her, but her hand was shielding her eyes from the light of the flare, and the rest of her features were unreadable—she could be thinking anything. He finished his explanation and waited.

" Outside," came the C-man's voice. " Both of you."

Evelyn didn't say anything as he helped her out of the creep, but her face showed her growing realisation of the deadly danger that was here. They stood well out of range of secondary radiation, knowing that the immaterial fingers of a search beam was probing the metal of the creep, looking for concealed weapons. The icy gale tugged at their coveralls and made their unprotected faces waxy with cold. The C-man began talking again. It sounded almost a monologue, Carmicheal thought.

He was a very suspicious man. He began by reminding them of the number of times C-men had been forced to shoot first and interrogate afterwards because of stunts similar to this—always supposing that this was a stunt, and as innocent as it appeared. He went on to suggest that maybe it wasn't a stunt, insinuating that, while he knew their vehicle was unarmed, under certain circumstances the presence of a woman would be armament enough . . .

He sounded, Carmicheal thought, very angry and emotional about the whole thing. It wasn't . . . characteristic.

At first Carmicheal couldn't bring himself to look at Evelyn. But as the voice continued its tirade his embarrassment was drowned by a rapidly growing wave of suspicion. There was something wrong here. That voice: it was too slurred, too sibilant, and it kept growing and fading in volume. It wasn't the voice of the Carlsen he'd known. Instead, it sounded like a very bad recording, he thought, or a highly-amplified whisper might sound something like that. He turned to Evelyn. In a low tone, despite the distance they were from the ship, he said, " That voice. It sounds . . . funny."

" So it sounds funny," Evelyn said, the cold making her teeth chatter suddenly. She tried to sound matter-of-fact, unworried, but her voice was pitched a little too high. " Well, why don't we all laugh ?"

She turned abruptly and scrambled over the rocks towards the creep. The residual radiation from the search beam would have had time to dissipate by now. Carmicheal followed her.

If, he thought, the man in the C-ship wasn't Carlsen—though the voice records at landing identification had checked—it could mean

only one thing. Sundberg, or one of the other mobs, had got hold of another C-ship and intended setting up in business for themselves. It that was so, things were going to be very bad, both in general and in particular. Besides the normal levies, Helena would now also have to pay ' protection ' to the Sundberg combine; and if that wasn't a C-man on the ship practically anything could happen to Evelyn and himself personally, and none of it would be pleasant. And he'd got her into all this—him and his big mouth.

As he helped an icily silent Evelyn up into the creep he tried to form an apology. But the voice from the ship drowned him out.

" I suppose you're harmless," it said. " But don't make any sudden movements. You may approach the ship." It paused while the creep resumed its journey, then went on; " I want payment in fuel this time. I'm running short—"

" But we've got credits," Carmicheal burst out. " And we're short ourselves—"

" Shut up, and do as you're told—" The voice broke off with a sharp intake of breath. It resumed, rapidly and with what Carmicheal thought was almost a note of pleading. " If you are re-broadcasting this over your creep's transmitter, please stop. This is a personal message." A brief pause; then: " Drive up close to the ship, Mr. Carmicheal, then come aboard. It's to your advantage. Hurry."

With his mind a mass of tangled question marks, Carmicheal brought the creep to a skidding halt at the base of the ship. No one was ever invited aboard a C-ship—they carried too much stuff that was valuable. No one was ever given a personal message by a C-man. And C-men never said ' please ' to anybody. He saw, as he jumped to the ground that Evelyn was looking at him with something like awe in her expression.

He saw the warped and heat-discoloured condition of the hull around the air-lock, and the broken, partly-fused pieces of glass scattered on the floor plating, then he was inside being whisked up to the control-room by an uncomfortably fast elevator. Even during that seconds-long journey he was shocked by the intensity of his feelings at being inside a spaceship again.

He'd missed it terribly.

It was Carlsen all right in the control-room. He was lying on the acceleration couch, with one hand holding a mike to his lips. The other sleeve of his tunic had been ripped up to the shoulder, and both leg seams had been cut to above the knees. The three exposed limbs were plastered with the sharp-smelling green goo used for the emergency treatment of radiation burns. His face was like dirty putty. Carmicheal had to bend over him to hear what he was saying.

" The ship is booby-trapped. If you try anything, there's enough fissionable material aboard to blow a chunk out of this planet . . ." His voice faded, but with a visible effort Carlsen forced it up to a barely audible whisper. " I need medical attention. If you can have me patched up enough to finish this trip, you'll be compensated—generously. I'll see to that."

So this was the high and mighty C-man, Carmicheal thought bitterly; buying secrecy, buying help, and through it all, still managing to bully everyone into co-operation with the invincible armament of his ship. But his bitterness, he knew, was born chiefly of envy. And, after all, the man was in a very bad way.

" None of my specialities include medicine," Carmicheal said, then stopped. Carlsen had passed out. He looked like staying out for a long time.

Carmicheal gently took the mike from the C-man's limp hand. He turned down the volume so that his voice would reach only to the creep at the base of the ship and said softly: " Evelyn. Come up here. Carlsen is injured—burns and radiation poisoning mostly. Bring the kit from the creep, climb in the way you saw me do, then stand in the elevator and I'll take you up from here."

Evelyn would be able to do something, he knew. Like most colonists she was expert in more than one subject—they had to be to survive in the early days of a colony—and hers, he remembered, were administration, hydroponics, and medicine. She would need all her medical knowledge now.

II

With his hand resting gently on the remote-control switches for the elevator that was bringing up Evelyn, Carmicheal sat on the edge of the Main Control desk and gazed slowly around. In essentials it was the same as his own control room had been six years ago—though his had been a passenger ship with consequently a much less elaborate Ordnance Panel. In details though, it was vastly different. There were a lot of little gadgets here and there that he thought he *should* have understood, but didn't. Still, he consoled himself, there were bound to be a lot of modifications and improvements in six years. And anyway, he'd never actually been in a C-ship before.

But he was completely certain that, given the chance, he could take this C-ship out and put her down on any charted planet in the galaxy. He hadn't forgotten everything.

Carmicheal felt himself tremble as a sudden, almost overwhelming compulsion rose in him—a compulsion to sit at that Main Control

panel and take up this great big beautiful monster of a ship. It would be so easy, too. Taking Evelyn, he could go to the Central Worlds. There the stars crowded so thick and close and bright that the sight of them caught you by the throat. There the living was stately, gracious, civilised—though there was plenty of excitement too, for those looking for it. Carmicheal had been born on a planet of one of the Central star systems. When he compared the slow, leisurely life of his youth with his existence here on Helena, where there was nothing in the night sky but the mist of the galactic lens and a lousy handful of second-magnitude stars, and where a man had to do the work of three to keep himself and the colony functioning . . .

Savagely he forced those thoughts out of his mind. He'd adjusted to life on Helena. It was a good life, a worthwhile life, and pleasant even—in a strenuous sort of way. And there were nice people. He *liked* it here.

Liar ! said a tiny voice in his brain, but it didn't say it loud enough to bother him. He continued his visual examination of the control room.

It was a nice, compact set-up. The panel he was sitting at was Main Control. From it the ship was raised, manoeuvred, navigated through sub-space, and landed. Close by and at right angles to it was the Communications panel. It was almost fully-automatic in operation, and Carmicheal could see that it was working at the moment transmitting the contents of a tape to the recorders in Helena's capital city. Opposite Communications was the ship's Ordnance panel, where the touch of a finger could produce anything from the mild sunburn of a wide dispersion heat beam to the unimaginable holocaust of pattern fusion-bombing. A U-shaped double rail linked the three panels, and the pilot's couch—running on this—could be shot rapidly from one to another by a touch of a foot pedal.

Naturally, it was the Ordnance panel which interested Carmicheal most.

A set of balefully glowing lights gave the information that the ship's forward heat beam had been recently discharged and was still in readiness. But the rest of the panel was either in darkness or showing the green of Operable-But-On-Safety.

Carmicheal gave an incredulous look when the implications of that fact hit him. But his eyes hadn't been playing tricks. According to that panel there were no booby-traps, no bombs set to discharge automatically, nothing. He could clearly see that the fusion bombs Carlsen had threatened the planet with had not even been primed.

With a shock Carmicheal found himself laughing aloud. As it stood, the mighty C-ship was about as defenceless as a baby in its perambulator. *More* defenceless, he thought as he looked down at the unconscious Carlsen; this was a very sick baby.

The elevator arrived with Evelyn then, pushing temporarily out of his mind the potentialities of the situation; they were mind-shaking, frightening, and too great to be grasped all at once. Not trusting himself to speak, he nodded her towards the injured C-man and watched her go to work.

" He's very . . . young." There was pity in her tone.

Suddenly angry for some reason, Carmicheal said sharply: " They catch them young, while their reflexes are still fast."

Disregarding his tone, Evelyn continued working. After a time she straightened up and sighed. Speaking in little more than a whisper, she said :

" He's beyond the stage where purely medical treatment will do any good. He needs surgery—an amputation and leg graft, maybe two—and he needs it quickly." She paused and glanced down at Carlsen to make sure he was still out and couldn't hear her before going on. " He's had a bad dose of radiation recently, and is still partially in shock from the attendant surface burns. The shock will pass in a little while, but the destruction of tissue by the radiation is serious. If he isn't hospitalised soon, he'll be dead in two weeks. He might," she ended gravely, " die anyway."

" He wanted to be patched up enough to finish his trip," Carmicheal said. " Is that possible ?"

Evelyn shook her head. " He'll soon have lost the power to move his hands and legs—localised destruction of nerve tissue. I don't think he could even take off . . ."

That, Carmicheal thought, eased his conscience somewhat. Carlsen couldn't possibly work the ship with one hand. And if the C-man was planet-bound—and probably due to die anyway—what he was planning to do wouldn't be so bad. Why, given the same chance, practically any man in the colony would do the same.

If, said the little voice deep down in his mind, *he was a louse like you, he probably would.*

He was saved from answering it by the realisation that Evelyn had resumed talking.

". . . So you see, I can't do a thing for him here. We've got to get him to one of the colony specialists right away."

Carmicheal straightened up. " You're forgetting something," he said drily. " This is a C-man. C-men aren't . . .popular, and he's defenceless off his ship. We'll have to make the specialist come to

him. There's a good radiation man—a friend of your father's—who could be trusted to keep quiet about all this. We'll get him—"

Carmicheal broke off. Carlsen had come to.

"I heard a little of that," said the C-man. "Thanks." They had to bend to hear him as he went on. "But are you sure this man can patch me up? It's very important I finish this trip." He stopped abruptly, as if, Carmicheal thought, he'd almost said too much.

Evelyn smiled down at him. "Sure he will," she said, and made it sound as though she meant it. The C-man looked relieved and switched his attention to Carmicheal.

"I've something for you. Three tapes—two thousand credits worth. Do you want them?"

"*Two thousand credits* !"

It had become almost a conditioned reflex with Carmicheal, these attempts at beating down the price. First he registered shocked incredulity at the exorbitant sum being asked. Then followed an attempt to discover something about the data on the tapes, so that Carmicheal could belittle its importance by telling the other that the colony was getting nowhere with that particular line of research. Information was of variable value—you could get something that would save three years work for practically nothing, but you could also go broke getting data you might already have discovered. Usually Carmicheal's bargaining was done over the two-way radio. Actually being able to talk to the C-man should substantially increase his chances of success.

But Carlsen was an experienced man; he refused to be tricked into giving clues about his information. Carmicheal reluctantly raised from seven hundred to eight hundred credits, and began telling a hard-luck story about the tough times the colony was having. The story was eighty per cent true, but he'd never realised he could be so eloquent.

Evelyn cut suddenly into the conversation. Carmicheal was shocked to see how angry she was. White-lipped, and with her eyes practically shooting sparks, she said very softly, "I told you this man needs treatment quickly. Is all this haggling necessary?"

Before Carmicheal could reply, the C-man said, "It's my fault. I forgot you were helping me for a few minutes there. Take them for eight hundred."

He'd just saved the colony twelve hundred credits, Carmicheal thought as the elevator took the three of them down to the entry port. Yet he didn't feel a bit proud of it.

The haggling had been unnecessary, a mere force of habit. Several people would have to know that the C-man was off his ship; that was unavoidable. But he, Carmicheal, was the only one who knew that

the ship was defenceless. That ship—containing hundreds of tapes, all labelled and sorted—represented so much concentrated wealth that the thought of it made his mind whirl. And, providing he didn't do anything stupid, that ship and everything in it would be his.

How does it feel, asked the little voice in his head, *to be wealthy beyond your wildest dreams*?

It feels just fine, he told it. But he felt like adding that it would feel much better if he wasn't suffering from the vestigal remains of a conscience.

III

Carlsen was unconscious again when they got him to the creep. Manoeuvring him into the tiny cabin without adding to his injuries was a slow, back-breaking job, but their exertions kept them from suffering too much from the cold. When they were inside, Carmicheal had to switch on the ground radar, because to make matters worse, the whole rugged and unbeautiful terrain had disappeared behind a stinging curtain of gale-driven snow. The radar would give warning of any obstruction too big to be climbed, but it couldn't indicate holes in the ground. He would know about those only if he happened to fall into one.

When they'd been on their way about ten minutes Carmicheal said, "There's a place two miles from here—living quarters for a weather control station we were hoping to build. He'll be safe there. I'll leave you with him, then go into town for the Second Citizen and the doctor. O.K.?"

"Yes," Evelyn said coldly. "But hurry."

He looked sideways at Evelyn, who was trying to cushion the injured C-man against the jolting vibration of the creep. He and Evelyn could be the richest couple in the whole sector, Carmicheal knew. She wouldn't approve of what he meant to do, at first, but he thought he could talk her into accepting it. He'd talked her into things before, including the idea of marrying him a few weeks from now. Carmicheal smiled. It shouldn't be too difficult . . .

"Stop dreaming!" Evelyn snapped. "And watch where we're going—"

She broke off as the creep gave a sickening lurch over the lip of a crevice and hung there with its forward set of treads spinning madly in air. Carmicheal felt it teeter forward and flung his weight backwards to compensate, simultaneously slapping the rear treads into reverse. The treads scrabbled at the frozen ground for a heart-stopping second, caught, and dragged the creep back to safety. He moved it forward again, parallelling the black shadow that was the crevice.

Neat, he thought, complimenting himself wryly. His reflexes were still fast; he still had the lightning responses of the trained Spaceman.

The trained Spaceman . . .

The old bitterness arose in him again as he thought of that training. All six years of it. Besides the awful grind of attaining proficiency in the specialities necessary for ship control and maintenance, there was the sheer torture of the physical and psychological training as well. One designed to make bodily movements at least three times faster and more accurately controlled than normal, and the other to make desirable an environment that would drive a person without that training quite mad if he were exposed to it for any length of time. And when it was all finished, an old fogey—who seemed to operate on ninety per cent intuition—told you whether you'd passed or not. Altogether it was a murderous and a fantastically costly process. Almost as costly as the price of a single interstellar trip.

And all for what ?

Carmicheal glared into the howling darkness. Ghostly and distorted, the reflection of his own face in the plastic canopy glared back. He'd had three years as Number Two on the *Starling*—a small passenger boat operating in one of the Central sectors, where stellar distances were small and travelling cost a relatively small fortune. He'd been as happy in his job as anyone could ever hope to be. Then one day the *Starling's* captain had been asked to take some subsidy equipment to the colony world of Helena, on the galactic rim. The trip—Government paid for, of course—would net the ship's company so much money that the Captain had nearly bitten off the official's head saying 'yes.'

They'd all been warned about these 'frontier' planets, of course. But Carmicheal, after a brief look around, had decided that the colonists were a harmless, self-satisfied bunch. That was until he'd been very scientifically knocked on the head and locked in a windowless room until the diminishing thunder of the *Starling's* take-off told him that it had gone without its Number Two.

Second Citizen Prescott—Evelyn's father and chief administrator of Helena—explained what must have happened to him after he'd been released. Someone—it must have been a higher-up member of the Sundberg mob, to have the necessary technical qualifications—had told a very convincing story of Carmicheal's death or disablement to the *Starling's* Captain, and offered himself as a replacement. Probably, Prescott had told him, the agent had picked up some important information discovered by Helena's research teams and wanted to get it back to his boss quickly, or to some planet where he could retail it himself, before the Helena administration could report and be credited through

the proper channels with its discovery. Anyway, there was nothing Carmicheal could do to rectify matters. Even supposing he could afford the cost of sending a message to his employers—a message carried through sub-space by ship because of the snail-like pace of light and radio waves—he knew that it would be ten times cheaper for them to train another man than to send a ship out after Carmicheal. He would just have to resign himself, Prescott had told him, to remaining on Helena as a colonist.

And he had resigned himself. Eventually—after a fashion—he had even adapted to the vile climatic conditions, the awful, empty black that was the night sky, and the sheer drudgery of his work. His technical skills were a big help in co-ordinating research, and the psychological training that kept him on good terms with crew and passengers

during interstellar trips were also invaluable. In personal relations and in delicate problems of administration he'd been hard to beat, and everybody liked him. He'd gone up fast. He still thought about his life on the *Starling*, and about the crowded sky of the Centre, but these thoughts no longer kept him awake all night.

At least, not very often.

Now he was expected to take the Second Citizen's post when Prescott relinquished it, and he was going to marry the Second Citizen's daughter.

Carmicheal was an unqualified success on Helena, but that success was making him more and more doubtful of the Second Citizen's original story. That explanation now seemed a little too pat. Could it be that the colony had needed someone with Carmicheal's qualifications ? And had it been Prescott's man instead of Sundberg's who'd knocked him on the head ? He'd probably never find out.

Still, he thought bitterly, apart from breaking his heart and ruining his life, they'd treated him very well.

A low moan from Carlsen brought him out of his deepening mood of self-pity. The C-man had been muttering feverishly for some time, but rarely loud enough for Carmicheal to make anything out of it. He glanced sideways, and felt an unreasoning rush of anger.

" What's he gabbling about now ?" he snapped.

It was silly. He knew that Evelyn had to hold Carlsen to keep him from bouncing against the inside of the creep. But she shouldn't hold him like that, or look at him like that . . .

" Something about canvas," she said quietly, without taking her eyes off Carlsen. " And fists, and needles. And something about finishing a walk. A whole lot about finishing a walk. What does that mean ?"

" It's his name for——"

The creep chose that instant to ram a small boulder. Carmicheal's jaw shut with an audible click and tears popped into his eyes as he bit his tongue. He remained angrily silent until the darker shadow of the unfinished weather control station loomed up in front of them.

The power line running to the living quarters of the station hadn't been disconnected since its abandonment through lack of funds two years ago. There was heat and light—and the C-man was made comfortable—within a few minutes. It was a desolate spot, but to make sure that nobody would get curious Carmicheal covered all the windows. Then, with his spirits soaring as he thought of the untold wealth and freedom that would soon be his, he started the creep on its trip to the city for the radiation specialist and the Second Citizen.

He was on the way less than five minutes when a low murmuring drifted down to him out of the sky. He slapped on the brakes and sat gripping the wheel as if trying to twist it out of shape. The murmur grew to a screaming, bone-jarring thunder, and then abruptly died. The sound was unmistakable; just on the other side of town, *another C-ship had landed* !

Strangely, he had no feelings about it at first. His mind was empty, a blank—except for the little voice that chortled, *How does it feel to be poor again* ? and began to laugh. After a while Carmicheal thought he saw the funny side of it, too, so he joined in.

Abruptly he got a grip on himself. There was a place for people who laughed the way he'd just been doing. Viciously he sent the creep bouncing at near-suicidal speed in the direction of town. He might make something out of this yet, providing he kept his head.

Two hours later Carmicheal was back at the station again, fidgeting outside the room where the C-man was being examined by the doctor. Evelyn was in there too. Evelyn, Carmicheal thought angrily, was sticking to Carlsen like glue, and the way she fussed over him was sickening. He was going to have some hard things to say to her when this was all over.

On a chair at the other end of the room Second Citizen Prescott sat staring at the floor. His expression was unreadable, and he hadn't spoken a word to anyone since leaving town. When Carmicheal had told him his story about Carlsen, Prescott had merely said that he'd just been visited by two men from the other C-ship, and that there was something about this whole affair which stank, so he wasn't going to discuss it with anyone until he'd thrashed it out with Carlsen. Now, they were waiting for the doctor they had brought with them from town to report.

IV

The door opened and closed silently, and Dr. MacIntyre was in the room. He was tall, thin and tired-looking—the latter a condition common with Helena's colonists—and he was beginning to need a shave. He said quietly, " We haven't the resources to effect a cure here on Helena—this is only a D-stage colony. He'll have to go to a more advanced colony, or to one of the Central systems." He paused. When he went on his voice was cold, objective, but the look in his eyes betrayed his true feelings. " But in his condition he couldn't pilot a tricycle, much less a C-ship. I'm afraid he's just out of luck."

He added then: " He's bad, but conscious, if you want to talk to him."

As they entered the room the Second Citizen's eyes flicked about the tiny compartment, missing nothing. They rested for a moment on his daughter sitting by the bedside then focussed sharply on Carlsen. Knowing how the colonists felt towards C-men, Carmicheal expected him to make some crack, or to crow a little over the other's predicament, at least. He didn't, but got down to business right away.

" Mr. Carlsen," he said coldly, " your position has been explained to me by Carmicheal here, but in order to avoid any misunderstanding, I'll re-state it.

" At one of your previous call-points you were injured, and on touching down here you found that you could not proceed with your journey without medical attention. In exchange for this attention you are going to reward Mr. Carmicheal—and the colony, too, I hope—generously."

Prescott paused, and there was brittle quality to his tone as he went on : " Now, normally I would take the word of a C-man. But I now have reason to believe that you are no longer one of those. The fact of your demanding fuel instead of credits makes my suspicion practically a certainty.

" You're a renegade, Carlsen. You've decided to start up in the business for yourself."

The Second Citizen's voice was still coldly impersonal as he continued, but that was only because he was working hard to keep it that way.

" Two hours ago another C-ship landed, and two men came to see me. Both were extremely well armed, and in true C-man fashion they informed me first thing that there was another man on their ship all set to blow my city off the face of the planet if anything should happen to them. One was in coveralls, the other wore a black and silver uniform, and was called ' Inspector ' several times by the first one. The uniformed one had some very searching questions to ask about you—like how you sounded over our sets, did you seem to be wounded, and what form of payment you'd asked for. Then they returned to their ship.

" Those men want you badly, Carlsen; and whether you're alive or not doesn't seem to matter to them at all. They think you're on your ship, so at the moment they're probably busy planning ways to open up or destroy that ship. But since talking to them I've found out that you aren't on your ship—though you've got it pretty thoroughly booby-trapped, according to Carmicheal here. Now . . ." Prescott's voice began to shake a little, and his lips, Carmicheal saw, were practically white. As he went on he looked almost as sick as the man he was talking to. ". . . at any moment your superiors will start flinging

missiles at your ship, and that ship is set to go up—taking half the country with it—at the first touch. Sixty per cent of this world's population is in the area of total destruction, the capital city. What in blazes made you pick *this* colony to land on ? What did I ever do to you to deserve this . . .?"

Carmicheal fought to keep a wide grin from breaking out all over his face as Prescott's tirade continued. What incredible luck ! Carmicheal had been a bit worried over the desertion of Carlsen and the theft of the other's ship. But now that *ex*-C-man Carlsen had turned out to be a thief, too, that changed things. In a manner of speaking, the C-ship was now public property.

And Carmicheal was the only person apart from Carlsen who knew that the C-ship wasn't booby-trapped. If he played this situation right, he thought with growing relief and self-satisfaction, he could be quite a hero to the colony—instead of just another thief and deserter like Carlsen. The plan might mean leaving Evelyn behind, though, until he disposed of the C-ship and its payload and had the credits to return for her. He couldn't risk telling her the truth right now. With this mother-hen complex she was getting over the injured Carlsen, she'd probably blow the works to her father and spoil the whole thing. But telling Evelyn was a mere detail; it could be settled later.

One decision he did make as he listened to the Second Citizen ranting at Carlsen. He would do everything possible to take the injured man with him, and to leave him off at a planet where his burns could be attended to properly. Us crooks, he thought wryly, ought to stick together.

V

Prescott, without a perceptable pause for breath or waiting on a reply from Carlsen, switched his attention to the Doctor.

" MacIntyre ! Can't you *do* anything ? Give him a shot or something, so he can take that ship away from here ? I don't care what happens to him later. You've got to realise," Prescott urged desperately, " that one man's life is nothing when there's a ship-load of fusion bombs ready to flatten the whole colony—"

" *Father* !"

Evelyn was shocked at her father's cold-blooded suggestion. Hastily she began reassuring the injured C-man, but Carlsen waved her weakly away.

" Never mind," he said; then to Prescott and the Doctor: " That is exactly what I want—something to let me finish this trip. If you can give me a shot that will do that—and the fuel I need—that is all I want. And you'll be compensated, too—"

" Don't give me that," Prescott interrupted with angry impatience. " You aren't going to finish any trip, and you have no intention of compensating us. You want fuel instead of credits solely to make a getaway to someplace where you can sell your stolen tapes in safety.

" But we would give you the fuel anyway, just to be rid of you and your ship—"

" Let's get this straight," Carlsen said tiredly. He didn't put any special emphasis on his words—as if, Carmicheal thought, he was far too short of breath to waste it in stressing syllables. " Firstly, I'm a C-man, and still working at it—not a renegade or deserter or mobster of any kind. Therefore, if you do as I say and I get out of this alive, you will be paid. Secondly, the men in the other C-ship are not my superiors. They are Sundberg men trying to stop me for a reason which I cannot disclose to you.

" C-men never travel three to a ship, and Inspectors don't wear uniform. But I can't expect a colonist to know that, so telling you that doesn't prove anything. However, whether you believe it or not," Carlsen ended soberly, " those men are fakes."

For perhaps a second after Carlsen had finished talking Carmicheal felt distinctly uneasy. Could the other be really telling the truth? But the feeling changed quickly to one of surprised admiration; the story sounded so sober and *convincing*. What an actor Carlsen was.

But if Carmicheal was going to work himself into the position of the colony's saviour and all-round bright-eyed boy, he'd better start laying some preliminary ground-work. First he would have to side with Carlsen to gain the C-man's confidence, then . . . He cleared his throat and diffidently addressed Prescott.

" He could be telling the truth, you know. On the Central worlds they don't think of C-men the way we do, and I used to know a couple of them quite well. They didn't wear uniform—"

" Whether he is or isn't telling the truth is unimportant," the Second Citizen broke in harshly. " All I'm concerned with is getting that ship away from my capital city." He turned to the Doctor. "A minute ago I asked if you could give him a shot or something . . .?"

" The answer is no," MacIntyre said. He went on to explain just why the answer was no, and became very technical about it. For a while the air was thick with medical poly-syllables—but it was obvious hat Evelyn was the only one present who understood what it was all about. Carmicheal saw the pain and anxiety grow in her face as the Doctor talked, and the look of aching helplessness she gave Carlsen—which Carlsen didn't see.

Something seemed to twist inside Carmicheal, painfully. He was abruptly surprised to find that he was clenching his teeth.

Why, he thought, more shocked than angry, she's falling in love with the guy !

Into the emptiness that the realisation brought to his mind, the mocking, derisive voice he knew so well began to speak: *You're not her big, brave ex-Spaceman any more*, it sneered. *You're not the only one on the planet who's been to strange, far places and done great things. This one lives with danger and excitement like they were a second skin. He's got you outclassed, Carmicheal. And another thing*, it ended cuttingly, *he isn't an old man like you—*

But I'm only thirty-eight !

And she's nineteen.

Carmicheal shook himself sharply; if he wasn't careful he'd start talking to himself—out loud. It was time he started his plan moving for the taking of the C-ship before Carlsen's hunters got around to attacking it.

Carmicheal cleared his throat. Since MacIntyre had stopped talking there had been silence in the room. He addressed Prescott :

" I could take that ship up—under Carlsen's direction, of course. I used to be a pilot, you know. If we took her up into an orbit, the city would be safe even if the ship did explode . . ."

Carmicheal, watching the furrows on Prescott's brow smooth themselves out and the sheer relief that flooded his face, felt like a very low form of life indeed—even his fellow worms would have called him a heel. He'd had Prescott scared stiff over a danger that didn't exist. But Carlsen spoke before the Second Citizen could answer.

" That's impossible. You may have been a pilot, but the controls on a starship are completely different from the interplanetary jobs you were used to. It takes special training—"

" Carmicheal is a starman."

It was Evelyn. The way she said the words should have made Carmicheal feel proud, but instead he felt lower than ever.

Carlsen's eyes were boring in at him suddenly. This is it, Carmicheal thought. Carlsen wasn't a dope; he must now be beginning to suspect Carmicheal's true purpose. The information that Carmicheal was an inter*stellar* pilot—or had been—was a dead giveaway.

Here it came.

" A starman, eh. I didn't know that." A pause, then: " You noticed the set-up on the Ordnance panel when you were in my control room then ? And the way the ship is booby-trapped ?"

His eyes were practically digging holes in Carmicheal, and Carlsen couldn't keep the agony of uncertainty he was undergoing from showing just a little in them.

" I took particular notice of the Ordnance panel," Carmicheal replied. " So I know how efficiently the ship is booby-trapped." Sheer exultation gave his voice a strange hoarseness, and he fought desperately to keep from grinning like a satisfied cat. He was going to be so *rich.*

Speaking quietly, Carlsen used a few very dirty words, then hid his face in the pillows.

MacIntyre gasped. Evelyn, still more puzzled than shocked, gaped at the back of Carlsen's head. Her father, after holding a sharply-indrawn breath for the space of three seconds, used it to say chidingly: " There was no need for that, Mr. Carlsen. I can't understand your attitude. But some allowances must be made, I suppose, for your injuries and the pain you are suffering. I just can't believe that you would refuse to do this thing for us." Prescott's voice became pleading as he went on: " No matter what sort of man you are now, you can't have sunk so low that you'd allow a whole colony to be blown to pieces without trying to stop it.

" You've heard Dr. MacIntyre, so I'll not mince matters. We are unable to treat you here," he stated grimly, " so if you stay here you'll die anyway. But if you don't take that outsize bomb you call a ship away, we're all going to die—you included. You've nothing to lose that you aren't going to lose anyway."

Carlsen kept stubbornly silent.

" Carmicheal here has offered to take up the ship under your direction," Prescott continued. " He will be your hands. Not being a spaceman I don't know what his chances of success are, but if he is willing to make a sacrifice, why won't you . . .?"

Oh, stop it ! Carmicheal cried silently. Wasn't it bad enough to be a louse, without having to stand by and listen to people calling you a hero ? His face had been hot since Carlsen had used those four-letter Anglo-Saxon words to him, but now he felt that his blush was radiating deep into the infra-red. He couldn't meet anybody's eyes—and especially not Evelyn's. As Prescott continued talking he kept his fixed on the floor.

All at once Carmicheal felt very sorry for Carlsen. The other was in a dilemma. He couldn't tell Prescott the truth—that the C-ship wasn't booby-trapped—because the Second Citizen would straightaway have handed Carlsen over to his superiors and washed his hands of the whole business. The only thing that stopped Prescott from doing that anyway was the belief that if he did, the Inspector would walk off with his prisoner and just leave the booby-trapped ship on the planet, thus causing the colonists an unguessable number of sleepless nights

until it blew up and put them to sleep for good. Carmicheal didn't think the C-men would do a thing like that, but Prescott had the insular ideas of a colonist, and wouldn't put anything past the C-men.

If the Second Citizen finds out that I'm lying and that this cold sweat he's working himself into is totally unnecessary, Carmicheal thought with a shiver of pure dread, he'll just *start* by skinning me alive . . .

That was a risk, of course, But what really puzzled Carmicheal was, why didn't Carlsen just tell all and give himself up to the Inspector ? Carmicheal didn't know how C-men punished each other's lapses from virtue, but surely they wouldn't just execute him out of hand. They'd at least take him for proper medical attention before trying him.

That was, Carmicheal reminded himself, if he was merely guilty of desertion and theft of a C-ship. Maybe Carlsen had done other things as well. They must have been very bad to make him so frightened of giving himself up. But Carmicheal still felt pity for him.

" Carlsen !" he said loudly, over the words of the still-pleading Second Citizen. " I was Number Two on a passenger boat. I can take you to a place where you'll get proper treatment, where you'll *live*——"

" Oh, *could* you ?" Evelyn burst out. She dropped her eyes then, colouring.

Watching her Carmicheal felt a smothering ache grow in his chest. Prescott had been doing quite a job of pleading a case for the last few minutes, but he could have taken lessons from his daughter—and she was asking for just one life, not the lives of the whole colony. By rights he should dump Carlsen in space, Carmicheal thought angrily. After disposing of the C-ship he would have enough money to return for Evelyn and take her away from this place, and to take her to any of the places she had ever wanted to see. She would soon forget Carlsen then. Or would she ? She'd never acted that way towards *him*, Carmicheal knew. She'd treated him more like a . . .

He brought his attention back sharply as Carlsen turned his head and said, " I don't believe you."

The voice was flat, despairing, but was that a flicker of something like hope that Carmicheal caught in the other's eyes ? Quickly, and making it sound as sincere as he could, he said, " I'll see that you get to a proper hospital. I promise you that."

" Sure he will," Evelyn backed him up. " You'll be better in no time."

Carlsen's eyes flicked towards Evelyn. For the first time since leaving the ship he really looked at her. He blinked—obviously liking the view—and almost managed a smile, but the realisation of his position

forced his lips into a grim, tight line. He said, switching his attention to Carmicheal, " You might at that. But I know what you really want. Well, you're welcome to it, if you take me to a certain place first. It's very important I get there with something. After that you can do anything you like with the . . . the . . ." His voice died, his head rolled from side to side of the pillow and he began to babble deliriously. Carmicheal leaned forward to listen.

" What's going on here ?" Prescott asked sharply, suddenly suspicious. " Are you planning to steal his ship ?"

" You want rid of it, don't you ?" Carmicheal said brusquely. He waved Prescott to be silent.

Carlsen was muttering about canvas bags and needles again, then suddenly his voice rose. " He's a pilot," he mumbled, and gave a little laugh. " Let 'im think what he likes. You gotta finish the walk. 'S important. 'S mos' important things you ever did." The voice blurred, then cleared again. " If Sunberg gets his hands on you it'll be jus' too bad. Innerstellar wars cost too much . . . But not any more . . ."

VI

At that point, before Carmicheal could stop him, Dr. MacIntyre quickly slid a hypo into Carlsen's upper arm and depressed the plunger. Carlsen grew quiet, and about a minute later opened his eyes. Apparently without remembering his brief lapse into delirium, he said distinctly: " All right. I agree to have Carmicheal take the ship up—but there's one condition. I must be fully conscious during the take-off and the subsequent trip."

He paused briefly, gathering breath for the explanation, then went on: " Carmicheal's know-how is several years out of date; he'll need constant supervision if he's not to blow the ship up by accident. If you can't at least guarantee to keep me awake, the answer is no."

That, thought Carmicheal with wry admiration, was a good story for someone who wasn't a spaceman. Carlsen just didn't trust his word, and probably expected to be dumped into space—or sub-space—a few hours after take-off. A suspicious type, this Carlsen. No ; Carmicheal didn't believe that ship operation could change so drastically in six years.

But just suppose spaceship design and control systems had changed, and suppose Carlsen was a bona-fide C-man, where did that put Carmicheal ? Answer; in exactly the same place. He was going to take out that ship, and whether he stole it first or second hand didn't matter —he was putting as many light centuries as possible between himself

and this stinking colony as quickly as he could, and blow the risks. But Carlsen couldn't be a C-man, he knew. That gambit of demanding to be kept awake proved it. While the other was conscious there was still a hope—no matter how faint—of taking the ship away from Carmicheal again. The thieves were merely manoeuvring for a better crack at the spoils. That was the explanation.

The voice of MacIntyre replying to Carlsen forced the nagging doubt he felt about it temporarily into the back of his mind.

The Doctor was saying, ". . . I can give you something to keep you awake and clear-headed, but it's tricky stuff to administer, and dangerous. The timing and quantity used in the shots has to be just right. Carmicheal doesn't know the technique, and you'd be too weak to do it even if you did know how . . ." MacIntyre's voice trailed off, and he looked questioningly at Prescott. There was another silence. Evelyn broke it gently.

" I know the stuff you mean," she said quietly. " It's . . ."—she used a word with an unusually large number of syllables—" . . isn't it ?" Then she dropped her bombshell. " I can administer it. I'll go along with them on the trip—"

Prescott got his ' No !' in a split second before Carmicheal's and proceeded to give reasons for his refusal to consider the idea—angrily and at the top of his voice. He had reasons too—beside the actually physical danger to Evelyn, he didn't want her complicating things when the time came to leave Carlsen. But some of the Second Citizen's reasons were making Carmicheal see red. Without bothering to be tactful about it he called Carmicheal as big a crook as Carlsen, and he described the treatment she could expect from such a pair of blackguards . . .

The wrong approach, Carmicheal thought. He knew just how stubborn Evelyn could be when she liked. As if reading his mind, Prescott changed his tack.

He well knew, Prescott told her, that life on the colony sometimes got her down, that he'd promised she would see more of the galaxy someday, take courses on some of the great University planets maybe, and see the Central Suns . . . But this was the wrong way to go about it. This was too dangerous . . .

At that point Carlsen cleared his throat and said, " Maybe she just wants a cut of Carmicheal's loot."

Evelyn turned. Holding Carlsen's eyes with hers, she said that she didn't want a cut of anybody's loot. Speaking quietly but very seriously she told him exactly what she did want. Carmicheal felt his face burning, and beside him Prescott squirmed in embarrassment. The things

she was saying to Carlsen weren't meant for an audience—they were things people tell each other when alone, among whispering trees, in moonlight. But she was telling them to Carlsen now, as if Carmicheal, MacIntyre and her father were miles instead of feet away. He saw Carlsen's expression of shocked surprise change to one of awe mixed with something else that Carmicheal couldn't read exactly—but which he did not like.

"You, I believe," Carlsen said quietly as she finished talking. He sounded stunned.

Evelyn turned to her father. She stated the position and the solution like an elementary problem in logic. "If I don't go, neither does the ship. Unless you want the colony blown up, you've no choice. I think we should leave at once."

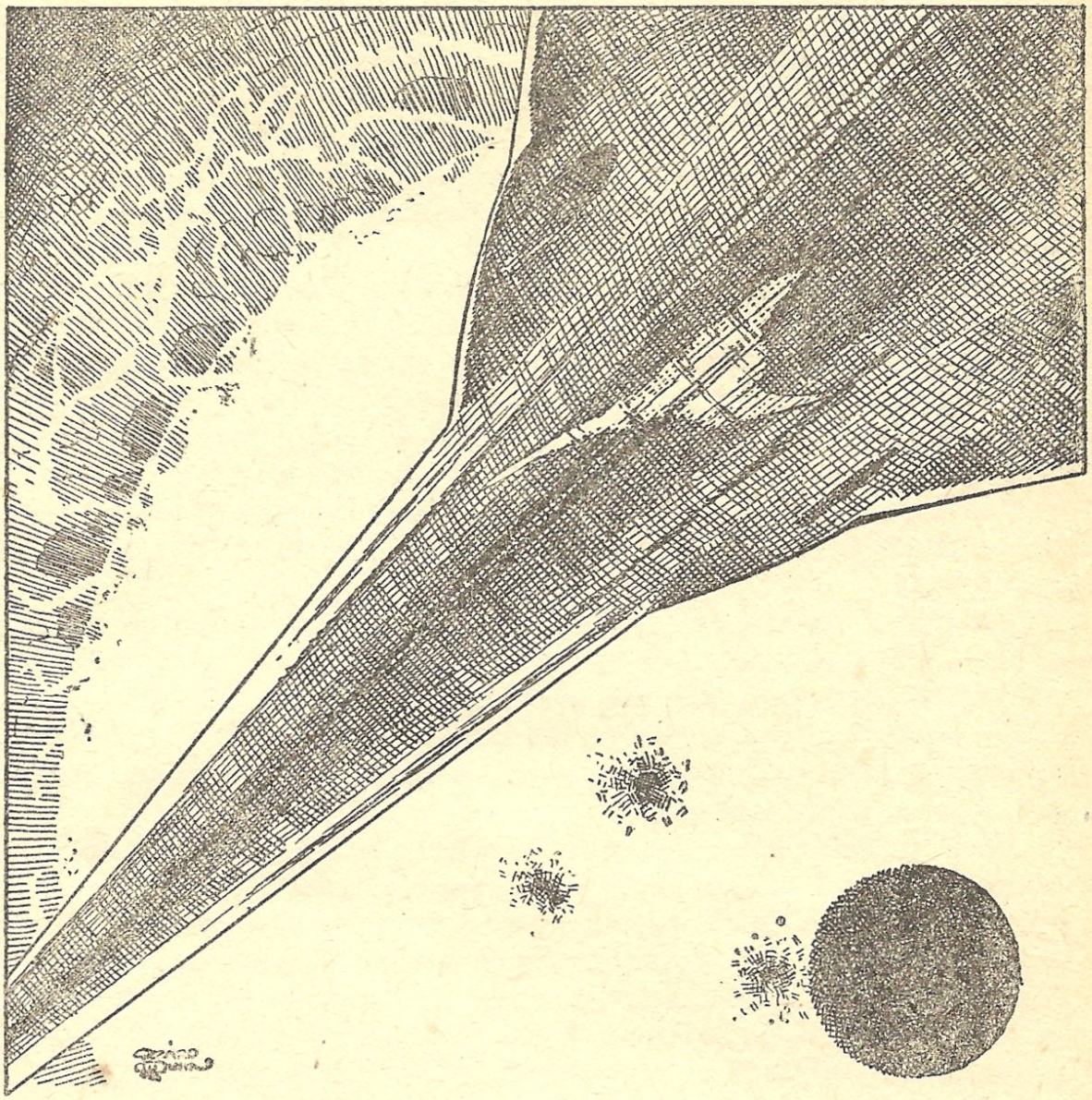
Carmicheal gave himself a rough, mental shake. He wasn't worried about the colony blowing up, but if the second ship opened up on the first one before they could take off in it, Carlsen would be a dead duck and he a colonist for the rest of his life. Hastily he seconded the proposal.

Prescott shook his head numbly, but before he could answer a raucous buzz from the adjoining room told of someone trying to raise the station on the communicator. He muttered, "My secretary. He's the only one who knows where I am," and stumbled out.

An hour later Carmicheal was on the way back to the C-ship. Carlsen was strapped into the seat beside him, and on the floor between them was a heavy, dull-grey canister—the container for the spool of fuel wire that Carlsen had demanded from the colony on landing. The Second Citizen's creep rocked and bounced about twenty yards in their wake. Unlike Carmicheal's vehicle—which was normally used for C-ship pick-up jobs and had therefore to be unarmed—it mounted a grenade-thrower and carried a couple of light hand weapons. The armament was powered chemically, as the heavy shielding necessary for beam and nuclear weapons would have cut down the vehicle's mobility to practically nothing. But at short range, they were deadly.

Occasionally it exchanged shots with another creep that parallelled their course just out of range on the right.

Things had happened fast since Prescott had taken the call from his secretary. When he'd been told that the men from the other ship had come looking for him again, and that—believing Carlsen was either dead or dying aboard his ship—they intended going out to it to investigate, Prescott's opposition regarding Evelyn had dissolved completely. The secretary had also told him that the men became very angry when he refused to tell them Prescott's whereabouts, and that one of the men tried to force the information out of him until the other stopped him.



The Second Citizen said some nasty things about there being practically no difference between C-men and Sundbergs thugs. Then, on seeing that Carlsen wouldn't budge without it, he'd sent for some of the precious atomic fuel to the storage vaults of Installation One. When Roberts, Production Engineer of One, had arrived with it, they'd piled into two of the creeps and gone racing towards Carlsen's ship.

The race looked like being a photo finish, Carmicheal thought grimly.

Fifty yards ahead of him something struck sparks off a flat-topped rock, skipped, and exploded against another one. A few rock chips rattled on the creep's roof. The Inspector's gunner was getting more accurate.

In some ways Prescott was right, Carmicheal thought as he dodged around the still-smoking crater. To a colonist out here the difference between the C-men and Sundberg's hirelings was very slight, and sometimes—even though he was a bandit on an interstellar scale who blackmailed, looted, sold 'protection' and wasn't averse to a certain amount of profitable slaughter—it was often much more economical to deal with him than with he C-men.

It was all wrong, of course, but it was the way things were. Carmicheal blamed the system of colonisation; that and the fantastically high cost of interstellar transportation which forced the peripheral colonies to use as their medium of exchange Credits based on information—either marketable news or technical data—instead of the incomparably more solid currency of the Central worlds. And when you took into consideration the tight Immigration laws of those worlds, the whole Colonial set-up was ideal for big time operators like Sundberg.

Not that there was any fancy play or misrepresentation on the part of the Colonial Office. On the contrary, Carmicheal knew, there was neither trouble nor expense spared to ensure that a colony remained self-supporting. But so staggering was the initial cost, a Government embracing seventy-three stellar systems could only afford to set up a colony once every ten years.

To be suitable for colonisation a planet had to have a breathable atmosphere and an adequate water supply, and whether the water spent most of the year suspended as steam in the atmosphere or frozen solid as ice didn't seem to matter much to the Government engineers—Man, with the help of machines, could live anywhere. So they came in fleets of ships, bringing with them the prefabricated parts of the most wonderful machine ever developed, and began assembling it on a foundation that would last for centuries.

Installation Number One—or as they preferred to call it on Helena, The First Citizen—did *everything*. A power pile, metal refinery, factory and chemical plant all combined on a not-so-small scale, it enabled the colonists to make houses and machines, supplied power and spare components for those houses and machines, and kept the users fed on concentrates until normal food could be grown. As a by-product it gave a steady trickle of the fantastically expensive atomic fuel, a gram of which could power a piece of heavy machinery practically for ever, but which the interstellar ships used at such a prodigiously wasteful rate. When the engineers left it the colony was self-supporting; nobody would starve, and few would take sick. But it wasn't a comfortable existence. If you wanted luxury, you had to work, and *work*. Sometimes, then, you got it.

There were no luxuries on Helena, Carmicheal thought grimly as an icy blast rocked his creep. For easy living you had to have a large population. But you couldn't attract people with the weather conditions on Helena—sub-temperate in Summer and sub-zero in Winter. And while the Government paid the transportation costs for anyone volunteering for the colonies, it wouldn't allow any misrepresentation about that person's eventual destination—the colonist knew exactly what to expect on arrival. Carmicheal was surprised at anyone coming to Helena in the first place, but he supposed there was a certain kick to be had out of opening up a new world.

The answer was, of course, to change the weather. But Weather Control installations were *not* supplied free by the Colonial Office to planets like Helena. They had to be worked for, and their cost of transportation paid, by the colonists themselves; the Office had, after all, spent more than enough on them. Even so, Helena had almost built up enough credit by its sale of fuel to occasional spaceships and data and discoveries by its research teams to send for weather control machinery. But the research groups had struck a bad patch, morale had been affected, and the credit reserve had been steadily eaten away by the colonists' demands for general coverage news tapes from their home sectors—and homesickness, in a colonist, was a very bad sign. So the beautiful dream of Weather Control for Helena, with its attendent increase in status and population, faded gradually away.

VII

Prescott had nearly killed himself with his efforts at stopping the rot, Carmicheal knew. Even yet the Second Citizen hadn't given up hope. When a Sundberg ship touched down at the capital's spaceport, offering high-jacked data spools and cut-price news tapes, there was no trade. But when a C-man came swaggering and bullying down in his invincible ship, Prescott reported the current findings of his research teams, paid for any news or data that might be of help to them, and kept his feelings about the whole thing to himself—at least, until the C-man had gone.

Helena was taking part in a galaxy-wide investigation into longevity, and another into the possible damping out of pre-Nova fluctuations in G-type stars. Most low-stage colonies did similar work—it kept minds busy that might otherwise have turned to plotting mischief—and besides, there was always the possibility that, far from the influence of contemporary thought in the Centre, someone in the isolation of

the Rim would come up with something new and different. It had happened once or twice, with fame and fortune for the colonies concerned, but there were never spectacular results in astronomical or longevity research—merely the elimination of dead ends. The Government research centre paid for negative results too, though, but at a very low rate. Helena, therefore, was poor . . .

Carmicheal's mind was jolted back to the present by an explosion that rolled the creep up onto its starboard treads. He was sure it was going to capsize, but it hung balanced for what seemed like years, then crashed back upright and began running around in tight circles. He got it straightened out, but the explosion had damaged the port treads. It kept slewing off course all the time.

He glanced at Carlsen. The other had his eyes closed, even though MacIntyre's shots were keeping him fully conscious and relatively pain-free. Probably didn't care for the company, Carmicheal thought wryly. It surprised him when the other spoke.

" What are you going to do with my ship when you take it ?" he asked.

Carmicheal licked his lips. He checked to make sure the communicator connecting them with Prescott's creep was switched off before replying.

When he'd finished Carlsen said thoughtfully, " So you really meant that about taking me to a hospital. You must be crooked through circumstances instead of by inclination . . ." He paused, and Carmicheal had the uncomfortable feeling that Carlsen was laughing at him as he went on. " You can only sell the data and news tapes on planets where Sundberg has at least partial control. No other colony will have anything to do with you, no matter how low you cut your prices. And if you do land only on Sundberg-controlled worlds, you won't last long. Sundberg's boys are smart. You'll be outbluffed, and you'll lose everything, including your life and the life of Miss Prescott, if you're stupid enough to drag her along . . ."

Carmicheal felt his face getting hot again. He didn't want to think of Evelyn much less talk about her to Carlsen. Carlsen was a crook; a smooth-talking, plausible crook who could out-act professionals. At the moment he doubtless had a story all ready, a story that would explain everything beautifully.

Carmicheal thought of that other armed creep racing them to the ship. He wouldn't believe any story.

". . . You've got to believe this much, at least," Carlsen was saying, and the sincerity fairly throbbed in his voice. " If you take me to the place I want to go, I really will give you the ship—free, with no strings attached. This is an unheard of thing for a C-man to do, but I think

the circumstances in this case will allow it. However, I think I'd better give you the whole story . . ."

Once upon a time, said the little voice in Carmicheal's head sardonically, *there was a brave spaceman called Carlsen . . .*

There were three more near misses during the time Carlsen told his story. Their creep was a battered wreck that threatened to come apart any minute, but Carmicheal barely noticed the pounding it was taking. It was an absorbing story that Carlsen told. It had everything. It was so good that he actually *wanted* to believe it.

Carmicheal cursed himself for a naive, over-impressionable idiot. Of course it was a good story; Carlsen was smooth, a real sharp man. The yarn, therefore, had been neatly tailored to fit Carmicheal's psychology. Probably if the ship went where Carlsen so eagerly wanted it to go, there would be a trap waiting that Carmicheal would be lucky to escape from alive. Carlsen, he realised, was not going to give up the ship he'd stolen so easily . . .

He forgot Carlsen momentarily as Prescott's creep overtook them. Roberts was in the turret feverishly working the grenade-thrower, but with no noticeable effect—in gunnery his status was strictly amateur. Carmicheal saw Prescott waving urgently for him to switch on his radio, then there was a flash and a roar and the floor hit him in the face.

The creep was lying on its side and Carlsen was sprawled on top of him when Carmicheal again took an interest in his surroundings. A distinctive, sharp-smelling odour assailed his nostrils. He struggled upright and grabbed Carlsen.

" We've got to get away from here fast," he panted as he dragged the other out through what had once been the creep's transparent roof. " This is a chemically powered job. The fuel will catch fire."

At a safe distance Carmicheal stood up and waved at Prescott's creep. Carlsen was wearing practically nothing but his bandages, and it was *cold*. He pointed at the other, hugged his sides and shived elaborately, then gestured towards the C-ship standing less than half a mile away. The pantomime was meant to tell Prescott that he wanted Carlsen taken care of while he tried to make it to the C-ship on foot. Prescott, he knew, wouldn't take his own creep any nearer for fear of a stray shot hitting the supposedly booby-trapped ship.

Carlsen said, " You'll never make it." He sounded as if he no longer cared one way or the other.

As Prescott and MacIntyre climbed from the other creep and began picking their way towards them, Carmicheal said reassuringly to the shivering Carlsen, " They're coming. You'll be all right in a minute."

"Why do I keep trying like this?" Carlsen asked softly, and the utter despair in his voice sent a shiver through Carmicheal colder than any caused by Helena's icy winds. "Tell me, why do I keep trying?" he repeated. He seemed to be talking to himself.

Afraid, yet suddenly pitying, Carmicheal gave his shoulder a squeeze and repeated gruffly: "You'll be all right." Then he left.

Scrambling over and blundering into rocks and fissures, Carmicheal made for the C-ship. But he hadn't gone far when he realised that Carlsen had been right. He would never make it, in the present conditions, at least. The trouble was it was far too dark; for all intents and purposes he was blind. There were light buttons fitted to his coveralls, of course, but they had been broken when his creep had been hit. The only illumination was the irregular orange flashes of exploding grenades and the tiny circle of light from the C-ship's control-room port half a mile away. This only served to accentuate the utter blackness of the terrain he had to cross.

Badly shaken from his last tumble, Carmicheal pulled himself onto the top of a flat rock and tried to think. Sheer good luck had been the only thing that had kept him from breaking his neck on several occasions, and he'd only come a small fraction of the way to the C-ship. He tenderly fingered the side of his jaw where an unseen rock had removed a considerable area of skin, and tried to convince his whirling brain that the boulder he was lying on wasn't spinning and wobbling like an unbalanced top. But his brain wouldn't believe him, and neither would it furnish a solution to his problem. Stiffly he rolled over and looked back the way he had come.

Prescott had manoeuvred his creep into a cleft between two towering piles of rock. The other creep's gunner had the range, but to get at Prescott in his present position the other would have had to first blast that rocky barrier out of the way—an impossible feat that he doggedly persisted in trying to accomplish. But Prescott's safe position made it impossible for him to return the other creep's fire. Carmicheal saw that Roberts had unshipped the grenade-thrower from its turret and was continuing to fight the brave fight from a position well away from the creep. He was scoring, Carmicheal saw ruefully, a monotonous series of wide misses.

Suddenly there was a hissing roar and a great sheet of fire shot into the sky and was torn to shreds by the wind. The fuel from the hastily evacuated creep had decided to ignite at last. Carmicheal blinked his eyes against the unaccustomed brilliance, then caught his breath.

He could clearly see something that Prescott, in his present sheltered position, couldn't, and that was that the other creep's steady progress towards the C-ship would in a very short time bring the Second

Citizen's vehicle into line of sight of it. Prescott's present impenetrable barrier would then be bypassed—and that other creep's gunner was no amateur.

Carmicheal saw something else. Lit by the burning pyre of his wrecked creep, the way across to the C-ship showed plainly. Providing the wreck burned for long enough, he could make it.

Carefully avoiding a hole of unguessable depth that his next few steps would have taken him into, he set off. It was going to be a close race, for he knew that if he didn't make it to the C-ship before Prescott's creep became a sitting target for the Inspector's gunner, Prescott, Carlsen, and Evelyn would no longer be able to complicate his plan for taking the C-ship, because they would all be dead. The thought, somehow, gave him no pleasure at all.

The wreck did burn long enough—too long, in fact. Carmicheal was seen crossing the ground blasted clear by the C-ship's descent, and something whanged off the lock door as he pulled himself through. Another hit sent metallic echoes reverberating through the ship as the elevator shot him up to the control room. Then he was sitting at the Ordnance panel.

Because he was using an infra-red detector, the image of the two creeps on the master screen was distorted and hazy, but the heat pictures of exploding grenades were bright, fiery flowers that seared the eye-balls. All the flowers, Carmicheal saw in a sudden sweat of anxiety, were blooming very close indeed to Prescott's vehicle. Looking long enough only to get a fix, he shot a brace of flares at the Inspector's creep, and for good measures speared it with a searchlight. He switched the screen to direct vision and lined up a heat beam. Then he stopped, thinking.

According to Carlsen these were Sundberg men. They themselves had told Prescott they were C-men, and acted as if it were so. Before he did anything he should call them up . . .

A grenade landed within yards of Prescott's creep. There was no time. Viciously he pressed the firing stud.

The Inspector's vehicle was racing back towards town, taking violent evasive action as it went. Carmicheal's shot—meant only to scare them into ceasing fire—came very close indeed. The creep came to a shuddering halt, its treads a mass of tangled, half-melted metal and the plastic bodywork bubbling with the reflected heat. As he watched the canopy shot open and the two men jumped out and dashed frantically for safety. The creep's fuel went up and there was no further need for flares or searchlight.

He should pick those men off, he told himself, while they were in plain sight. It was the logical thing to do. With them out of the way the chances of pursuit when he took this ship were nil. But, he remembered, it would take them two or three hours to make it back to their ship—that would allow plenty of time for his getaway.

Carmicheal, said the little voice in his head, *you're stupid—and as a crook you're a dead loss.*

Carmicheal shrugged angrily and began calling Prescott on the communicator.

There was no reply.

It might mean, of course, that Prescott's set had been damaged, and the other couldn't hear him. But again, it might not. Sweating suddenly, he switched on the ship's loud-speaker system, turned the volume ' way up, and repeated the message. He heaved a great sigh as the Second Citizen's creep lurched into motion and came towards the ship.

VIII

An hour later Carmicheal was still in the control room. Prescott and MacIntyre were with him, fixing two extra seats that had been hastily ripped from their creep onto the floor. He was at the Ordnance panel, on watch. All the defensive and offensive devices which the ship mounted were ready to go into action at the touch of a finger, but still he was anxious. He was anxious because Carlsen had told him that the other ship—the one, according to Carlsen, recently stolen by Sundberg—was of a much later design than this one, and could blow it apart if it should come to a drawn-out fight. Luckily, he'd said, the other ship didn't know this.

Carlsen, with Evelyn in attendance, was down in the warp-drive somewhere supervising Roberts in the refuelling of the generators. Roberts was a bright lad, and his speciality made him quite familiar with refuelling techniques, but Carlsen still insisted in telling him exactly what to do and the order in which to do it, even though Roberts' methods were just as fast and efficient. Carmicheal himself had come in for some of the same treatment concerning the controls; don't do this, don't touch that. Carlsen, he thought, was carrying the pretence of a booby-trapped ship a little too far.

Maybe, Carmicheal thought with a sudden feeling of pity, MacIntyre's shots weren't having the proper effect. Maybe his mind was going. Carlsen was a very sick man.

With his fingers tapping nervously on the panel before him Carmicheal thought about Carlsen, and especially about the story the other had told him just before their creep had been wrecked.

According to Carlsen, his rounds had taken him to a colony whose research team had hit the jack-pot. The discovery they'd made was the biggest thing since the development of the First Citizens, and it overshadowed even that. It was of such tremendous importance that he'd decided to skip his remaining calls and head straight for home. With all the relevant data safely taped, but before he'd had a chance to refuel, there'd been an interruption.

Another C-ship came screaming down to land beside him. Its pilot had called him up, babbling that he'd heard the news while coming in from space, and wasn't it great ! He'd also suggested that due to the extreme importance of the colony's discovery, perhaps it would be a good idea for him to escort Carlsen back with it, and how about them getting together for a while to sort of celebrate. Cautiously, Carlsen had agreed to this, though he'd stipulated that the meeting would have to take place on his own ship and that the other C-man would have to come unarmed like an ordinary colonist. After some good-natured abuse the other had agreed to this and set out for Carlsen's ship.

As he opened the lock preparatory to letting the other in, only one thing had saved Carlsen. A mirror set inside the lock chamber was so old a trick that he'd almost forgotten that it was still there. Over-eager, the gunner in the other ship—a C-ship stolen and manned now by Sundberg men, obviously—had burned his mirror image instead of himself.

But Carlsen hadn't escaped completely. Reflected heat and secondary radiation from the metal of the lock had burned his legs and arm, and he'd felt as though he'd been thoroughly cooked. He'd made it to the control room, however, and taken off—closely followed by the other ship. Terribly short of fuel he'd thought of Helena, remembering that it was a poor place and that he'd probably be able to bully the colonists into giving him fuel instead of credits. Unfortunately, the chronic shortage of fuel, together with his physical condition after being burned, made it impossible for him to do much ducking and dodging. He'd been unable to hide his direction of flight, and the Sundberg ship had followed him.

This discovery which the colony had made—and which Carlsen so badly wanted to take back—was simply a modification of the existing space-warp drive which allowed faster-than-light travel. But what a modification ! The way Carlsen explained it, it was the difference between punching a hole through a canvas bag with one's bare fist—a difficult feat—and the effortless sliding of a needle through the fabric of the same bag.

When the irrisistible force of a continuous nuclear explosion was confined within an area of a few cubic feet by the sheer mathematico-

philosophical witch-craft that was the space-warp generator coils, the only outlet for the tremendous energy continuously being released was by the blasting of an opening into a co-existent space-time continuum; when the opening had been made, the material products of more mental juggling in the realms of multi-dimensional geometry enabled the ship to follow the released energy through the opening, and to continue to follow it until the desired distance had been travelled. This was the principle upon which all warp-drive generators operated. Nobody could honestly say they fully understood it, but it did work.

It was, however, ruinously wasteful of fuel.

But that waste was now a thing of the past, Carlsen had affirmed. The colony's discovery cut out that awful outpouring of power. With their modified warp generator a starship could be powered almost as cheaply as a large atmosphere craft. And the potentialities of a really cheap means of interstellar travel were truly awe-inspiring. Why, inter-*galactic* travel—and colonisation—was no longer impossible !

But the discovery must not fall into Sundberg's hands. Sundberg was a racketeer and killer on the largest possible scale—completely owning one star system and controlling three others by the extension of his ' protection ' to them. In the beginning, of course, Sundberg had merely tried to sell stolen data and news tapes cheaper than the C-men—from the point of view of some of the poorer colonies, a good thing. But gradually the trading in hi-jacked tapes carried in stolen C-ships changed to outright blackmail and wholesale extortion and near-slavery. Sundberg had grown power-hungry. Rumour had it that he'd taken to strutting about his home planet wearing a crown and ermine robes—over bullet-proof armour, of course.

If Sundberg obtained the secret of cheap interstellar flight, he would ruthlessly wipe out the colony that had made the original discovery and everyone else who knew of it, so that he alone would have it, then he would begin to extend his influence.

It would mean the first interstellar war, Carlsen had told him solemnly. And Sundberg would win it.

Remembering that story of Carlsen's, Carmicheal writhed inwardly. The pleading eyes, the weak, deadly serious voice, and the masterly use of understatement—Carlsen was *good.* And he'd sized up his audience perfectly. By using as bait a mechanism whose discovery was yearned for by every colonist and spaceman—especially marooned ones like Carmicheal—and then stating baldly that if Carmicheal didn't take him where he wanted to go, the other would be personally responsible for an interstellar war, Carlsen made it practically impossible for

him not to grant the request. And then telling him that he would be *given* the ship afterwards . . .

It was a good story, but he wasn't going to believe it. This ship was his, *now*. There would be risks in disposing of the ship's tapes as Carlsen had said, especially if he tangled with Sundberg, but he would take them. And when the riches he would gain gave him the glorious freedom to go anywhere he liked in the galaxy, there was the matter of Evelyn . . .

IX

Carmicheal gripped the edge of the panel convulsively as a fiery arc climbed into the sky above the town and began to descend towards the ship. Its course and physical characteristics had been automatically analysed during the first second of its appearance, so the ship's force-screen didn't go on . . . It exploded a mile to one side of them; a relatively harmless missile with a chemical warhead.

They were merely trying to get some kind of reaction from him, Carmicheal guessed, and out of consideration for the townspeople they hadn't used atomics. C-men, he knew, were usually considerate where innocent bystanders were concerned. But that shot had told him something else. The two men whose creep he melted must have had personal radios, and called for the third of the trio to send transport for them. Otherwise they'd never have reached their ship in an hour.

Carmicheal cursed. The three hours which he'd allowed would have been more than adequate for the get-away, but he'd stupidly forgotten the possibility of the men getting back to their ship on anything but their feet. He should have burned them down when he had the chance. He was too soft, too chicken hearted. And now the battle was starting, and him with a ship that was unfamiliar, and nearly obsolete as well. He glared helplessly at the panel before him. Was this how it was going to end . . . ?

He jumped as a hand touched his shoulder. It was Prescott.

" Carmicheal," the Second Citizen said quietly, but urgently. " I know what you intend, and while I don't like it I can understand how you must feel. With your training and conditioning, being barred from space must have nearly killed you, though you managed to hide the fact from most of us. But there's something you must know.

" In the mad rush to the ship here there was no time to tell you, but when my secretary was speaking to me he reported some suspicious behaviour by one of the Inspector's men. The man was trying to sell news tapes, at quarter the usual price. His companions didn't know about it—obviously he was trying for a quick, personal profit." Pres-

cott paused, then said thickly, " You know what that proves. Those are not C-men."

" Meaning, I suppose," Carmicheal ended for him, " that Carlsen *is* a C-man."

But that wasn't necessarily so, Carmicheal told himself desperately. Carlsen could quite easily be a Sundberg man himself who wanted to be free of his companions in crime, and taken a shipload of tapes when he'd run out to ensure his not starving in his old age. His companions would naturally have objected to all this and, after failing in their attempt to kill him, they would have come after him looking for blood. And the value of the ship and cargo would make them extremely reluctant to destroy it out of hand.

That was the explanation, Carmicheal told himself determinedly ; it figured. Nothing was going to make him give up this ship. Nothing. Why, he thought, and felt suddenly frightened, if Carlsen really was a C-man—instead of a renegade who'd gone over to Sundberg and now wanted to be free of him—then his story of the new interstellar drive might be true. And everything else he'd said . . . Carmicheal shook his head desperately. It wasn't true. It wasn't.

" Carmicheal ! What's the matter with you ?" Prescott snapped ; then: " Listen to me. Like everybody else here, I don't like C-men. But I try to take the long view; I know that they're a necessary evil at present, and will continue to be until transportation costs come down." His fingers seized Carmicheal's arm, and obviously unaware of the pressure he was exerting, urged, " You've got to help him finish his Walk, Carmicheal. I know he threatened to blow up the colony, but I still say you've got to do as he tells you. He might be carrying something important, and besides, you'll get the whole colony into trouble."

" *Shut up* !" He tore the other's grip away from his arm. " Leave me alone !"

" Listen," Prescott said angrily. " Don't let the fact that he's taken your girl away from you blind you to everything but revenge. Don't be stup——"

Prescott broke off in mid-word, his eyes widening. The direct vision panel showed three fiery streamers climbing into the sky above the city. Half a mile from the ship there were three sharp, evenly spaced explosions. Chemical stuff, still, but the other ship was growing impatient.

The silence was broken by the tired voice of Carlsen.

" You'd better take your men and leave now, Mr. Prescott," he said as Roberts and Evelyn set his stretcher down. "Keep this ship between you and the other one for shelter, and go as far and as fast as you can. They might just start throwing atomics before we can take

off . . ." Carlsen went on to say a few words to MacIntyre as the doctor strapped him into the newly-rigged seat. Prescott began talking to Evelyn, saying anxious, fatherly, personal things. Carmicheal went to the pilot's couch and began strapping in; he didn't want to hear them.

Ten minutes later, when the creep carrying Prescott and Roberts was clear of the ship, Carlsen said, " We'll warm up the drive pile for the engines first. Do exactly as I tell you . . ." There followed several seconds of highly-technical instructions, then, ". . . And switch on the force screen so's we won't tip them off that we're leaving by allowing them to detect increased pile activity—at least, until our tail-glow begins to show."

Then it would have to be shut off, of course. If the planetary drive was used inside the force-screen, the ship would melt in the heat of the confined exhaust gases.

Fuming, Carmicheal did what he was told, exactly.

" That trick will give us a few minutes start," Carlsen went on. " But they're bound to send some stuff after us before they take off themselves. Do you think you could take this boat directly above them before we gain too much altitude, then climb straight up giving them the benefit of our tail-wash ? It won't hurt them, but the radioactivity will interfere with the self-guiding circuits in their missiles."

Carmicheal asked fast, pertinent questions about the area, shape, and aerodynamic behaviour characteristics of the ship's stabilisers in atmosphere. Then he said yes.

While he was talking two missiles exploded against the screen. The computor said they would have been direct hits.

A ghostly blue glow spread out from the base of the ship; ionisation from the planetary drive tubes. The ship was ready to go. Carlsen nodded, and in the same instant Carmicheal flicked off the screen and undamped the pile, then acceleration was making his softly-upholstered couch feel like solid rock.

Carmicheal angled his screaming, thundering, *beautiful* beast out over the city, straightening her up again when the foreshortened image of the other C-ship was below. Missiles shot up in his wake, but the fiery, radio-active exhaust fanning out from his tail played hob with their guiding and fusing mechanisms. They went snaking off crazily in all directions. One almost landed on the ship that had sent it. After that the missiles stopped coming.

There would be no further trouble until both ships were in space.

Carmicheal relaxed, letting the sheer exhilaration of being in a climbing ship again charge every cell in his body. Automatically he made a quick visual check of the instruments, and saw the single light burning

on the Communications panel. He indicated it with a nod and said, " Carlsen ! You forgot to give Prescott his receipt."

" Sign off for me," Carlsen said. He sounded very, very tired.

Carmicheal knew the formula—he'd heard lots of C-men sign off after a delivery—but he'd never been on *this* end of the line before. His mouth dried up suddenly and he felt his chest swell with an emotion that he hadn't experienced since he was a kid. He cleared his throat noisily and energised the microphone.

" This is Courier 4962 Carlsen, Walk 17C, Rim Sector Twelve. Five General News tapes and three Research Centre data tapes have been delivered intact to the colony Helena. Delivery has been accepted and the Postage Dues have been paid . . ."

X

A Courier was something special, Carmicheal thought as he finished signing off and the recorder man on Helena sent acknowledgement. When a Postman's delivery route—or Walk—took him all over a galactic sector, he had to be. But Couriers were not quite unique in history. Their legendary predecessors, the ancient Pony Expressmen of Earth, had also had to fight to deliver mail, though they'd never had the same trouble as the C-men in levying postage charges on the recipient. Besides having the ability to navigate and fight their incredibly valuable ships, they had to be strict—even brutal at times—in dealing with some of the people they served; after all, if they hadn't insisted on a certain surplus of fuel and credits being available at all times, C-ships would have become marooned on out-of-the-way colonies and their service would have collapsed. Out here on the impoverished Rim worlds, they were hated like poison. But it wasn't like that in the Centre. There a C-man was a hero, a member of a communications service that kept interstellar civilisation from falling apart into a thousand separate, mutually hostile pieces, and something every bright-eyed youngster longed passionately to become. There a person felt proud to help a C-man . . .

But what was he feeling so proud for ? Carmicheal swore silently in sheer self-disgust. This was no C-man—at least, not any more. He was a renegade; a smooth-talking plausible crook who might even yet get the better of Carmicheal, and Carmicheal had better not forget that . . .

" Carmicheal," Carlsen's voice broke into his thoughts. " Time to prepare the warp-drive generators. Listen carefully and do exactly as I say—"

" Cut that out !" Carmicheal shouted with sudden fury. " I've taken enough of it. There's no need to carry the pretence on any longer. The ship isn't booby-trapped and I know what to do without you yammering in my ear—"

" Oh, but it is, Carmicheal," Carlsen interrupted gently. " Not the whole ship, and not in the way we told Prescott—I don't go blowing up worlds in that off-hand fashion. But if those generators aren't switched on in a certain sequence, the ship will travel in several directions at once, and in very small pieces. It's a means of protection we've just begun to use," he explained drily, " against Sundberg and other ship stealers."

Carmicheal felt his hands go suddenly clammy. Shaking, he drew them quickly away from the panel where every coloured button was a ready fused bomb. Then, with a great effort, he got a grip on himself. This was, of course, another story. Carlsen was merely trying to make sure that Carmicheal would take him where he wanted to go. He gritted his teeth. Carlsen never missed a bet.

But he did exactly as he was told anyway.

They were in space and could now operate the warp-drive, but the other ship was hot on their tails, and it was a more up-to-date, faster ship. He daren't warp out yet, because when a ship went into subspace it left an area of spatial strain in its wake. The strength and pattern of this strain could be analysed to give the ship's direction of flight, providing they could get to it before it smoothed itself out. And they could do that all right, Carmicheal knew with a sick certainty; they were practically breathing down his neck. Without turning, he called Carlsen.

" He's out again," Evelyn answered thickly. Acceleration kept her pressed relentlessly into her seat, and it had never been a comfortable seat even when fitted to her father's creep. " Can't you cut the acceleration a bit, so's I can give him his shot ?"

" No !" he replied sharply. That would be suicide with the other ship so close behind them. Then: " All right, but hurry it up." He cut acceleration to a little over one G.

As Evelyn measured out the shot he watched the pursuing ship grow on the rear-view screen. So long as he kept it directly behind him—where his radio-active exhaust gases interfered with the guided missiles sent after him—he was relatively safe. But if it drew level . . . He called to Evelyn to hurry. That ship was coming up *fast.*

Suddenly they were on him. Evelyn was still standing beside Carlsen —he couldn't accelerate or she'd have been smashed against the floor.

There was only one thing to do. He cut the drive completely and switched on the force screen.

He was just in time. Decelerating furiously, the other ship drew level. Angry blotches on Carmicheal's force screen told where heat beams were being brought to bear. Instinctively he darkened the viewer, but the flash still nearly blinded him. A fission bomb, and the screen had handled it. They wouldn't dare try a fusion warhead at this range, Carmicheal knew; not unless they were anxious to die in the same explosion.

The ship passed. Carmicheal cut the force-screen and re-started the drive, keeping the exhaust aimed in the direction of the other ship. The screen was good, but it operated on a similar principle to the warp-drive and was also extremely wasteful of fuel. If he kept it on for too long he wouldn't have the fuel to go anywhere at all.

Carlsen was still out. Evelyn now knew, of course, that he intended stealing the ship; her active hostility was averted only by the fact that he'd promised to help Carlsen. Carmicheal fumed; the atmosphere in the control room was so highly charged he could almost see the sparks, and it wasn't conducive to the solving of his problem.

There must be *something* he could do. He shut his eyes tightly and tried to force himself to think, but it was no good. He opened them again, and saw where the ship's present course was taking it. Remembrance came flooding back, and with it, a possible solution.

He'd only been a year on the *Starling* at the time, when they'd been approached by a ship refusing to give the proper recognition signals. Obviously it was up to no good. The *Starling* had been unarmed, and its Captain had known that the other ship could follow him into sub-space and out again if he tried to evade contact that way. *Starling* had been inside a solar system at the time—just leaving one of the innermost planets. It had given the Captain an idea.

The risks had been tremendous, Carmicheal remembered. But then, as now, the situation had called for desperate measures. He began adjusting the course.

"What the blazes do you think you're doing?" It was Carlsen, awake again.

Carmicheal resented the tone, though he had expected the other's surprise. In a surly voice he explained that the other ship was hanging onto them so tightly that it could chase them in and out of sub-space, and continue the battle anywhere they went. The only solution was to give them the slip by entering sub-space where the others wouldn't be able to trace their direction of flight, in a spot where there were so many space-strains that the pursuing ship would be unable to analyse theirs. He told Carlsen where that was.

He also implied that he'd done the trick himself, instead of only watching the *Starling's* Captain do it. He didn't want Evelyn to be as worried as he was.

Hours passed. Several times the ship following them almost caught up, but they were able to force it back by taking the offensive. It had been Carlsen's idea. Just like the other ship, they couldn't send guided missiles through their own exhaust with any accuracy. But they *could* short out the guiding circuits and just shoot them straight back and hope for the best. The probability of scoring a hit was extremely slight, and they were using up their store of missiles at a shockingly wasteful rate, but several times they scared the other ship into cutting its drive to switch on its force-screen. They made it keep its distance.

Days passed, and still they made it keep its distance.

It grew hotter, and *hotter*.

Carmicheal would have given everything he had—including the ship and its cargo—to be able to throw off his coveralls. But the other ship was close behind, and getting out of anything while under four G acceleration was an impossibility. There was water, of course, but it seemed just to run out of his pores as he drank it. He suffered, but not in silence. None of them did.

Carlsen, after one particularly long and bitter diatribe said: "Aren't we close enough yet ? By now they must be sure we're out of control, or all trying to commit suicide."

Evelyn, her face shiny yellow and distorted by acceleration and heat, gasped: " Them and me both. Fancy accelerating straight into the Sun . . ."

" Not close enough yet," Carmicheal said curtly. " In a couple of hours, maybe." He tried to blink sweat out of his eyes so as to see the control panel clearly. There was no automatic machinery that could do *this* job for him—it called for pure intuition as much as for manual dexterity.

To keep the other ship from tracking them through sub-space, he had to wait until he was far enough into the area of strain surrounding the sun for their analysing instruments to be useless; then he could warp out. But at his present velocity, the time between reaching that area and approaching the sun so closely that the ship would burn like an over-eager moth was very short indeed. It was approximately two seconds.

It became too hot to bear, and then got hotter.

Carmicheal tried desperately to get rid of the sweat that acceleration pressure kept collecting in his eye sockets. He had to watch everything

—strain analysers, hull temperature, missile launchers, the lot—and the moisture streaming from his face was making those dials shimmer and dance like pebbles under running water. Several times the ship following almost overtook them, but when all their missiles were exhausted, Carlsen came up with the idea of throwing out any loose machinery that wasn't immediately essential. By remote control Carmicheal jettisoned everything he could jettison. The exhaust fanning out behind them partly fused and made radioactive all the miscellaneous junk, aud the pursuing ship, thinking they were more atomic missiles, hurriedly switched on its force-screen and dropped behind. But not far enough behind to allow them to warp out in safety.

And that ship could make a closer approach to the Sun than he could, Carmicheal knew. Their refrigeration units were also more up-to-date.

It was shortly after the dumping of the loose machinery that Carlsen observed that if and when Carmicheal got out of this, his ship would be a near wreck. Carlsen deliberately stressed the fact that it was Carmicheal's ship, and the sarcasm in his tone bit like acid. If Carmicheal could have moved he would have wrung Carlsen's neck.

It got hotter.

Evelyn had passed out. Carmicheal was horribly afraid that he was going to do the same any minute; he'd been a lot younger the last time he'd gone through this. He was sure he was being boiled in his own body juices. While he could still see the navigation panel clearly, he decided to pre-set a course through sub-space to their destination. He hadn't thought about that much up to now.

To Carlsen he croaked, "Where do you want to go?"—Not, he added under his breath, that I'm going to take you there, you smooth-talking, dirty son of a . . .

Carlsen said, "Illensa."

The shock was like a blow. But strangely, when it began to pass it left not pain, but an overwhelming relief and a feeling almost of exhilaration. Consciously he made the decision that his sub-conscious had been trying to force on him since he'd first thought about stealing this ship.

Always said you'd never make a crook, said the little voice in his head happily. Carmicheal laughed at it, and agreed.

Beneath the name and space-warp co-ordinates of Illensa in the Almanac was a little paragraph that Carmicheal could quote almost by heart. It stated that Illensa was the Sorting Office for the Sector Twelve Postal District, and that more than two hundred Couriers were based there.

Carlsen really was a C-man.

Half an hour later, in the gravityless condition of sub-space, Carmicheal floated above the main control panel, thinking and remembering. The ship was comfortably cool again, and they would warp into the Illensa system in two days. Idily, he watched Evelyn give Carlsen his shot.

For the first time the sight did not anger him, or knot his insides with frustrated jealousy. He didn't mind it at all, and he suddenly knew why.

" Son," one of the psychologists at Advanced Space Training had once told him, " what we're doing to you is a sin and a shame. You'll be conditioned to live in and love a vacuum—the interstellar vacuum. If you try to live with or love anything or anybody else, you're going to be desperately unhappy. Unless, of course, you marry a lady Engineer . . ." Carmicheal smiled at the memory. He'd been desperately unhappy on Helena, though he'd tried to make the best of it. He wasn't any more.

Courier Carlsen, he knew, would keep his word about giving him the ship and its cargo; C-men were like that. But Carlsen was going to be very surprised when they got to Illensa and Carmicheal told him that he didn't want the ship or its cargo—that all he wanted was a chance to get his old job back. There would be a lot of pilots needed when the new and cheaper warp-drive went into use.

The C-man looked up suddenly and met his eyes. Carlsen, Carmicheal realised, knew him much better than he knew himself. Carlsen wouldn't be surprised at all.

James White

The fundamental basis of all life on Earth is—food. Unfortunately it stock-piles in one community while another starves and is often the trigger which fires political unrest leading to war. Given a universally distributed cheap staple diet the world's unrest should be over. In more ways than one.

MANNA

By John Christopher

Illustrated by HUTCHINGS

It drifted down through the early morning air of North Europe. It was heavier than air, but not very much heavier. In colour it was a pinky white, with the texture of a honeycomb, and the size of individual fragments ranged from a few inches to some feet in diameter. It had a smell that was tantalizing and strange and almost irresistable.

George Dell Parker, a negro and the head janitor of a large office building in London, was probably the first to encounter it. At any rate, he put in the earliest report. He had once had journalistic ambitions, and he still made a few pounds a year by passing on such information that came his way as was newsworthy. He carried the fragment in his hand, when he went downstairs to telephone the *Monitor*.

The operator knew him. " News Room," George said.

" Yes, sir ! News Room coming right up !"

He was put on to the sub room. He had expected that, anyway. The reporter who took the call was tired and bored; there had been just enough doing during the night to keep him from getting more than an hour's sleep.

" O.K.," he said, " I'm listening."

George said: " There's some notably peculiar stuff floating down out of the sky, Mr. Lomax. I got a hunk of it right here beside the telephone. You want I should tell you all about it ?"

' Public Health,' Lomax said. " Try it on them. So the goddam smog is killing us all by inches, it still isn't a story. Not in London it isn't."

" This is no smog." George looked down from the telephone at the piece of substance that lay, white with a pinky glow, against the battered yellow surface of his old desk. The smell of it pricked his nostrils. " This is sure enough no smog, Mr. Lomax. And it's big. This piece is maybe four inches across."

" Blown up from a rubbish bin, maybe."

" There's hardly any wind. I was up on the roof and I saw this piece coming down from the west, falling at an angle of about forty-five degrees. It near enough hit me, and went on to smack against the chimney stack. I went over and picked it up, of course. It's not from any rubbish bin, Mr. Lomax. I guess I know as much about dustbins as anyone. It's kind of delicate looking, a sort of pearly mushroom colour. I never saw anything like it any time. Smells powerful, too."

Lomax was beginning to make jottings on his pad. It was a story. An inch, maybe two inches.

" What does it smell of ? Unpleasant ?"

" No. It's a good smell, Mr. Lomax. Makes you want to put your teeth right into it. I never met it before, but it's good."

" Then put your teeth in it, George. What are you waiting for ? What's it taste like ?"

" I don't know what it is, Mr. Lomax. It may be anything—poison."

" George, it's a hard drag trying to turn you into a reporter. We'll look after your widow."

" Haven't got a wife, Mr. Lomax."

" Then get those shiny teeth stuck in !"

George lifted the piece up. Holding it under his nose, he could not believe that it could be poisonous. The smell was delicious. He broke off a corner and nibbled at it. The taste, like the smell, was something completely new. And it was completely satisfying.

Lomax said: " Well ? You chewing yet ?"

" It melts right away in your mouth, Mr. Lomax. You know what it is ? It's manna. Manna, Mr. Lomax."

" Manner ? That I don't get."

Lomax's failure to grasp a Biblical allusion neither surprised nor dismayed George. He explained it carefully.

" Like the Lord sent down to the Israelites, Mr. Lomax. The manna in the desert. That kind of manna." He was continuing to eat while he talked. " It sure has a heavenly taste, and it came right down out of the sky."

Yes, Lomax reflected. A story. " Manna from Heaven," he said, more to himself than to George. Three inches, perhaps even more. He heard George say: " That's right, Mr. Lomax," and awoke to the immediate needs of the situation.

" Bring that manna in to me, George. Take a taxi."

There was a slight pause. George said: " I guess . . . I guess I've eaten it, Mr. Lomax. It kind of slipped down."

" Why, you fool, man !"

" I'm sorry, Mr. Lomax. It tasted so good."

" George," Lomax said bitterly, " don't go and get married for the next two or three hours. That widow's pension is out—right out."

" I'll go look on the roof. Maybe I'll find another piece."

" Don't bother," Lomax said. " Just don't bother."

Lomax put down the telephone as the sub room door opened. One of the night drivers came in.

" What do you make of this, Luke ? Two or three hunks of it in the yard." He held his hand up, showing a piece of manna, a couple of inches square. " Smells good, too."

The first fall was light, and concentrated on London. There were other light falls during the next week. Geographically the distribution was impartial; New Delhi made the second report, closely followed by Chicago, Stockholm, Melbourne and Buenos Aires. By that time the manna had been thoroughly analysed. It had a highly complex organic structure, and no noxious properties as far as was known. At the same time, people were strongly advised against eating the manna until further tests, necessarily of long duration, had been made.

The tests of long duration were simply the investigation of the effects of manna on laboratory animals. The publication of the results of the preliminary analysis of manna was incomplete; that part of the analysts' report which remarked, with some astonishment, on the fact that manna contained high protein, high carbohydrate, essential fats and, as far as could be judged, all the essential vitamins, was circulated only to the governments of other nations, with the suggestion that it would be good policy to suppress this news until the tests on animals had put it in better perspective.

In the second week after the first fall, news from Moscow made it certain that the falls were planet-wide. The Russian report said much the same as the American one had, and expressed the same caution.

Manna was front-page news.

The question of its point of origin naturally provoked the main interest. In the first week, a moderately well known biologist allowed his astonishment to overcome his caution and described the substance as 'unearthly.' It was enough to start a riot of speculation. After a day or two, people began claiming to have seen flying saucers overhead at the same time as the manna was drifting down to earth. The Martians were sending manna, or the little men from Venus. The Governments made no haste to discourage this particular campaign; people were more likely to be cautious of what they ate if the Martians were thought to have sent it.

But the bubble was pricked, decisively enough by other scientists. In the first place there was nothing in the structure of manna that suggested an extra-terrestrial origin; it could be placed, in fact, as a variant of normal fungus anatomy. In the second place, if the manna were released by flying saucers in the upper atmosphere, then its arrival data would be anything up to five hundred miles in space and ten hours in time from that point. If you saw a flying saucer overhead at the same time as the manna came down, then whatever it was it wasn't the same flying saucer as had released it.

Then where did the manna come from? The scientists had no opinions to offer. Time would probably tell. Generally it did.

For the readers of the world's press, there could be no such patient view. If it wasn't the Martians, it was the Russians who were doing it. A significance was now read into the fact that Moscow had been the last world centre to report the arrival of manna. It was all part of a Russian trick.

This story was elaborated in some detail before the more obvious discrepancies began to be noticed. By what means could the Russians simultaneously shower Greenland and Patagonia, Cape Town and San Francisco? And what possible point could there be in bombarding other countries with a pleasant-smelling, pleasant-tasting fungus-like substance, that didn't even have the slogan: 'Workers of the World—Unite,' stamped on the back?

By this time the news of the food value of manna was beginning to leak out. It leaked out, for example, to Rustus Hereford, the junior member but the essential driving force of the board of directors of Ambrosia Ltd. Less than three weeks after the first arrival of manna, he explained something of what he had learned to the other members of the Board. He spoke to them deferentially but with the inner condescension of knowing that all this was but a very small part of the sphere that would eventually be his. And they listened in much the reverse spirit, being aware of the same probabilities.

Rustus Hereford tapped a folio in front of him on the table.

" Government laboratory report, gentlemen. It's been checked, to the best of their ability, by our own small laboratory staff. Manna, wherever it comes from, is the wonder food of all time. It's got everything, and packed so that it just slides down the throat. If it were on the commercial market, we might as well shut up shop."

Gavin, the Chairman of the Board, said drily

" Fortunately, it's not. That report you've got hold of—I take it the Government know what they're about in with-holding it ?"

" Naturally. They don't want to release something like that until at least half a dozen generations of mice have been fed on it."

" By which time," Gavin commented, " the manna may very well have stopped falling."

" That's my own view. Whatever the stuff is, there's no reason to think of it as a permanent phenomenon. Spinnet, in the lab, tells me about a writer called Charles Fort. He documented evidence of strange falls from the sky. Mostly from newspapers, but in good part from scientific periodicals. Listen to some of these falls :

" Russia, 1832—a resinous yellow substance. Ireland, throughout the spring of 1695—a clammy yellow substance like butter, which cattle fed on. France, 1863—something like red meal, mixed with sand. England, 1686—a cereal, like wheat. Michigan, 1901—a brown dust of vegetable matter. Canada, 1868—dark-coloured vegetable matter, almost decomposed . . . total fall of 500 tons estimated."

Rustus Hereford looked up. " That's a sample. There's a lot more. Now, I'm not interested in Fort's conjectures about the falls; I don't suppose that you are, either. What is interesting is that the falls came, and then stopped. I think we can assume the same will be true of the present fall of manna."

Von Eckers, the sales director, asked him ;

" What's your plan, Rustus ?"

" Stockpile it. Buy up whatever we can. We can say we're buying it for research purposes, and to a certain extent it will be true, though the lab people don't think much of the chances of duplicating it. Then put it in the deep freeze. When manna has stopped dropping and the Government report has told people how the mice thrived on it, we shall have a nice little luxury product on ice. Caviare will be out."

Gavin objected: " It looks like a long chance. The stuff may stop falling tomorrow—to-day. Is it worth our while to undertake an operation of this scale for a profit that may be no more than a few pounds ?"

" I'll always go after a few pounds if there's a chance in a thousand of them leading me to a million. What do we lose ?"

He had his way; he was used to doing so. In three months' time he reported the acquisition of more extensive deep freezer space for the manna and the entry of some belated rivals into the field. Six months later again, he addressed another board meeting.

" At present count, gentlemen," he said, " this company has in stock approximately fifteen thousand cubic feet of manna. Once the manna stops falling, I estimate this as worth not much short of fifteen million pounds in luxury food. The first frozen manna has been sampled and shows no signs of deterioration. The Government report on manna will be issued tomorrow morning. It confirms the first reports of the food's edibility and nutritive content, and advises that it can be consumed without any fear of bad effects, providing, of course, that it has not been contaminated on the ground."

" The only trouble," Gavin said, " is that it hasn't stopped falling."

" Not yet. But it must do eventually. Some of the falls Fort catalogued ran for months, but they all ended. We only have to sit tight."

Gavin's nephew, Peter Gavin, asked: " What's the latest official theory about the stuff, anyway.?"

Rustus Hereford shook his head. " None official. The view that strikes most people as the most plausible is that something—nuclear fusion tests, maybe, or just Mother Nature—has triggered off a fungus mutation. But nobody can suggest where except that it should be somewhere pretty high, to account for the wind distribution—probably several high places . . . the Andes, the Himalayas—that sort of setting. Biologically it's difficult to see how this wind distribution business fits in—the manna that does fall has no spores that they can recognize and it certainly doesn't start new manna colonies. Maybe there's a complex involving barometric pressure, hours of sunlight, and so on, which triggers off spore production when met. They don't know."

Gavin looked up slowly. " If that theory is true, there is no reason to expect the falls to stop. Rather you could expect them to increase."

Rustus Hereford nodded. " Yeah."

" Well ?"

Rustus Hereford smiled. " I'm waiting for them to turn up one manna source. Just one. Don't think they haven't been looking—in the Andes and the Himalayas and in the Rockies."

Gavin said: " In that case, where does the stuff come from ? From outer space ? Someone suggests that in the *Tribune* to-day—that the planet, the solar system, might be passing through a cloud of it. Is that your view ?"

Rustus Hereford said: " If that were what was happening, do you know what we would be collecting ? Cinders ! There have been cinder falls, but the manna I've tasted doesn't give the impression.'

" Then you think . . . ?"

" I don't think anything, except in terms of profit and loss. When the falls stop, we've got a fortune in our lockers."

Von Eckers said: " When." There was something in his voice that focused their attention on him. He said apologetically: " I've been looking out of the window."

They followed his gaze. It was like a snowstorm, with incredibly large flakes. The sky was thick with it, drifting down on a sharp north-east wind. Gavin, who had a fad about fresh air, had opened some of the windows at the beginning of the meeting, to augment the air conditioning. While they watched, a flake of manna curled in on a vagrant draught of air and eddied down. Before their dumbfounded eyes, it came to rest on the table around which they were sitting.

Young Peter Gavin said uneasily: " Just think—if it doesn't stop." He laughed at the thought, but his laugh wasn't happy. " If it goes on falling, in greater and greater quantities—and that Government report says it's O.K. to eat—what if people get to eating it ? It's free. It's free and it tastes wonderful and the Government say it's full of vitamins. Who's going to buy our stuff ? And what's all the manna in our deep freezes worth if it keeps on coming down like this ?"

Rustus Hereford picked up the piece that had come in. It wasn't very big. He looked at it for a moment, and then put it in his mouth. After he had swallowed it, he said:

" If it does—I don't know what will happen, but I know one thing that won't." They looked at him. " We won't starve."

In various countries there had been lobbying by food interests against the publication of official reports approving the food value of manna, but in every case they had lost. No government that has to appeal to an electorate with general adult franchise dare lift a finger against the cry for cheap food, and this food was free. The food interests settled back into resignation at the prospect of decreased profits, and possible losses, until one of two things happened—the manna stopped falling or people got tired of the taste.

The unfortunate result was that neither thing happened. In fact, the manna fell more and more heavily and more and more universally, and far from getting tired of the taste, people who had eaten it became increasingly reluctant to eat anything else. The cry was, in fact, raised that manna incorporated some kind of drug that produced addiction, but tests failed to bear out the claim. Human guinea-pigs

were found to live on non-manna diets after varying periods of manna-only diets; they reported no physical or psychological ill effects, but they were very glad to go back to manna when the tests were over.

Three years after the first fall, manna was dropping in sufficient quantity to feed the world. Rustus Hereford, who, on the failure of Ambrosia Ltd two years earlier, had been invited into a Civil Service post, was present at a meeting in which an official Government attitude towards manna was finally hammered out. He heard the Prime Minister say :

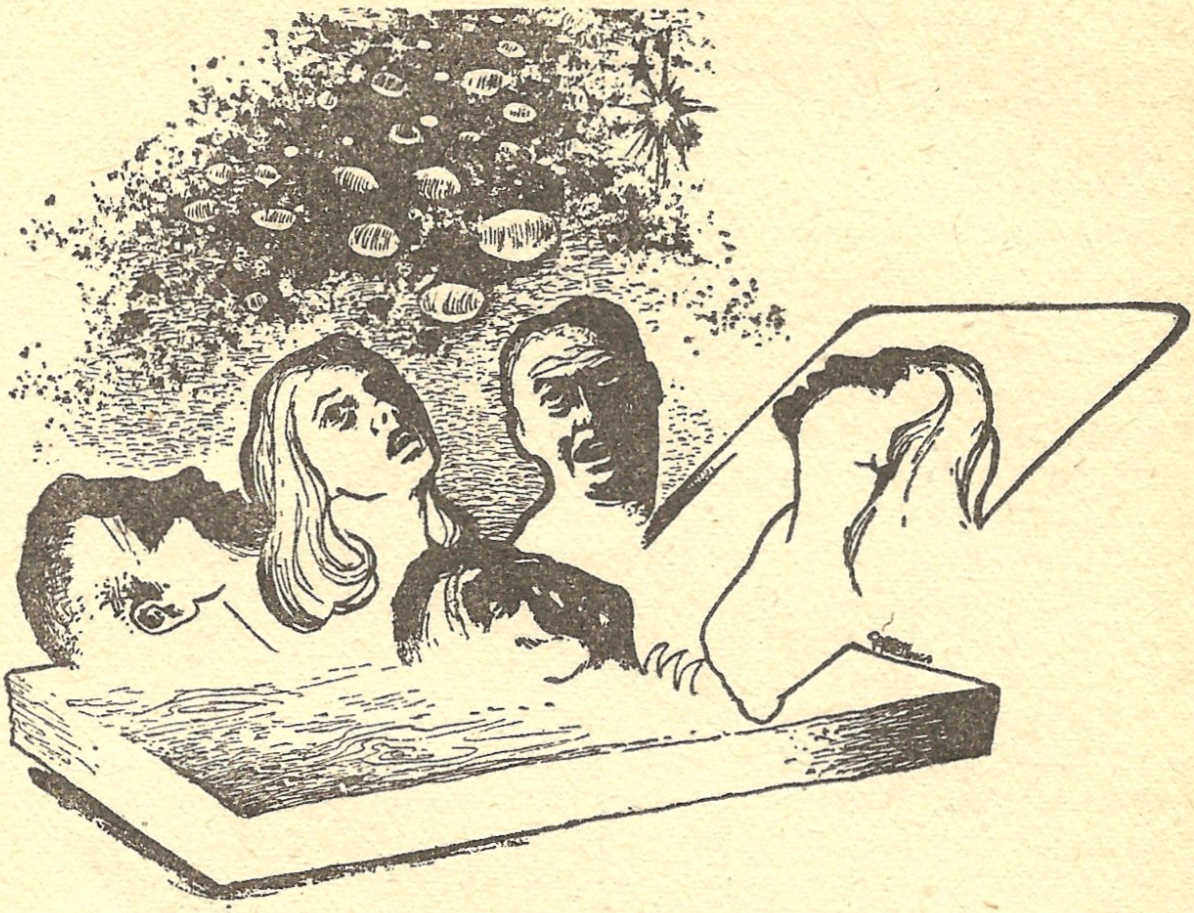
" We don't know where it comes from, and we don't know what it is. All right, gentlemen, all right ! It's a fungus structure, and you guess some isolated high mountain sources, but the fact remains that no-one has managed to identify a source. Your guess strikes me as being about as near the truth as that of a certain gentleman with religious views who has gone on record as explaining that we are in a spiritual wilderness just as the Jews were in a real one. It may be a good guess, but it gets us nowhere.

" The question we are faced with, primarily, is the problem of manna in relation to the feeding habits of this nation. A month ago the last food marketing concern went out of business. The farmers have been living on relief for over eighteen months, and those of them who are any good are doing their damndest to get into some other kind of work —for they can see no future in their own.

" The Government's first concern was as to the edibility of manna. We have checked that, and triple checked it. The fifteenth generation descendents of the mice that were first fed on manna are frisking around in the pink of physical condition. There's some suggestion that they may be a little better at mouse IQ tests, too, but statistically it's only just significant, and we needn't bother about that. The point is that manna is good for you.

" The Government's second concern, apart from its natural concern at the disruption in national life caused by manna becoming the staple diet, must be to secure against something that could precipitate the worst disaster in history—the end of the falls of manna. Fortunately that security can be achieved. Manna stores, with no loss of quality, in deep freeze containers. We already have extensive deep-freeze storage, and we are in the process of multiplying that capacity a hundred fold. In addition we are planning to maintain adequate seed stocks of all pre-manna food stuffs. We aim to have at least two years' supply of manna in hand. Should the falls cease, we can be back onto a normal agricultural economy in less than half that time."

The Prime Minister paused. He picked up a fragment of manna from the tray in front of him and nibbled it thoughtfully.



" Well, gentlemen," he inquired, " any questions ?"

Rustus Hereford sat behind his grade A desk and looked at the man Cafferty had just brought in. He was a little man, and although his face was deeply wrinkled, Rustus did not guess him to be more than forty. He sat, not quite at his ease, in the visitor's chair. Rustus leaned forward.

" Cigarette ?"

The man took one. " Thanks."

Rustus checked the dossier that had been completed in the outer office. He looked up again.

" Your name's Thomas Herbert—Herbert's your family name, that right ?" The man nodded. " You know why you've been brought in?"

Thomas Herbert shook his head. " They didn't tell me."

" I'll tell you. I'm interested in you. You run a farming group in Hereford. I want to know why."

" There's nothing against it ?"

" Nothing. It's a free country. You can walk right out of that door, and pause on the way to tell me to go to hell. But I'd like to know. I may as well tell you that this is not an official inquiry at all. It's a

personal one. I'm very interested in manna and in peoples' reactions to it. When it first started dropping I made an error of judgement about the stuff. I lost a lot of money—my own and other peoples."

Herbert looked at him curiously. " I guess the source of your information about what I do must have told you the kind of people I have up at my place. Cranks. What makes you interested in cranks?"

" Cranks . . ." Rustus said thoughtfully. " Working in the fields when you don't have to, building up stocks of agricultural equipment and machines—I guess cranks do those kind of things. But some other things seem funny. I hear you've got a good technical and scientific library—books and microfilms—up at that place ?"

" Pretty good."

" I also hear that you've got a deep-freeze unit up there, and that you've got it stocked with, of all things, manna. Could that be right?'

" It could."

" Then the crank label doesn't fit."

" It may not fit, but it suits us well enough."

" Look," Rustus said. " What are you doing ? You've got a theory about manna. What is it ? I want to know for my own peace of mind, and if it's any good at all I'll get from behind this desk and join you. If you'll have me, I will."

Herbert said slowly: " No, ' cranks ' doesn't fit. But ' uneasy people ' would do. My friends up there are all uneasy people. They don't trust manna, and they do trust me. I didn't have to sell any of them any theories or ideas to get them there, or to keep them there. I'm sorry, Mr. Secretary, but I'm not looking particularly for converts. I've got nothing to tell you."

" If there had been nothing," Rustus said, "—really nothing, then you'd have told me something. That's true, isn't it ? There is something. You have got a theory, and a purpose ?"

Herbert looked at him. " I'll give you that. But that's all I give you. I've got a theory, all right, and a purpose, but I don't even think of them in my own mind if I can help it, and I never expect to make a friend close enough for me to share it with. Those who take me, take me on trust."

Rustus grinned wrily. " Take it or leave it—that right ? You win. I'm uneasy myself. My resignation goes in to-day. I can be with you in a month, on the dot. Will you take me ?"

" We'll take you."

Within a year, Rustus had taken almost entire charge of the administration of the colony. Thomas Herbert was glad to pass the handling over to him, and to stay himself in the background. The two men

got on well together. The older one did no more than throw out a suggestion from time to time; when he did it was acted on with alacrity by the younger. And in between those times, Rustus exercised his tireless energy on keeping things ticking over quietly and evenly. The small group increased in size, but slowly. A year after Rustus joined, there were forty-one of them, an increase of seven. There were thirteen married couples, and nine children.

Late one afternoon, Rustus backed the bulldozer away from a bank he had been tearing down, and saw Herbert sitting on the stump of a tree nearby. Herbert called, and Rustus climbed down.

" You look hot, Rusty. I brought a jar of beer along."

Rustus drank deeply. He wiped the sweat from his face with his forearm. " Thanks, Tom. I was thirsty, all right."

He sat down beside Herbert. Herbert nodded towards the western horizon.

" Fine old sunset."

The sky was green and gold, heaped up with indigo clouds. High in the air there were golden flecks; flecks that drifted down towards the waiting earth.

" Good manna shower to-night."

Herbert light his pipe and began drawing on it. " Spoils the view to my way of looking."

" It goes on and on." Rustus looked at him. " I wish I knew what the hell we were waiting for."

Herbert did not say anything for a moment. When he did, it was to the accompaniment of a jerk of his pipe towards the bulldozer.

" Didn't like the sound of that engine. I should get Frank to have a look at it in the morning, before you take it out again."

Rustus grinned. The conversation had been turned like this before. He said :

" You've done a few different things in your time, Tom."

Herbert watched the smoke curl up from his pipe. " I guess so. School teacher, travelling salesman, garage mechanic, window cleaner, dog catcher, rat killer . . . I never seemed to find the job to settle down in. Maybe this is it." He glanced sardonically at Rustus. " Having knocked around so much, I'm happy enough. ' Come day, go day, God send Sunday,' as my old man used to say."

Rustus said: " I figure it's a good philosophy at that."

" Depends whether you've got a restless nature. You have, Rusty. How'd you like a trip to the big town ?"

" More books ?"

Herbert nodded. " And some instruments. Can you go tomorrow? Frank can be stripping the dozer."

Rustus had not been away from the settlement since his first arrival, apart from one early trip to Sanford. He looked at London with interest. There didn't seem to be any great change in the place; the people were still breaking their necks to get from one street to the next, and if one missed the pungent smell of the small cafes, the petrol fumes made up for that. He collected together the books and instruments Herbert had asked for, and left the next morning for what he now thought of as home.

Herbert checked through the stuff. He nodded at last. "That's O.K." His look went up to Rustus. "How was it, Rusty? Didn't get too home-sick for the bright lights?"

Rustus shook his head decisively. "Nothing like that."

"Cider?" Herbert asked. He poured from the stone jar into two glasses. The two men were sitting in Herbert's cabin, on wooden chairs beside a wooden table. There was an oil lamp hanging from the ceiling, because the generator had gone on the blink.

Rustus took the drink. He raised his glass. "Here's to us—the uneasy people."

Herbert nodded. "I'll join you."

Rustus said: "I'm still not asking you what's in your mind, Tom. But I'm going to tell you what I've been thinking it was. I've been thinking that maybe someone, somehow, was sending the manna deliberately. And that the intention was to sap folks' morale. You know the principle: hand-outs make for sloths. Someone was trying to turn the West—the world, maybe,—into a bunch of loafers. In the end civilization would just curl up and die. It didn't seem too fantastic a notion to me; I was trained in big business.

"But that's not the way things are coming out, Tom. London is turning on its spindle just as fast as ever. People aren't any different. They eat manna, and they eat nothing else but manna, but outside of that they aren't changed at all."

He waited for Herbert to say something. There was silence for a moment. Then Herbert said:

"I'm glad you got that McGuire book. It was never published in this country, and the American edition has been out of print for ten years. But it's a very useful book."

Rustus said quietly: "I'm still not to be trusted. Is that it, Tom?"

Herbert said: "Trust doesn't come into this, Rusty. Maybe . . . Look, Rusty. What's in my mind is too crazy to talk about. I told you before you came that this outfit operates on a crazy hunch. I don't want to keep you if you want to go. Go and eat manna and live a normal life, if that's the way you'd rather have it. I'd be sorry as hell to see you go, for more than one reason. But if you've started

being uneasy about me and not about the rest of the world, then I don't see how you can stay."

Their eyes met and held. Rustus said :

" You're the boss, Tom."

It was three or four months later that Frank reported the car wreck. The road between Sanford and Springvale ran fairly close to the settlement; it was not a particularly busy road, especially now, at the beginning of winter. The auto was a six-seater convertible, and it had its nose in the ditch.

Frank said: " I don't know how he came to kill himself. Paint's no more than scratched."

Herbert said: " He's dead ?"

" Dead right enough. Face twisted real nasty."

Herbert said: " Where is he ?" His voice was grim. " I'd like you to come along, too, Rusty."

They got the driver out of the car. He was a man about forty, and his dead face was contorted in an agonized grimace of pain. Herbert looked at him for a moment.

" Heart failure ?" Frank suggested. " Scared himself to death ?"

Herbert said: " Bury him, Frank. Rusty and I will take a run into Sanford. Think this car will run ?"

" Don't see why not."

While Frank was checking the car's engine, Herbert said to Rusty :

" How's your stomach ? If it's not too good, you'd better stay here."

Rustus still did not know what Herbert was driving at, but in some way his curiosity had soured. He said briefly:

" Good enough, I guess."

They met death on the way in to town—death sprawled in a hundred different attitudes of agony and despair. In the town itself, the pavements were thick with bodies, as though the dying had come crowding out for air. Herbert stopped the car when it could be seen that the road itself was impassable, just a little way ahead.

The words almost choking him, Rustus said :

" O.K. You can tell me now, I guess. The manna ? But I don't get it. It was all right. They checked it and triple checked it."

Herbert said: " The reason I wouldn't tell you, Rusty . . . when I first had the idea, I tried to tell people. That was in the early days. They thought I was mad—mad in a nasty way. One time it was touch and go whether I was certified. After that, I didn't tell anybody."

Rustus said: " But it was good. You even put some in deep freeze up at the settlement."

" Then it was good. This idea . . . I got it from one of the jobs I used to do. There it was good at first. You could have checked it any way. You get their confidence first with the good stuff. Then the stuff is . . . slightly different."

Rustus stared at the heaped parade of corpses. " The stuff . . .?" he echoed.

Herbert spoke the word softly. " Bait. That's the way you kill rats. Rats are cunning devils. You can't just put poison down and expect them to take it. You've got to feed them up first."

" My God ! Who . . . the Russians ?"

Herbert shook his head. " I wouldn't like to see Moscow right now."

" Then . . ."

Herbert looked up, into the pale blue wintry sky. " We haven't met them yet. I guess we will do eventually. They may just have killed to wipe out a future danger, but it's more likely they want our rat-run."

" From outer space ? It was proved the manna wouldn't hold together in that kind of fall . . . it would fry, too."

Herbert said wearily: " That's easy enough. It isn't hard to work out a container that will dissolve—burn maybe—at the right height, and release the contents for a short drop."

Rustus looked up at the sky himself, and back to the tumbled bodies.

" The swines !"

" Swines, all right."

Despair was heavy on him. " And they've won."

Herbert began backing the car. " Not yet they haven't."

" What can a group like ours do ?"

" Organize. There will be others who've missed the poison. People sick maybe, or just fasting. We'll find them, or they will find us. When our rat-killing friends drop down . . ."

" We don't know anything about them—what weapons they may have."

" Two things we know—they preferred not to risk a straight fight, and they're poisoners. I've got another hunch, Rusty. I've got a hunch that when they come they're going to be over-confident. They may expect some of the rats to be alive, but they won't expect them to be in fighting trim."

" No, by God !" Rustus said. " They won't."

John Christopher

Mr. Neal's second contribution to this magazine is in the nature of a crime cameo, equally as effective as Ken Bulmer's "The Black Spot" in the last issue—but with considerable difference. Logical deduction requires the correct clues in their proper place to effectively solve a problem.

LOGICAL DEDUCTION

By Gavin Neal

Illustrated by OSBORNE

There was nothing they could do about the *Hercules*. They stood awkwardly around the crater in their space suits and looked helpless. When a ship has gone out of control and been caught up in the gravitational pull of a planet, there isn't much left after it has hit the surface. There was no question of burying the dead. There wasn't that much identifiable. But before the *Jason* blasted off again, Bill Summers, as captain, read over the suit radio a few words from the Space Code. It seemed more appropriate than the Bible. In any case, he couldn't remember any suitable texts.

As the ship rose up through the thin atmosphere, Summers kept an unobtrusive watch on Peters to see how he was taking it. The big, rawboned engineer sat silent, with his face expressionless, and the rest of the crew left him respectfully alone. They knew the bond there had been between him and Green and no-one intruded on his sorrow. At the same time, they observed him out of the corners of their eyes. Space can take you in odd ways and, after a shock like that, anything might happen.

When they had set course for base and Peters had taken himself off to his cabin, Summers fell to thinking about the odd friendship that had sprung up between the engineer and the radio expert. No-one would have predicted that they would get along together. Hal Peters was a shy, unsociable sort of man who had had to work hard to get through his engineering course at college. His parents had been poor and he had not had the money to take part in social activities. He had entered the Space Service with a degree, a conscientious attitude to his job and an inability to mix well with other people.

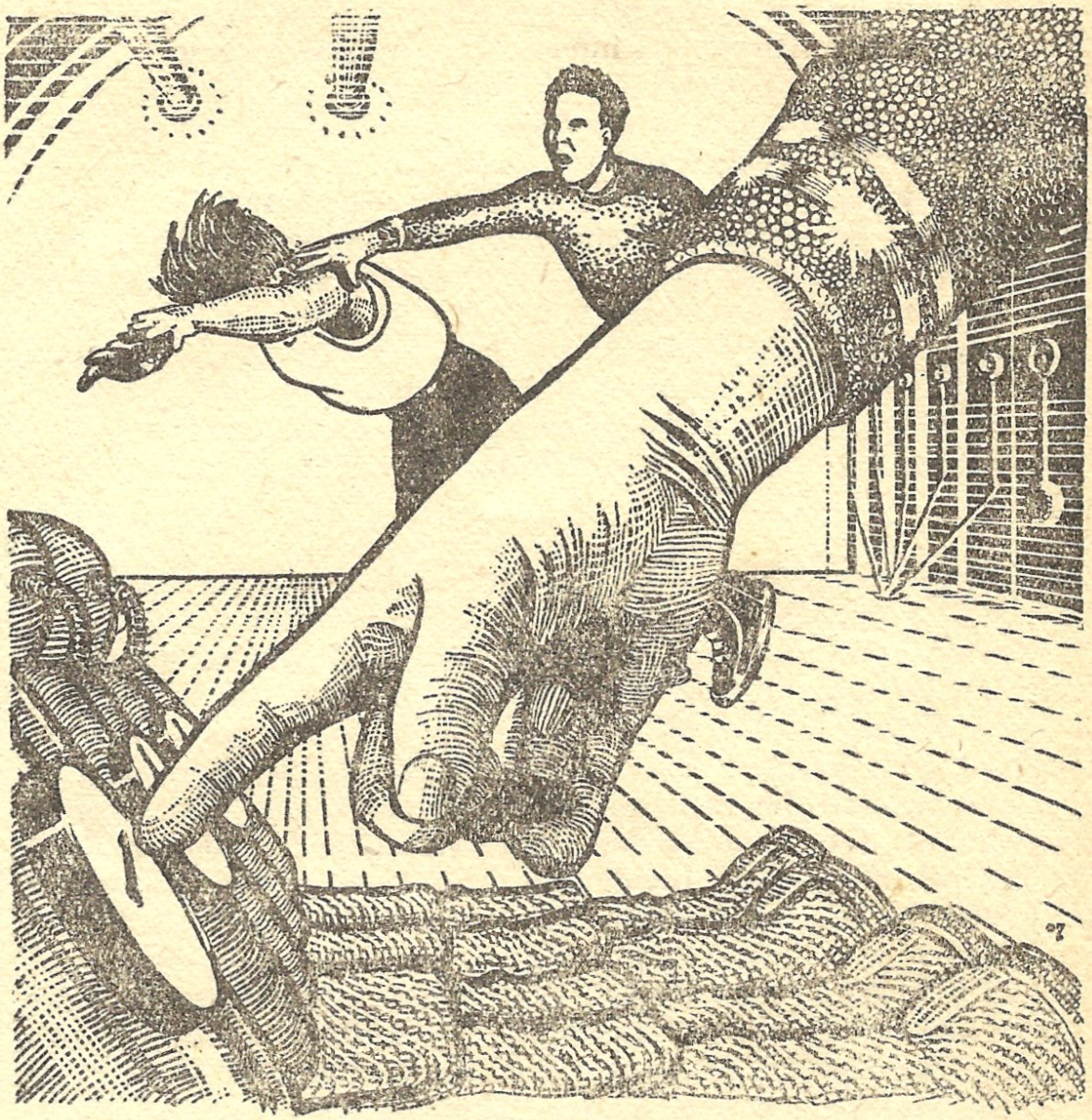
Chuck Green, on the other hand, though one of the best radio men in space, had always found it difficult to hold down a job in a ship. He was for ever landing in one jam after another, partly as a result of his hard drinking and partly as a result of his fiery nature. Captain after captain had thrown him off his ship after trouble on one of the planets. He was well liked by the crews but a nightmare for the commanders who had to account for his actions to the front office at headquarters.

Summers had eventually drawn the short straw and had found himself saddled with Green. He had not looked forward to the trip. He had had nightmares in which he attempted to explain to the board of directors how the *Jason* had managed, with the radioman's help, to get involved in various improbable ways with the inhabitants of several unlikely planets. In the event, the voyage had been one of the most uneventful that Summers had ever known.

Peters was at that time a well-established member of the *Jason* crew. He got on well enough with everyone but had made no intimate friends. Summers valued him as the most conscientious and dependable engineer it had ever been his good fortune to work with. When Green joined them, nothing had changed until they had hit Acturus II. Summers had never heard the full story but he believed that Peters had got the radioman out of a tight spot in one of the native bars. After that, the astonishing friendship had developed quickly.

Probably each man had found in the other the qualities which he himself lacked. Whatever the reason, the engineer had acted as a moderating influence on Green, checking his excesses gradually, while the radio expert had drawn Peters out of his shell and made him take an interest in the outside world. Since that first trip they had been inseparable and now that Green had died, Summers wondered what effect it would have on Peters.

It had been bad luck that had landed Green on the *Hercules* for her fatal trip. The two space ships had been carrying out a survey in the neighbourhood of Alpha Centauri and on getting back to base on Alpha IV, the radioman of the *Hercules* had gone down with Martian



fever. As the *Jason* needed repairs done to the forward steering rockets, her sister ship had had to go out to chart a magnetic storm that had blown up and had taken Green along to make up the crew. A frantic S.O.S. had come back when she was five days out and she had dashed herself to pieces on Alpha XVI.

Summers knew well the havoc that the psychological effect of no gravity and of the boredom of the long weeks of free fall in a confined space could play with a mind that was not rock steady. He'd watched too many new recruits break up on their first flight. And he was worried now about Peters. With his life suddenly fallen to pieces about his feet, the shock might send him over the brink. And the possibility of someone going berserk in a space ship was not pleasant to contemplate.

The captain looked across at Roger Hill, the good-humoured first officer, and caught his eye. Summers knew from that glance that the same thoughts were passing through Hill's mind. They would be passing through the minds of the other members of the crew as well. Karl Grundig was hunched up over the radio set, still looking a trifle yellow after his bout of fever; Pat Curtis busied himself plotting out the course on the calculator; and Tony Fallon refilled the oxygen bottles on the space suits to the correct pressure. But behind all their preoccupied faces the same fear would be lurking.

Summers sighed and swung to his feet. As he clumped across the control cabin in his magnetic boots to enter the day's unhappy events in the ship's log, he told himself not to cross bridges before he came to them. There was nothing he could do, but watch and pray.

It was on the second Earth day of the trip back that the initial incident happened. Summers, Grundig and Fallon were in the control cabin when Peters burst in, waving a gun excitedly, and shouted something incoherent about Green and the sanctity of the dead. He appeared to be beside himself with anger and the three men were for a moment transfixed with horror. Then Fallon launched himself across the room and knocked the engineer's legs away from under him. As he fell backwards, the gun in his hand spat viciously and a bullet thudded into the instrument panel beside Summers' head. Then the captain had joined the heap on the floor and wrenched the gun from Peters' grip. But it was unnecessary, for, in falling, the big engineer had knocked his head against the bulkhead and he was out cold. They scooped him up and steered him along to his bunk where Hill, who was the recognised medical expert, gave him an injection that would keep him unconscious for several hours. Then the crew gathered in the cabin for a council of war.

" What was all that about ?" asked the bewildered Hill.

" I don't really know," replied Summers. " He was shouting something about Green but I couldn't catch what it was."

" As far as I understood him," broke in Grundig, " he was accusing us of having monkeyed around with some of his stuff. You know he's got a photograph of him and Green at some fiesta or other on Sirius I and a cigarette case Chuck once gave him. He was saying that somebody had pinched them and was implying we were grave robbers or something of the sort."

The Captain looked hard at Hill.

" Sounds like the start of a break-up, doesn't it. Mind unbalance producing hallucinations. It's quite a standard beginning."

The first officer was unwilling to commit himself.

" Might be. Might not. It's far too early to say. If he gets twelve hours sleep now, he may be all right after it, if it doesn't prey on his mind. One bout sometimes sees the end of it. To be on the safe side, we'd better remove all weapons and lock them up."

" You don't mean to say you're going to let him run around loose in that condition," snapped Curtis. " Damn it all, man, it would be asking for trouble. We'll be mad, not him, if we don't lock him up."

Summers had never much liked Curtis' sneering ways. The man had a habit of getting under a person's skin with his way of implying his own superiority. Besides, the captain had always thought a good deal of Peters and was sorry for him now. He turned on Curtis sharply.

" You heard what Roger said. We've no reason to believe that this may go any further. I'm captain of this ship and I say Peters is free to come and go until he shows any more signs of cracking up. Is that understood ?"

The navigator shrugged his shoulders in an insolent way that left no doubt at all of his low opinion of the captain's mental processes. He stalked across the cabin and went out. Twenty-four hours later he was dead.

In the Space Service, Earth conventions were adhered to. Because of the varied star systems which a ship might visit, time was always reckoned as if the crew were back home unless a landing was made on a planet that had a reasonably normal day-night cycle. When the fictitious night-time arrived in space, the crew bedded down and four hour stretches of watch were performed by a solitary man. It was the duty of the person on the last watch to wake up the others and then prepare breakfast for them.

On the morning after the scene with Peters, Summers was roughly shaken into wakefulness by a white-faced Grundig.

" Get up quick, skipper," he said. " Peters has run amok again. I'd just started waking everyone up for breakfast when I found the evidence."

Summers unhooked the covers and twisted out of bed, grabbing his boots. He slipped them on and followed the radioman quickly along the corridor. At the door of Curtis' cabin he stopped short and looked at the scene within. The covers had been tossed back from the bunk and on the mattress was a large red stain. There was another on the grill of the ventilator where globules of blood that had been left suspended in mid-air had been drawn by the draught of the air conditioning. Of Curtis himself, there was no sign.

" There's a space suit and a hand-rocket set missing," said Grundig nervously. " I've searched the ship from end to end and Curtis isn't on it. I guess the body has been sent out into space."

Hill, clad in pyjamas, joined them.

" Peters seems to be sleeping peacefully enough at the moment," he whispered, " but I've locked him in just in case. What's the next move, skipper ? Do we search the room for evidence ? You can't really convict a man of murder just because he's the most likely suspect. We could do with a bit more proof."

They found the knife floating about under the bunk. It was of the kind that formed the standard equipment of every space suit. Summers cursed himself under his breath for not having removed these along with the other weapons. But the ships' regulations were quite specific on that point. Suits must at all times be fully equipped and ready for use in an emergency. His conscience was, however, already troubled about his decision of the previous day not to place Peters under lock and key, and he blamed himself now for this further mistake.

With some fine powder, they tested the handle for fingerprints and found a set clearly visible. Then they assembled the whole crew, including Peters, in the control cabin and went through the routine of taking everyone's prints. It was quite obvious when they looked at the results that only one man could have held the knife.

Peters, in bewilderment, looked up at the cold circle of eyes that stared accusingly at him. As he rose slowly and shakily to his feet, the others did likewise and closed in round him.

" I don't understand it," he said huskily. " They can't be mine."

Hill spoke gently but firmly.

" You had a bad experience back there on the planet, Peters. You know how easy it is for a strained mind to start playing tricks. You wouldn't remember anything about what you've done, probably. But you'll understand we have to put you under restraint to prevent this happening again. When we get back home, the Space Institute will put you to rights again. In the meantime, come along quietly and lie down."

They led the dazed man back to his cabin, gave him a shot in the arm and strapped him securely to his bunk. They locked the door as they left to make doubly sure. In the control cabin, they were a subdued bunch. At last Fallon spoke.

" Why on earth did he bother to get rid of the body and leave the knife behind ?"

" It's very difficult to follow the workings of an unhinged mind," replied Hill. " It's incredibly sly about some things and utterly naive

about others. In any case the knife had got knocked under the bunk and wouldn't be noticed. The thing to do is to forget about this as far as we can or we'll all be going screwy."

It was while Summers was packing up the engineer's belongings that he remembered about Green's photograph and the cigarette case. They were, of course, missing as he had expected. Peters' subconscious mind would have made him hide them so that later he could find them gone and genuinely believe they had been stolen. But the captain knew from his previous experience that they would only be hidden. The engineer could never have brought himself to destroy things which were now his only link with the first real friend he had ever had. Summers, therefore, began to hunt for them to put them with the other possessions.

When he had drawn a blank in the engineer's room, he searched the ship from end to end, still with no results. He was worried now, very worried. Under the pretext that it was essential for every member of the crew to have a check-up to see that the events of the trip had not affected him, he forced each man to strip and undergo a physical and psychological examination from Hill. While it was happening, he searched the man's clothing. He even gave Hill a test himself, and took the opportunity to run through the officer's pockets. It was completely without result.

The captain sat down and did a spot of hard thinking. He was perfectly convinced that, if Peters had gone off his head and was suffering from hallucinations, the articles would merely have been stowed away somewhere. But he had been long enough in charge of the *Jason* to know every bolt hole in the ship, and he was equally convinced that they weren't anywhere on board. They had therefore been shot out into space like the body and that could only have been done by a hand other than that of Peters.

If you dismissed the hallucinations as faked, the only other evidence against the engineer was the finding of his prints on the knife. And since he had been drugged the previous evening, it would have been the easiest thing in the world to go into his room and press his fingers round the handle. Summers was now convinced of the innocence of Peters. He remembered how the man had been genuinely amazed at the discovery of his apparent guilt. And if he wasn't suffering from delusions, he would have been well aware of it. But that brought in its train another and very sobering thought. There must still be a murderer loose on the ship, a cold, calculating killer who was willing to frame an innocent man !

Summers realised that it was up to him to find out the truth. He had never had any ideas about being a detective, and he viewed the prospect of trying to become one now with no great enthusiasm.

What was the correct formula ? Means, motive and opportunity. The means was obvious: anyone might have had the opportunity: but what about the motive ? Curtis had possessed a sneering, supercilious manner and he had dearly loved to be in a superior position where he could enjoy a little sadistic mental bullying at the expense of the underdog. If he had got some hold on any member of the crew, it might have eventually been worth that member's while to commit murder to get out from under. There had been that newsflash from Sirius II just after the two ships had left saying that the inhabitants swore that an Earthman had stolen certain defence secrets. If it had been one of the people aboard the *Jason* who had been responsible and Curtis had found out, a little blackmail, monetary or merely sadistic could easily have resulted. Still, all this wasn't getting him very much further forward.

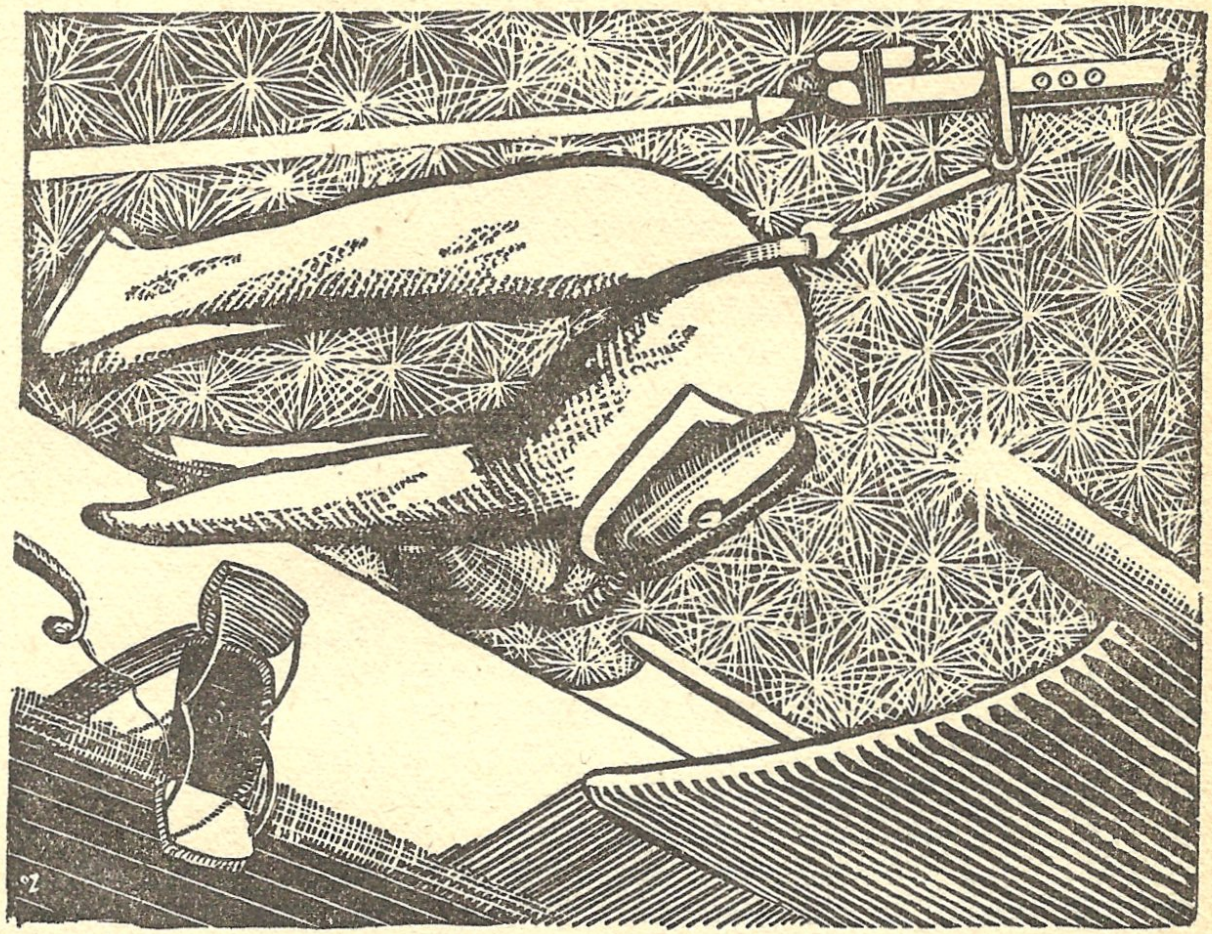
It took him the rest of the day and the next night to work it out and satisfy himself that he was right. In the morning he called the remaining members of the crew together. He ran over his argument about the innocence of Peters and, when Hill backed up his reasoning, the others, though a trifle dubious, were prepared to agree.

" Right !" Summers went on. " The next step is to pick out the real killer. Now, the killer must have taken the body through the air lock encased in the missing suit and attached the rocket set to its belt outside. It's true that the noise of the rocket couldn't be carried through the vacuum outside, but the exhaust from it would have struck the ship, as the body was being sent away and the vibration would have been transmitted through the hull and might have aroused somebody's curiosity. It's therefore obvious that the murderer couldn't risk launching the body from the airlock. He would go out with the body on a long safety line and then start the motor up from there."

He paused and looked around. They were following him with interest. Even the killer was watching him with curiosity. He plunged into his explanation again.

" Imagine manoeuvring a body and a rocket set silently through the airlock and then guiding them carefully out into space. You'd have to watch to see that they went off on the right course and then get back. All that would take a bit of time, more than you'd probably imagine, and you'd have to wear a suit yourself while doing it.

" We're all shapes and sizes on this ship and all the suits are individually tailored to fit. Anybody who's ever tried working in another man's suit will know how clumsy that makes you. You couldn't do a job requiring speed and silence in any suit but your own.



"That gives us the following facts. One, the killer used his own suit: two, he spent a fair amount of time in it: three, he must therefore have used up some of the oxygen in the cylinders: four, Tony filled all the oxygen bottles just after we left Alpha XVI. I propose now to measure the pressure of the cylinders in all the suits."

They stood silent watching the captain as he tested each supply in turn on the pressure guage. There was a sharp indrawing of breath when the last test showed a pressure of two pounds per square inch under normal. Summers had been watching the killer out of the corner of his eye the whole time and, when Grundig made his flying leap for the armaments locker, he had him covered with his pistol long before the outstretched arms gripped the handle of the door. In any case, he had taken the precaution of removing the guns it contained to another cupboard.

Hill came into the captain's cabin and stretched himself luxuriously on the bunk.

" Well, skipper," he said, when he'd got settled, " you're a crafty old bird, if ever there was one. How did you know Grundig was the man."

Summers opened his eyes wide in as artistic a display of innocence as he could manage.

" You saw the test. His bottle was the one that was low on oxygen."

" Come off it, skipper," the other taunted. " I've had time to think that lot over. Even going at snail's pace he wouldn't use that amount of juice. A fraction of a pound down, yes ! A couple of pounds short, no ! You fiddled the result and I know you did. Grundig has confessed he killed Curtis because he was being blackmailed about the theft of those plans on Sirius II, so there's no harm in you coming clean now. How did you know it was Grundig you should play fast and loose with."

Summers looked across at the first officer and grinned. He felt rather pleased to be able to show off his detective abilities to someone.

" It's a fair cop," he agreed. " I admit it. I knew it was Grundig so I tested out the bottles when I was on watch last night. I reckoned that he wouldn't have bothered to refill since he would have no doubt at all that Peters would be charged with the murder. As you say, his was a little lower in pressure than the rest, but only a little. It was hardly noticeable on the guage and I was counting on a nice spectacular showdown that would drive Grundig into doing something silly that gave him away. That's always the best proof of guilt. Beautiful deductive reasoning always sounds a bit thin in a court of law and never impresses juries. Grundig, when he saw the guage hardly altered would merely plead a slight error in filling. So I let some more oxygen out until it was quite obvious that it had been used. I counted on Grundig not working out how much different the pressure would be. I expect when you're doing a thing like that, it seems to take all eternity."

" I'm still waiting," said Hill patiently, " to find out how you knew it was him who had done it in the first place."

" It didn't strike me for a long time," answered Summers, " until I remembered the blood on the ventilator. The air-conditioning had drawn all the blood globules out of the cabin. The liquid that had been plastered against the grill in the process had dried hard and yet there was the knife still happily floating about under the bunk. Why hadn't it been drawn along in the draught and pulled against the grill, too ? The explanation could only be that the knife had been planted in the room only just before we went in.

" Grundig was the man on the last watch. He was going around getting people up when he alleges he found the blood stains. Would

anyone in his senses wait until Grundig was prowling around before planting the knife ? Of course not. But Grundig himself could have placed it under the bed when he entered the cabin before sounding the alarm. Nobody else would or could have slipped that knife in except Grundig."

The first officer got to his feet and looked quizzically at the captain.

" That's the finest piece of no-good reasoning that ever produced the right result," he said.

" What do you mean ?"

" I was called to the scene first as the medical expert on board," replied Hill. " You may remember that I had already been to see how Peters was before you even got along. When I went in to Curtis' cabin and looked at the stains, there was something jammed up against the corner of the bunk. I didn't even notice what it was at the time but my knee knocked against it and dislodged it. When we found the knife and nothing else under the bed later, I realised that that was what I had set floating. So you see it had been there a long time. It had merely got wedged in."

Summers stared aghast at the door, with a considerably deflated ego, after Hill had left. He was wondering what would have happened if someone else had been on the last watch and he had monkeyed around with the wrong cylinder.

Gavin Neal

Another new author makes his debut in our pages with a nostalgic short story concerning the inmates of a Home for broken-down spaceship pilots where only the memories of former achievements linger in the inmates' memories.

THE VETERANS

By Norman Dale

Sundown is the time of sadness. It is the time when the world suffers a little death, when the singing birds of the day fall silent and hide their heads beneath their wings, when, for a brief moment, the Earth is hushed and still and darkness spreads its thickening mantle over the still-warm fields. For the children it is a time of regret that play must end and sleep begin. For the young it is the closing of one book and the opening of another, a time of romance and the heady thrill of the unknown. For the old it is a bitter reminder that one more day has been lopped from the shortening span. One step nearer to the waiting grave.

Gregson was old. He stood, as they all stood, facing the high glassite window which formed one entire wall of the recreation room, his eyes, like the eyes of them all, staring towards the west. They were silent as they waited, gathered as they always gathered for their ritual of remembrance, silent and unmoving, each engrossed with his own thoughts, faded eyes watering a little as they stared and waited, waited and stared.

In the distance the sun slipped beneath the horizon, painting the sky with streamers of wondrous red and orange, pink and gold, yellow

and scintillant ruby. Against the flame-lit sky, standing in serried array, slim and proud, tall and graceful, were the things which the old men had gathered to see.

The ships !

The ships of space which, like those who stared with hungry eyes, had once been strong and virile, shouting with their thundering venturis, blasting the tepid air with their impatient challenge to the void. The ships which, like the men who had rode in them, rested now, silent and discarded, old and unwanted, rotting heaps of junk in the graveyard of human ambition.

" There's one gone !" Hartnel thrust himself forward, blinking his dulled eyes as he stared towards the fading glory of the setting sun. " Look ! There are only fifteen now !"

" Sixteen." Peterson limped forward, his face lined with the pain from his artificial legs.

" Fifteen ! You count them." Hartnel narrowed his eyes as he stared at the silhouettes. " I hope that it's not the old *Avenger*."

The *Avenger* had been Hartnel's ship and Gregson could understand the old man's panic. While the ships remained the men had something to live for. They were the symbols of their youth, the concrete reminders of what they once had been and, while they could see them, life held a meaning and a pride. Without them there would be nothing. Without them would be emptiness and a barren waiting, the harsh realisation that, like the ships, they were human junk waiting to be scrapped.

" Is it the *Avenger* ?" Hartnel looked from one seamed face to the other. " Can any of you see ? My eyes aren't as good as they used to be. Isn't anyone sure ?"

" It's not the *Avenger*." Gregson squinted towards the dimming silhouettes. " Your ship's standing over there, towards the left, the second from the end. I reckon it must be Kemshaw's ship that's gone."

Kemshaw had died last week, it was safe to lie.

" You certain ?" Hartnel sighed with relief. " The *Avenger* had a twisted fin. You know the *Avenger* ?"

" Of course I know her, and she's still standing out there." Gregson smiled at the old man. " Didn't we engage together that time the Martians broke through the blockade ?"

" That's right." Hartnel nodded in pleased satisfaction. " You had the *Invincible*. We cracked three hulls and drove them back after two days fighting." He looked at Gregson. " I'd forgotten about that. Funny, I never thought that I could forget."

" You haven't forgotten. Don't you temember how we slipped past their patrols and dusted their spaceport ? And that time when the squadron was assembling and we had to take-off with half fuel and no rations." He grinned. " Man ! Was I hungry when I got back."

" Yes." Hartnel nodded, his eyes brightening as he turned from the window. And do you remember . . ."

It was always the same. For them day had ceased to have meaning, only sundown when the sight of the familiar vessels tore at their heart strings and the old, old memories came flooding back. Then they stood before their altar and paid homage to the symbols of their youth. Then they forgot the pain of broken bodies and the grinding knowledge of what they were. As the light died and the ships faded they relived again the thrill and excitement of bygone days, forgetting the agony and boredom, the waste and futility, the sickening monotony and the tedious years. They forgot too, the price they had paid for those brief years of remembered glory. The wounds and missing limbs. Their loneliness without the warm comfort of wife or family. They remembered only the good things, the rare incidents when heart and sinew had combined with brain and luck and they had flirted with death and won.

And their memories were all they had.

Gregson sighed as he stepped away from Hartnel, leaving the old man chatting brightly with Peterson, the two of them barely listening to each other as both tried to speak at once. Around him the others filled the air with the soft, almost whispering drone of their thin voices.

" I had to think pretty fast and . . ."

" The Marti had me in his sights . . ."

" I had only two torps left and there were three . . ."

" Fifteen gravities man ! I tell you . . ."

The same old stories, told and retold until each knew them by heart. Peterson, his artificial legs rigid before him, talking to Hartnel. Fenwich, his empty sleeve pinned to his coat, listening to Jenner with his staring, glass eye. Henderly, his face a grotesque mask of seared flesh, whispering to Thorne with his metal-topped skull. Bulker, Wilson, Chapfich, Wells, Young, Samson, Letage, Denton . . . . Gregson knew them all. Knew them too well. Knew them as he knew himself, better than himself.

And hated them just as much.

It was dark now, almost night, and the soft, hidden lighting had sprung to life with its mechanical efficiency, bathing the great room in its soothing radiance. Things looked different in that light. Faces lost their seams and eyes borrowed a false gleam of brightness. Cheeks

seemed tinged with colour and even bodies looked more like they had been rather than what they were. The light, together with weak eyes, gave the illusion of youth and virility and, at such times, they tended to forget the present and revert back towards the past.

Gregson wanted no part of it. He turned towards the window, leaning his too-warm forehead against the cool plastic, and stared at the darkness beyond. The ships waited out there. Tall and lonely as they stood in line, resting where they had been placed when their work was done, left alone until time and the elements should have worked their will. How long would they wait? Would they still be there when the last of the old men blinked his near-blind eyes towards their glory limned by the setting sun? Or would they be swept away by an impatient youth, intolerant of age in any form, eager to melt the alloys and cast it into new and more useful shapes?

Gregson didn't know. A man died and a ship was dismantled. Fifteen ships stood in line and fifteen men dreamed their senile dreams of the vanished past. Would the last man see but a single ship? Or would the gratitude of a world last that long?

He sighed and turned as someone called his name.

"Gregson!"

"Yes?"

"Over here a minute." Hartnel waved towards him. "Look. You were in on the last dusting. How many ships fell out then?"

Fell out. Not destroyed or wrecked, not smashed to blazing ruin or ripped by probing torpedoes. 'Fell out' was a nice, harmless way of stating what had happened. Old men do not like to talk of death.

"Five." Gregson didn't elaborate.

"Five?" Hartnel frowned. "I make it six. Peterson here says four."

"It was five."

"Are you certain?"

"Yes." Gregson stared down at his hands. "I was with them, there were ten ships all told. Five of us fell out before we could start the dusting. Once we'd spread the stuff . . ." He shrugged.

"They curled up like singed ants," chuckled Hartnel. "It was the end of the war, the finish of Mars. Ten years it took before we beat 'em back to the dirt. Ten years—and I rode a ship every one of them."

"Yes," said Gregson, and was surprised to see his hands shaking. "And I suppose that you're proud of it."

"Sure I'm proud of it. Aren't you?" Hartnel didn't wait for an answer. "They wanted rocket pilots. They wanted the best they could get. They wanted men they could trust to handle twenty millions of equipment and machinery. They chose us. Why shouldn't I be proud?"

"We ruined Mars," said Gregson quietly. "That's why."

"We did our duty." Peterson hitched at his legs. "It wasn't our job to question the orders."

"They raided Earth," reminded Hartnel. "We couldn't stand for that."

"We raided Mars first."

"That's different."

"Yes." Gregson thrust his hands into his pockets and wished that he didn't feel so warm. "It would be."

Fenwich nodded to him as he passed and Jenner turned his head so that he could see. Henderly, tried to smile, then remembered and gestured to a seat instead. Thorne carefully stroked his metal skull, a habit carried over from the time when he'd had hair.

"Tell us about that time you were hit and had to wear a suit for three weeks."

"Not to-night." Gregson relaxed against the soft rubber-foam of the chair. "What were you talking about?"

"Henderly was telling me how he crashed on White Sands and they pulled him out like an overdone steak."

"That's right." The scarred man remembered not to smile. "I doubt if there's an inch of original skin left on my body. They wrote up my case in all the medical papers, I had fifty-eight operations."

"Did you live?" Gregson shrugged at the scarred man's expression. "Never mind. That was the end of the war for you, I take it?"

"Sure. By the time I was fit for action again you boys had cleaned up the planet and there was nothing for me to do." Henderly's voice held an empty bleakness. "I never got into space again."

"No one did." Gregson automatically looked towards the window, trying to see the dimmed pin-points of the stars. "Where could they go? Venus? A dust bowl. The Moon? A ball of slag. Mars?" He shrugged. "We took care of Mars. The only damn planet we had a hope of colonising and we dusted it good. Nothing can live there now. Nothing could set foot on it for the next thousand years —and live. No, boys. Space is a closed book from now on. The youngsters have got better sense."

"The young fools!" Anger warmed Thorne's voice as he stroked his gleaming skull. "We were never like that."

"No," agreed Henderly. "We had guts. We didn't worry about the radiation and the kids we couldn't have. We lived for the day, for the moment, and we saved Earth."

"We destroyed Mars," corrected Gregson tiredly. "We touched down and met alien life for the first time in history. We were afraid of it and so we killed it."

"They raided Earth, don't forget." Thorne's hand made a faint rasping noise as he caressed his skull. "We couldn't stand for that."

"We rifled their mines, used their water, set up our colonies and took the planet for our own. What else could they do?"

"We offered them reservations, they could have lived with us if they'd wanted to. Anyway, who cares about a lot of damn insects?"

And that was the whole answer. Intelligent life on Mars had worn an insect body. Never mind that they knew science, controlled the atom, had survived on a planet where to survive at all required unremitting effort. They hadn't been human—and so they had died.

"We could have traded with them," protested Gregson. "We could have helped them and they us. We could have kept the ships in space and built up an understanding with them. But we didn't do that. We went to war. All of us, all who could handle a space ship and who didn't give a damn for the future. You, me, all of us. We fought for ten years and, when we finally dusted Mars and ended the war, what happened?"

"They gave us charity," said Henderly bitterly. "They grounded the ships and grounded the men."

"They hated us," whispered Gregson. "They hated us and they hated themselves. We had never exterminated a race before. We had never cut off our noses to spite our faces quite so thoroughly before. We destroyed Mars—and found that there was nowhere else for us to go."

"Milksops," snapped Thorne. "If I'd had them in my command."

"They'd grown up while we were away. The children and the youngsters who had been reared on understanding and to whom the murder of a race was an unforgivable crime. We should have been heroes, instead we found ourselves criminals. They didn't hurt us, but they just didn't want anything more to do with us. So they put us in here, grateful, perhaps for what we had done, and yet ashamed of us for doing it." He stared at the softly glowing walls. "How long ago now? Forty years? Fifty? Does anyone remember?"

"I remember that time on Phobos when I touched down to fix a jet," said Thorne. "I was sweating all the time in case . . ."

Henderly leaned forward, listening now so that Thorne would listen to him later on, knowing the story and yet, by mutual custom, pretending that it was new. Gregson listened too for a while, old habit making him sit, his face expressionless, controlling the mounting desire within himself to get up and shout, abuse, sneer, scream at the broken down old fools who could do nothing but live in the past.

Around him the whispering drone of often-repeated reminiscences stirred the warm, heavy air like the droning of invisible bees.

It was too much. For too long had he listened, sitting in the recreation room in the shortening period between sundown and bed, swapping yarns and recalling departed glory. Weaklings all. Leaning on each other, supporting each other's illusions, lying to each other and lying in turn. Fashioning heroic clothes out of tenuous imagination, forgetting to mention the fear and the terror, the blasted bodies and freshly spilled blood. Forgetting every single unpleasant thing that had ever happened and only talking about what never took place.

And they had robbed man of the dream of centuries.

He sighed as the lights dimmed then brightened, dimmed again to flare once more. Time for bed. Time to rise and walk out of the recreation room, to be washed and clothed, to be put in a narrow cot and there to pass the night in the light, uneasy sleep of old age.

Tomorrow they would waken and rise, be washed and fed, be clothed and turned out like so many animals to while away the day in the great room. There they would wait until the sun had crossed the sky and the time came for their silent worship. They would stare and count the ships and, as they had done for how long now ? They would talk about what they had been and never, never talk about what they were now.

He felt a sudden bitterness as he thought about it. They were kind, yes, but how much cruelty is done beneath the cloak of misunderstanding kindness ? It wasn't enough to be fed and clothed, washed and taken care of. A man needed more than that. He needed lights and laughter, the company of the young and the heady excitement of watching youthful pleasures. He needed fuel for his mind not the sterile memories of too long ago. He needed life if he was to stay alive, not age, not the dulling conflict of dulled minds and warped ideas.

Slowly they filed from the great room, hushed and silent as they moved, some hopping, some limping, some dragging their bodies for which medical science could do no more.

Gregson joined them, feeling again the unnatural warmth and nervous tension. Perhaps tomorrow he would be dead ? Perhaps he wouldn't have to listen to the gossip and the continual reminiscences ? Perhaps anything.

He wondered if they would dismantle one of the ships when he was gone.

Norman Dale

Quite recently, astronomers keeping close watch on stars that turn "nova," have been able to offer a possible answer to the mystery surrounding such events. Mr. Newman's current article deals with the cause and effect of nova and super-nova stars.

THE NEW AND THE OLD

By John Newman

The sudden appearance of a brilliant 'new' star in the heavens and the discovery of shrunken dwarf stars appear at first to have little in common but now astronomers and physicists have evolved an explanation that not only connects these two but makes each a necessary stage in the life and death of stars. It even explains the rarer but far more catastrophic stellar explosions that, once in a thousand years in this galaxy, blast a star to gas in the tremendous outburst of energy known as a supernova.

A nova is a star which, seemingly no different from others, suddenly becomes several hundred thousand times brighter and, at the same time, becomes much hotter. The increase in brightness takes place over several days but it is only temporary and soon the star begins to settle down and its brightness decreases to a more normal figure

within a year. About forty a year of these occur in our galaxy but, in spite of this number, only six were actually seen in the 300 years up to 1900. This is explained by their brightness fading in a few days and the fact that now astronomers all over the world keep a continuous watch on the skies.

Spectra of the light from novae in this and other galaxies are quite characteristic and similar, all pointing to a steady sequence of changes in which the stars swell up like balloons and, when they reach a critical size, their surfaces explode throwing off a series of shells of glowing gases.

During the first few days, as the nova reaches its peak of brilliance, its colour is the pure white characteristic of very hot surfaces. It is during this period that the star swells up. Then the explosions occur and blow off the surface as a series of concentric shells of somewhat cooler vapour and the centre of the star begins to contract. Each shell of vapour has a higher speed than the previous one and all are accelerated by the radiation pressure of the light from the nucleus. After some time they appear as a disc of light round the star, glowing yellow, then pink and changing through a deep cerise to, finally, a greenish white colour. Their glow is due partly to their own temperature and partly to the light from the novaed star that they absorb and re-emit.

In the meantime, the centre of the star contracts, at first with little change in temperature then with a large increase to a very high level before slowly cooling off. These normal novae can be classified into two types according to whether they give a sudden flare-up followed by a rapid subsidence or whether they give a less violent rise with a prolonged maximum of brightness.

Early theories as the the cause of these novae included the collision of two stars or of one with a cloud of meteors, both unlikely because of their frequency and magnitude. It now appears that novae and supernovae are connected with matter in a curious state known as degeneracy and with stars made of this material, white dwarf stars.

White dwarfs are white hot stars with masses near that of the Sun but with only planetary size. This means that their densities are tens of thousands times that of water; platinum, the densest of all elements on Earth has a density of twenty-one and the density of most stars is near unity. Although the surfaces of white dwarfs are shining at an intense heat their small sizes mean that they do not emit much light and this makes them very difficult to find, unless they are very close to us. Even though only eighty have so far been discovered, four of these are in the forty nearest stars and they must be very numerous, probably the commonest type of all stars. We cannot even measure

their masses unless one forms a double system with another star, both rotating round a mutual centre of gravity.

It was in this way that the first one was discovered, as a companion to Sirius, the Dog-star. Sirius is the star with the greatest apparent brightness that we can see and, although it is not the nearest, its movements have been accurately measured. It was found that these were irregular, it seemed to hurry forward for a few years and then slow down before hurrying on again. It was suggested at the time that Sirius was not a solitary star but a binary star system with a faint companion. Fifteen years passed before the faint companion, Sirius B, was seen in telescopes and, from their relative movements, their masses were calculated.

Sirius itself was found to be 10,000 times brighter and three times as heavy as Sirius B, which is about the same weight as our Sun. This didn't arouse any comment at the time as it was thought that Sirius B was a very cool, red star, explaining the small amount of light emitted by it. However, when its spectrum was analysed it was found to be that of a very hot white star and the only explanation for its small brightness is that its size is similarly very small. It is, in fact, a star with a diameter three times that of the Earth but with the equivalent of the Sun's mass packed into this small volume.

Sirius B has a density 34,000 times that of water, each cubic inch of it weighing about half a ton, and a gravitational field on its surface of 800 gravities. These almost unbelievable figures aroused a certain amount of scepticism but it was not long before they were fully corraborated by scientists measuring the effect of this tremendous concentration of mass on the colour of light, as predicted by Einstein's General Theory of Relativity. The spectrum was reddened by the expected amount and soon other dwarf stars were discovered, the smallest being Van Maanen's star with a diameter less than that of the Earth.

Added confirmation came from physicists who, working purely on theory, had come to the conclusion that material with such very high densities could be made by crushing ordinary atoms under extremely high pressures. Their theory of degenerate matter, as this material was called, was based on the nuclear theory of the atom and they treated this matter as a new state, just as ice and water are different states of water although the basic building blocks are the same.

Normal atoms are made up of electrons in orbitals round the heavy central nuclei and the repulsion of the electrons on each other causes each atom to take up a considerable amount of room. At very high pressures the atoms are crushed together, the orbitals of the electrons

overlap, become unstable and collapse. This process is aided by very high temperatures which ' ionize ' the electrons away from the nuclei. The nuclei, taking a hundred thousandth less room, can then be compressed still further until the material becomes condensed with an extraordinarily high density. It acts like a dense gas made up of two parts, the heavy nuclei and the electron gas randomly mixed in with it.

White dwarfs are principally composed of this degenerate material with a small atmosphere of more normal atoms. All stars tend to form some degenerate material at their centres but this is usually a very small amount, negligible in comparison with the enormous amounts of normal material in their rarefied atmospheres.

There are two types of white dwarf stars. One type such as Sirius B, contains about fifty per cent hydrogen and is relatively full of energy whilst the other type contains little or no hydrogen. As hydrogen is the main stellar atomic fuel, the latter type have no energy reservoirs and are dying, wasting away their remaining store of heat and gravitational energy as radiation.

The energy radiated by the massive collections of material that we call stars comes from two sources, gravitational energy of matter condensing together and the thermonuclear fusion of hydrogen to form helium. The rate of energy production by the latter process is dependent on the temperature of a star's interior. Because the hydrogen is not replaced as it is used up, a star's life expectancy is governed by its store of hydrogen and the rate at which it is consumed—the heavier the star the brighter it is and the shorter its life.

At the earliest stage in a star's life it is an enormously extended, rarified mass of gas, mainly hydrogen, at a dull red heat. With the passage of time the cloud contracts under its own, weak gravity field and as it falls in on itself the atoms are compressed and become heated, just as the air in a bicycle pump gets hot under pressure. The star's temperature rises, its colour passing through the sequence red, orange, yellow, white. But the hotter the star becomes the greater the amount of radiation it emits and, as this has an appreciable outward pressure, the collapse is slowed down.

As the gas compresses itself it forms degenerate material at the centre and, when critical conditions are reached, the hydrogen-to-helium nuclear reaction is set off in the star's interior. This new energy is so explosively released at first that it causes the degenerate matter to return to the normal state and the star to nova.

The star, before it novas, may have contracted enough to reach the white dwarf stage with a high hydrogen content, or the nuclear reaction may start before this point. Possibly the two types of normal novae are dependent on the alternative pre-nova stages that can be reached.

The nuclear reaction starts at the centre of the star and the released energy increases the radiation pressure so that the whole star blows up like a balloon. Then the radiation reaches the surface and blows off the concentric spheres of gas which are eventually dissipated in space. The inner parts of the star are churned up so that they come to the surface and increase its brightness, it reaching 40,000 instead of the pre-nova 10,000°C.

The surface then cools down and the star continues to utilize its hydrogen in the normal way for millions of years, the greater part of its life. Eventually all the hydrogen is used up as fuel and, once again, the whole mass begins to contract on itself as the temperature and radiation pressure drop. This time there can be no life-giving nova, all the nuclear energy having been used. The star slowly drops into a degenerate state; its density increases as its degenerate core builds up until it again forms a white dwarf, one containing no hydrogen. Its death is prolonged by its decrease in size and area from which radiation can take place.

Its temperature drops, the colour changes back from white to yellow to orange to red to black until it is only a dead hulk in the ocean of space—a worn out star, a black dwarf. All the dwarf stars with low hydrogen contents that we can now see were born with deficiencies of hydrogen and are prematurely senile, sign-posting the final fate of all stars.

Supernovae do not follow this course; they are very intense novae that radiate as much energy in a week as our Sun does in a million years. The outburst is similar in many respects to an ordinary nova—the spectrum lines are similar but show that the gaseous shells are moving faster—but there is no graduation between novae and supernovae. All novae have approximately the same brightness but supernovae are brighter by a factor of thousands. The explosion in a supernovae is so violent that most of the star is disrupted and blown off, not being dissipated into space but forming a distinct cloud which can still be seen centuries later.

This can be seen in the Crab nebula, which neither looks like a crab nor is a nebula. It is the result of a supernova that occurred in 1054 A.D. and was bright enough to be seen during the day. It is a gaseous cloud some six light years long and three and a half light years wide and is still expanding. It shines because light from a star near its centre is reflected from the gas.

This star is the remnant of the novaed star and is the hottest known object in the universe; its surface temperature is 500,000°C., over sixteen times that of any other known star and it gives as much radiation

as would 30,000 of our suns. It is an extraordinarily hot dwarf star with the same mass as our Sun but with only a fiftieth of its diameter. It lost over 93 per cent of its mass when it exploded, this forming the Crab nebula. Most of its radiation is out of the visible spectrum beyond the ultraviolet and into the 'soft' X-ray region. Very little of it penetrates our atmosphere but that little appears yellow rather than the blue white that we might expect.

Supernovae only occur in stars with masses greater than ten times that of our Sun. The large mass prevents their degenerate cores developing in the usual manner. The star contracts as it cools down from the gas cloud but it is unstable and, at a critical point, it gets rid of the excess weight by violently exploding. It then reaches a stable state and settles down as a very hot white dwarf star with the usual degenerate core.

It is beginning to look as if the state of matter that we call normal is one of the rarest states in the universe. The majority of the mass in the galaxy is in the form of dust and gas; of the remainder 99.99 + per cent is in the stars and is doomed to form degenerate matter. We'd better stake our claim to the Solar system, it may be more valuable than we think.

John Newmon

A man suffering from a lethal dose of radiation poisoning would, for the short time left at his disposal, be a far more effective weapon than a firearm. That is—if he lived long enough.

THE ACTIVE MAN

By Sydney J. Bounds

Illustrated by HUNTER

He glowed. Geigers rattled as he passed. He was the Active Man.

A gunshot boomed and dust spurted at his feet as the bullet ricochetted. Close, he thought, too close; and broke cover and ran between the concrete walls of Admin and No. 1 laboratory. A second bullet followed him into the temporary cover afforded by a parked wagon.

That would be Garside, he thought dully. Garside was desperate; trust Garside to have a gun and know how to use it.

The bullets came near but none touched him. It was almost as if those tiny buttons of lead knew it was no use trying for a dead man. Six hours the doctor had said. *Six hours left to live.* He tried counting how much longer he had but time no longer registered with him.

There was a burning pain in his flesh and his limbs obeyed sluggishly. He was a dead man living on borrowed time and he had a job to do before the end came. He moved again, taking up a fresh position, working his way nearer those two lead-lined suitcases.

Shadowy forms closed in ; laboratory workers in protective clothing with shiny metal claws for handling the ' hot ' stuff. They were after him ! Hunted like an animal . . . no, not an animal . . . like a piece of waste matter which had somehow slipped out of the radioactive labs.

He laughed wildly as he ran free. A voice boomed over the loudspeakers :

" Give yourself up, Martin. We appeal to you not to endanger the lives of other men."

The whiplash of Garside's automatic sounded again. Garside didn't want him taken alive.

He was near the main gate now. He could see the two suitcases and a small, thin man with sharp features—the agent provocateur. He was in time; he had to be in time. His legs were unsteady, burning. *Disintegration of the body cells*, the doctor had called it. He was falling apart.

Oh God, he thought, *Ruth* !

Now—

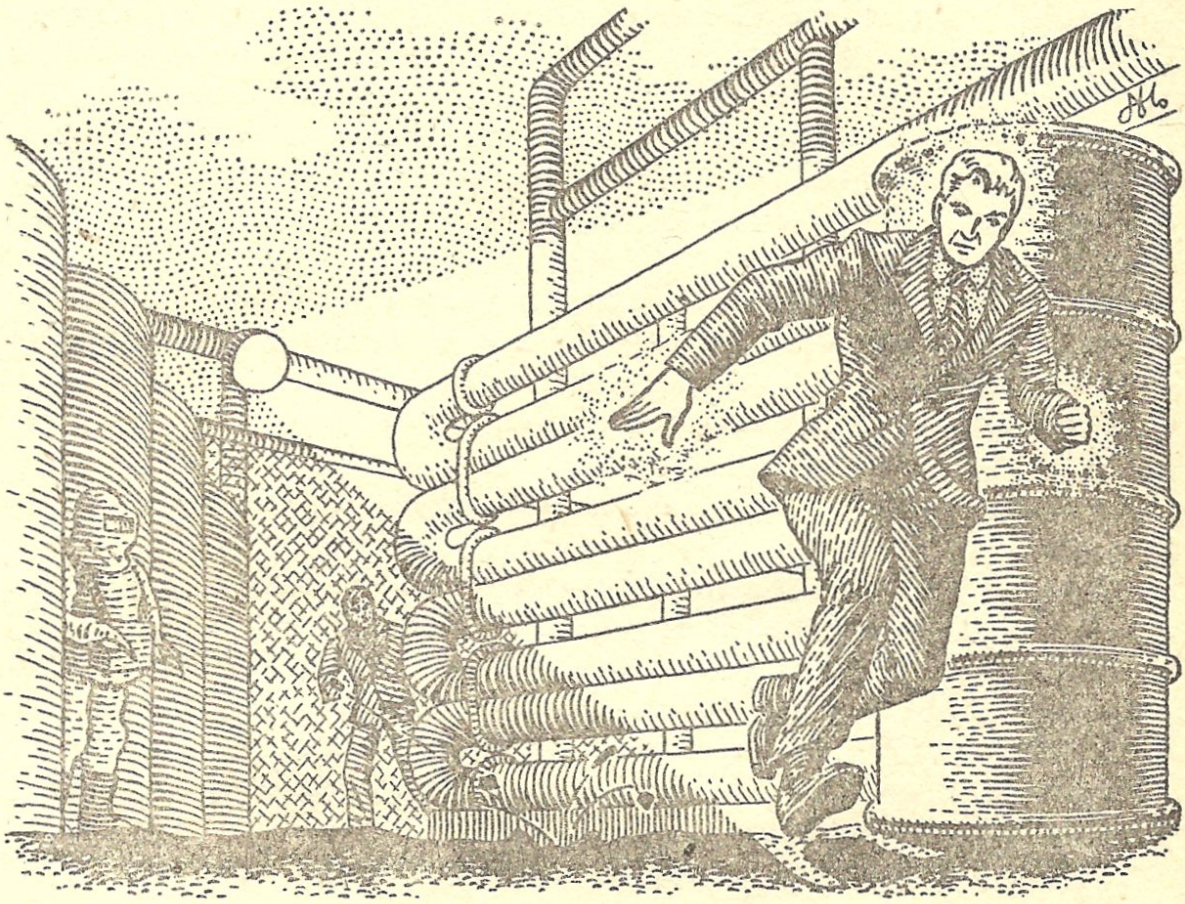
He hurled himself at the agent provocateur . . .

Frank Martin was a callow youth with the pimples of adolescence not yet clear of his face. He had no idea what he wanted of life beyond marrying his girl and setting up home. He worked as a cleaner at the atomic weapons establishment known as Garside Enterprises and didn't much care for the job, but stuck it because the pay was good.

Ruth, of course, didn't know he was a cleaner. He hadn't actually lied, but the few casual hints he had supplied—hints only, because the establishment had secrecy rules—suggested that he was engaged upon important research work.

Three evenings each week and all day Sunday he spent with Ruth in the village where she lived, five miles away. She was young and pretty with curling brown hair and he had asked her to marry him the second time they met. Sometimes she would talk about his work and ask him how it felt to make atom bombs.

Martin replied vaguely that he supposed it was all right; that we had to protect ourselves from the newly-formed alliance of the eastern hemisphere. But he never really thought about the implications of his job.



The establishment was isolated, in a valley between high mountains. In Spring, melting snow slid down the slopes and set the rivers racing in a mad torrent; in Winter, the peaks were all tinsel-silver and blue shadow. It was a lovely part of the country.

Garside Enterprises was a private concern; to be sure, there were government inspectors and a security patrol, but the firm operated privately and the profits went into the pockets of Henry Garside. Frank Martin cleaned out the laboratories in a suit designed to protect him from stray radiation, collected his pay check and planned to marry his girl. Life was very simple if you didn't think about consequences.

One evening, cleaning up after the chemists had left, Frank Martin knocked over an expensive piece of equipment. He didn't know what it was called, but there were coils of glass tubing and filters and a measuring guage. He was horrified, visualizing the loss of pay he would suffer if his accident were discovered.

In a state of panic, he set about sweeping up the debris. The waste bin was outside, back of the building, and it would look funny if he started dumping stuff there while still clad in his protective clothing.

He checked with the Geiger on the wall and his own film badge. There was no radiation to worry about, so he stripped off his suit and put it away. Then he carried the wreckage outside and round to the bin, hoping no-one would notice him. Next day, he would pretend he knew nothing about the missing piece of equipment; and, likely enough, the chemists would think someone had moved it to another lab.

He made two journeys and the broken glass was almost cleared away when footsteps sounded outside. He ducked behind a bench, hoping to escape notice. He didn't want to be caught now.

The door opened and two men came in.

" Safe enough here ?" one said.

Peering round the bench, Martin saw a small, thin man with sharp features.

" Soon make it safe," the other grunted; and Martin received a shock. The speaker was Henry Garside himself.

Martin had never spoken to the boss of Garside Enterprises, but had seen him from a distance and had no difficulty in recognizing his dark, saturnine features. He wondered why Garside had come to the laboratory and was filled with curiosity. He watched from a crouching position behind the bench.

Garside took a protective suit from the locker and handed it to the small man.

" Put this on," he said.

They both donned protective clothing and Garside pressed the button which lit a sign outside the laboratory: DANGER—KEEP OUT. Martin shivered suddenly; if Garside was about to experiment with the pile . . .

He almost stepped from his hiding place, but fear of losing his job restrained him. Panic stabbed through him as Garside lifted the latch of the pile door and opened it. The Geiger on the wall began to chatter.

" No-one will bother us now," Garside said, his voice at once muffled and metallic through the hood over his head.

The small man laughed.

" Not for long anyway !"

Martin glanced at his film badge and was reassured when he saw that it still retained its bright silver sheen. Radiation would blacken it with time, but he was safe for the moment. He decided he would wait as long as he dare before revealing himself perhaps Garside would not be long in the laboratory.

Both men sat on stools, and the small man said :

"You've reached a decision?"

"Yes." Garside's voice rumbled like thunder. "I'm waiting no longer. Some fool in the government declared the new weapon too dangerous to use, and no-one else had the guts to stand up and say that if we don't the other side will! So I'm going to force their hands."

"You've a lot of money at stake."

"Two million I've sunk into it—and the government promised a ten million pound order. Now they're holding out on me. Well, we'll see . . ."

Martin glanced at his film badge. Already the edge had taken an ominous discolouring. His skin began to itch—or was that his imagination?

Garside's heavy voice broke in on his thoughts.

"You know the plan—I'm going through with it."

"It could mean war," said the small man.

"So much the better! There will be more profit in it if war comes—much more."

There was a short silence, then Garside said:

"Repeat your orders."

"I collect two suit-cases. They'll be lead-lined and each will contain one half of an atom bomb. I smuggle the cases into the capital and arrange it so the bomb is set off by remote control. Then clear out."

"And the eastern alliance will take the blame," Garside added smugly. "The government will panic, push through legislation to put the new weapon into production, and I'll collect a fat profit on the deal."

Martin listened, horrified. It seemed incredible to him that two of his own countrymen could plan the cold-blooded murder of thousands of people for money. He had a sudden desire to leap out and denounce them, but fear held him back. He knew now that he would lose more than his job if he were discovered.

Worried, he glanced down at his film badge again. The blackness was spreading across the disc. And he must stay in hiding.

"The bomb is ready packed," Garside said. "The two cases are ready for clearance and you'll have no trouble getting them out. I will personally sign the necessary papers. You'll collect them at the main gate in exactly three hours from now."

"It'll be dark then," the small man grunted. "I'll drive through the night to the capital. A couple of hours to arrange the detonation, and I'll be away. Explosion twelve hours from now."

"Fine," said Henry Garside. "Couldn't be better."

They discussed details; the hotel room already prepared to receive the bomb; the agent's escape route; the foreign bank with which Garside would deposit an agreed sum of money immediately the government authorised production of the new weapon. They did not mention the thousands who would be killed and maimed because of their diabolical plan.

Finally, they left the building.

Frank Martin rose from his cramped position. His skin burned and he felt slightly sick; sweat ran down his cheeks. He looked once more at his film badge and froze in icy apprehension. *The circular disc was black as night.*

He ran outside and headed for the medical block. He ran between concrete walls where Geigers were fixed; and they chattered as he passed. A great fear gripped him and his heart pounded wildly.

He tore through the swing-doors of the medical section and startled men looked up at the sudden fury of their radio-active counters. They backed away and left him alone.

Abruptly, a warning bell added its peal to the noise of the Geigers and a decontamination squad surround him. Men in special suits, their hands inside metal claws, swooped and held him. He was carried to a table and a doctor used testing instruments on him. An orderly prepared a hypodermic syringe.

" Garside," jerked out Frank Martin. " Stop him. He's—"

The needle jabbed his arm and the racing thoughts surging through his brain tumbled into chaos. His lips babbled incoherence. Darkness gathered and he slid into oblivion.

He returned slowly to consciousness. It felt as if fire flowed through his veins and there was a void where his stomach should be. His head ached. He lifted a hand to his head and saw that it glowed . .

" Garside," he said, and sat up abruptly.

" Mr. Garside is safe," a metallic voice assured him. " Stop worrying about him."

Martin saw the doctor and his orderly, both clad in protective suits. The Geiger had been muffled to deaden its noise but a red light shone above the door.

" Garside is planning to detonate an atom bomb in the capital," he cried. " You must stop him before it's too late."

Under transparent hoods, the doctor an the orderly exchanged glances. There was a whispered consultation and another syringe prepared. The doctor's tone was soothing.

"You've received a bad dose, Martin. You're liable to imagine things. The best——"

"It's true," Frank Martin interrupted violently. "I heard it all. You must listen to me."

"*You* listen to me, Martin. You've taken a fatal dose and there's nothing we can do for you. You have, perhaps, six hours to live. There must be someone you'll need to write to . . . use the time sensibly."

Martin's hands shook as he clutched at the edge of the table for support.

"Six hours! Oh God . . . Ruth!"

"You'll want to write to your girl," the doctor said. "There's pen and paper on the table and I'll see that it is delivered."

Martin moved to the desk, a vision of Ruth clear before him. He picked up the pen, and his hand wavered.

"Garside," he said, and stopped.

The orderly came closer with the syringe.

"Best write that letter," advised the doctor. "Forget Mr. Garside. It's that, or we'll put you to sleep again."

Frank Martin knew he had to do something to save the people Henry Garside planned to murder. He kicked the orderly's ankles from under him and ran for the door. The doctor, encumbered by heavy protective clothing, was too slow to stop him.

"Martin—stop," he called as the door swung open. "Think what you're doing. Don't endanger the lives of other men."

Martin ran out into evening shadows. He darted between high walls and kept moving. Behind him, the warning bell sounded again. His hands glowed with ghostly radiance and Geigers betrayed him. He could not hide for long; he must act, quickly.

How much time had passed? How long had he left? In three hours, Garside had said, the two suit-cases would be waiting at the main gate. He must seize them and expose their contents, then he would be believed.

A man shouted at him to stop. He took another path and ducked behind an empty uranium container. Bulky figures with metal claws and radiation detectors were searching for him. He moved his position, heading towards the main gate. A voice boomed over the broadcasting speakers:

"We appeal to you to surrender, Martin. Your condition would be fatal to unprotected men. Do not risk contaminating others."

Frank Martin shuddered. Why did it have to be him? He didn't want to be a hero. All he wanted was to marry Ruth. It wasn't fair . . .

A figure appeared in front of him and light shone on the dark, saturnine features of Henry Garside. He was alone, and kept his distance for he wore no protective suit.

"You murderer," Martin said bitterly. "I'm going to stop you setting off that bomb. I heard you talking in the laboratory, planning to——"

"You heard too much," Garside said, and a gun showed in his hand.

Martin leapt back as the shot came. He turned and ran, and bullets kicked up the dust at his heels.

A searchlight cut through the darkness and revealed the bare white walls of a laboratory. The broadcast appeal continued. A decontamination squad hunted him . . . and Garside reloaded his gun and fired again.

He was close to the main gate now, running between Admin and No. 1 lab. He glimpsed the high wire fence marking the limits of the establishment and heard a tumult of shouting break out behind him. The whiplash of Garside's automatic drove him on. Then, rounding a corner, he saw the main gate and the two suit-cases—and a small, thin man with sharp features.

Frank Martin hurled himself at the agent provocateur.

There was a glint of metal. Martin struck the gun aside and grappled with the small man, the momentum of his spring carrying them both to the ground. They fought; Martin trying to hold the agent; the small man struggling to get away.

It was like trying to hold an eel. The small man screamed and kicked and his features became distorted with terror. Martin clung on grimly, not realising at first that it was himself who filled the agent with terror. He did not understand that he had only to keep hold on the man to kill him by his own radio-activity.

"Let go," screamed the agent. "For God's sake let go of me!"

He writhed and twisted and lashed out with feet and hands, panic turning him to a mad thing. He knew he could not last long in Martin's grip; he was fighting Death incarnate.

Martin had glowing hands about the small man's throat and was stopping the supply of air to his lungs. His wrists grew numb with the strain. He gasped:

"Tell them the truth. Tell them about Garside and I'll let you go."

The agent provocateur began to babble a flow of words and Martin had to relax his grip so that others could hear. Men were coming up now and forming a circle about them.

" It's true," wailed the small man. " Garside planned to explode a bomb in the capital so the government would authorise his new scheme. He would have made millions out of it."

" Out of the death of thousands of people," Martin said sternly.

" The bomb is in those two cases . . . let me go, damn you !"

Martin let his hands fall away and stood up. Nausea claimed him; he had saved a city but not himself. Six hours less how much ? He felt suddenly weary.

Two men in protective suits took charge of the agent. Another started to open the suit-cases, and government agents closed in on Henry Garside. Garside knew he had no chance now; he pushed the muzzle of his gun into his mouth and pulled the trigger.

Martin retched.

They were very kind to him, and assisted him back to the medical block. In other circumstances they might have shaken his hand, or kissed him on the cheek and pinned a medal to his chest. Instead, they left him alone to compase his last letter.

Sydney J. Bounds.

THE LITERARY LINE-UP

Next month's news is going to make a great number of our readers happy. It is in direct answer to many requests—especially from overseas readers—for a serial by E. C. Tubb, and in " Star Ship " commencing in No. 34, Ted has produced a story which is already earmarked for future book publication. Let us say it now—it was specially written for this magazine and close collaboration has been entailed between author and editor.

Basically, it centres round five thousand people on a three hundred year journey from Earth to Pollux—generations live and die within the shell of the ship, and it is primarily with this *living and dying* and the necessity of stabilising the birth-rate (or death rate) that is the backbone of the plot. And there is a very fine cover by new artist Bradshaw to set the seal on the first instalment.

Short stories backing the issue are somewhat in doubt at the moment —we are trying to keep some surprises for following issues !

Story ratings for No. 30 were :

1. Prisoner In The Skull (Part 1) - - Charles Dye.
2. Reconnaissance - - - - - P. W. Cutler.
3. The Robbers - - - - - E. C. Tubb.
4. Hitch-Hikers - - - - - Gregory Francis.
5. Trojan Hearse - - - - - Dan Morgan and John Kippax.

Mr. Rayer has evolved many exciting story fragments concerning the Magnis Mensas from his original novel Tomorrow Sometimes Comes, *not the least being "Deus Ex Machina" and "The Peacemaker" published in our earlier issues. In this new story the all-powerful thinking machine, designed to serve Man, is apparently losing its efficiency—its decisions go against the betterment of Mankind.*

EPHEMERAL THIS CITY

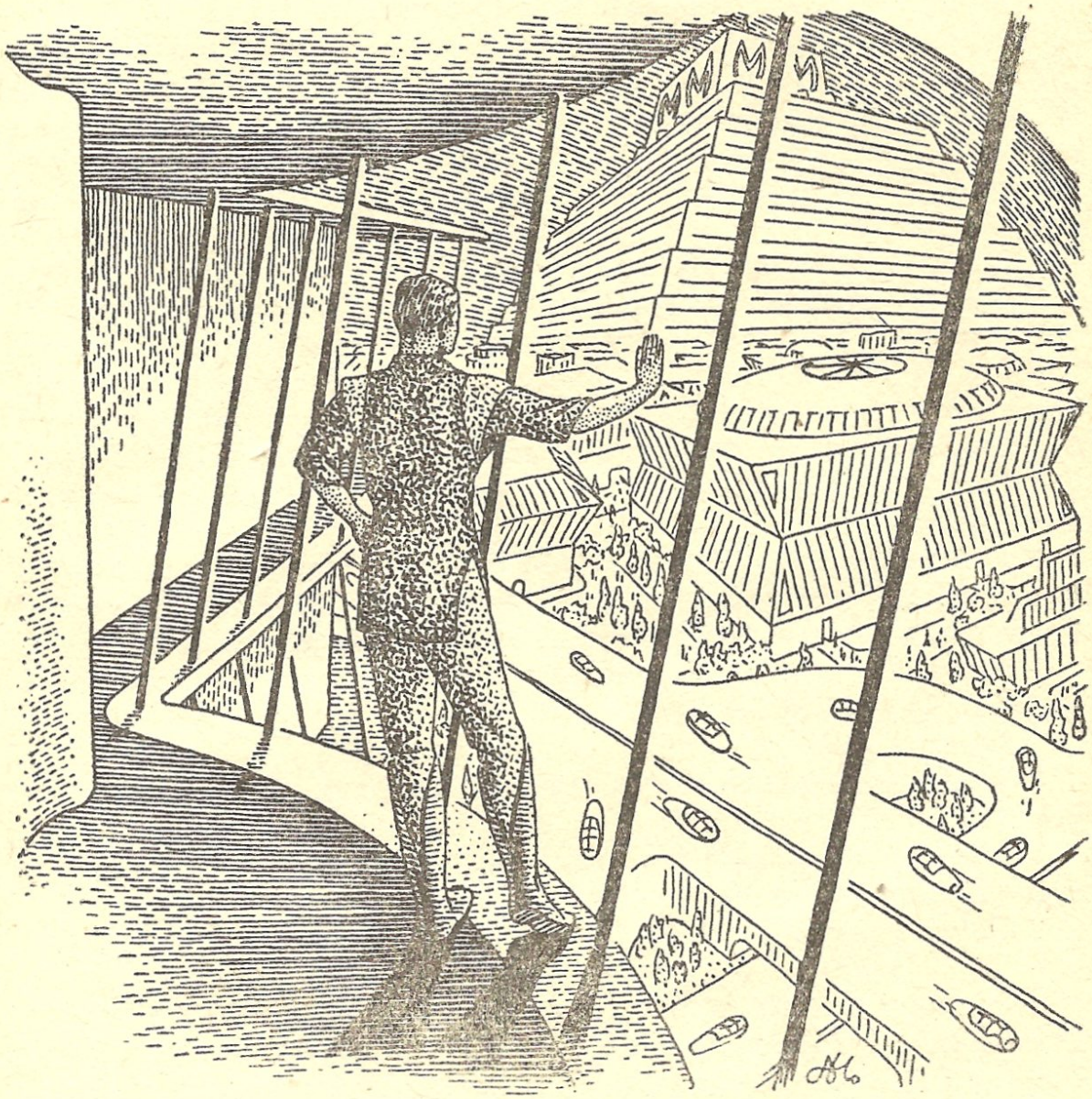
By Francis G. Rayer

Illustrated by HUNTER

Forty-five levels high, vast and complex beyond the comprehension of Man, the Magnis Mensas stood in the heart of the teeming city . . .

The faintly humming lift ceased its upward motion and Jak Hemmerton stepped out into the corridor. Lean, tall, his step light and quick, he strode with purpose. The building housing *Rocket Enterprises* was large, but he knew it like the lines of his palm. He had been a boy when *Rocket Enterprises* opened; had moved with the old stagers when new offices, larger and more central, were occupied, ten years before.

A transparent sound-proof door swung open and shut at his passage, and he turned along a corridor that was glass-walled, giving a clear view to the street below. Momentarily he halted, his gaze passing away over the rooftops to a gaunt, squat block like a man-made hill



beyond. Only distance concealed its height and size, and hid the countless rows of windows. Huge in a city of large buildings, the vast pile housing the Magnis Mensas overshadowed and overtopped all other constructions. Jak's lips compressed and a wordless exclamation passed his clenched teeth. Then he strode on, feet ringing on the floor, sandy brows drawn down, wide forehead crinkled in thought.

Bert Wingfield's office was open and Bert sat behind his desk. At forty, he had a mild appearance that was deceptive.

Jak halted inside the swing door. "We've got five years!" he stated.

Bert looked up and sat back. His finger pressed a button halting the desk recorder. Jak caught the action.

" Keeping it off the record doesn't give us more time !"

Bert Wingfield used a word no autotyper would have followed. " *Five years.* Fifty might be too few ! We can't design hulls until we know how big our engines will be. We can't calculate engine size or weight until we know the characteristics of alloys we haven't yet invented." Features and voice were expressive. " Did you tell the Magnis Mensas that ?"

" Of course—though it already knows."

" And yet persists in giving us five years in which to reach space !"

" Presumably it's right, it always is," Jak pointed out.

They were silent. Not for a hundred years had anyone contradicted the Magnis Mensas without finding himself wrong. By its very nature the Magnis Mensas was inevitably right, all-knowing, infinitely wise.

" Can't conditions be improved to give us more time ?" Bert asked more quietly.

" Apparently not. If men would play with atomics and worse it was inevitable the reckoning come some day. Scientists pretended Earth was a rubbish-dump of infinite size, knowing it wasn't."

" Exactly." The other touched a button on the intercom panel. " Have a 'copter on the roof."

" At once, sir ?"

" Yes." He released the button and stood up. " Coming across, Jak ?"

There was a spark in his eyes. Jak nodded. " You're going to argue it out with the Magnis Mensas ?"

" Going to *try* !"

They rode the lift to the flat roof, where *Rocket Enterprises* was painted large for any craft to see. With twirling blades 'copters swung back and forth across the city. Higher—much higher—was a silvery sheen like looking at a bubble from inside. Outside that bubble was —*the refuse heap.* Jak grimaced as he thought of the phrase. Once upon a time a refuse heap had been a small affair that bothered no one very much. Then the seas of the world and the good, clean air under the heavens had become the place of disposal. But disposal by dilution reached a point when contamination of the diluting medium passed safety limits. Now, cities were pure spots on the universal rubbish heap. A reversal of roles bound to come, Jak thought. Inside the bubble, water and air were pure. Outside, a man might live about four days without protective garb, or a month with.

They rose below whirling blades and Bert Wingfield set course for the grey, gaunt building away across the city. Many people moved below, dots upon the roads. Ant-like, people swarmed everywhere,

busy with the doings of their own lives. Jak pitied them. Five years. So far, few knew the time was so short.

They landed in the 'copter park East of the huge block. Diffused early sunlight illuminated the forty-five levels above, a cliff-like expanse that gave no hint of the scores of levels below ground. They walked to one of the entrances. Jak felt awe. He always did. Here was stored the whole knowledge of Mankind, integrated completely. Built by men, the Magnis Mensas transcended men. So huge and complex had it become that a full knowledge of its circuit and working was possessed only by itself. No group of experts could have comprehended it as a whole—the span of a man's life was too short, the power of human brain too small, to understand such complexity.

An attendant with " M.M." in gold on his green tunic showed them to a vacant cubicle. The door closed. Two chairs stood before a desk built in. On every side electronic eyes scanned them from the walls. Jak knew that deep in the basement electrical indices were flashing through the vast matrix of memory units.

" You are known," the Magnis Mensas said. " Please sit down."

They sat, facing the reproducer grille. Bert Wingfield licked his lips.

" I wish to ask some questions."

" So I deduce, since you have entered a question cubicle."

Bert caught Jak's eye and Jak grimaced. It was always like this. A man might talk with the Magnis Mensas all day and find the great calculator one step ahead every time.

" It is about the time limit set for the development of space flight."

The silvery blue discs faced them unmoving. " So I assumed, since you have come in the company of Jak Hammerton, Number Y.781663, with whom I recently discussed the matter."

Jak wished there were some personality in the voice. But there never was. Its even tones could become unnerving. He leaned forward.

" Cannot the period be extended ?"

" It cannot."

" But it is so short—there is so much to be done !"

The Magnis Mensas was momentarily silent. " You have asked no question," it observed at last, " but I would note both your statements are correct. The time limit is not imposed by me, but by external circumstances. It is not my task to formulate laws, but to evaluate data and present logical conclusions. I work wholly for the eventual good of Mankind. After five years life on this planet will not be generally tenable to your species."

" Can't something be done ?" Bert Wingfield put in. " Can some new method of decontamination be devised—?"

"There are no new methods," the Magnis Mensas stated factually. "All science is known to me. Every feasible industrial process is being used, or stands ready in plan awaiting employment. Conditions on this planet cannot be improved."

Jak swore suddenly. "I am not satisfied that is so!"

"Your dissatisfaction arises from emotion, not from a logical consideration of known facts—"

"To hell with facts when it comes to quitting Earth!"

There was a pause. "The terms of your observation are not understood," the Magnis Mensas said at last.

They were silent. Jak met Bert's eye and Bert shrugged. "If it says there's only five years, then that's that," he said flatly.

"But damn it—*five years*!"

There was silence, then the grille awoke again. "Your use of unconstructive phrases shows emotional and confused thinking, Number Y.781663. It is a characteristic already noted in your index of activity patterns—"

Jak flushed and got up abruptly. His tongue was silent because sarcasm would be wasted.

"Kindly do not slam the door as you go out," the Magnis Mensas said. "It is a useless action based on emotional responses—"

The bang of the panels behind him cut off the words. Jak stood in the corridor. It didn't help to know that the calculator was always so infernally right!

The busy day's activity inside the building was commencing. Many people passed, entering cubicles on that level or ascending to those on the floors above. Not for the city alone did the Magnis Mensas exist, but for the planet. Men came tired from long travel; a group passed, speaking a strange tongue and with a guide whose bearing was of long authority.

Jak took a 'copter back to his private flat. Affairs at *Rocket Enterprises* must wait. His wife Jean was in. If she felt surprise at the hour of his return she did not betray it.

"Ever seen an ant at the foot of a cliff, Jean?" he asked laconically.

Her long golden curls bobbed as she shook her head. "No?"

"Then you're seeing one now."

He went through into his study. Space under the bubble was limited and it was small, though comfortable enough when he brought back work to ponder on. Now, the papers, diagrams and figures seemed mere mocking litter. Five years to reach space. An ant at the foot of a precipice . . .

Jean opened the door and came in. That in itself was unusual. Jak knew she understood he needed silence to work. Sitting on the edge of his desk, chin on chest, he raised his brooding eyes questioningly.

" Thought you'd like to know Brayle and Avery are going ahead," she said.

A shock ran through him. " I hadn't heard !"

" It was on the newscast just before you came in."

" But it's impossible !"

" It's going to happen."

There was a puzzled note in her voice and a question in her clear, direct gaze. Jak wondered how much she understood or guessed. She had a way of thinking out things for herself.

" The Magnis Mensas sanctioned it ?" he asked.

" Of course."

He heaved himself off the edge of the desk. That *Brayle and Avery Industries* should go ahead with their plan was completely at variance with everything he had anticipated. It lent sudden decision to his brooding idleness.

" Think I'll go over there !" he declared.

The head offices of *Brayle and Avery Industries* occupied a big block away across in the business section of the city, and the 'copter touched down on a roof already busy with craft. Jak found the lift and the sumptuously furnished, magnificently designed floor upon which Brayle and Avery worked. An outer office led to an inner, and that to a further room where a vigilant young man asked for the appointment code number.

" I have no appointment," Jak said. " Tell them it's Hemmerton of *Rockets* !"

The other looked dubious but operated his desk intercom. The replies from the directive reproducer were inaudible, but Jak thought the person the other end the line had rather a lot to say, and the young man's expression was odd when he switched off.

" Mr. Brayle says you may go in, Mr. Hemmerton," he said.

He rose, opened a door, and Jak found himself in an office furnished with overwhelming luxury. Brayle sat behind a desk of cream plastic, no welcome on his wide face. He did not rise or extend a hand, but leaned back so that the chair creaked under his bulk. He pyramided the fingers of his powerful hands.

" I didn't know *Rockets* watched us so closely," he observed.

Jak let it pass. " I believe you've been given the go-ahead for the new transmuting plant."

" We have—it's common knowledge."

Jak rose his brows. "Would you say as much for the end result of using the plant?"

Brayle put his great hands on the desk edge and additional colour showed on his face. "We haven't yet asked *Rockets* to run our business, Hemmerton."

The tone cut. Jak compressed his lips. "I've come to discuss, not quarrel! Rows of noughts look nice for yourself and your shareholders, but what use will money be when the Earth's a stink-pot of atomic waste. Past folly and present essentials already contribute more than the rubbish-tip will take. Why add to what we've got out there?" He jerked a finger to indicate the silvery dome covering the city.

Brayle looked amused. "The planet's big enough to take it. The seas and winds of the world are big—"

"But not infinite! The overall contamination level is already too high, but some things can still live out there, even if men can't. You'll build up pollution."

"We're snug enough in here," Brayle stated.

Jak saw it was going to be useless. "I'll fight it every inch!"

The chair creaked as Brayle rose. He came round the desk and put his face six inches from Jak's. Of similar height, he was twice as broad.

"Men who fight *Brayle and Avery* don't find it much fun, Hemmerton," he said. "What's more, you'll be fighting the Magnis Mensas as well. If we want to transmute—we transmute. If we want to make money—we make it. Money still talks, if you have enough. Money interests me and my shareholders. Your piffling scientic theories do not." He leaned over and pressed a button on his desk. The door opened at the vigilant young man's touch. "Show Mr. Hemmerton out!" Brayle ordered.

Jak halted at the door and looked back momentarily. "You're fouling the pond *you've* got to live in!"

As he rode the lift to the roof he hoped his parting shot had hurt. There, he sat for a moment with his hands on the segment wheel of the 'copter. The clock on the dash stood at noon. With a start he remembered he had had an appointment for eleven. Too late now to go back to *Rocket Enterprises* to keep it. He wondered if the young man he had intended to meet had waited. On vidiphone the youngster's face had been honest and intense. Jak recalled his name. Dave Reader. Reader had claimed to have something *Rockets* would like. Jak shrugged as he took the 'copter up. A major miracle seemed required and it was unlikely Reader would have had that to offer. Then his mind returned to Brayle's words. Brayle had a go-ahead from the Magnis Mensas. That almost suggested there had been a

slip up. The streets below seemed to swing up as Jak took the 'copter in a tight curve. It was, it seemed, time to call the Magnis Mensas to task !

He had to wait fully ten minutes before a cubicle became vacant. The door swished shut behind him and he sat down heavily.

" You are recognised," the Magnis Mensas said.

Jak eyed the screens pensively, arranging his thoughts. Doubt and triumph conflicted in his mind.

" Is it not correct that mankind's position on this planet is growing untenable because of the general pollution of air and sea by by-products ?" he asked.

" It is."

" And all additional pollution worsens conditions ?"

" Obviously."

Jak felt triumph. Brayle had obviously faked permission—the Magnis Mensas would never allow further harmful by-products to be poured into the atmosphere.

He leaned forward, gazing at the impersonal discs as if to discover some hint of the almost omnipotent intelligence behind. " You are aware of the nature of the proposed *Brayle and Avery* transmuting plant ?"

There was a slight delay. " Full data of it are filed in my indices."

" It can transmute base metals to metals more noble ?"

" That is so."

" It would employ atomic processes and its harmful atomic by-products would be considerable ?"

" They would."

Jak felt sure, now, that triumph was his. " Then are you aware that Brayle and Avery intend to use the plant ?"

" I am." The tone was absolutely without emotion, as always.

Jak leaned back. " Then you will prevent it ?"

There was a moment's silence. Then the grille awoke. " I shall not. I permitted its use. Therefore to prevent it would be illogical—"

A shock ran through Jak. " *You permitted it* ?"

" Certainly," the Magnis Mensas said.

" But you agreed that it would be harmful !" Astonishment made Jak's voice shake.

" I did. But your assumption that I would prevent its use for that reason is based on incomplete data. I work wholly for the eventual good of Mankind."

" But Brayle's plant can't be for anyone's good !" Jak cried.

" I have deduced that it will be so."

Jak stared at the screens, tongue-tied. "I—I don't understand," he breathed.

"The knowledge at your disposal is insufficient. Deductions based on insufficient knowledge can be incorrect."

"But—you gave us five years," Jak pointed out.

"That was correct. Since I intended to permit the use of the Brayle and Avery plant, its effect was integrated with the other data."

"Which means we should have *more* than five years if the plant did not operate," Jak grated.

There was no answer. From his knowledge of the Magnis Mensas Jak knew he had made a statement, and that its silence meant agreement. If he had made a wrong statement, it would have pointed out his error.

He left the cubicle and descended to the 'copter park. His head swam. It had appeared so certain, so sure. Yet the Magnis Mensas took a different view and must, by its design, inevitably be correct. It was baffling.

The park and roads dropped away below. Jak had set a course for the *Rocket Enterprises* office building when the flash glowed abruptly from earth to heaven a mile away outside the city dome. Bright even in the noonday sun, it lit the city, then was gone. Adjacent, the tenuous city dome rippled, the ripple spreading quickly nearer, overhead, and away. Then the sound came—a sharp explosion of great volume, followed by echoes as from a thunder-filled sky. Faces turned upwards and vehicles stopped. The 'copter shook slightly, floating on under spinning blades. Jak knew of only one possible source of an explosion of such magnitude. Face suddenly white, he set the blades at a sharp angle and arrowed towards the building where he had worked so long.

"You're right in thinking it sets us back," Bert Wingfield said. "Apart from the actual loss, there's the uncertainty. Everything has to be checked all over again. We've got to look for flaws in design where we believe there are none. And if we fail—then the next rocket goes the way of the last!"

Strain was clear upon his face. For the previous hour phones and intercom units had been acting half a dozen at a time. Jak had arrived amid the chaos.

"Many killed?" he asked

"All the maintenance crew. They hadn't a chance and probably never knew what hit them."

"You've no clue?"

" None yet," Wingfield said, and his slight frame seemed to have shrunk. " There's only a crater and scattered debris, and that doesn't tell one much."

He sat down with the movement of a very tired man. Jak thought of the gleaming rocket that *might* have reached space. As Bert said, half a square mile of fragments told one little.

" We'll begin again," he said. It was not the first time. Nor were *Rocket Enterprises* the only space-ship engineers to suffer such setbacks. Early trials had been deceptively easy—it was easy to shoot a hull full of electronic equipment into the stratosphere. But ships to carry *people* were different. Men were less tough than printed circuits sealed in plastic, and most inconveniently died through lots of awkward reasons . . . While a robot or radio-controlled ship could be set down on Mars, if anyone bothered, the moon was still too far for living men.

" Oh yes, we'll begin again," Bert Wingfield said, and sighed. He fiddled with the mess on his desk, came across a pad, and turned it up the right way. " Clean forgot—there was a Dave Reader here at eleven. You were to see him."

" Sorry." Jak wondered if it mattered. " He coming again ?"

" Same hour tomorrow."

" I'll see him."

Dave Reader sat on the very edge of the chair and his youthful face glowed with eager enthusiasm.

" You believe it would work, Mr. Hemmerton ?"

Jak eyed the diagrams, the sheets of data, making no mean pile on his desk. Though Reader was a youngster, he certainly had something ! He was alternatively confident and hesitant, but behind it all lay a keen brain. Jak met the boyish eyes, so bright and direct.

" I believe it may," he said.

" Then you'll give it a trial ?"

" If my partners agree."

Reader rose, impulsively leaned over the desk, and shook Jak's hand warmly. " I hoped you would ! I'm sure it'll be a success ?"

When he had left Jak sat with his chin on his chest and idly turned over the diagrams. Dave Reader had worked it all out on paper and had no money or equipment for tests. But the idea promised to make the next rocket design a trifle easier. So far, they had tried three methods of providing a breathable atmosphere for crew and passengers. Jak ticked them off mentally. One, cylinder-stored oxygen—compact, good for short journeys, but useless for long period operation. Two, plant tanks. They had seemed hopeful, but been too bulky. Three,

chemical exchangers. Promising, but upset by both acceleration and the weightlessness of free space. Reader's idea could be more compact, more efficient, more foolproof.

The more Jak pondered the scheme, the more he liked it. It would reduce weight—could deal effectively with vast amounts of contaminated air . . .

The last point stuck in his mind. Designed for rockets, it could have other uses. He began to make notes, scaling up capacities. What could be done for a rocket might also be done for a planet—if the scheme was efficient enough. And Reader's idea alone looked as if it might be just that.

After rather more than two hours Jak felt confident that the plan could work. He wrote out a factual report, omitting nothing, and had just finished when Bert Wingfield came in. From the file under his arm Jak guessed he was taking data to be checked.

"You going to the Magnis Mensas?"

Bert nodded. "I've everything we know here." He tapped the thick folder. "If it can't deduce the cause of the blow-up, no one can."

Jak gave him the report. "Have this filed in."

"I will."

Alone, Jak wondered what the calculator would make of Reader's plan, enlarged a hundred fold. If it had trifling defects, they could be ironed out. The Magnis Mensas could not create, it could only work from known data. In that respect alone was the human mind its superior. A flash of genius could devise something *new*. The inventions of the Magnis Mensas were new in a different way—were always new permutations of old data.

In the days that followed, the *Rocket* factories outside the city bubble membrane moved into their new, hastily arranged production schedule. Jak went out often. Outside the dome a first glance would suggest nothing wrong. But there was enough radioactivity in the air to do things to a man's lungs, unless he wore a suit . . . Suited, his stay could be longer. There had been heavy rain, and the ground contamination was up. Jak was glad to reach the factory. Its dome, fragile as a child's balloon, and supported by internal air pressure fractionally above that of the outside atmosphere, glistened from the downpour.

He spent an hour inside, and was satisfied that such preliminary work as was possible was gaining momentum. The possibilities of Reader's idea were never far from his mind, and he retired to a private office and dialled a connection to the central information office of the Magnis Mensas. Time for its decision to have reached the records, he thought.

The girl listened to his request and went away. Moments passed, then: " I have the tape covering the Reader plant here, sir."

" Please play it."

Jak sat back, gazed through the window on the plastic bubble. Might come a day when such protection was no longer required . . .

The report began with index data in impersonal tones. " As a result of analysis, it is apparent that the plant would not in practice prove operable and its construction, even in experimental form, cannot therefore be recommended—"

Almost overbalancing, Jak snapped from his position of repose.

" Play that again !"

" Yes, sir."

He had not heard wrongly . . . his astonishment grew as he listened to the detailed explanation following, and to the long statement's conclusion.

" It is therefore recommended the plant be abandoned, except insofar as scaled down units might prove of service."

He snapped the line off and drew in his lips. It was impossible ! If the plant would work in small scale, it would work in large ! Yet the conclusion of the Magnis Mensas meant, in brief, that Reader's idea would do for ships, but not to combat atmospheric pollution on a planetary scale. " *Damn*," Jak said aloud. It did not fit.

He got his protective suit, went out, and skimmed back to the city bubble. Bert would not expect him back, he thought. But this could not wait. He left the 'copter in the decontamination park, passed the membrane lock, threw off his suit, and took a 'copter back to a bumpy landing at the *Rocket* roof-drome.

The lift put him out on their office level. Scowling, he strode along the corridor, along the transparent-walled balcony—and halted.

A man his own height but heavy of build had just come from the swing door of Bert Wingfield's office. There was a glimpse of a big, wide face, then the man was gone with heavy step on along the corridor. Jak felt his scalp tickle and blood pound momentarily to his cheeks. *He had told Bert he would not be back . . .*

Wingfield was sitting on the corner of his desk when Jak entered. He started visible.

" Didn't expect you this soon—"

" So I've noticed !" Cut, clipped, the words stung visibly.

Bert Wingfield slid from the desk. " Why so ? What's biting you?"

" Since when has Brayle had business in these offices ?"

The other's mild face was lined. " He wanted to talk business. Nothing important—"

" Important enough to take place when I shouldn't be here !" Jak snapped.

A flush spread over Wingfield's face. " You're making a mistake !"

" Perhaps I have—too long." Jak felt cold, as a man betrayed. " Just now I'm asking myself several questions. Seeing Brayle leave your office gives me new ideas." He leaned forward, hand on the desk. " *Just how did you fake Reader's specification to get it rejected by the Magnis Mensas* ?"

There was silence. Jak guessed at possibilities. He was sure Reader's idea would have worked—on planetary dimensions. It was thus big enough for *Brayle and Avery Industrials* to cash in on and corner for themselves. Perhaps Brayle wanted to break *Rockets*. Perhaps Wingfield like the look of some of those noughts Brayle had mentioned . . .

"I don't know what you're talking about," Wingfield said.

"Like hell you don't!" Jak's lips closed like a steel trap on each word. "It's seven years since I brought you into *Rockets*. We got on all right before—we can get on all right again! Now, *get out*!"

A visible shock ran through Bert Wingfield's body. "Get out of *Rockets*?" His voice shook.

"That's what I said. Maybe Brayle will give you a job!"

Wingfield licked his lips. "Something's bitten you, Jak. Remember what the Magnis Mensas said. You're highly strung—"

"To hell with the Magnis Mensas!"

"At least let me explain—"

"Any fool can explain anything—but that doesn't make me fool enough to listen!"

Silence grew. Abruptly Wingfield turned on a heel and left the office. The door swung shut at his back.

Jak watched its vibrations cease. Tall, he had become suddenly stooped. His sandy brows had come so low they hid his eyes and his face had aged.

He sat at the desk slowly, put his elbows on its top and his palms on his eyes. *Damnation*, he thought. *Bert Wingfield. Bert!*

In the months that followed, Jak worked alone. To himself he admitted that Bert's absence slowed progress. Bert and he had formed a team and accomplished together things neither could have done alone. The small Reader plant for rockets was passed and went into production. Brayle and Avery's transmuting plant began to pour a column of grey smoke into the outer atmosphere. Jak calculated the degree of contamination it caused and took the figures to the Magnis Mensas. The calculator agreed with them, said the information had already been available to it, but maintained that the work could continue. Jak wondered. The next evening there was a sudden step behind him in the dark patch between street and lobby in the block where he lived. Some unnamed sense brought him round half a second before normal, and lifted his hand in a reaction barely quick enough to grip a descending wrist. The man's hand was gloved, the dagger long, slender—and silent.

Jak struck with his left fist and missed. The other was powerful, agile and twisted free with a strength that made Jak's fingers creak. The blade rose from near the floor. Jak jumped back and kicked. His toe met the other's stomach, bringing a grunt and a fifth-second of paralysis. Jak's hands locked on the knife wrist and he heaved. Something snapped like a stick and the knife fell. Grabbing for it, he lost his hold and the man was gone.

In the lobby, Jak studied the knife. It was without markings, a single piece of steel. The blade was like a razor, the haft slightly rough—hand made. He put it inside his coat.

As he went up to his flat he recalled a phrase Brayle had used. *Brayle and Avery did not like people who meddled . . .*

The flat was silent and empty. The words of greeting died on his lips. Jean should have been there—was always there. He swore, thinking of Brayle, then knew it was not that simple. His life had been attempted in the lobby. Brayle would not have risked a kidnapping as well, when the threat it constituted would be pointless if the knife had done its work. If not Brayle, who ?

He enquired of the building clerk below. Jean had gone out two hours before, in reply to a message. The sender was not known.

Jak paced the empty rooms, biting his lips. Two hours before. That cleared Brayle. With Jean kidnapped as a threat, there would have been no murder attempt.

She did not return. He had not expected it. Free, she would have rung, explaining. He wondered why she had not left a note. There seemed two possibilities—she had expected to be back before he arrived home, or had lacked time.

The night and day following were agony. Every enquiry he made lead nowhere. He wished Bert had still been at *Rockets*. Bert would have understood his feelings, and might have helped. He almost rang the flat where Bert had always lived, but memory of Brayle slipping from the office halted him. Once betrayed, twice shy.

At last frustration, distress and helplessness took him to the Magnis Mensas. Here, at last, might be information, without which everything was mere guesswork.

" You are recognised," the machine said. " Please sit down."

Jak sat. The air of the cubicle hummed faintly. Within the huge building there was never complete silence, but a murmuring, breathing background of activity.

" I wish to report the disappearance of my wife," he said.

He gave details as he knew them.

" Information noted." The voice was impersonal as always. " That is all ?"

" No." Jak leaned forward, staring at the screens. " I wish to find her."

" A logical desire."

" I fear she may be in danger !"

There was silence, then: " To your implied question—it is feasible to assume so. Her absence is to you unexplained and unexpected. In

view of the socio-domestic relationship between her and yourself, you have assumed she would not be absent without explanation ?"

" I have," Jak said. A shock had run through him. The words hinted at a possibility never occurring to him: that Jean was absent freely ! He hesitated. " Refer to her activity and psycho patterns and tell me whether you consider she would go freely and without explanation."

He waited with mounting tension. At last the grille awoke. " All data relating to Jean Hemmerton, Y.B/781663, indicate that it is not logical to assume that she would absent herself from you of her own will and without explanation. Her socio-domestic relationship was satisfactory."

" Then she was taken by force or trickery ?"

" It is logical to assume so."

" Would a person kidnap her simultaneously with attempting my life ?"

Seconds passed. " Not if her removal was to force you to undertake activities for which you have no inclination; or, secondly, to prevent you engaging in activities which her kidnapper personally considers undesirable."

That cleared Brayle and Avery, Jak thought. He seemed to be up against a blank wall. He rose, hesitating.

" You don't know where she is, I suppose ?"

There was no reply. No reply was agreement, he thought. With a hand on the door, he hesitated. His words were a statement, backed up by a supposition that it was correct. It was not always easy to remember that the Magnis Mensas was not human. An odd feeling came; he stood with his back to the door and knew he had paled.

" Do you know where she is ?"

" I do," the machine said.

A shock ran through his nerves. " Who took her ?"

Seconds, then: " I did."

He bit his lips so that it hurt, and gripped the chair back. " You ! She—she is alive ?"

There was a delay. He knew complex circuits were channeling information away, waiting for the response. The reply would be based on immediate information . . .

" She is alive, well, but resenting captivity," the Magnis Mensas observed at last.

Jak's nerves twanged. There was relief, dismay. " But—*you* ! Why ?"

No reply came. He strode round the seat, shook a fist at the screens.

" I demand that you answer ! You are built to serve mankind !"

"Your second supposition is correct, your first demand unreasonable. The two conflict. If I reply, I shall not be best serving mankind. Therefore it would be illogical that I answer."

Jak put a fist before the largest screen, shaking it. "In the name of sanity, what do you mean?"

A low murmur as of reproof issued from the grille. "Your activity patterns are reaching a level where emotional responses are submerging logic—"

"To hell with logic!" Jak snorted.

"Your statement is not clear."

Jak drew a deep breath. "Tell me where my wife is!"

Silence, then: "For the reasons already given, it would be illogical of me to do so."

"I demand it."

Silence, unbroken. Jak knew that he had reached the final point in his discussion. If a madman asked how to make a tommy-gun, the Magnis Mensas would not reply: it would be illogical, harmful to humanity, to do so.

Shaking, he stood at the door. "You refuse to answer my question?"

"Regrettably I must."

His shock was so great that he did not even slam the door. Outside, he stood in the corridor like a blind man. Then he turned his steps towards the 'copter and home.

Jak slept little. The next day he returned to the great building and tried to make the Magnis Mensas disclose Jean's whereabouts. The reply was inevitable: "It would be illogical to do so since you might try to secure her freedom."

He strove to concentrate on his work, but more than ever admitted that he missed Bert Wingfield's co-operation. Bert was a born rocket man . . . Some odd sense told Bert things which other rocket men needed to discover by calculation or trial and error, costly and time-consuming.

Reader's apparatus functioned perfectly at space-ship size. The youngster was often seen in the *Rocket Enterprises* building. Brayle and Avery's transmuting plant poured radioactive wastes into the atmosphere outside the city bubble. The value of their stock rose sharply.

Unexpectedly, *Rocket Enterprises* received a directive urging a four-fold step up in experiments and construction. It was backed by an official sanction for labour and materials. The form bore an imprint showing the idea had originated in the Magnis Mensas. The labour directive was similarly stamped and took no less than 7,000 men off

atmosphere work, making them available to *Rockets*. Jak swore at sight of it and dialled one of the few personal lines to the Magnis Mensas.

" You intend to leave Earth to stew in its own filth ?" he snapped.

The reply was emotionless. " From a consideration of all existing data it has proved desirable to increase your speed of working—"

" But why send us men from atmosphere plant ?"

" They are most skilled and therefore most suitable employees."

" But atmosphere work is vital !"

" It is," the Magnis Mensas agreed. " Yet it is nevertheless secondary. I would remind you that I have computed that this planet will inevitably become untenable to human life. The atmosphere purifying plants only delay that moment."

The line went dead and Jak switched off with fury. The great purifying plants would only *delay* the moment ! Was not delay, and yet more delay, of that moment the thing most needed ? Meanwhile, Brayle and Avery were hastening its coming. Worse, Reader's equipment was only built in ship size, instead of with a capacity which might have had planetary utility.

It was baffling. He strode up and down his office, kicked a chair over, swore, wished Bert were with him, and then halted. If one thing stuck out a mile, it was that Brayle and Avery were growing rich. Brayle and Avery were *big*. Brayle and Avery sometimes worked things *their* way. Might, for example, have messed with the great computer so that the answers it gave, in some directions, were the answers they required . . .?

Jak left his office and spent an hour studying city plans in the library archives. He decided that secret access to the inner parts of the Magnis Mensas might not be difficult. To date, everyone was highly satisfied with the computer. No attempt at damaging it had ever arisen.

He followed the plans as he supposed Brayle might have done. Water from a coolant heat-exchanger in the computer basement issued into a river outside the city. Suited, he found the opening. His powerful torch showed a tunnel ten feet in diameter and barely one-third full of water. An hour later he emerged in a large square catch-pit shoulder deep with hot water. An inspection ladder on one side gave egress from it.

The first door he opened revealed a lobby holding spare uniforms marked " M.M." and he donned one, hiding his suit. A throbbing murmur filled the air. For the first time the sheer impossibility of discovering anything in so vast a building arose in his mind.

Ahead was an open door marked Bay 712. Through it he could see a great chamber in which information matrices stood in rows from

floor to ceiling. Cables beyond number vanished into upper levels and the equipment chattered and whirred with spasmodic activity. The chamber seemed otherwise empty, and he stepped through.

" What is your code number and purpose ?" a voice murmured.

Halting, shocked, Jak saw he had interrupted a light beam that crossed the doorway. Above the door was a grille—from it had come the familiar intonation . . .

" I—" He strove to improvise quickly. " I was sent to check a fault—"

He counted five heartbeats. Then a gong rang. " No fault has been reported in this bay," the Magnis Mensas said. " Furthermore, your reply is not satisfactory—"

He was running even as the words ceased. From the opposite direction two men came hastening. Behind him others appeared. Within moments he was held.

" Place him in a question cubicle," the Magnis Mensas said.

Frog-marched and pushed from behind, Jak found himself in a narrow cell. A grille in its roof awoke to life.

" Your unauthorised presence requires explanation. Before you begin, I would note that your act may have serious consequences for yourself."

Jak wondered whether he should lie, and thought desperately that perhaps he should not. Instead, he must trust to the machine's complete logic and fairness.

" I thought someone might have interfered with your units, and wanted to see if a man could get in," he began . . ."

It was three hours later when Jak emerged on to the street at the rear of the Magnis Mensas building. The pair who propelled him from the door were friendly but severe.

" If this happens again you can expect a year in jail," one said.

The other nodded. " Bay 712 is a hotspot. It's new, and the computer's got data there none of the units upstairs ever touches."

His words remained in Jak's mind. *Rockets* had money and contacts, and with both there were ways of finding things out . . . Within twelve hours he knew the man's name, where he lived, and his recreation haunts. Within twenty-four hours Jak was paying for a drink for him in one of the saloons near the city-bubble rim.

" You're the man we threw out," he said, and Jak laughed.

" I didn't want to do damage. I told the M.M. so, and it believed me. Have another drink ?"

" Can do," the man said.

Another followed. They sat down and Jak motioned for more. " Wonderful machine you've got there," he said in frank admiration.

The man drank again. " Remarkable."

Jak filled his glass. " Wonderful how it works things out."

The man nodded. " Mos' splendid machine."

" What's that in Bay 712 ?"

The man looked round, focussed his eyes with some difficulty on Jak, and put a finger on his chest. " Wonderful new data layout." He drank. " The ole M.M. thinks there to itself all day an' night. All the indices clicking like mad all the time, even when the cubicles are shut for the night—"

In a full hour more Jak could get nothing further from him, and decided this was the extent of his knowledge. When Jak left the man's head was pillowed on his arms and he did not look up, speak, or move.

The night air cleared Jak's head. An idea which had slowly matured in his mind settled into concrete form. He must seek out Bert. *Rockets* needed him. He, Jak, needed him. There was no one else who would, or could, help find Jean. Jak turned his steps towards the engineers' flats. He must apologise, climb down, listen to Bert's explanation, if there was one . . .

He felt happier than he had done since Jean's disappearance. With Bert by his side again, *Rockets* could make speedy progress. With Bert, he might find Jean.

The " IN " tab on Bert's door was illuminated when he rang. When Bert opened Jak grinned lopsidedly.

" I'm sorry, Bert. I've come to apologise—to listen to you."

Something in Bert's face told him he had not called in vain.

An hour later they were back in the *Rockets* office. Jak felt a glow of strong satisfaction.

" Your absence has put us back six months, Bert ! We need you here."

" We'll catch up," Bert said. " First there's a personal matter." He rang the appointments girl below; had to repeat his order: " Yes, I did say Brayle of *Brayle and Avery*. Tell him I've thought over what he said when he was here last, and would like to see him."

He sat back in his chair with satisfaction. " That will fetch him," he declared.

Jak stared at him. " But—" Words failed to come.

" You'll soon see," Wingfield said. " Brayle will be here quick as 'copter can bring him. You go in the next room. Keep out of sight but listen."

Among the files in the adjoining office Jak wondered what was to happen. Within fifteen minutes he heard Brayle admitted.

" I hoped you'd give it more thought, Mr. Wingfield." The tone was jovial.

The sound of Bert's chair being pushed back came. " You still want me to see that Jak Hemmerton—doesn't cause you any more trouble, as you put it ?"

" I would not use such direct phrasing." Brayle sounded almost apologetic. " An accident—a slip at the works, perhaps—"

Three quick steps sounded, and a thud. Jak looked through the door and saw Brayle sitting on the floor, nursing his jaw in astonishment.

" That's the answer I'd like to have given you the first time you called !" Bert said.

Brayle got up, face red and white in patches. " I'll have you jailed!"

Bert laughed. " Get out !"

Jak stepped through the door. " Like to guess what I'd say as a witness, Brayle ?"

When they were alone Bert sat on the corner of the desk. " I owed him that. The next thing is Jean. You can't work till she's back. This mess started in the Magnis Mensas, and I've a feeling that's where it'll end."

Jak was silent. True, he could not work without Jean safe home. Without her, he was ineffectual as *Rockets* without Bert. Yet getting her back looked like a straight fight with the Magnis Mensas. If so, it must inevitably fail.

"Let's get moving," Bert suggested.

Many people moved in the corridors leading to the thousands of question cubicles of the Magnis Mensas. On the second level Jak found a door with the "Vacant" sign illuminated, and they went in.

"You are recognised," the Magnis Mensas said. "Please sit down."

They did. Jak listened to the low murmur filling the tiny room, and wondered how best to frame his thoughts.

"I am not satisfied of the way in which you have conducted a number of affairs," he stated.

The reply was immediate. "Dissatisfaction is based on personal disappointment. It may be inevitable when external circumstances postulate developments unfavourable to the individual."

Jak leaned forward, staring at the grille as if to see through it to what lay beyond. "Yes. But there is no excuse for developments *unfavourable to all mankind* !"

Silence, then: "Your statement infers developments unfavourable to all mankind have arisen."

"They have !" Jak declared. "Brayle and Avery contaminate the air with their new plant. That benefits individuals but harms mankind. Large-scale Reader purifiers have not been made. Now, *Rockets* are using personnel who should be on atmosphere work."

"Your statements are correct."

"Then you agree that these things are not best for mankind ?" Jak snapped.

"I do not." No overtone of modulation varied. "Your suppositions are based on an insufficient understanding of humanity and insufficient data. They must accordingly be incomplete. They are also incorrect."

Jak felt his head whirl. Talking with the Magnis Mensas was never fun. Arguing with it could be—hell.

"Inform me how my observations are incorrect," he ordered, suddenly tired.

"In several ways. Closure of the Brayle and Avery plant would reduce pollution of the atmosphere. Planetary application of the Reader system would similarly reduce pollution—"

"But in heaven's name isn't that what we *want* ?" Jak grated.

The droning voice ceased for only a moment. "Ignoring the first

part of your remark, which is effectively without meaning in the text in which you employ it, a reduction of pollution is not what I require."

Jak felt as if kicked in the stomach. "*Not what you require* ?"

"No," the Magnis Mensas stated. "Members of your species do not leave their homes unless factors require. Such factors may be found in the desire to explore, to escape inconvenience, or to discover a manner or place of living they feel preferential. A race consists of individuals and must therefore evidence the same characteristics."

"You mean we would never leave Earth unless driven out by atmosphere pollution ?" Jak cried.

"Not wholly. Only that your leaving would be vastly delayed."

In the silence Jak reflected that was so. Only the atmosphere pollution had brought public support to such undertakings as *Rockets*. In the creamy light he saw that Bert's face was white.

"Why is it necessary that humanity leave Earth ?" he demanded.

"Because there is a time limit during which he must reach space."

In the murmuring cubicle they stared at each other. This was a development Jak had never expected. *A time limit during which men must reach space—and one not set by atmospheric pollution* !

"It is for the same reason that your wife, Number Y.B/781663, was removed by me," the Magnis Mensas observed.

Jak's mind snapped back to Jean. Jean, who knew nothing of rockets, atmosphere work . . .

"Damn you for it," he said.

If matrices in the machine gained any meaning from the phrase they did not initiate any related reply. "Her removal was necessary," the grille murmured, "and was based on a careful study of your activity characteristics, among which may be listed stubbornness, pride, obstinacy in retaining incorrect opinions—"

"Quit the praise and come to facts !" Jak growled.

"Very well. It is essential for the future of humanity that yourself and Bert Wingfield work together. The captivity of your wife was the only feasible conflict sufficiently strong and personal to you to make you seek his help—"

Jak felt as if caned. "You mean—it was to bring us together again—?"

"Certainly, as I stated. Since I observe you together the need now ceases, and I have already initiated her freedom."

Jak put a shaking hand to his forehead. It was as the machine said. No other personal conflict could have taken him back to Bert, or made him swallow his words. His mind switched to a new matter.

"I know you to have set up a new series of data in Bay 712 !" he stated. "I demand to know its content !"

"The data are known to no human on this planet."

"I demand!" Jak wondered if this were mere obstinacy on his part. "You cannot keep secret information in this way!"

There was a silence. "I can, if I should deduce that to do so would be beneficial to mankind," the machine stated finally. "And this is so in the present instance. Nevertheless, it is apparent that you have progressed in the knowledge of related factors, and will not be content until the whole is known to you. Since your maximum ability to work is essential, and can only be had by your contentment, I will inform you."

A long silence came. A screen before them lit up. "I am transferring circuits," the Magnis Mensas said. Blips showed on the screen, moving, too tiny to have form. "These signals are being received from the direction of Castor Major. I first observed them among supposed meteorite echoes. They are proceeding towards this planetary system at a speed approximately half that of light. The blips you observe have been over two years in transit. From analysis of all related data, I have deduced that they are spaceships. Their characteristics permit no other explanation."

Continued on page 118

" Alien ships, coming to this system—to Earth !" Bert Wingfield breathed.

" Exactly. Had mankind been informed when I first knew, panic would almost certainly have resulted. Panic reduces efficiency. My purpose is the sole eventual good of mankind."

" The atmospheric pollution is not important," Jak cried suddenly understanding. " You even allowed it to be increased, to make us build rockets faster !"

" As you suppose. Mankind must be able to meet these newcomers in space as equals."

The Magnis Mensas was silent. Jak felt overwhelming admiration. *Rockets* would see to it that mankind was in space when the alien ships came ! How different that meeting would be to the terror of being Earthbound while great ships circled overhead ! It would be a meeting and parley between equals—not a fearful plea for terms . . . . !

He rose so abruptly he almost upset the seats. " I want to see Jean ! And, Bert, there's work to do— !"

They almost jammed in the door.

" Vacate the cubicle singly," the voice droned behind them. " It is illogical to—"

The spring-loaded door banged, shutting off the words. Jean was coming along the corridor, conducted by a guide.

" There sure is work for *Rockets*, Jak." Bert said.

They looked at each other, at the closed door marked " Vacant," and turned for the nearest stairway. *Certainly a tough way to get men into space quick enough*, Jak thought. *But necessary* !

Francis G. Rayer

A basic fantasy plot which is met with monotonous regularity is that of the survival of the few following global catastrophe. With different treatments it has remained popular ever since George Allen England's *Darkness and Dawn* in 1919. Very few have reached the high level, strength and beauty of George Stewart's *Earth Abides*, but I can now recommend a first novel which compares very favourably. Peter Crowcroft's **The Fallen Sky** (Peter Nevill, 11/6d) tells of the bitter struggles of one man, Dr. Robert Ellman, sociologist, who has miraculously survived the awful destruction of England by the Bomb. Half-blinded and terribly scarred, both physically and mentally, he searches the ruins of Greater London for other survivors. At the brink of madness, with only his cunning prowess left to fight off the packs of mad dogs, he meets with a strange and pitiable group—a girl mothering a band of blinded children. Eventually he recovers health and peace of mind, and a final hopeful note is struck with the birth of a child from his union with Eve, making secure his own little world of beginnings safe from a frustrating contact with a half-seen marauding band of men who are dangerous connections with the pre-blast madness.

These are the bare bones of the book; the flesh is in the tremendous description of the atom-blasted land, the vicious battle for survival, and the vivid characterisation of Ellman and Eve. Their meeting is not the usual approach-and-conquest, but realistically a lengthy, fearful, series of contacts until raw emotion is salved by common weakness, and Ellman is accepted as head of the small community. A strong thread of anti-science runs through the theme and points the moral in a strongly imaginative and magnificent piece of story telling.

Reverting to the proper purpose of this column for reviewing *science-fiction*, an excellent example in the popular vein is offered this month in Raymond F. Jones' **This Island Earth** (T. V. Boardman & Co, 9/6d). Cal Meachem is practically a radio engineering genius, but the strange catalogue he is sent lists components and a technique really out of this world. Incredibly he orders, and receives, parts for an *interocitor*, completes its construction, and finds it is an advanced form of communications device. He learns that he has passed an aptitude test

admitting him to a secret organisation of Peace Engineers, headed by the faintly alien Jorgasnovara. From then on, fast action, including a romance with Ruth, a psychiatrist on the project, leads to the revelation that . . . well it would be unfair to reveal the story. It is sufficient to say that its remifications are galactic in scope, and Earth itself is in dire danger before the final satisfactory solution. Hokum ? Perhaps. But very enjoyable reading when told by a competent author whose intention is to entertain brightly with the least possible literary dead-weight.

One of the very few genuinely talented writers to emerge from *inside* the post-war renaissance of science fiction is undoubtedly the young Scots journalist J. T. McIntosh. From promising beginnings in *New Worlds*, his work has matured rapidly and has developed a stature of realism towering above the general level of mediocrity. Much of his later work has yet to be seen in England, and his first full-length novel **World Out Of Mind** (Museum Press, 9/6d) was published in America some years ago. Viewed in its proper perspective as an initial venture in this medium, criticism of its shortcomings is disarmed therefore by the knowledge that McIntosh's subsequent and far superior novels have proved not only the author's capacity for constant improvement in technique, but his ability to create adult science fiction realism. Frankly, this present story is not very convincing. The characterisation is somewhat wooden, and a few inconsistencies of plot are glaring. Nevertheless the professional novelist's touch battles strongly with the too-familiar theme of alien-agents-on-Earth, with an infuriatingly smug hero and an obscurity reeking of van Vogt, to produce science fiction which is still better than most. The novelty of having the enemy agents placed here in human form so perfect that allegiance is subtly transferred to Earth is interesting enough, but the concept of a graded society of emblemized stratas of ability and power, in which prime agent Eldin Raigmore moves swiftly to the top as part of the invasion plan, does not bear too close an analysis, and the eventual means of defeating the aliens takes a bit of swallowing.

Also concerned with alien interference in Earthly activities, but from a surprisingly different angle, is John D. MacDonald's **Planet Of The Dreamers** (Robert Hale, 9/6d). Previously published in America as *Wine of the Dreamers*, the story moves swiftly into the troubles besetting a space-flight project in New Mexico, where Dr. Bard Lane is civilian chief of a brand-new research for getting man into space, following previous military standard rocket attempts which have failed. Yet senseless sabotage takes place despite the vigil of pretty psychiatrist (inevitable combination these days !) Sharan Inly,

Continued on page 122

responsible for the mental stability of the research staff. At the same time many unconnected, seemingly lunatic, incidents are happening all over the world. The scene shifts to a planet in a far sector of the galaxy, where a small community lives a strange existence, shut away from the outside world in a huge self-contained building, fulfilling their obscure duties as Watchers by spending periods in the ancient Dream Machines.

Three planets are available for the delectation of the Watchers, and it becomes obvious that Earth is one of these supposedly dream planets. The Watchers can project themselves into people's minds and direct their actions for amusement (hence the inexplicable behaviourisms) whilst maintaining the prime, but misunderstood, objective of preventing mankind from perfecting space flight. The young Watcher, Raul Kinson, is different from the others, and becomes aware of the reality, and he defies tradition and authority to break out from the prison of his useless existence, determined to help the new project on Earth. Even to the extent of setting out for Earth in a spaceship left in readiness by the ancient builders of the Machines. All ends happily, and the whole thing is fairly well done in an uncomplicated and unpretentious style.

So to the best science fiction novel of the month which is **Timeliner** by Charles Eric Maine (Hodder & Stoughton, 10/6d). In fact, I consider it to be one of the best novels of its type written in England that I have ever had the pleasure to read. To some extent my enthusiasm is activated by Mr. Maine's achievement in revitalising the stale theme of time travel with an ingenious new concept—the release of the ego by an experiment called dimensional quadrature. The initial attempt at temporal transition is made in 1959, but is deliberately sabotaged, and Hugh Macklin's entity is materialised in the future, usurping the owner of the new body. Later this practice of unwitting spiritual murder is recognised by an advanced science of the future as psycho-temporal parasitism, or *timelining*. The time-jumps are regulated by an affinity, from a past emotional connection—in this case, the scientist's unfaithful wife—which materialised the timeliner in any era in which a physical counterpart of his affinity occurs. The action repeats itself on the physical death of each new body, and is, in essence, immortality.

With his own considerable scientific background, the author contrives to give this pseudo-scientific concept an air of convincing plausibility, and in addition weaves around it a fascinating and exciting story. Many times I was tempted to peek at the ending to see just how the intriguing mystery was resolved. Mr. Maine's first novel *Spaceways* showed his ability to mix science and suspense (and both more-

over are based on successful radio plays) and here the denouement is a well-kept surprise. The writing lacks the slickness of contemporary American style, and a tendency to wordiness slows the pace of many passages. On the other hand some of the descriptions of the later stages of humanity's advance (or retrogression, as the author's views on man's inherent aggressiveness indicates) are impressively imaginative. I especially liked the local episode in the galactic era ten thousand years hence (particularly the joyful aside about the physiological inconvenience of certain metallized-skinned rejuvenates) and the penultimate, almost Stapledonian, stage in Macklin's temporal journey. Verdict—science fiction of superior quality, by an author who obviously has a great future.

By comparison, John Elton's **The Green Plantations** (Ward Lock, 9/6d) is a sorry spectacle. Juvenile in approach and treatment, it nevertheless purports to cater for adult tastes, but I am sorry if there is a reading public for this kind of rubbish because it seems to me to be an awful waste of paper. Its simple plot concerns an Earth weakened by atomic war, and conquered by the Olloidans, a humanoid race from a planet which suddenly appeared " from behind Mars." They now rule by proxy, having trained a new generation of Earth children to be the new aristocracy, the Helots. However revolt is brewing, and a gallant Captain Stanbury, Helot space pilot, becomes the focus for an attack on Olloid itself, and the eventual overthrow of the oppressors by destroying the sole source of their life-sustaining drug, grown on the Green Plantations on Olloid. The naive romantic element nauseates at times, and of course the science content is non-existent.

Continued on page 124

A pleasure it is to turn to the **Best Science Fiction Stories, 4th Series** (Grayson & Grayson, 9/6d). Editors Bleiler & Dikty can always be relied to present a top-quality anthology, and for several years they have skimmed the cream from the annual magazine crop of short stories in their yearly American series " Best Science Fiction Stories." This new volume is culled from the 1953 edition, containing stories first published during 1952, so most will come fresh to the new reader. British authors are well represented, with two stories by Eric Frank Russell " I Am Nothing " and " Fast Falls the Eventide " (both good if unremarkable), a neat study of insanity trends by William Temple called " Counter-Transference," and " Survival," a delicious slice of grue from the able pen of John Wyndham. Zenna Henderson's lead story " Ararat " is a notably well written variation of the ESP theme, while John D. MacDonald's " Game for Blondes " and Frank M. Robinson's " The Girls from Earth " have the glossy brittleness of *Galaxy's* best. Top two stories in my opinion are Walter M. Miller's " Command Performance," a beautifully effective piece on one aspect of ESP attributes, and Mark Clifton's " The Conqueror," one of the *nicest* science fiction stories ever written, which is guaranteed to arouse your interest in dahlias ! Murray Leinster and Fritz Leiber are rear stalwarts, with a couple of light pieces by Alfred Coppel and John W. Jakes. Once more the uninspired dust jacket belies the excellence of the contents.

Leslie Flood.

Non-Fiction

Technical books for the laymen are almost as popular with science fiction readers as the general novel, and authors perforce of necessity have to closely follow the changing pattern of fact and theory in our obscure Universe. Patrick Moore's **Guide To The Planets** (Eyre & Spottiswoode, 21/-) is an excellent up-to-the-minute reference work about our closest neighbours in space. Similarly, R. S. Richardson's **Man And The Planets** (Frederick Muller Ltd, 15/-) although dealing primarily with Mars—of which the author is one of the world's leading experts—gives an astronomer's view of the Solar System. Both books are profusely illustrated with photographs and are required reading for the amateur astronomer.

Should you prefer to concentrate on something nearer the home planet N. O. Berquist's **The Moon Puzzle** (Sidgwick & Jackson, 16/-) in which the author presents his own theory of the Moon's birth backed by geological data, makes fascinating reading or Martin Caidin's **Worlds In Space** (also from Sidgwick at 16/-) presents in pictures and words current information on space-flight, space-stations and the preparation for visiting the planets.

John Carnell.

Erratum

In last month's "Book Reviews" our reviewer Leslie Flood inadvertently stated that R. J. McGregor, author of "The Perfect Gentleman" in the Cassell collection *Startling Stories* was a pseudonym of J. T. McIntosh, who has kindly pointed out our error. We apologise to both Mr. McIntosh and Mr. McGregor for the error and trust that no confusion arises from the mis-statement.

Out of Print

Will readers please note that we no longer have back issues available of *New Worlds* from No. 1 to No. 20 inclusive. Copies from No. 21 to No. 31 are still available (price 1/8d each, including postage), but only a limited supply remains.

Issues No. 1 to 6 of our bi-monthly companion *Science Fantasy* are also completely out of print and readers are requested not to apply to us for them.

On 'Religion And Sex'

Wirral, Cheshire.

In Utopia of the year 3000 a unit of personnel (a human being) named Smit 590A was deprived of his noon intake of calories (dragged from his dinner) by a People's Guardian (a ruling clique's bully) and charged with muddying the lily-white minds of the young by obscene language in public, found guilty and sentenced to undergo prefrontal lobotomy forthwith. Utopian doctors (ruling clique's butchers) then slid a thin knife up the side of one of Smit 590A's eyeballs and waggled it around in his brain. That taught the dirty-minded swine once and for all not to go into a shop to purchase something with the approved (graciously permitted) name of 'unowot' and insist on calling it a toilet-roll.

By arguing with you the merits and demerits of censorship, Mr. McIntosh has missed the boat. As an author he has or should have better and more effective means of defending the fundamental rights of common man. When irritated writers can larrup the ears of Rome (*Candide*) cause a government crisis (*J'accuse* !) precipitate a civil war (*Uncle Tom's Cabin*) split the entire world in two (*Das Kapital*) and, believe it or not, even create faint stirrings of life in a British Sunday (1984) it should not be beyond the wit of authorship to jerk down the pants of Anglo-Saxon mugwumpery. The most vital writings are those forming the literature of protest. Go to it, Mr. McIntosh.

Eric Frank Russell.

Colorado Springs, Colorado.

Your editorial (regarding McIntosh) interested me muchly. I had not known that England was undergoing a puritanical censorship drive. We are, as you know—and it has caused me some annoyance, for I am by nature unalterably opposed to censorship for any reason short of urgent and immediately present military necessity. In particular I am opposed to censorship intended to protect the morals of the public.

So far, the drive here seems to have affected only the comic books and from that to have splashed over a little into juvenile novels. For adult books almost anything goes, even the so-called taboo Anglo-Saxon monosyllables appear rather freely in print. Treatment of sexual matters is quite broad. Censorship in re religion is not a problem here; our constitutional guarantees are such that we need not worry on that score. (By the way I was pleased to see that the BBC permitted Margaret Knight to finish her radio series). But our wowsers keep th nking that sufficiently drastic censorship will restore the Stork theory to the status it enjoyed in the days of good Queen Victoria—and water will run up hill and broken eggs be repaired !

Robert A. Heinlein.

Rome, Italy.

I read your editorial with tremendous interest and admiration. It's the best thing you have ever done and in itself the complete answer to your perplexity. The important thing is not to establish the limits of censorship, for, as we all know, these limits are continually expanding and contracting from generation to generation. They reflect the spirit of the times and nothing, repeat *nothing*, can ever change them. Censorship is *Weltanschauung*.

No, the important thing is to fight censorship, to air it, discuss it, beef about it—not deny it. The conflict of an editor, wavering between what he thinks right and what the Public Prosecutor thinks right is far more interesting and significant than a science fiction extrapolation of religion and sex in the 25th century. I was not particularly thrilled by the sexual daring of " The Lovers " (*by Phillip Jose Farmer, published in " Startling Stories " 1952, arousing widespread interest and discussion*—Ed.), but I do support it because it was a courageous tackling of a taboo theme by Sam Mines, the editor, and because I hope it will keep the door open for stories based on contemporary problems of sex and religion.

I have been hammering away at this point for so long that I feel like a phonograph record, but I'll hit it once again—it is the escape aspect of science fiction that is killing the medium. Make-believe problems of make-believe people are fairy tales for children. The purpose of science fiction is to reflect man as he is today by showing him, as he will become or as he has been, in other times and space. But it must always be man in genuine human conflict. Carnell, torn by the problems of censorship, is far more vivid and memorable than Robotmen, Starmen, or even Demolished Men.

Alfred Bester.

Gary, Indiana.

You touched on a point that certainly is controversial. Too many of our magazines are written at the 12-14 year old level, so I would hate to see you aim a few years lower; but is sex necessary for *adult* fiction? More likely it plays an important part in characterisation. I've read several stories dealing primarily with the three letter word and they've proved mighty shallow reading. If a writer is good enough to weave an enjoyable tale of the future when our present taboos have disappeared, I contend that he is perfectly capable of writing a good story taking place under acceptable conditions. If so, *why* should he dream of shocking his audience ? The serial begun in No. 30 could certainly be improved upon, but I defy anyone to prove it isn't *adult* fiction. It dwells little on that nasty little word.

Ed Luksus.

Oakland, California.

Your editorial was very interesting. I have noticed the same indications in our magazines over here. Where you stated that science fiction and fantasy stories lay themselves open to the current close scrutiny of the law—because most plots are situated in the distant future, where presentday morals, ethics and religious affairs have changed—lies the answer to what one can do. There is no use arguing—a change in human relations is bound to come.

W. C. Brandt.

London, W.C. 1.

Surely the justification of censorship of magazines and books should depend on the ' tendency to corrupt.' Where there is a clear intention to corrupt, or to exploit depraved taste, there can be no resentment of censorship. The trouble arises in the individual's opinion of what constitutes corruption. Until recently it seems to have been held, in practise, that normal sex relations are the most corrupting material that can be put on paper, and this curious view is still widely held. On higher levels there does seem at last to be some perception of the fact that the abnormal has greater corruptive power than the purely normal—though in this perception the guardians have been way behind the practitioners.

The signs are that more sense and less didacticism is beginning to prevail and a more enlightened censorship is in the making. But these things take time to change, and the public mind takes even longer to drop an easy rule-of-thumb prejudice. It is wiser to keep close to public opinion of the day—just a shade ahead, perhaps, for to go further than a readership can comfortably be led is inevitably to be misunderstood by the majority, and to invite the kind of martyrdom which hinders rather than helps any greater freedom.

John Wyndham.