NEBULA

MONTHLY

2/-

SCIENCE FICTION

NUMBER 29

FOR READING THAT'S DIFFERENT

MOONS OF JUPITER

Satellite Ganymede with its shadow cast above the Great Red Spot on Jupiter. (By courtesy of Mt. Wilson and Mt. Palomar Observatories.)

DONALD MALCOLM

Beyond the ruddy coloured jewel of Mars lies Jupiter, majestic vanguard of the frozen outer giants of the Solar System.

Jupiter has twelve moons which are sometimes referred to as a miniature Solar System.

It was not until 1610, when Galileo turned his 1¼ inch telescope towards Jupiter, that the presence of satellites was discovered. He saw the four largest, Io (I), Europa (II), Ganymede (III) and Callisto (IV), the four moons being called the Galilean satellites in their discoverer's honour.

There are conflicting theories about the composition of the satellites, two

Continued on inside back cover

NEBULA
SCIENCE FICTION

Edited by PETER HAMILTON **Issue Number Twenty-Nine**

Novel:

Novelette:

Short Stories:

Special Features:

Front Cover by Gerard Quinn **Back Cover by Arthur Thomson**

Black and White Illustrations by Arthur Thomson, Gerard Quinn and D. McKeown

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Look here . . .

In the last few months it has become increasingly evident that, in the eyes of its leading personalities throughout the world, science-fiction is in a far from happy state. I have read with mounting concern that many well-known magazines devoted to this type of literature are not enjoying the marked increase in circulation expected to follow the recent upsurge in public interest in things scientific, and of the difficulty apparently being found by them in attracting and maintaining the interest of the vast and completely new potential readership thus created.

This gloomy news comes as a complete surprise to me, as the very reverse has been true of NEBULA. Since the launching of Sputnik I last November, we have gained no fewer than 10,000 new readers all over the world and, judging by the many letters I have received from these welcome new friends, many of them just refused to take science-fiction seriously until they saw space flight was much more than merely a fantastic notion dreamed up by the " queer customers " of the literary world.

Why, then, this immediate and striking success for our magazine in converting new readers to science-fiction, in contrast to the comparative failure of others? The obvious reason is, of course, that the stories in NEBULA have that extra something which gives them a wider appeal than those currently appearing elsewhere. What is not quite so obvious, however, is the fundamental difference of editorial approach employed when selecting material for NEBULA.

When a story is being considered for our magazine the only factors which decide whether or not it will eventually be printed are the ability of the author concerned, the originality of the plot he has chosen, the entertainment value of the story and whether it incorporates convincing characterisation. There are no editorial taboos or crippling restrictions of policy observed when choosing material for NEBULA. The reason for this is that such preconceived limitations of choice as are apparently adhered to by the editors of almost all other science-fiction magazines tend to dictate the rejection of good stories, just because they contravene one or other of the many taboos which they are compelled to observe, and sometimes even the acceptance of mediocre ones for the obverse reason. This is an indefensible state of affairs in a literary form which should and could have all of space and time to draw upon for the plots and settings of even its shortest stories. In a science-fiction magazine a reader—particularly a new reader—expects a collection of sharply contrasting yarns, each containing some imaginative concept which nevertheless lies within the framework of known scientific possibility. This, governed by the type of material available when each issue goes to press, is what I strive to give in NEBULA.

Take the stories in the current number as an example of what I am trying to illustrate. On the one hand we have the ingenious and original contribution by Robert Presslie, in which he takes the facts of biological farming as they are already known to science and, extrapolating them into the future, skilfully creates with them the cornerstone of an enthralling " situation " type yarn. In complete contrast we have a delightful science-fantasy from the pen of well-known John Kippax who charms us with the story of a completely alien problem and its final and dreadful solution by human interference. The stage is completely reset once again by Kenneth Bulmer who, also extrapolating from present day trends, projects us into a future where, although Earth is exhausted and poverty stricken, the advertising industry is the most powerful still surviving. Robert Silverberg and Bertram Chandler also bring us highly contrasting and entertaining stories—again each having a new and unusual twist to it.

Well, the question remains: is my formula for choosing stories for this magazine the best one in the light of present-day reading trends? I am not being dogmatic about it—there is nothing more desirable than a multiplicity of approach in these days of depressing uniformity—but the fact remains that in the last few months NEBULA has been able to capture many completely new readers for science-fiction who have apparently been slow to extend their reading to other similar magazines in the field.

Peter Hamilton

KENNETH BULMER

Advertise Your Cyanide

He was the truculent ambassador of a notoriously hostile planet, yet his safety while on Earth was more important than life itself

Illustrated by Gerard Quinn

Time: 2100.

The porage flooded into his forearm vein with its usual high-kick bloating impact. That was better! Now he could hit the sky! The needle dangled from his fingers.

Consider this man.

Index: T/A/77894S.

Name: Spencer Lord.

Age: 32. Height: 179 cms. Hair: Black. Eyes: Brown. Ex-Captain Terran Space Force. Athletic. First class shot. Twice wounded. Decorations: Gold Star, Space Cross. Security Risk Rating AAA. Terran Secret Service Operative.

The paper was yellow, thin, official. You ate it when you'd read it.

From: *Security Bureau.*

To: *Op.K.2.*

Subject: *Sahndran Ambassador. Coverage and Protection Advert. Convention.*

You will protect the life of His Excellency Josiah Gosheron at all times during the convention. His Excellency must not rpt not be aware of this protection. You will rpt will consider yourself expendable.

Bolz.

Lord put the needle back into its nest and thrust the plastic case on to the dressing table. The lightning pulsing through his body ironed out the shivers. He ate the yellow message form.

STAB WITH ME,
JAB WITH ME,
COME ON, BABY, *GRAB* WITH ME!

Lord blinked, pulled on his weapons belt, adjusted his anti-grav and flung his huge synthiermine cape over one arm. His stiff, jewelled gauntlets snapped magnetically to the over-cape's garish hem, ready for use. Expendable, huh? So he was supposed to worry?

He opened the window.

Predatory jungle of light and noise and smell. Neons and lumivapor writhing intestinal convulsions across a slate dinosaur-back horizon. Inside out. Screeching beast-hum of the city; pulsing colour and movement; insistent scraping at nerves deadened and excrutiatingly excited by drugs in pain-pleasure cycles.

The world of logical licence. Culture-arid. Scrabbling up a side-avenue of time, self-consciously aware of know-how, worshipping it, refusing to face life and hurrying helter-skelter into experience.

SCOOT WITH ME ON MY ATOMIC-SLED,
ROOT AND *TOOT* AND *SLIDE* TO BED!

Consider the past years.

The middle period of the twentieth century put the waste of the planet's resources on an organised footing. By that time America had used up in the preceding half-century more raw materials than had all of recorded history. One family—two cars. A spoonful of coffee—use a tree trunk to wrap it. A pack of cigarettes—use two tree trunks. Smooch in the Drive-In—burn a few gallons of gas, they're cheap. Mine the iron, mine the rare metals, process them, turn them into guns and planes and tanks. Let them rust into red wasteful ruin. Cut those trees, men; dig that ore. We won't freeze, men; there's plenty more.


GERARDO

Only there wasn't.

Lord stepped smartly off the windowsill, dropped a sheer hundred stories, then activated his anti-grav belt and swept up and away, relishing that first delirious plunge. He headed over the scarlet-lipped neon of a nude a block wide. She puffed smoke in sulphurous clouds, perfect ring after perfect ring. Her wooden framework was half charred away.

CLEAR THAT BLOCK AND BE A CLEAR,
BLOCK THAT CLEAR AND BE A DEAR.

Cut through the ring of smoke like a shot from a gun in Security HQ target range, spurn that dust, hit the clouds. His Excellency Josiah Gosheron. He savoured the name sourly. The damned old Terran hater. Another all night assignment and Katy on the loose. This convention promised to be dull, too—until you thought about it.

He was speeding above the city now, the wind slapping at his stator field and rushing past his ears. Other citizens sliced across on the downtown levels. Their lights were like frenetic dances of doom, writhing before some obscene idol in a torch-lit temple. Which reminded him of Katy.

She might make it to the convention, she'd said. She might be tippling with some half-crazy spacemen. She might be parading that body of hers on tridi. She might be doing anything. Lord bet a million credits she wasn't thinking of him. The knowledge was an ice-barb in his guts.

Time: 2114.

He slanted in towards the hotel rooftop, where uniformed lackeys stood with magnetoclamps, waiting for outer clothing and hand luggage from guests.

All across the horizon in an unvarying arc marched the squat gloomy bulks of the accumulator stations, waiting insatiably for the energy to quench their bottomless thirst. Now they were giving of their stored wealth, providing the sustenance for a night's squandering. Lord angled his downward plunge to miss the stacked solar mirrors on the hotel's roof and hoped that tomorrow would be fine: the city's power supply was down to danger level and if storm clouds banked heavily tomorrow it might cost more in weather control than would be got out of the sun when it reluctantly appeared.

His feet hit the wooden roof with a jolt. Damn porage wasn't spreading evenly yet: his reflexes were still slightly out of skew. If

Katy was here he'd find her. Gosheron permitting. Lord began to walk across the roof towards the attendants.

Get the old Terran hater drunk; that was the idea. Souse him, douse him, light and louse him. Lord smiled and flung his cape at the attendants. His fingers twitched. He needed a drink.

HIT THAT SYNAPSE WITH A WHIZ,
DRAG THAT JAG WITH A NUCLEAR FIZZ!

"Your invitation card, sir?"

The attendant had a flame-rifle steadied across his forearm, aimed uncompromisingly at Lord's navel. The man's trigger finger was white around the knuckle, scar tissue gleamed in reflected light.

"Here, uncle." Lord tossed a plastic card at the man, twitched his fingers and walked away towards the throng. Free-loading was becoming a tough proposition. But for all that the free-loaders would be here, eating and drinking and doping and experiencing. They were the people he'd have to watch. The regular police could handle most; but the odd man out, the hopped up fanatic, the one with the flash-grenade in his mouth talking quietly to the ambassador.

Whooosh! Bang! Back to the stars, alien.

Back to the stars, where Q's were unimportant. Q's? A trifling item. Merely the amount of energy needed to raise one pound of water one degree fahrenheit—multiplied by one million million million. And how we'd used up our Q's! Two cars a family—but one simply must, my dear. Square-miles of incinerating dumps outside every city. A million years of carboniferous growth consumed in a minute—and no-one to feel the warmth in the room at the time. Empty cans tossed aside to rot.

Spencer Lord stopped at the tall plasti-glass doors to arrange his jacket more comfortably over his weapons belt. Two brightly painted women, chattering like parakeets, passed him. He caught the magnificent glitter of the elder's ring, set with a solid piece of genuine coal, surrounded by diamonds. If he worked all his life, his soured mind nagged him, he still couldn't have bought a ring like that with his amassed salary. Katy'd just have to make goo-goo eyes and do without. Or seduce some fat old algae-mogul, more likely.

Dig deep for that coal. Rake down for that ore. A mile down. Two. Send robots. Honeycomb the Earth. Let the steel rust, plenty more. *Consumption is the god. Advertising is his prophet:*

And productivity is the money.

Only the prophet oversold his god and went bankrupt.

Smoke, smoke, smoke that cigarette. Burn, burn, burn up that old earth. Consume, friends, consume. Sit in your neat little, tight little, snug little house and waste a thousand man-hours every time you open a door. Transmute those elements. Two atoms for one. Big, buster, big! Something for nothing—only the something turned out to be hollow, and to have compound retroactive interest like tiger's claws, or the wind round the poles.

And the world woke up one morning and found itself poor.

Lord stood just inside the door to the crystal walled ballroom. He kept his inner tenseness bubbling inside and an idle, indifferent outward composure. He speared a drink from a passing robot. His mouth might have drooped cynically and he might have felt very tired if the porage wasn't coursing like a breeder reaction through his body. He stood in shadows and watched.

Costumes were everywhere. Almost as much as the absence of costume. Feathers waved above chalky faces, scented masks framed bold eyes. Lights glittered from jewellery and precious metals. Naked flesh, powdered and creamed and electro-treated, gleamed sybaritically against lush fabrics and alien furs. Gas-filled balloons drifted and, bursting, sent everyone around giggling hysterically. Lord caught a whiff of one that split near him and fought down treacherous headiness. He inserted his nasal plugs with a grimace.

Liquor spilt and stank and ran across the floor, soaking into priceless rugs. Streamers fluttered in artificial breezes. Flash bulbs plopped everywhere. People strutted and shouted, carmine lips opening and closing, unheard a pace away. Rockets soared to burst in shimmering stars against the roof. Somewhere massed bands were thumping and groaning and syncopating away almost lost in the gargantuan human uproar.

Everybody was having themselves a whale of a time.

Time: 2123.

Lord found Josiah Gosheron in the arms of a semi-clothed girl struggling in an alcove. The Sahndran Ambassador's two aides were standing by, grinning, unwilling to help the old guy. The girl was persistent. He was having fun, too; but his wind wasn't what it used to be.

Consider this alien.

Index: S/A/64389D.

Name: Josiah V. X. Gosheron.

Age: 83. Height: 151 cms. Hair: Red. Eyes: Brown.

Accredited Sahndran Diplomatic Corps. Responsible for treaty

between Eridani and Sirius freezing Earth out. Elusive. Strong racial prejudices. Maintenance of his goodwill to Earth essential. A dangerous man (alien Int.).

SPEND THAT MONEY—BREAK THE GRAVE,
ONLY *SUCKERS* EVER SAVE!

Glib profiteering words, spilling from fat, rat-trap mouths: "We believe in the future of this great country. There are more than twenty-five million people swelling the world population each year—a potential market of seventy thousand fresh individuals per day. We must feed and clothe and house and amuse and provide transportation for them all. This company's opening two new plants this year and three next . blah production blah consumption ."

That's a perfectly good idea! It's a good thing to have children and provide for them and see they have all the things you didn't.

Dig that Earth, provide for all; There's no dearth, come one, come all!

A girl ran past, screaming, her hair trailing silver dust. Parts of her costume fell off as she ran. A youth pursued her, flushed, laughing. He held outstretched a hypodermic filled, ready to provide unworried dream horizons. She'd let him catch her when they were alone—or more or less alone.

Gosheron's two aides finally pulled the squawking girl off their boss. She pouted at them, her face a solid gold-dusted mask, unrecognisable. Her hair was bleached white, coiffed and curled into a spaceship with flaring venturis down ears, nose and nape. Every time she laughed a beacon lit-up on the spaceship's prow. She was lit-up, too. Her naked arms and legs showed dozens of pin-pricks through the clogging powder, like a miniaturised moonscape.

Gosheron guffawed, belly shaking. He flung the girl a credit note. He was dressed like an ancient Indian Rajah, spattered with jewels, turban cunningly wound round a stator field generator. His sword looked like it had been built round a flame-rifle. An alien. A Terran hater. A dangerous man.

Lord's life meant nothing measured against the need to keep this alien alive and happy.

This alien Ambassador represented solar systems where Q's were still unused. We'd had ours. We'd been using about .004 Q's a year up till 1850, taking it from the muscles of animals and men. The next hundred years we used four Q's. Then we had twenty-seven Q's of coal and oil left—but why worry? Atomic power, buster, use your noggin!

'Waste not, want not.' That was a laugh. Consume friends, consume. Oh, sure, salvage where you can. A little later: 'Salvage is a national effort.' Then, reluctantly: 'The scrap-iron industry is the largest in the world.' Panicking: 'Salvage is a major aim of all citizens.' Finally, terror-stricken: 'Salvage is the new god!' But—consume, friends, consume!

A robot waiter trundled by and Lord hefted another Nuclear Fizz. This was an Advertising Convention, advertising the world to the aliens—and Katy was off somewhere with a goon from beyond the stars. Lord gulped the drink.

DRINK! DRINK! WOOD AL-CO-HOL!

The Advertising Industry have their eye teeth invested. You can't suddenly cut off an entire industry, with ramifications extending into every part of the economic set-up, with a casual: "Sorry, Mac." Not a multi-billion credit organisation. Not with that power. Power to keep things running. Power to ensure that the advertising business stayed in power even when there was a world-wide shortage of nearly everything.

Gotta live, you know. Play you eighteen holes, George, then we can talk things over at the nineteenth. Sure you know how it is, old man, times are tough; but there's still the good old atomic power.

Yeah, there's still the good old atom.

All five hundred seventy-five Q's of it.

That didn't last long.

Someone had smuggled in an erotibomb. Lord heard it go off over by the conservatory. He turned to watch, fingering the filters in his nose, and from his position in the alcove was able to see over the milling heads below. Ushers rushed from all directions wearing gasmasks. They shepherded the crowds, surrounded the area. A number of entwined couples were carried out. Lord didn't smile.

He was searching the throng, looking for signs he knew he couldn't possibly see. You couldn't tell an assassin by his expression, not with all those plastic facials about. And, too, he was looking for Katy.

What colour hair would she have tonight? What face would she wear? What brand of porage had she hit?

SHOOT THAT PORAGE, SMOKE THAT TEA,
VROOM AND *ZOOM* ON A BLIND D.T.!

The Synthetics Industry had climbed to power. Inevitably,

they'd taken over when resources ran thin. Them—and the solar-erg boys. But there was one ever-replenishing resource that had to be handled with kid gloves.

Trees.

Re-afforestation, afforestation, priority. Terran global super-priority. Grow those trees, uncle, else you'll shiver. Bubble that algae, buster, else you'll starve. Split those atoms, fella, else you'll freeze. Synthesize.

SYNTHI, SYNTHI,
I'M A LITTLE SYNTHI,
AREN'T WE ALL ?

Over in a corner, drawn apart from the coruscating bedlam, a group of men talked with the cigar-spurts of conscious authority. Moguls of the Trees. Forest Lords. Big browed, spectacled atom-jugglers. Chlorella Kings.

" . forest fire in Asia that

" Don't be obscene!"

" Fires exist, they snatch profits. Grow up, pal!"

new hexo-laminated ply peeled off. The ship dis-integrated. Need a new bonding resin ."

" Wembley's plastic weld .

. finished 'er, George! Two hundred stories. Less than a hundred tons of metal. Should last fifty-seventy years before the weather breaks through . ."

" I need a drink."

DRINK, DRINK, WOOD AL - CO - HOL!

Down beyond the main ballroom the crystal walls seemed to bulge with the crowd, shimmering and reflecting colours and land-scapes, moonscapes, alien scapes as a shadow mime in mood and feeling complementary with the music's thrum.

Lord felt confused looking in that direction. Someone shot an immense chandelier loose. It crashed down, scattering people like sparks. A girl's clothes caught fire. Extinguishers foamed auto-matically from the floor. She ran, naked, laughing, foam flecked, plucked three feathers from a fan, used them, rejoined the fray.

They'd formed a snake-hipped line, were singing and stomping, collecting more people, winding round the ice-columns soaring to the roof.

" We're doomed, doomed, pigging in the tomb."

Time: 2136.

Noise and colour and heat made an almost solid cloud in the wide room. Make-up was running down painted faces. Can't afford a custom re-facial. But, darling, new plastic faces at giveaway prices! Last you twenty years. After that You're a big girl, now. You're on your own, sister.

From the shouting crazy line a man reeled like a yo-yo spun off its thread. He stumbled towards the alcove. Lord drew back, tensing. The drunk's wide Chinaman's sleeves flapped and his imitation pigtail bobbed. Lord didn't know the guy.

Index: T/Y/876398/R.

Name: Grunewald Abduol Sloane.

Age: 29. *Height*: 168 *cms. Hair*: *Brown. Eyes*: *Brown.*

Known revolutionary. Prison record. Member of Earth for Terrans party. Cardio-dope addict. Security Rating XX. A dangerous man.

Beyond the alcove and Lord and the Chinaman the noise drained away in his senses, as though this razor-sharp scene were contained in a balloon, as though everything fined down. Rockets burst silently, hooters whistled and shrilled soundlessly and vacuous mouths opened and shut like fish trapped in four glass walls.

YOU'LL NEVER NEED A PADRE
WHEN YOU HIT THAT TICKER WITH THE ADRE

Lord could see the man was a cardio-dope all right. The blue cheeks, the rapid, shallow breathing, were a trademark. The wide, meaning, knowing smile, as though all the world were an oyster for this guy's own guzzlement. *Get your own ticker-sticker, uncle.*

Gosheron looked up, smiling vacantly, his be-ringed fingers, wet with wine, clutching a liquor dispenser. His aides seemed to tense up, like ropes dipped in water, their faces going stiff and hard and ugly. The man in Chinese costume staggered a few further unsteady paces, stopped and drew himself up in drunken solemnity. His face twitched. His feet were planted wide apart on the synthi-glass floor, heels off. His knees were slightly bent and Lord could see the quiver running along the muscles of those legs.

The man wasn't drunk.

Noise and confusion came back into Lord's world. The groaning bedlam of the convention beat at him with frenzied hands.

Lord moved a fraction of a second before Gosheron's aides. He drew his needle-beam, holding it carefully under a lapel flap, sighted on the pseudo-drunk and shot his stomach out through his backbone. Then, sheathing the weapon, Lord moved swiftly down the steps on

to the floor, his coat flaring, took the dead man companionably by the arm and murmured a polite phrase of greeting.

The man's eyes were still open. Mirrored there was no expression at all. Death had struck too fast for any purely physical reaction. Lord had used a needle beam fined down so the wound was small; there was a little blood and intestine on the back of the man's Chinese coat but the hole in his stomach was invisible. Lord flicked the coat across to make sure.

The cardio-dope was still standing balanced on those wide-apart betraying legs. As he began to fall, his legs buckling, Lord took the weight on his arm, held the corpse upright and started to manoeuvre towards the nearest exit to one side of the alcove. Half-dragging half-carrying the body he got outside attracting as much attention as a hypo-needle at a party. Dopes, drunks, mixers, they all came alike to the bouncers.

"Stab with me, Jab with me, Come on, baby, GRAB with—"

The man suddenly welled a spurt of blood down his trousers and Lord hastily thumbed a window slide and tipped the body over. It's a long way down, buster. Goodbye, uncle. He went back into the big room, changing faces as he went.

Gosheron would never know he had just had his life saved by a Terran. He musn't know, of course: all that he'd make out of it would be the attempted attack itself. A fine life. Terran Security Agent, a fine jim-dandy life.

Time: 2140.

A group was singing, loudly, discordantly, but in an iron mesh of rhythm.

I wanna GLOW
With a baby who's not SLOW
I wanna SHOT
Of porage that is hot, HOT, *HOT!*

He'd been out of sight of Gosheron for perhaps forty-five seconds. His sigh of relief was not pleasant. Everything looked the same. If Gosheron copped his blood-bucket tonight—exit Lord also, ungracefully.

Impossibly the noise and confusion grew. Sounds and colours rose and burst around him like fire-streaked porpoises breaking the surface of a turgid, boiling, lava-engorged sea.

That was one attempt that had failed. There'd be others—probably fanatics from the Earth for Terrans party. Just so long as the Sahndran Ambassador had a fine old time and was suitably

impressed by Terran independence and wealth—wealth! that was as false a front as an anaemic fifteen year old hat-check girl's—then the big wheels of Earth might chisel a few contracts for materials.

He snatched a glass from a passing robot. *Wood al-co-hol!* Down the hatch, derriere's up—whatever a derriere was. His mind fretted again over Katy. Where in hell was the girl? She'd forgotten him, obviously, taking some boob of a spaceman and sucking him dry. To hell with all women.

I wanna GLOW . .

Lord grimaced disgustedly and threw the empty glass at a dispenser. He missed and the crystal shattered into fragments. A girl's high-pitched laugh jeered at his nerves.

Gosheron was talking now with the arbiters of trade and industry and money. This was the crux of the whole jamboree. This little quiet casual conference was the reason this lavish display of worldly wealth and squandering extravagance had been staged. Gosheron represented Sahndran on Earth, and Sahndran had systems choc-full of raw materials, resources, metals, *Q's*, everything that Earth lacked. Be nice to him, Terran hater though he might be, pal, he

holds the whip hand. Only—don't let him know. Put on a show, throw an Advert. Con. and let him see how we can whoop it up! Dazzle the old boy. Geriatrics kept him chipper at 83. Fling in a woman or two. Talk nice.

And get those raw materials for Earth!

Drink, Your Excellency? Which porage would you prefer? Yes, Your Excellency. This is the latest—

I wanna WHIZ
Wanna ZIZ,
Drink my NU-CLE-O-NIC FIZZ!

There had been more than a hint of desperation in the way Earth had flung itself into the algae business. If algae and bacteria could not provide the protein and carbo-hydrates and fats needed and if the forests could not supply the raw materials for commerce and synthesis, then mankind was sliding to hell in a bucket. The enormous demand for energy had stripped the land of renewable Q's—the sun and wind and tides were left. And still the consumption racket went on, still the stentorian calls for more production and consumption boomed out. It was hysterico-religious mania by then, of course. Geriatrics added to the inferno. Improved methods of equipping the unfit for life sprang up, adding still more burdens. Birth control? Just try, uncle, just try. The whole crazy mess rolled on inevitably, with warfare an outmoded—and unmentionable—method of control.

The basics were perfectly correct. Just that something went wrong along the line, somewhere. Even space travel didn't turn out to be the panacea everyone had confidently expected.

We just weren't the only people in the Galaxy.

A tall, glistening, floodlit flagpole with the United Nations flag bravely fluttered, towering over a garbage can with a gaping ever hungry mouth. That was the symbol.

WE'LL DRINK AT *BARS*
SPREAD FROM HERE OUT TO THE *STARS*

A world bedlam of frenzied, sensation-seeking, hungry, frightened people.

Drink, drink, wood al-co-hol!

You couldn't really blame them.

Lord felt the shivers and pulled his nasal plugs out, took a rapid sniff of snow, and replaced the filters. He needed it, anyway, after that hop-headed Chinaman. He finished another Nuclear Fizz—

this time his cast was accurate and the glass splintered down the dispenser to be carried into the city's complex reclamation system—and wandered into the shadows to the rear of the animated group around Gosheron.

They were busily building empires and tearing others out from under the clammy feet of friends. Lord felt a faint disgust.

The woman with the golden face mask and bleached rocket hair glided swiftly from some purple-lit alcove, seized his arm. Her eyes were yellow pits of fire.

"Spencer! Darling Spencer! Fancy seeing you!"

Index: T/F/354920/E.
Name: Katherine Coburn.
Age: Alleged 26. Chronologic 40. Height 160 cms. Hair: Mousy. Eyes: Blue (partial to yellow stain).
Professional tridi entertainer. Four hospitalisations on unspecified data. Possible connections with Earth for Terrans party. Security Risk Rating: BX—problematical. Appears on restricted "arrest during emergency" list.

There burst a suffocating wash of sound and light from the ballroom carrying her throaty greeting on it like a surfboard, tearing into his guts and making him ache to crush her into his arms then and there.

"Katy—I'd not recognised you—Katy—why in hell didn't you visor me?"

"I recognised you easily, uncle. But, Spencer, darling—I've been so busy——"

"Yeah! I saw! With that fat slug Gosheron."

"But he's important, darling. And he's got lots of you know what."

"I can keep you in reasonable comfort, Katy, you know that——"

"Oh, don't propose again, there's a dear boy! I believe passionately in Trial Marriage, and it's so much less fuss. We've been happy for a couple of years, uncle, why not let it go on that way?"

"We've been happy! I've been in hell!"

She shrugged, her naked shoulders agleam in the lights where finger marks had smeared away powder. Lord's tongue was a cinder in the dryness of his mouth. She smiled at him, the golden sheath around her mouth dimpling and folding over the flesh.

"I need a fix," he said hoarsely.

"Atta boy, Spencer—I'll join you." Her yellow eyes smoul-

dered. She lifted her scrap of skirt, drew out a jewelled plastic box. "What are you hitting these days?"

"Usual." Lord's own box, his portable carry-case, opened clumsily under his trembling fingers, a hinge snapped with a sharp *ping!* and the lid hung askew.

"Hey, take it easy, uncle!" she laughed.

The needle filled smoothly. Lord bared his forearm, pinched up the flesh and slid the porage home where it was needed. Uncle! Hit that sky!

Katy's eyelids half closed, her body undulated and she rippled her hands in an abandoned temple dance, tiny bells tinkling on her ankles. She crooned softly.

"I need a tonic—Uncle;
I'm super-sonic—Uncle.
Don't get platonic,
You hep carbuncle!"

"You're mixing!" he accused her.

"Sure, uncle. Sure. I'm hot! I've been mixing coupla weeks now. Get wise, Spencer darling. Grab a jab and stab! The old mainline porage is strictly for the crumbs."

The golden sheath around her mouth crimped in and her smile would have drowned the sunrise. Her teeth were very white.

"Do get me a drink, dear boy——"

He brought two Nuclear Fizzes and didn't realise he had finished his own in one gulp. Somewhere off to one side Gosheron was surrounded by the moguls of finance, safe for the moment, giving time to talk to Kathy without nagging worry.

"I'll see you after this——" he began eagerly.

She cut him off, gaily, like a sunbeam falling unexpectedly across a candle flame.

"Spencer, darling—have you seen Gruney around?"

"Gruney?" he said vaguely.

"Yes, Gruney," she laughed impatiently. "Grunewald Sloane. Such a dear boy. He promised to let me grab a stick from his ticker-sticker. Do you think I should?" she finished archly.

"Stay away from cardio-dopes," Lord said automatically, not really hearing what she was saying, seeing only the outline of her in the sheathing golden film. He had just realised that the film was all she was wearing, it had looked like a dress with the scrap of pocket-skirt. She looked like the torrid flame from some pagan temple torch.

"That's your trouble, Spencer," she pouted, flinging her empty glass somewhere in the direction of a disposer. "You never want any fun! Cardio-dopes are hepped whizzes. Especially Gruney. If you see him tell him I'm aching to have a word with him." She laughed kittenishly. "He's dressed like a Chinaman, really utter. Bye, bye, Spencer, darling."

And she was gone, like a flame twisting round a wind tossed torch. Spencer's mind groped among blackening embers. He puzzled over familiar things with foul sooty fingerprints across them.

Chinaman's clothes? Cardio-dope?

What was Katy doing running with that bunch?

JIB JOB JAB—AGAIN,
HIT THAT VEIN—BRAIN!

Time: 2148.

Katy knew a man who had tried to kill Gosheron. Katy didn't know Lord was Terran Security. Katy had been trying to make Gosheron. Spencer Lord's mind twisted like a burned out hyper-drive. His face went sickly grey under the false features and he laid an unsteady hand against the wall to support himself.

Training took over. He didn't feel or hear the relays clicking in his brain; but the icy wall compounded of complete calm, utter confidence and dedicated obedience clamped shut like the closing valves of an airlock.

Almost.

Jamming the smooth functioning of his Bureau indoctrinated reactions, a sibilant golden flame mocked the closing of that wall. The vivid image of Katy danced maddeningly before his eyes, filtering the coldly calculated trained sequence of actions he must now go through. He shut his eyes in agony for a space, then opened them by an effort of will and put one hand to his weapons belt.

Security Rating Risk: AAA. Terran Security Operative. *Left, right, left, right, left.* BIM! BAM! BOOM! There wasn't much inside him now except a vasty dark hole which sucked his guts through claws of white hot steel.

The song from the chanting line in the ballroom beat up in metronomic waves of hypnotic sound. The wooden floor glistened with spilt liquor. An abandoned needle splintered under his foot. He disregarded all that, walked steadily over to the group around Gosheron. He couldn't see Katy.

If she tried to kill Gosheron he must kill her. It was black and white. There'd be no time for a fast deal, a hand across her mouth dragging her away where he could talk, unfix the crazy notions and fanatic schemes she must have had drilled into her poor befuddled brain. Gosheron must not know, ever, that his life had been endangered. These fanatics would try a shot even if they were dying in pieces—and Katy was one of them!

It was a situation fully covered by various aspects of the training he had gone through—except that the assassin wasn't the girl he—Lord was too far gone even to curse. The Earth's continued sustenance depended on the deals that would be made tonight, and once Gosheron, the old Terran hater, got a whiff of any murder-plot against him he'd be off—whoosh—to the stars.

Lord was sweating now, the sleazy feel of it slick between plastic face mask and flesh. He felt sick, too.

Giggle-gas balloons were popping everywhere now and Lord forced himself to smile foolishly, mouth drooling as the stuff billowed around him. He had half a mind to take out one filter—it was a hell of a job trying to giggle the way he felt. And, suddenly, it was too dangerously easy.

He checked himself savagely. Gosheron was laughing and chuckling, greasy fat tears rolling down his slobby cheeks. The group around the alien were back-slapping, chortling, having a whale of a time; Lord knew their keen brains were bent on one objective, talking Gosheron into ripe contracts for Earth.

Sharks and shysters they might be; but Earth's future depended on them—good luck to them. Katy—Katy was a moth, a gaudy, brilliantly empty flutterer, giving nothing to the world, only taking. Yet—she was Katy . Katy

Time: 2151.

When Lord saw her flashing eyes and laughing mouth in the crowd around Gosheron, her leg rubbing familiarly against a flushed young roisterer, he knew it was too late. She had wormed her way through the crush towards the alien. Lord pushed through after, laughing, shouting, a drink seized from a lax hand held high. His other hand stayed on his weapons belt under the flaring coat. The girl was a sliver of quicksilver, gliding in among the guests, slipping closer and closer to Gosheron.

I'M RIZ
I'M HIZ
ON MY NU-CLEO-NIC FIZZ!

Lord pushed faster, hating himself, hating the world, wondering just what he dared to do. There was an icy band around his forehead that constricted and drew fire-hot sparks of pain from his temples. Glass smashed in a roar of laughter. Heat beat up in baking waves. People rolled drunkenly away from a couple locked in a torrid embrace. Balloons and rockets crashed and plopped. Gosheron was clumsily tilting a glass, an aide steadied it, moving between Lord and Katy.

He stepped casually fast to one side, reached out a rock steady hand for Katy. She eluded his grasp without appearing to see him. Then he saw the needle between her fingers.

That wouldn't be porage. That would be a killer.

YOU NEED A TONIC—UNCLE
YOU'RE SUPER-SONIC—UNCLE

She had one impudent arm around the fat alien now, her ripe lips reaching for his flabby mouth. She was laughing screechingly, piercingly, and flakes of gold began to peel from her body. An aide glanced at her, chuckled, and reached out.

Lord was held suspended in a timeless vacuum. He thought he had stopped breathing and his heart-beats came in sluggish reverberations of sound that hurt his chest.

The aide saw the needle. His laughing face went grim. Katy, all her vibrant body a golden bow, moved the hand with the needle. The drop of liquid at the tip caught the lights and shone fragmentarily blinding like a nova.

"Porage, porage, have a shot of porage," she chanted.

Gosheron wheezed and shook, his fat face creased in smiles, his eyes avid on the girl's slim body. The aide's hand raked down towards Katy. She thrust and in that instant the other aide, unseen by Lord, fired. His wide beam tore Katy's hand and wrist off. The needle vapourised. She stood looking dazedly at the stump, cauterised already and with no blood oozing.

Miraculously a clearing appeared around the drama. Women screamed. Men swore. There was a sudden, awful, engulfing silence.

Lord's face felt as though a granite crusher had used it for a dummy run. His brain told him that he mustn't allow the Sahndrans to think this an organised attempt on the life of their Ambassador. He had to cover up—fast.

He could not trust himself to speak yet. He shoved roughly into the cleared area, trampling splintered glasses, and took the girl's

body on his arm as she collapsed in a dead faint. He faced Gosheron, forced his rigid lips to open.

"She meant no harm!" He whined the words as though fear and horror stricken. "She wanted to give you a shot of porage—give you a kick. And you blasted her arm off."

Gosheron's smile was now all diplomacy.

"I am sorry for the impetuosity of my guards, but——" He shrugged and ripples of fat ran disgustingly along his shoulders. "We cannot take chances. She should have known better."

"I'll look after her," Lord got out. "My name's Kinroy Tracy, in case you want to pay any compensation."

Then he was pulling away, carrying Katy, her nude gold filmed body cold against his arm. Cold?

He glanced down in panic. Her closed eyelids showed blue where the gold had worn away. She was barely breathing. He scraped a nail across her gold filmed flesh, saw the betraying blue tinge beneath.

The little idiot! She'd been cardio-doping, all right! The shock, with her in that condition .

Before he had left the great ballroom she was dead.

"The filthy aliens!" Lord mumbled blindly to himself, over and over. "They used a molecular on her. The poor kid. Dead. They only needed to knock her hand away. Dead. A molecular. The dirty rotten twisted ."

He sat with her in his arms for a long while, whilst around him beat the insistent roar of the world, going to hell in a bucket and enjoying itself every inch of the way.

Time: 2200.

Spencer Lord laid Katy down gently and walked back into the ballroom to continue protecting the alien Ambassador.

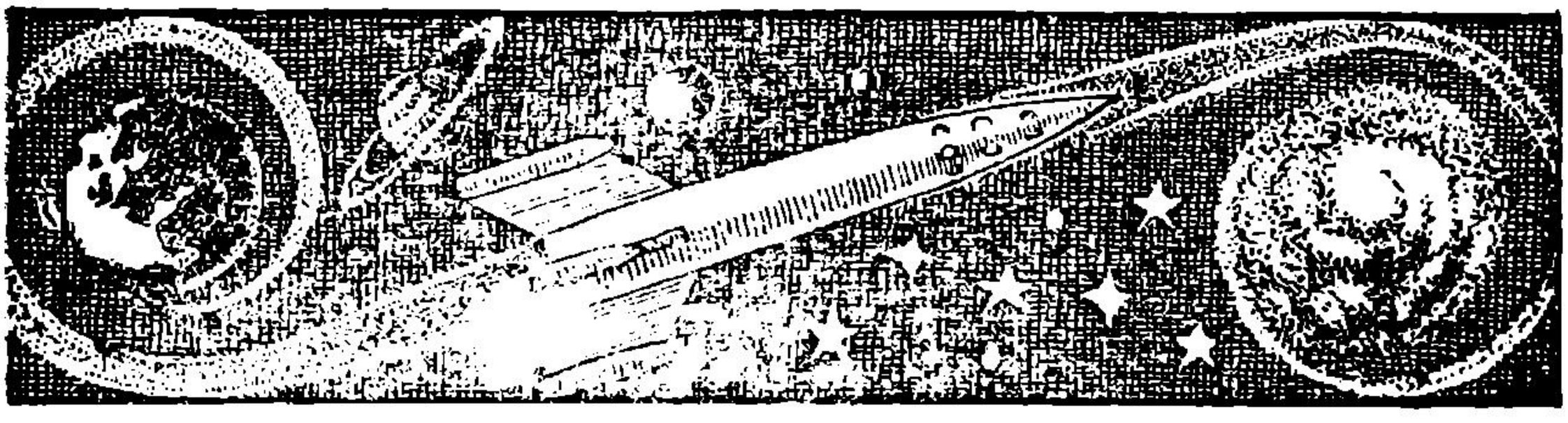
Get a Jab—Get a *Grab*.

On a nu-cle-o-nic Fizz!

Drink, drink, wood al-co-hol!

Going to hell in a bucket.

KENNETH BULMER



ROBERT SILVERBERG

Godling, Go Home!

The time had come for the great test. Would the Earthman be hailed as a god when he returned to these people?

Illustrated by Arthur Thomson

Lieutenant Cartisser moved around the small room in a series of swift, bird-like motions, packing up. The mission was completed.

When he got to the bulky logbook, lying spread out on the black wooden table, Cartisser turned to Private Noble, who was sitting in the far corner reading the Corps Handbook.

Cartisser tapped the log. "I hope you've got it all down here, Lew," he said. "Not so much for my sake, but your own —because you'll be out on one of these planets by yourself soon."

"As soon as I request separation, sir," Noble reminded him; "as soon as I'm ready."

"As soon as you're ready, then. But you'd better know the techniques; it may cost you your head otherwise."

Noble was a bony, pale young man. He had spent the entire mission in a little cabin, keeping a spybeam on Cartisser and studying the Lieutenant's methods in dealing with the natives. Noble was on his break-in cruise.

"It's all down here, sir," Noble said. "Every move you made, from the time you put down in the middle of the city to the time you began the cultural leverage." He smiled confidently. "I'll be ready to go out on my own soon."

Cartisser continued to bustle around, packing up, and answered over his shoulder. "I hope so. All that's left for you is to observe my Return techniques, and then you're entitled to ask for a commission and be shipped out. There's a skyful of planets waiting for the new blood."

Cartisser finished loading the crates silently. When he was done, he turned to Noble once again. "I'm finished; give me a hand, will you?"

Noble put down the Handbook and caught a corner of the heavy crate. Together they lifted it and carried it outside, and over to the camouflaged spaceship where it stood nestled in the violet-leaved shrubbery.

"You look worried, sir," Noble observed, as he and Cartisser strapped themselves in and waited for blastoff clearance to come through from Central by sub-radio. "Are you afraid this culture won't work out properly?"

"No," Cartisser said, smiling. "That's not what worries me; I did a good job here. I think I took care of that cannibalism pattern the way it had to be done—even if I do have to say it myself."

"I thought so too, sir."

"Thanks. But this planet isn't what's worrying me—it's the next."

"Tranacor?"

Cartisser nodded. "Tranacor. It's the first time I've gone back to a planet after setting it up. And I'm worried—about a lot of things."

Cartisser studied his lean, anxious face in the control-panel mirror. At the beginning of the voyage, it had been Noble—raw, green Noble—who had had the anxious face. But now things were reversing; young Noble was growing daily in confidence, as he discovered his own capabilities by watching Cartisser in action. Cartisser was becoming more tense, more worried, as the time came closer to return to Tranacor.

Noble leaned back in his acceleration cradle. "What's the matter, sir? Or is this another of the things I'm supposed to find out for myself?"

"Half and half," said Cartisser, chuckling. "I'm worried about

two things—the time-hop, and the reaction I'm going to get when I show up there again. I can't predict how the Tranacai are going to react to me—and it's unpredictables that really eat into a man, you know."

"What sort of reaction do you expect?" Noble was frowning. He had been prying into the subject of return voyages for months, now, but Cartisser had always refused to give him the answers he needed.

"I don't know," Cartisser said. "I really don't know." He sat back, observing himself detachedly. The mounting tension was causing a tiny muscle in his left cheek to do a dizzy dance. He was worried, all right.

The time-hop was a big factor in his anxiety. It was a hop of five hundred years, and that made him uneasy—even though he had long since stopped worrying on a conscious level about his ever-increasing distance from 3108, the year of his birth. It was now 3518, but the Contraction Effect had obligingly telescoped the five centuries into him.

Still, five hundred years in a mere thirty-nine years for a single hop represented the largest single jaunt Cartisser had ever made, and somewhere on a subliminal level he was worrying about it. The assurance that Commander Jordan of Central and rookie Private Noble would both be making equivalent jumps at the same time kept Cartisser from any real fear; he knew that, come what may, he'd have some link with *now* when he completed his mission to Tranacor.

That was the second part: Tranacor. His first assignment had been to that planet, thirteen subjective years ago, when he'd been as green as the rookie he was now breaking in. And because it had been his first assignment, he had always remained more concerned about what happened to the Tranacai than about any of the other races he'd dealt with in his subsequent missions. Tranacor had been the first stop in a series that had brought Cartisser four hundred light years across space to Delta Canis Majoris IV. During that time, five hundred years had passed on Tranacor.

The return trip would use up five hundred more, thanks to the Contraction. This meant that a thousand years would have passed among the Tranacai since he had left them, promising them he'd return in the distant future.

He rubbed his nose reflectively, and stared over at young Noble, who, as usual, looked puzzled, but not particularly tense. Cartisser wondered if the Tranacai would be glad to see him back.

After a while, the signal came through. "Turn on the screen, Lew," Cartisser said.

Noble flicked on the screen; after the usual lemon-yellow swirl of interference, Commander Jordan's square-hewn features showed up on the viewer.

The Commander smiled. "All set, Lorne?"

"All set," Cartisser said. "Delta Canis was a snap. I think that Noble, here, could have handled them as easily as I did."

"Good to hear it; we're expecting great things from young Noble."

"I'm blasting off with him for Tranacor in half an hour," said Cartisser. "He's going to observe my Return technique. You?"

"I've turned the Command over to Ostwald," Jordan said. "The Extended Cultural Enrichment and Development Expediting Corps is now in his hands, and he's welcome to it. My ship will leave shortly after yours, and I'll be heading for Earth as per plan. Get in touch with me after you're through with the Tranacai, yes? I'm curious to see how they work out."

"I will," Cartisser said stiffly.

"You're nervous," Jordan said. "You shouldn't be, boy. Think of me—you're just going to face a bunch of gray-skinned aliens. I'm going back to *Earth*—an Earth I haven't seen for more than a thousand years! Your problem's a snap compared to mine."

Cartisser nodded, glad that Jordan had broken the tension for him. "I'll buy that; but I'm still a little apprehensive about the sort of welcome I'll get."

"We're all interested," Jordan said, "but don't let it throw you, I was just as scared the first time I made a grand return to one of my planets, but all the doubts were over as soon as I got there. It's the doubt you must be feeling, right? They started worshipping me at once; I was almost a god to them. It all went over smoothly. They were broken down with gratitude that I had come back to them."

"That's what I'm afraid of," Cartisser said.

"It must be a great feeling to be worshipped like that," said Noble.

Cartisser glanced angrily at him, then saw Jordan's hearty grin and said nothing. "I'll be calling you five hundred years from now," the Lieutenant said, after a moment.

"Right. Good luck," Jordan said crisply, and without waiting for any reply broke the connection.

Cartisser yawned. "We'll be ready to go any minute."

"Yes, sir," said Noble. The Private stared at the dwindling spot of yellow on the screen until it was gone, and then looked at the dull blackness of the screen itself. There was something worrying him, too, though he didn't let it show on his face the way Cartisser openly displayed his anxieties. Noble didn't worry what the time-hop would be like—he was too far from his own family now to care any more anyway. Nor was he much concerned with the Tranacai welcome; he was confident that Cartisser could handle any eventuality. No. Not *what* nor *how* troubled him, but—why?

Private Noble sat back, awaiting the blasting signal, his brow furrowed in some of the deepest concentrating he'd done since leaving Earth to join the Corps. There was a gaping hole in the logical pattern that made up his life, and Cartisser's enigmatic answers had done nothing to fill in the riddle of *why?* for him.

The system was a simple one. It had evolved as soon as Earthmen had reached most of the nearby stars—and some of the farther ones—and had found that most of the stars had planets, and most of the planets were inhabited. They also found that the alien life was, without exception, hopelessly primitive in culture and technology.

The first half-dozen planets had all been willing to be taught, though; thus, the Cultural Enrichment and Development Corps had evolved, on the assumption that the myriad remaining planets would be likewise receptive.

It was a two-fold operation. A carefully-trained Earthman, pumped to the brim with the techniques of cultural development, would descend in a red blaze of glory and announce who he was—an emissary from the skies, come down to lead the people to the greater wonders of Civilisation. Generally, the assembled populace would accept him right away; if they didn't, he'd conjure up a few thoughtfully-arranged miracles and they'd change their minds soon enough.

Then followed an intense programme of cultural assistance, in which the primitive peoples were set on the path to civilisation by means of a carefully-designed series of formulas. The local Earthman would instill the desired values, teach a few rudimentary technological functions, and set up some sort of working religion which also doubled as a governing body. The populace would generally regard their Earthman as a gigantic benevolent father-

substitute which in some cultures became, by a natural process, a God-substitute as well.

Once things were moving along smoothly on the path the Earthman plotted out, the local leader would bid his people a sad farewell and ascend to the heavens, whereupon he would head for some other planet and repeat the process. The Corps had the whole operation down to a practically foolproof method.

Cartisser had followed a path straight across the galaxy to Delta Canis Majoris, setting up cultures successfully as he went. Noble had been shipped direct from Earth to hook up with Cartisser, and observe his technique before being sent out on assignments of his own.

They had gone to two planets together, Noble remaining hidden in a camouflaged cabin and watching Cartisser's operations by spy-beam during the day. Cartisser would return in the evenings when possible and compare notes with him. After the two stops, Noble thought he knew the procedure of setting up a culture well enough to step out for himself.

But now came the second part of the operation—the illogical part that had logic-minded Noble asking, over and over again, without getting any satisfactory answer, *Why*?

Cartisser was now four hundred light years away from his starting-point. Tranacor. The schedule now called upon him to make a long jump straight back to Tranacor, and begin all over again. The Lorentz-Fitzgerald Contraction Effect assured that a thousand years would have passed since his departure. He was going back to fulfil his promise—the promise made as prescribed in the Handbook—that he would return.

The Handbook, Noble knew, said that the purpose of the return visit was to see to it that Earth's superiority was maintained and re-established in the eyes of the natives, who were counting on fulfilment of the promise.

Fulfilling promises was one thing, Noble thought, but why the necessity to demonstrate Earth's superiority a second time? A mature society, Noble reflected, wouldn't see any need for that sort of childish showing off. They'd simply set the primitives on their way, and let them alone thenceforth.

Not return and flaunt their superiority again. It didn't figure, there was something wrong, and Cartisser wouldn't explain. "It's a test," was all he would say.

The buzzer clicked, and Cartisser nodded acknowledgment.

"Heading for Tranacor," he said curtly. He grinned nervously at Noble, and depressed the firing stud.

Tranacor was a small, reasonably Earth-type world revolving around a reasonably Sol-type sun, and Cartisser had been happy at the coincidence; he knew that his first assignment in the Corps would have been awkward enough without the additional annoyance of surgical conditioning.

As he brought the two-man craft down neatly, in an obscure corner of the planet, Cartisser allowed himself a moment of sentimental recollection. He thought of the day, thirteen years before (a thousand!) when he had drawn Tranacor as his opening assignment, and he landed brimming with confidence.

Now he was back again—but not so confidently. His fingertips were trembling with apprehension.

The Tranacai were peaceful people. The biggest of them just barely reached an Earthman's shoulder, and most were only about five feet high. They were humanoid, biped, with purple-grey skins, flaring seal-like nostrils, and a wondrously-inquisitive facial expression. Cartisser had liked them from the first, and had somehow always preferred them to the races he had encountered subsequently.

The landing was a good one. Cartisser stepped out warily and glanced around; then he beckoned to Noble, who descended the catwalk rapidly. The warm, sweet air of the little planet started filtering into their lungs. The air was the best part of Tranacor; the land itself was rough and scrubby, with twisted blue-leaved trees dotting the endless plains, and the little creatures really had to work to get any produce from it.

When Cartisser had arrived the first time, he had found the natives industriously scraping away by hand to plough their furrows. Cartisser had changed that. And, as he looked around, he saw that his labour had had effect; long, sweeping rows of the bitter-tasting grain that was the staple of the economy spread out as far as he could see. Before, there had been just scraggly clumps here and there in the farm regions.

"Should we start setting up the cabin?" asked Noble. "I'll go get the prefabs."

Cartisser, staring out, put a hand on the younger man's arm. "No, don't bother, Lew. Maybe this time we'll operate the spy-beam hookup directly out of the ship, without building a cabin. I may not be here long."

"But——" Noble started to protest, and then stopped. He

had already learned that Cartisser generally knew what he was doing.

Cartisser stood there, staring at the bright yellow fields in the sunlight. He smiled. *It must be a great feeling to be worshipped*, Noble had said.

Well, they'd soon find out.

"Get the catapult down, Lew; I'll use that, I think."

Noble nodded, clambered back into the ship, and returned a moment later. They started setting up the catapult that was going to deposit Cartisser in the middle of Tranacor's biggest city, amid a shower of highly-impressive fireworks.

As the catapult whistled him down through the atmosphere again into the capital city of Tranacor, Cartisser couldn't repress a wide-eyed hoot of amazement. Muldonah, the capital "city", had been a conglomeration of dreary mud huts when he'd left. Now, he saw buildings stretching out to the horizon, buzzing vehicles shooting back and forth, and grey hordes of Tranacai streaming around busily below.

And right in the heart of the city was a towering statue of an Earthman. Cartisser knew who it was, and felt a warm glow spread through him. Noble *was* right; it was a great feeling, even though an ominous one.

Just before his final farewell, he had told the High President—a man named Ebli whom he hand-picked—that he would return to Tranacor some day, probably about a thousand years hence. He was keeping that promise.

He plunged down through the sky, trailing bright red sparks behind, and managed to land just at the base of the giant statue. Even the landing jets didn't sufficiently cushion his feet against the impact of the surprisingly-solid pavement, and the drop hurt. Cartisser winked momentarily to show the watching Noble, back at the ship, that he was all right, and then hastily shucked off the catapult harness. He stepped to one side, just in time. The catapult burst into flames and the jets took it up to the sky, in a properly spectacular finale to his landing. He was back.

Cartisser looked around. The people were running up from all over the street, dashing toward the statue as fast as their splay-footed feet would take them. He squinted up, caught the pose of the statue—it was a remarkably fine likeness—and stood there majestically, with his profile outlined sharply against the clean white stone of the statue.

There was no prescribed technique for re-establishment of contact, as there was for making a first landing on a planet. He was going to have to play by ear, for the duration of his stay.

His fingers trembled a little, but he held the pose, feet spread, arm up, palm facing outward and upward. A hum from his suit told him that the amplifier was warmed up, and from force of habit he cleared his throat. The sound went booming all over the city.

Then, feeling faintly ridiculous, he said, sonorously, "O my people, I have returned."

He hoped the language hadn't changed *too* much in ten centuries; he had thoughtfully included a prohibition against linguistic reform when he'd drawn up their code the first time, with just this eventuality in mind. Their language was direct and efficient anyway, and didn't need much changing.

The echoes of his voice ricochetted back from the amazingly well-built sky-scrapers all around, and he waited for the sound to stop bouncing before he spoke again. He could see the expressions of awe on the trusting faces of the Tranacai. They were all herded together in a tightly-packed semicircle, facing him, looking up, and their wide, lidless eyes reflected utter adoration and astonishment. They were muttering his name, over and over again, in their gentle, liquid voices.

Cartisser stood there, watching them worship him, feeling a sense of deep futility sweep over him. This reaction was the most predictable of the possibilities he had envisioned.

Back at the ship, the watching Noble drank it all in, identifying himself with Cartisser, thinking how wonderful it must be to be worshipped that way. Then a hot burst of shame came flooding to his face. *No!* he thought sharply, as he saw Cartisser nodding in acknowledgment of the hosannas. *It's wrong!*

And then that insistent *Why, why?* began pounding away in Noble's head again. *Why* did the Corps Handbook insist on this comic-opera return voyage? Why?

Private Noble shook his head, it made no sense.

He saw Cartisser put up his other hand for silence, and once again the Lieutenant cleared his throat. "My prophecy is fulfilled," he said. "I promised I would return, and I have returned." He said the last three words slowly, extracting every possible bit of dramatic force from them.

The assemblage was overcome with joy; some of the aliens were

down on their stubbly knees, and a few were crowding close, hoping to touch his foot.

Cartisser wondered just how this operation was going to unfold from here. The first logical step was to get to see the local big cheese and find out exactly what had taken place on Tranacor in the years of his absence. Orientation was always the first rule on a strange planet.

"Take me to the High President," the Lieutenant said, hoping they were still calling their big man by that title—a title Cartisser had chosen.

Before anyone could do anything, Cartisser saw the thickly-packed throng give way and split; down the aisle thus formed marched a tall, grim-looking Tranacai in richly embroidered golden robes. He strode forcefully up to Cartisser. "*I* am the High President, O Cartisser. You may come with me."

Good service, thought Cartisser, a little surprised.

The High President spun neatly on his heel and started back up the aisle, heading for a vehicle parked outside the edge of the crowd. His automobile—for such it was—was gloriously ornamented, so covered with gingerbread of one kind or another that it was almost impossible to make out the lines of the thing. And on the door, laid on in some expensive-looking white metal, was a thunderbolt sign that Cartisser had established as his personal symbol. It was obviously a sign of office.

Private Noble, frowning, adjusted the sharp focus of the spy-beam to take in Cartisser's every action.

The High President paused halfway up the aisle and turned. "Please come quickly," he said in an impatient tone of voice, the sort one might use to a dawdling schoolboy. Lieutenant Cartisser followed him obediently through the adoring throng, and Noble saw the shadow of a strange smile flickering around Cartisser's lips. Noble shook his head, thinking that this was a very odd way indeed to welcome a returning Earthman.

The High President's office was in an imposing mansion not far from the centrally-located Cartisser statue. As they drove slowly through the streets, Cartisser noticed little replicas of the great statue of himself in front of every door, and the thunderbolt sign seemed to be equally common. These things pleased him, for they testified to the impression his teachings had left on the planet.

The High President led him into the big building, up a winding staircase, and through a corridor into his office, on the eighth floor.

"In here, please," the High President said. His voice was thoroughly businesslike; evidently he was well prepared for the occasion. He sounded as if he had probably been waiting all his life for Cartisser's advent.

The office was luxuriously appointed, with soft, thick drapes on the walls and a handsome rug on the floor. Every wall and every item of furniture was ornamented with every possible kind of decorative scrawl; apparently the Tranacai had reached that pre-functional stage in their æsthetic development where they regarded overdecoration as an ideal, and blank space with abhorrence.

"Sit down, O Cartisser," the High President said crisply. Cartisser took a seat facing the window, from which he could see the huge figure looming over the square. Its features, he observed, were set in an expression of almost incredible spirituality.

Noble followed Cartisser's glance and saw the statue. He felt himself growing more confused, especially now that he saw Cartisser was so calm. His own confusion increased in direct proportion to the older man's glacial poise.

The Lieutenant had told him how primitive these people had been, a thousand years before. Now they appeared to have everything firmly in hand—including Cartisser.

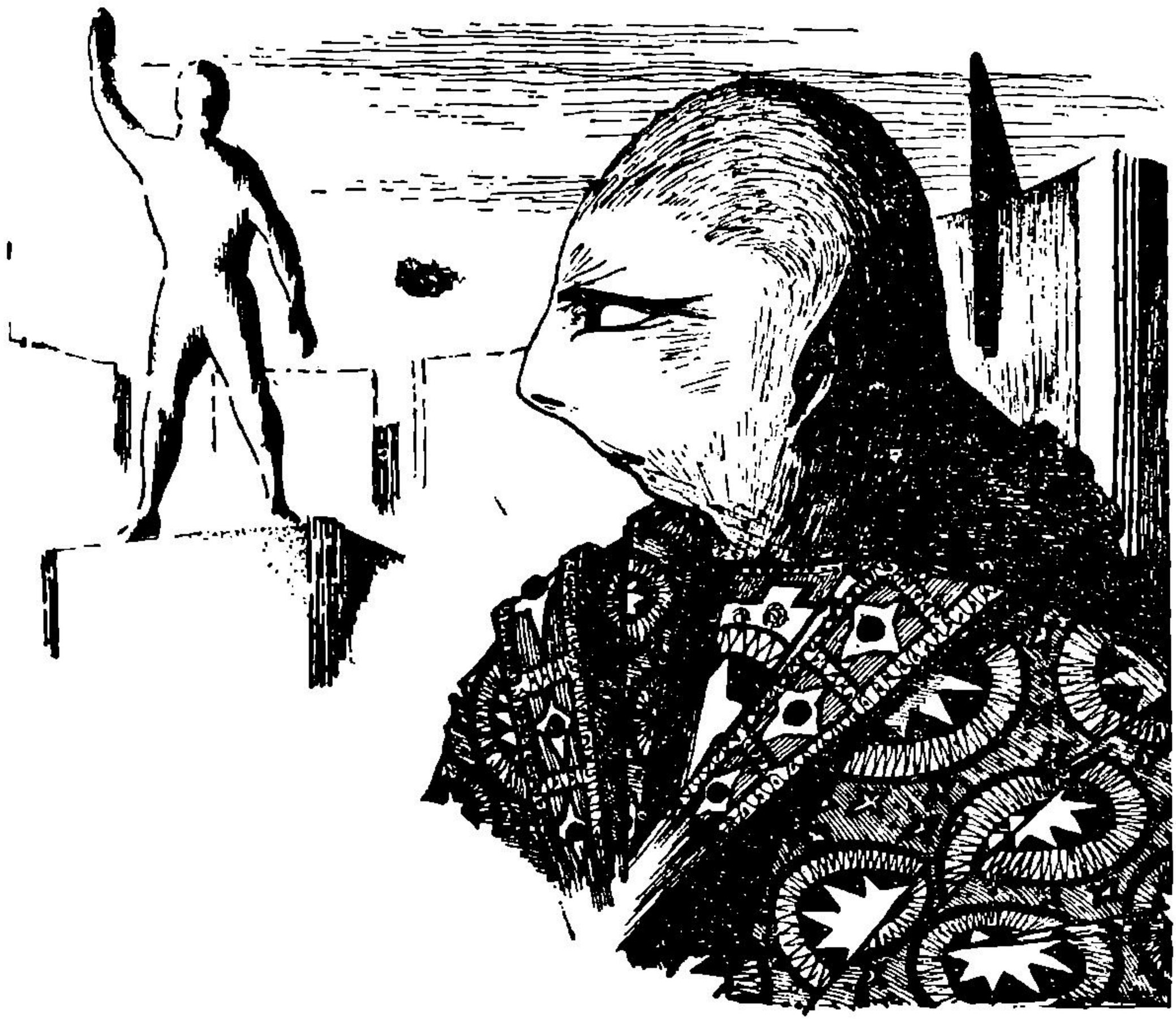
The High President sat down facing the Lieutenant and stared at him for a long, uncomfortable moment. His flared nostrils rose outward and sank back together with each intake and exhalation. Finally he reached for a small image of Cartisser and moved it forward on the desk between them. "This," the alien said, "is you."

Cartisser took the statue in one hand, hefted it, and nodded. "I have returned in fulfilment of my promise of old," he said.

The Tranacai drew in his lips in that puckering expression Cartisser knew was a frown. "I'm aware of that. We have never ceased to believe, since the day of your departure, that one of these days you would return. It has been my most melancholy torment to contemplate the day you actually did return. Today is a tragic day for us."

"Tragic?" said Cartisser. Noble, a silent, disembodied observer, blinked in amazement.

"If you had only not come back!" the alien said passionately. "If you had only remained in the skies, wherever you live—and not returned!"



Noble shook his head, dimly conscious that something was wrong. By all accounts, the Tranacai should be bowing in gratitude; certainly Cartisser had no business letting the alien talk to him this way.

"I am here to continue my work," said Cartisser. His mouth was drawn into a tight slit. "I have new things for you, new developments, new techniques to teach——"

"No! That is precisely why you must not stay. The people love and remember you, and they will allow you to reassume control. They think you are a supernatural figure." The Tranacai smiled confidentially. "*I* realise that you are merely long-lived. But they do not see how wrong it would be to let you take over."

Wrong? Noble thought. *But the Handbook——*

"You want me to leave, then," Cartisser said quietly.

"Please," said the High President. "Immediately. You have fulfilled your prophecy, and returned to your people. What I propose is that you deliver a public blessing, tell everyone how wonderfully we've progressed, and leave at once."

Noble watched Cartisser sit back in his chair, with that strange not-quite-smile curling around his lips. Cartisser drummed on the desk with his fingertips.

"You realise," he said, "that I did not complete my mission the first time—which is why I'm back."

"No," the alien said. "*Your task is finished.* When you departed, you left the reins of government in the hands of your Vicar Ebli I—my illustrious ancestor. Those reins must remain where you placed them."

Cartisser frowned. "Justify that," he snapped.

Now he's arguing, Noble thought. *Why doesn't he pass a miracle? Why is he just taking it like that? He's degrading Earth forever*

"Fair enough," said the alien, "your presence here violates the terms of your own teachings."

"How so?"

"You specified, as a basic tenet of our society, *liberty* . . . Self-determination."

"True," said Cartisser. He had; before he had come, the Tranacai had been locked into a hard-and-fast system of slavery, which he had managed to break down fairly easily when he changed the economic structure of their society. He had stressed the importance of self-determination.

"You made a prediction," the High President said, "it has been fulfilled. We have no room for prophets from the skies. As such, you represent a threat to the liberty of Tranacor, for you will tell us what *is going to happen.* We must not know that, we must be free to decide for ourselves. You told us that with your own voice, long ago."

Cartisser smiled. The alien had reasoned well, they had followed his own code so faithfully that there was no longer any room for him on Tranacor. A prophet was the same as a tyrant, so far as the Tranacai could tell, and they had no use for tyrants—or prophets either, by extension. They saw no distinction between one and the other.

Even Noble saw the logic of that. The High President, wisely, was aware that the people would probably be overjoyed to have Cartisser dictate to them again, and thereby undo the work of ten centuries. Therefore, the alien was making a private request that Cartisser leave.

It makes sense, Noble thought, *from their viewpoint. But is the Lieutenant going to let them throw us out like this?*

Cartisser looked at the alien. The High President was sitting

here, receding jaw set firmly, goggly green eyes glinting in a manner that revealed a strength which hadn't been present in the race ten centuries before.

"You've got no place for me?" Cartisser said a second time.

"None at all. As I said, your work is complete; you have left the administration in our hands, and it must remain there to fulfil your own commands."

"Here is a paradox," Cartisser said. "I commanded you to be free, and so you are removing the source of command in order to insure its fulfilment."

"That is our position," the High President said bluntly.

"It seems absurd," said Cartisser, mildly; "but on the second thought, it makes sense." He stood up. "All right, I'll leave."

What? Noble thought in amazement.

"This is a great burden off my shoulders," the alien said. "I had feared that you would insist on continuing your work here. In that case it would have been very tragic for us."

When Cartisser returned to the ship, Noble was waiting, absolutely blankfaced with bewilderment. Cartisser had delivered a resounding speech in the square surrounding the statue, speaking fulsomely and long, making clear that he had come down from the skies only to see to it that his programme was being carried out in the right way. All was well, he went on to declare, thanks to the fine work of the current High President—whose name, Cartisser discovered, was Ebli XXXII.

Then he had gone up to the top of the statue and, using the small suit-jets, had made a second properly fiery farewell. As he looked down he saw the distant, small grey face of Ebli XXXII below him. The High President was smiling in obvious relief at having gotten Cartisser off his hands so quickly.

When he returned to the ship, the Lieutenant was grinning broadly. "I suppose you saw the whole thing," he said.

"I certainly did!" said Noble. "Of all the ingratitude—to throw you out like that, after all you've done for them! And you let them do it, sir! You let them do it."

"Ingratitude?" Cartisser repeated reflectively. "Now why——? Yes, I guess you could call it that, couldn't you? They rejected me, after all I did for them." He nodded. "Yes. Ungrateful wretches, weren't they?"

"But I don't understand, sir," Noble said miserably. "What are you going to do now? Just leave them?"

"That's what Ebli told me to do, isn't it?"

"But the Handbook—the re-establishment of Earth's superiority—aren't you——"

"No," said Cartisser. "I failed in my mission. I'm going to call Jordan and report this—this failure. Then we set out for Kyron, the next port of call. Maybe *they'll* kick me out too."

It seemed to Noble that there was a trace of bitterness in Cartisser's voice, wholly belied by the untroubled expression of the Lieutenant's face. Feeling impossibly green and bewildered, Noble asked, "And what then, sir?"

"Then? Then, it's on to the next, for me—and perhaps you'll go off on your own by then, if you think you'll be ready to separate from me." He turned to the subradio and started setting up the co-ordinates that would get him in touch with Commander Jordan once again, on Earth.

After some difficulty, he succeeded in getting through to Jordan.

"Well? How'd it go?" the Commander asked, without preamble.

"Complete failure," Cartisser said, speaking much too lightly to suit Noble. "Utter and miserable failure."

Jordan's eyes brightened. "I don't know quite how to take that, Lorne; be less ambiguous."

Cartisser glanced at Noble and said, "I mean it literally: They booted me out. The High President made it clear that he had no use for me, and I left. Noble here saw the whole thing."

"Failure," Jordan crowed. "Our first total failure! How wonderful! Wait till Central finds out." His face was glowing triumphantly. "Brilliant work, Lorne. I'm glad you're the first of us to break through; you deserve it."

"Thank you, sir," said Cartisser. "Will you report it, Commander Jordan? I'll file my report through channels, of course, but I think Central should know immediately."

"Of course," Jordan said, "I'll get in touch with them now. And congratulations, once again, I knew we'd do it eventually." He broke the contact.

Cartisser watched the screen go blank, and then turned to Noble. The thin recruit was standing behind him, with a look of complete befuddlement on his face.

"Tell me sir," Noble said, slowly, almost timidly. "*Why* is

there so much fuss being made over this—failure? I may seem ignorant, but——"

Cartisser sat down and began unlacing his boots. "It was the most complete, utter and devastating failure of mission in the whole history of the Corps. I was received with utmost ingratitude, and booted out. Right?"

"Yes, sir."

"Very well. In every other return voyage," Cartisser said slowly, "the returning Corpsman has been hailed frantically and welcomed with open arms—the reigning priesthood promptly turns the whole shebang over to him, and they're glad of it. On one planet I won't name, one of our boys made his return flight eight subjective years ago, and found himself deluged with so much responsibility that I don't think he'll ever get off the planet again. Or rather, ever *did* get off, since that time-jump we made left him five hundred years back. But you see the pattern: *everywhere*, there's been a triumphant reaffirmation of the Earthman's strength, and the priesthood has immediately placed the whole government right back in his hands."

"Except in your case," Noble pointed out. "You were rejected."

"Exactly. I was rejected, I failed. It was just your luck to draw a lemon as your break-in man," Cartisser said.

Noble moved to the Lieutenant's side with a look of deep sympathy on his face. "Don't let it get you down, sir. So what? So what if you didn't succeed? What does it matter?"

"What's that, Lew?"

"If we handled this aid programme like adults," said Noble bitterly, "there wouldn't *be* any return voyages."

Cartisser stood up again. "There's your mistake, son, that's what may keep you out of the Corps."

"What, sir?" Noble's face turned even whiter than usual.

"You ought to be clicking your heels with joy over my washout here. That is, if you knew what the Corps was all about. But you don't—and if you can't figure it out soon enough, you may be in trouble."

Noble shook his head dizzily. He admitted to himself that he did not know the purpose of the Corps—though he thought he did, at one time—and could not solve the riddle that had been puzzling him since he had entered.

"Sir, I——"

"Let's look at it slowly," Cartisser said, "I didn't get it either, on my break-in cruise. But it's simple enough."

"Well," Noble said helplessly, "you're all excited because you failed to re-establish Earth's superiority. But that's just what I don't——"

"Forget the re-establishing," Cartisser snapped. "I went to Tranacor the second time with just one hope in mind: *that I be thrown out*, as fast as I showed my face. And they did it. That's the big achievement."

"Getting rejected?" Noble said. "I feel half-sure of what's going on, but I can't put the pieces together."

"Look. I was rejected—that's the only datum you have. Very well—what did you think the Corps was doing? Building a Galactic Empire for Earth? We've been trying to *develop* these races, not exploit them. And to develop them, we've got to set them on their own feet. There. Over to you."

Noble's face creased in a wide grin. "I see it now," he said eagerly. "Whatever you taught them when you were there, plus whatever natural qualities the Tranacai themselves had, succeeded in turning the trick. For the first time we—the Corps, I mean—strengthened a race to the point where it no longer needs us, where it can take over for itself, without further external guidance!"

The answer to the riddle had broken through to Noble, and he was practically glowing with the new knowledge. The realisation of the true purpose of the Corps sent a chill running down his back. "I see the picture. It's a *test*, all right, the race that kicks its Earthman out passes the test. When you went in there, the very thing you were hoping for was the last thing I expected. You *wanted* them to be ungrateful; it's the first step in growing up."

Cartisser was smiling broadly. Noble looked at him. "What about the other races you've been to, sir?"

"We'll know soon enough. It won't necessarily follow that they'll pass the test; their genetic makeup has more to do with it than whatever I was able to implant in them by teaching."

"I see." Noble fell silent for a moment and then, as a new thought struck him, he started to laugh.

"What's wrong?"

"Nothing, sir. It's only that—I had been afraid to request separation and commission, because I didn't want to hurt your feelings by going out on my own too soon, but now I see there's no

point in staying with you anymore. *I've* been tested, too," Noble said, chuckling. "But I'm going to reject you; I'm going to be ungrateful also. This is the last trip we're making together, sir. The next time out we'll go our separate ways."

Cartisser nodded. "You'll do now," he said. He started setting up the blasting pattern on the jets. "Welcome to the Corps. We've succeeded *once*, and that's a step toward our goal of a galaxy full of independent races, but that's only one success. We need more, infinitely more. People like you and me are going to supply them." He frowned. "We're not even sure of the one success we have, you know."

"You mean there's a chance of failure on Tranacor even now?"

Cartisser strapped himself down. "Of course," he said. He reached out and let his finger hover over the firing stud. As he started to push down, he said, "This may be only a false development, Lew. We won't be sure until—until they start sending out missionaries of their own. Then we'll *know* we've accomplished something!"

ROBERT SILVERBERG

JOHN KIPPAX

End Planet

The problem of this little planet had been solved by the infinite patience of alien minds—and then the Earthmen landed with their lust for blood

Illustrated by Arthur Thomson

The brilliant sun shone in kind splendour upon the green luxuriance of the planet's subtropical belt, dappling the deep forest of the lush valleys where a million butterflies and diptera fluttered and hummed, strong of wing and durable of life. Here, where death was so rare, moved the large slow herbivores, the chyraxes, and their smaller cousins the ochraxes and all the descending scale of peaceful life down to the little lizard-like achaxes that darted and sported in the bursting green. Upon the hills the vegetation grew sparser, and the red of the rocks, here and there touched with yellow, showed with an almost opalescent glare in the strong light. Away to the north low red hills became larger and bluer, until they merged finally into the pale mauve of the clear sky.

Half Crow stood in a clearing near which a stream ran dimpling: the pink and gold translucence of him was reflected upon the pale green grass. He was not of this planet, but it was partly his respon-

sibility, along with Long Yell, Tallpot, Footping, Troppo and Wallache. They were not with him, but Half Crow was aware of what they were doing, even though his attention was concentrated upon a small group of arachnid-like creatures in front of him, working busily on the broad leaves of a plantain-like growth. He shielded his own mind as he listened to their tiny thought streams, and a feeling of satisfaction filled him as he watched the creatures at work.

"Wind tightly!" communicated one large green arachnid to his fellows.

"This plastic is good," said another, as four of them strove to enclose the newly dead vole in a mixture of their own building secretion and the plastic supplied by Half Crow. When they had finished they sat round the body and waited for Half Crow to communicate.

Half Crow said, "That is good: leave where there are burying beetles, and that will be fine."

"But, is covered so that beetle cannot eat."

"The beetle will not know that. You arachnids, you know your work now. Your ability to understand us, almost alone on this planet, is very valuable: it has gradually increased to this wonderful pitch. The price of life is eternal vigilance, eh?"

The arachnids answered, almost, it seemed, with pride, "We conquer the dead."

"And you had better," said Half Crow. "Dismiss," he said. "And obey your group leaders. Be swift, and careful. Wait, take some plastic with you. I will keep you supplied. You are among the first of many such workers." Half Crow seemed to thrust part of himself within himself, and produced a ball of plastic: the arachnids received it with enthusiasm, and scuttled away. Then Half Crow swelled a little, and the nebulous glow of him grew brighter, momentarily, for now he was in touch with Long Yell and Tallpot, who were on the other side of the planet.

"There's a chyrax here that has broken its neck, Half Crow."

"I'm tired: must I transport there? Is there no hope of revivification?"

"None: the main vertebral nerves are severed. We and the arachnids here can get the job done before sundown."

"You know what will happen if they don't," said Half Crow. "Good creatures, these arachnids. We should have started this before."

"Oh, yes!" That was Tallpot answering now: he was an excitable being, and tended to communicate at an uncomfortable strength: "The arachnids *could* do this job all by themselves!"

Half Crow said severely: "Very well. But it only needs one mistake, and then goodbye to research and everything here."

Long Yell said, "We will see that the arachnids appreciate that their efforts are eventually in their own interests."

"Hum. Don't try to teach them too much, or they might get the idea that it might be fun to let an accident happen so that *they* could be lords of the planet. Where are Wallache and Troppo and Footping?"

"Uniting minds to receive from home," was the answer: "I keep getting stray thoughts, but they've not separated yet."

"I think it will soon be safe to leave this planet to look after itself for a while," said Half Crow. "The arachnids are improving rapidly. We could leave them dumps of plastic. And we shall have to go home soon so that we can jab the Research foundation where it hurts."

"How *right*!" cut in Tallpot: "When you think of the trouble we had in teleporting that whole chyrax home so that they didn't have the excuse of having to work second hand, I think that the delay is inexcusable."

"You know how it is with the Foundation," said Half Crow. "Stodgy minds in stodgier plasm. I'd like to see some of them doing this job. Some of them have never——"

Tallpot made an exclamation, something between a gasp and a sizzle. His companion Long Yell, and Half Crow from round the planet, asked what it was.

"There!" said Tallpot. "There it is again, like a small feeling of something unburied, but coming from above!"

"It was probably a dragonfly," said Long Yell soothingly. "They often have sad thoughts."

"No," insisted Tallpot. "It had a *constructed* and a *guided* feeling about it." Half Crow staggered slightly as Tallpot forgot himself and communicated violently. "Look, something flashed above! Come here and see, Half Crow!"

"What is the matter with him, Long Yell?" asked Half Crow.

Long Yell answered doubtfully, "It could have been something: I sort of felt it——"

But at this point a jumble of angry thoughts came from Footping, Wallache, and Troppo.

"Stand by,—we are jumping."

"Jump to me, all of you," ordered Half Crow. "You're all younger than I am: my time for rehatching is near."

Five other pink and gold translucent shapes joined him.

Half Crow said, "Come to the point at once: well?"

Footping replied seriously, "It boils down to the fact that they could find no clue at all in the body of that chyrax."

"As expected," gloomed Half Crow. "One mistake, and that will finish things here. With all the specimens of warm blooded creatures they've had look here: you three, Footping, Troppo and Wallache, there's only one thing to do. You must go straight home and demand audience with the Top Being. Can you manage it at once?"

"Three make one," said Wallache. Three of the shapes grew together, shimmered, and were gone. The sun was now at its zenith, and the remaining three looked at times as though they were part of the heat haze.

"Meanwhile," said Half Crow, "we shall have to rely on our little helpers and our own vigilance. Let us go and see how the arachnids are getting on with the chyrax what *is* the matter, Tallpot?"

"That feeling," said Tallpot. "Just as though we were being watched. ."

"I wonder if they know," murmured Ballard, "that they're being watched." He glanced out at the green and blue ball around which the *Stargirl* was orbiting, and then turned his attention to the still photographs that Haynes had extracted from the reports brought in by the flying eyes.

"You stick to semantics," said Haynes, "and leave the ET life to me: do these things look as though they *know* anything?"

He showed pictures of the chyraxes eating leaves: they were like small furry brontosauri, and he went through the pictures by way of the bear-like ochraxes to the smaller creatures the nature of which could scarcely be discerned.

"They don't look very bright," said Ballard, "or dangerous: what do you think?"

Before they could say more, a buzzer sounded in the cabin, and a number flashed. Haynes stuffed his pictures into an already bulging folder and made for the door.

"Pull your finger out: big chief wants us for pow-wow." He bared his teeth in a fearful smile: "Be charming."

Ballard and Haynes went aft. Being young men and good at their jobs they did not fear Commander Devine as much as some did. The *Stargirl* belonged to Star Trade Incorporated, a vast organisation comparable to the old East India Trading Company of long

ago. However much it aped regular Space Corps methods, nothing could disguise the fact that STI was out for what it could get wherever it could get it. For the crews of its ships the pay was good, the ability not to ask too many questions was obligatory, and as far as the officers were concerned at least this had to be coupled with a fixed restraint against hurling something not in free fall right into Commander Devine's face.

Ballard and Haynes, both tall, the first red and freckly, the second dark and brown, knocked and went in. They each threw up a salute to Devine, who was surrounded by a knot of his top men. There were Jansen, the fat balding geologist, Corry, the physicist, short and thick spectacled, and some more, including Ford, the psycho and a flurry of juniors. Devine acknowledged the salutes and returned to his attack on Jansen, using his rasping voice for its maximum irritant effect. His hard mouth and leathery face seemed grimmer than usual as he spoke.

"Boil it down! Either you know or you don't. Three days we've been in orbit, and still you haven't got the rare metals plot done! It's fantastic!"

Jansen, who had not been with the company long, did not seem to want to be cautious, or to remember that with this company not only could you become redundant very quickly, but you got blacked with other companies as well.

"If the strata fall so that detection through radiation is blanked, then a full scale ground survey is the only thing."

"And how long do you think that would take?"

"Six months."

"Six *what*?" snapped Devine.

"Months Earth," said Jansen. "If you'd taken notice of me when I told you that we ought to have the new type flying eyes——"

"That'll do! So now we haven't got the right kit, eh? If you don't like the company's methods, why come and draw its pay?" Devine was a director, so he was fireproof. "Listen: this is a trading company: immediate profit, that's what we look for: animal, vegetable and mineral assessments, and off we go to size up another world, leaving the graft to the cargo people who follow. And *that's it*!" He stabbed a finger at Jansen. "And no careless talk to UN stooges when we get home, see?"

The rest of the company waited with various degrees of patience for the display of bad manners to cease.

Jansen said, "It's not my idea of the right scientific——"

Devine made a rude baaing noise at him, then waved at the others. "Sit down. Now, let's have it."

A junior read the data, while packs of photographs were passed round. The planet was number four of nine round a white sun. The gravity was seven-tenths, the rotation was twenty-seven hours, axis inclination three and a half degrees earthlike atmosphere, twenty-nine per cent. oxygen, humidity average temperature at equator, eighty-one degrees fahrenheit . much old carboniferous type forest, parkland swamp . largest creatures, apparently six-foot herbivores, fur-bearing, probably warm-blooded and viviparous "We'll go down," said Devine.

Jansen, with a straight face, said deferentially, "The full drill, sir, of course?"

Devine knew what he meant: if there was any sign of intelligent life it had to be consulted and if that life could be said to be in possession of the planet, it must be carefully dealt with under the UN Charter of Alien Rights. That was the law, but Devine had been known to bend it.

"We always do," said Haynes, showing no expression.

"Yes," said Devine. "But don't let anything get in the way." He avoided looking at anyone as he spoke, and in a flash Haynes saw behind the façade a man pursued by the rapacity of his company and the fear that, one of these days, someone who knew would blow on him.

Devine's slap on the table was the signal that the conference was ended.

"Six hours then? Right."

Half Crow, Tallpot and Long Yell transported to the other side of the planet to see how well the arachnids knew their jobs. The three appeared in a wide stretch of open parkland where tall spiky trees dotted the grass and animals grazed peacefully.

"Ah, excellent!" said Half Crow.

The dead chyrax was now embalmed in plastic, and hundreds of arachnids swarmed over, making sure that the seal was complete.

Long Yell put out a thought, and the leader arachnids scuttled forward, and waited round him in circle.

"Yes, Long Yell?"

"This is very good: now, are you ready to be transported to other parts of the planet, so that you may train others?"

They were ready.

"You distribute plastic, Tallpot," said Long Yell. "And please, Half Crow, you line them up while I do the sending. . . Ready?"

In less than twenty seconds that same number of arachnids had been transported to places on the planet where the warm blooded creatures were most plentiful, and where, therefore, danger might suddenly arise. Half Crow surveyed the early morning scene, and said, "I feel *better* about things."

"You know," said Long Yell thoughtfully, "we ought to consider giving the burying beetles a brain. After all, with a few thousand squads of those creatures, there's no reason why——"

"Expense," said Half Crow: "The Council would never do it."

"Especially," added Tallpot, as he let himself flow a little over the thick grass, "as this is all a short term policy, until we find out what causes the warm blooded creatures to transmit——" He stopped abruptly and rose until he was a thin piece of shimmery colour, his mind probing anxiously upwards. The others felt it from him.

"That's it again!" said Tallpot, "I tell you, we *are* being watched!"

"Form minds!" ordered Half Crow, and at once their separate intelligences grew together. Though they were thus integrated, their personality differences remained clear as they probed.

"It descends through the atmosphere!" said Half Crow.

"One, two, three of them!" said Tallpot.

"Things *made*!" said Long Yell. "Of groundstuffs!"

"They have something like our gravitic power then," said Half Crow, "although this power does not come from beings, as it does with us: it too is *made*."

"Amazing," said Long Yell, "I thought that beings were either with it, or not with it. They *make* it!"

"Let us think inside these things!" commanded Half Crow.

"Flesh and blood creatures," said Tallpot. "Amazing. Bones, nerves, muscles and a brain,—oh!—a much bigger brain than the chyraxes. Wait until the Research Council hear of this!"

"They would want specimens," said Long Yell. "And if you think I'm going to waste valuable energy on that lot of——"

"Concentrate!" said Half Crow. "These are high intelligences, and difficult to penetrate. It is like the chyrax brain, when we are unable to penetrate due to maladjustment or unhappiness."

"A very great mind is there," said Long Yell. "I can sense one returning data so fast that——"

"No, *no*!" said Tallpot. "That is a brain made by the flesh and bloods. ."

They watched the three boats come down through the thickening atmosphere of the planet. First one boat, which came slowly down and settled in the glade. Antennae and thick tubular things sprouted from it. Then it was joined by two others.

"Let's move," said Half Crow.

They teleported under the trees for a short way.

"I could feel it," said Long Yell. "They had a sort of eye intelligence surveying us. That means we are observed."

"Never mind," said Tallpot. "We shall have to meet them sooner or later. We cannot let them remain in ignorance of the position of flesh and blood here."

"But caution will be necessary," said Half Crow. "With all these made extensions of self, they are very nearly our equal."

"But they do not have our harmony. Try a few brains," said Tallpot.

Half Crow said, "True—they are under compulsion from someone."

"Thoughts!" said Tallpot. "Attend to them!"

Shall we recce for life forms now or later?

"Of course," said Long Yell thoughtfully, "they regard air breathing flesh and bloods as the *natural* form."

Yeah, find something with spikes and teeth for Devine.

"Incomprehensible," said Tallpot.

"Those big things are energy weapons of some sort," warned Half Crow. "We must be careful."

Air humidity tests confirmed: no masks. Hand weapons, A and Cc detectors.

One opening up.

And two.

Three opening up. Reserves on guns.

"Oh dear," said Tallpot. "If there is violence, what will happen to our work? Should we ask for instructions? Footping, Troppo and Wallache should have had time to explain to the Council by now. Oh dear! The arachnids cannot deal with more than the normal rate of . oh no, they must *not*!"

"Well," said Half Crow, "they are out now. Strange as they are, let us remember that they are intelligent."

"See the things they take out. Let us grow together, and see if there are thoughts that we can get at to tell us intention and purpose."

They took Tallpot's suggestion. Their minds became as one as they huddled in a shining group in the soft green shade.

"The angular lumpy things contain apparatus for making holes. Extraordinary. Agreed? And the things on legs are for—some sort of measuring. And see, there are some that chase the little bright fliers, with catching things. Agreed?"

They separated. Half Crow said, "I believe, I hope I'm right —that the hole making thing is for finding the shiny rock. I don't know, but I think they want the shiny rock. It is so difficult: intention is so hard to discover. But if we went out, and we tried to show them where the shiny rock is, then that would be good?"

"Dare we?" asked Long Yell.

"We must!" said Tallpot. "Quite obviously, we have got to tell them, *somehow*, of what they must avoid——"

"You are presuming intention on their part," said Half Crow.

Half Crow said, "Come along."

When they showed themselves at the edge of the clearing, gliding like pinkly golden ghosts, the visitors came into a startled huddle, and things on the boats swung and pointed.

" Let us move gently," cautioned Half Crow. " I do not think there is danger. Think with me."

Half Crow, Tallpot and Long Yell, having stopped for a moment in front of the earthmen, moved to where the electronic drills and supplementary equipment were parked. They examined the gear, and the earthmen came behind them.

" For digging down, I am sure," said Long Yell. " No intention thoughts that we can get at here. But we know that the hills over the trees have the shiny metal: how shall we tell them?"

For answer Tal!pot began to scratch on a bare patch of ground a series of shapes rather like irregular waves. He pointed to these, and then to the hills beyond. He did this several times. Suddenly excitement thoughts flooded out to them.

" They know!" communicated Long Yell.

" Agreed!" said Half Crow.

" Now," said Tallpot, " let us show them the arachnids, and see if we can show them how vital it is to them!"

So the three walked a little way from the earthmen, and then stopped, and walked a little way again, and stopped, until the visitors began to follow. Under the trees, until they knew they were near the arachnids. Half Crow called out the little creatures, and explained that they wanted a demonstration. Then Half Crow called a vole-like creature, and he thought it dead, and the arachnids went to work.

Half Crow said doubtfully, " I don't think that they understand very well——"

" Oh!" said Tallpot. " Can you feel this new something? Another one of them arriving—and I can feel his thoughts!"

" So can I!"

" So can I!"

" He is so maladjusted," said Tallpot. " Now we can learn."

Out in the clearing a small boat disgorged Devine and a junior officer.

I want some of these big animals here, on the picture, caught at once, killed and opened up. Complete analysis to go home by sub radio. Looks good: maybe they'd even be edible. Important, that.

The new earthman came up to the others, and they made gestures to him. But Tallpot, Half Crow, and Long Yell hardly noticed. They were reeling. They reeled off into the forest.

" There is only one, *only one thing*!" said Half Crow. " We

must herd the chyraxes so that they do not ever come near these creatures. For they will be killed, and that we must not allow!"

"Agreed," said Tallpot.

"Agreed."

But at that moment each was taken with a vibration of which he knew the meaning.

"Form minds," said Half Crow.

They did so: they reeled again at the message.

"Return home: *at this time!*"

"No!" hurled Half Crow. "Catch them before they stop sending, catch them——!"

"Too late!" groaned Tallpot. "You were right. Stodgy minds in stodgier plasm. What a time to call us for conference."

There was no thought of disobedience.

Leaving the planet, they commiserated with one another.

"I'm glad we tried, at least," said Half Crow. He gazed at the beautiful ball below them.

Long Yell was sad. "What good now all our isolation of the dead, and all the processes we had envisaged?"

Tallpot said, watching the ball grow smaller. "There are other planets." They passed close to the orbiting *Stargirl*.

"They will have had time by now to kill a chyrax," said Half Crow. "I wish we could have warned them, but *how* would it have been possible? How could we have made them understand that on this planet, what they call death is infectious?"

JOHN KIPPAX

• • •

BERTRAM CHANDLER

Motivation

On this planet, where the realities of war were unknown, its imminence could be of no more than theoretical importance

Illustrated by D. McKeown

When Captain Mora set the star tramp *Delta Sextans* down at the Lauristane spaceport he was a badly shaken man. It was not that this had been his first landing on a strange planet—as Master of a vessel with no scheduled run he was becoming used to the experience. It was that he had made the voyage from Nova Caledon to Lauristane with no Psionic Communications Officer on board and so, having been cut off from all news whilst running faster than light, had been both surprised and pained to find himself, on re-entering normal Space-Time, in the middle of a Huqua invasion fleet. The Huqua warships could have destroyed *Delta Sextans* with ease—but had they made the attempt they must, inevitably, have caused severe casualties among themselves. To send a boarding party had been the only course of action open to the Huqua High Commander, and to slip back in the warped Space-Time induced

by the Interstellar Drive had been the only course of action open to Captain Mora. To start a Mannschenn Drive unit is a procedure that cannot be hurried, and the Huqua Marines had already started burning operations on the main airlock outer door when *Delta Sextans* slipped quietly back into her own private, cockeyed Continuum.

Captain Mora did then what he would never normally have done, what no shipmaster in his right senses would normally have done. He made the run right through the planetary system, almost to the outer fringes of Lauristane's atmosphere, under Interstellar Drive. Luck was with him; he hit nothing, neither meteorite nor interplanetary traffic. He had another bad moment, however, when, shortly after he had established himself in an orbit around Lauristane preliminary to landing, the Lauristanians opened fire from one of their space stations. He managed to flash his identification before once again having to recourse to the Interstellar Drive—this time, with his first frightening experience still fresh in his mind, it had not been properly shut down. His return to the orbit was not greeted with a further salvo of guided missiles; he received, instead, orders to set his ship down at Port Wilberforce without delay. His queries as to what was happening, and why, were ignored.

The landing at Port Wilberforce went without a hitch. *Delta Sextans* sat down heavily, but not too heavily, on her vaned landing gear, shuddered, sighed and creaked. Captain Mora settled back in his heavily padded chair, shuddered and sighed. He was too fat a man to creak. He looked through the wide Control Room ports to the squad of smartly uniformed figures marching briskly from the administration buildings towards his ship. They seemed to be armed—the late afternoon sunlight was reflected from what could only have been weapons.

"What sort of world *is* this, anyhow?" he demanded of Willis, his Mate.

"You know as much as I do, Captain," replied Willis. "The Pilot Book doesn't tell us much except for navigational data. It's one of the so-called experimental cultures . ."

"And what *is* an experimental culture," asked Mora.

"I was on Rousseau a couple of years back," said Willis. "I was Second Mate of *Epsilon Draconis* at the time. They had an experimental culture there. Anarchism. No laws. No policemen. Everybody, in theory, sufficiently high minded to act only for the greatest good of the greatest number."

"And were they?" queried the Captain. "Never mind answer-

ing—get down to the airlock and receive the Port Officials. Shoot the high brass up to me and look after the others yourself."

He heaved himself up out of his chair, waddled from the Control Room to the companionway that led to his own comfortable quarters. He seated himself behind the wide desk in his day room, checked the ship's papers that the Purser had set out ready on the polished surface. He pulled open the special drawer, brought out bottles and glasses, cigars and cigarettes. He had just finished lighting his own cigar when there was a rap at the door. In answer to his "Come in!" the Purser entered, followed by four uniformed officials.

"Good afternoon, gentlemen," said Mora. "Be seated."

He looked at his visitors curiously. The small man, even if one ignored his uniform, was obviously the Port Master—he was so typically the space man with a flair for planet-based administration. The even smaller man needed no insignia to proclaim the fact that he was a member of the Space Navy. The other two were soldiers. They looked like brothers. Save for a small difference in age they could have been twins.

"Captain Mora," said the Purser, "let me introduce Captain Smith, the Port Master, Commander Jones, of the Contraband Control, Colonel Robinson and Major White."

Mora shook hands with his visitors. He was worried by something, but found it hard to define. The handclasps were firm enough but, somehow, lacking in character. For a moment he had the wild suspicion that he was entertaining four robots, but dismissed it as absurd. The officials accepted drinks and smokes, which was proof enough of their humanity.

"I wish to make a complaint," said Mora to Commander Jones.

"Indeed, Captain?"

"Your equatorial space station fired on me."

"You sent no prior warning of your arrival," said Jones.

"I could not, Commander. I had to leave my Communications Officer on Nova Caledon. He got himself involved in a bar-room brawl there—as you may know, the Nova Caledonians don't like telepaths. But that's beside the point. First of all I re-enter normal Space-Time—well outside the orbit of your tenth planet, it was—in the middle of a Huqua fleet out on manœuvres; the damned pirates had the crust to send a boarding party to try to seize my ship! I get away from them and take the risk of running right through your system under Interstellar Drive. I prepare to make

planetfall—and then some clot starts lobbing guided missiles at me!"

"And were you really surprised, Captain?" asked Jones.

"Yes. I expected the Huquas to act as *they* did—you know as well as I do that they're a nasty, arrogant, suspicious shower of bastards. But I never expected my own people to be so trigger happy."

"But don't you know that there's a war on?" asked Jones.

"A war?" repeated Mora. "A war? But there's never been an interstellar war."

"There's a first time for everything," said Colonel Robinson. "While you were bumbling along happily through Deep Space, out of touch with everything, the shooting started. As you know, in this sector of the Galaxy the two expanding cultures, the Huqua Empire and our own, have already come into contact. We're both of us oxygen breathers, carbon eaters. The Huquas want the same worlds as we do. They've already taken Innishame, and bitter fighting is still in progress on Graeme. As *you* know, the invasion fleet is on its way here."

"My ship," said Mora, after a long pause, "is at your service for the evacuation of non-combatants."

"Your ship," Jones told him, "is now a unit of the Lauristane Navy."

"You have no right ." began Mora.

"The legality of our action may be open to doubt," said Captain Smith. "But we are fighting Earth's battle and have every moral right to expect her to make some contribution to the common cause."

"I register protest," said Captain Mora stiffly. "Mr. Kent, see that the proper forms are prepared for my signature."

"Very good, sir," replied the Purser.

Talking it over later with his senior officers, Mora had to admit that the action of the Lauristane authorities had been morally, if not legally, correct. The clash between Men and the Huquas had been inevitable, and it was just *Delta Sextans'* bad luck that she had become involved in it. It was hard for her crew to adopt a philosophical attitude—Solarians all, they did not relish the prospect of being stranded light years from home for an indefinite period. Intellectually, they realised that the war was as much their concern as it was of the Lauristanians. Emotionally, realisation was hard to achieve.

They had one last night aboard their ship before she was taken over by the Navy—one night in which to pack their personal belongings and to make an inventory of all stores and fittings. Even if shore leave had been allowed they would have had no time to avail themselves of the opportunity. They would have had little inclination either.

The following morning the helicopters dropped down to the spaceport to pick up *Delta Sextans'* crew and their baggage. Mora was the last to leave the ship; his was the task of escorting Jones and two Lieutenants who could have been the Commander's younger brothers—although one was named Brown and the other Wade—through the empty and echoing alleyways and compartments. When at last he walked down the ramp from the personnel airlock the work of discharge was well under way. He noted that cargo consigned to Graeme and Innishame was being put ashore with the Lauristane shipment and sighed as he thought of the paper work that this would involve. But Innishame had already fallen to the Huquas, and Graeme, Jones had told him, could not hold out much longer. Worse things had happened, and were happening, and would happen to their colonists than a mere accretion of clerical toil.

The first two helicopters lifted as Mora approached them. He clambered heavily aboard the third and last one, sat down beside the tall, gangling Willis. The door slid shut, the machine shuddered as the rotors started to spin. Both men looked out through the port at their ship; to them her squat, meteor scarred utility was beautiful.

"What will they use her for?" asked Willis.

"An auxiliary cruiser," replied Mora.

"You'd think they'd have taken us over with her," said the Mate. "After all, we know her."

"I raised that point with Commander Jones," said the Captain. "I thought that he'd have jumped at the idea—but he wasn't a bit keen. As far as I could gather it's just the old *Delta* they want—we're just a nuisance."

"We're trained spacemen," said Willis. "We may not be too good at handling weapons, but we can handle ships."

"That's what I told him," said Mora. "But they just don't want us."

The helicopter lifted, drifted away from the spaceport. Mora and Willis stared glumly at the scenery. There was little to interest them—Lauristane had nothing spectacular in the way of moun-

tain ranges or other extravagances of Nature. Too, Lauristane was a thoroughly Terranised planet. There would be reserves, the spacemen knew, in which the indigenous flora and fauna would be allowed to flourish, but the helicopters passed over none of these.

The airport at Grahamstown, the capital city, held nothing of interest. The administration buildings were like airport administration offices on Man-colonised planets the Galaxy over. The aircraft were all standard jobs—helicopters and jets and rockets. The ground cars that took them into the city displayed no novelties in design or propulsive mechanism.

The city was just a city. It was well laid out, with wide, tree-lined avenues, frequent parks and buildings that were functional without being displeasing to the eye.

"There's no character," complained Mora to Willis. "I know that it's new—but, even so, there should be more character."

"It's the people," said Willis. "You must have noticed, Captain. They're all far too much alike. The pilots of the three helicopters that brought us from the spaceport could be triplets. The same could be said for the drivers of the ground cars—except that there's six of them ."

Their own driver turned his head briefly. "And why not?" he asked.

"It's not It's not natural," said Willis feebly.

"Why not?" asked the driver again.

Mora was relieved when the car drew up before a hotel. He got out on to the sidewalk, followed by the Mate, his two Chief Engineers and the Doctor. He waited until the other cars had stopped and the rest of his crew had alighted.

"This is where they're putting us up," he said. "The local authorities are paying all reasonable expenses."

He saw to it that all hands were comfortably lodged then, with Willis to keep him company, set out to explore Grahamstown.

His first impressions had been correct. The city was a fine example of planning, but it had no character. Neither, he decided, had the people. The streets were full of men and women in uniform—Space Navy, Air Force, Army and Space Marines—and they were all, decided the Captain, far too much in uniform. Their uniforms, he said to Willis, didn't stop at the skin.

"Look at these soldiers," he said. "As alike as peas in a pod. Strip 'em, and you'd still know that they were soldiers. The same goes for the spacemen and the airmen."

"Just what I've been thinking," agreed the Mate. "All this walking has given me a thirst, Captain. What about having a drink or two at this bar?"

"We'll charge it up," said Mora almost happily.

They went into the bar. They sat down at a table. A waitress—"Could you imagine her as anything else?" asked Willis—brought them beer.

The Captain took a deep pull from his mug.

"Even the beer is standard," he complained.

"It's not sub-standard," pointed out Willis.

"It'll have to do," said Mora. Then—"But what do you make of this odd set-up, Willis? What do you think is the cause of all this sameness?"

"I think it's fairly obvious, sir," said the Mate. "In theory a single pair—one man and one woman—could colonise a planet. That hasn't happened here, of course—but the original colonisation must have been by a very small number of couples."

"H'm," grunted Mora. "Quite feasible—except that they'd never have had the time, even if they'd bred like rabbits. Bear in mind that this world was discovered only forty years ago Come to that—we haven't seen any old people ."

"There's one," said Willis.

Mora looked at the man who was walking slowly into the bar. He was tall and thin, a pronounced stoop detracting from his height. His hair was white, his face lined. Only the blue eyes in the dark face were youthful.

The man made his way to their table.

"Do you mind if I join you, gentlemen?" he asked.

"The pleasure," said Mora, "will be ours. And that remark, sir, was sincere. It is a pleasure for us to see somebody who hasn't the appearance of a carbon copy."

"That pleasure is mine, too," said the old man. He sat down, signalled to the waitress, ordered fresh drinks. "After all, Captain, I've lived here for the last thirty-five years."

"One of the original colonists?" asked Mora.

"No. Not a colonist. An administrator. I was what you might call the Governor. When my job was finished I decided to stay on, to see how the experiment would turn out. Lewisham is my name, by the way. You needn't bother to tell me yours—I know that Captain Mora was commanding *Delta Sextans* and that Mr. Willis is his Chief Officer; although, having got used to the

way that things are here if you hadn't been in uniform I'd have found it hard to place you."

"It's the way that things are here that's been puzzling us," said Mora.

"I'm not surprised, Captain," said Lewisham.

"What is the story behind it, sir?" asked Willis.

"An obvious one," said the ex-Governor.

"To you, maybe," replied Mora, "but not to us. We know that this is one of the so-called experimental planets. What was the experiment?"

Lewisham grinned. "As you well know, sooner or later a serious clash with the Huqua Empire was inevitable. The problem facing Earth was the rapid colonisation of the border planets, with a view to their conversion into well garrisoned fortress worlds. As you well know—once again—shipping space is limited; but a ship that can lift only a limited number of passengers can carry an enormous number of fertilised ova. Furthermore, these ova, during their artificial incubation, can be induced to multiply by fission."

"So what you did," said Willis, "was to mass produce soldiers and spacemen."

"Roughly speaking, yes. The incubation station is closed down, now, of course—Lauristane has a big enough population to carry on by natural methods."

"I don't like it," said Mora.

"Neither did I," Lewisham told him, "but I could see its necessity. The Huqua drive has to be stopped, and anything that will accomplish that end is justifiable."

"I agree with you about the Huqua," said Mora. "I've made trading calls to some of their planets. They're too like us, and too unlike us. They have all the bad points of humanity, plus a few of their own. They've no good ones that I know about. But this experiment of yours is, somehow, dragging ourselves down to their level. It's too like their so-called farms in which female slaves breed workers and common soldiers

"You've done the same thing here, Mr. Lewisham. You've helped to turn out what is little better than a herd of soulless androids. I know now what's wrong with this world. It has no soul."

"What do you mean by soul?" asked Lewisham.

Mora was silent.

"It could be tradition," said Willis. "Tradition will come to

this world in a few centuries—and with it what the Captain calls a soul."

"Scratch a spaceman, find a mystic," laughed Lewisham.

"Are your space men mystics?" asked Mora.

"No. They have no interests beyond the arts and sciences of spacemanship."

"Highly efficient, no doubt," grunted Mora, "but they'd make damned poor shipmates."

"I'm inclined to agree, Captain," said Lewisham. "But, after all, they were bred to save the likes of you and me from the Huqua yoke." He finished his drink. "My time is my own, gentlemen. Would you enjoy a ride through the countryside?"

"Thank you," said Mora.

The three men left the bar. Mora looked curiously at the men and women in the street outside. Now that he knew something of their origin he was no longer surprised by the dozens of identical soldiers—all big men, not overly intelligent—the scores of identical spacemen—small, for obvious reasons, and with a far higher IQ than the ground forces—and airmen. He was no longer surprised but was, he decided, more than a little frightened.

Lewisham's car—a large, gyro-stabilised monowheel—was parked by the sidewalk. The three men entered it. In a matter of seconds the revolutions of the gyroscope had built up and the parking props were withdrawn and the car was skimming towards the city outskirts.

Lewisham pointed out the big force-field projectors as they passed them.

"Every city is safe," he said. "Every industry. Once the force fields have been switched on no missile or radiation can penetrate them."

"What if the Huquas make a landing?" asked Mora. "They could take all the planet outside the force-fields, and starve you out."

"They have to get here first," said Lewisham. "The First Fleet is already out, hunting down the warships and transports that you tangled with. Even you will admit, Captain, that spacemen who have been bred for the job will be superior to the Huqua conscripts."

"Maybe," said Mora.

The car was out of the city now, rolling along a wide, smooth road that ran between fields of grain. Beyond these were other fields, on which grazed sheep and cattle. There were isolated farmhouses and, now and again, a village. There were the foothills of

a low range of mountains among which, a gleaming, silvery thread, wound a monorail track.

Abruptly, Lewisham turned the car off the main road, drove for about fifteen minutes until he reached a long, low building. It was a factory of some kind, but apparently deserted. Lewisham stopped outside the big entrance gates. The parking props thudded to the paving, the note of the gyroscope deepened as the flywheel, its power cut off, slowed down.

"As we were out this way," said Lewisham, "I thought I'd show you round the old place."

"What is it?" asked Mora. "Or what was it?"

"It was the incubation station," said Lewisham.

He led the way from the car to the lifeless building.

Mora shuddered. The place was so so unnatural. Was unnatural the right word? He decided that it was. From this womb of glass and aluminium and concrete had come the people of a world—the spacemen who could never be anything else but spacemen, the soldiers totally unfitted for any other occupation. It was all too much like the social mechanics of the hive or the ants' nest.

"There's a skeleton staff on duty all the time," said Lewisham. "We keep the place in going order. After all, some new mutated virus might wipe out our livestock—with just one shipment of fertilised ova we could build up our flocks and herds in a very short time. Or there might be rather more casualties in this forthcoming war than we anticipate. With our forcing techniques it would take us only a very few years to re-establish the garrison at full strength."

"I still don't like it," said Mora.

"Come, Captain, you must not be so old fashioned. But I was forgetting—you spacemen were always a conservative breed. Tradition's a fine thing, but it can be carried too far."

"And what traditions have *your* spacemen?" asked Willis.

"None, of course, Mr. Willis. They're better off without them. They don't need them. You must remember that the ova from which they were bred were very carefully selected, the contributions of both male and female gametes being third and fourth generation spacemen and spacewomen."

"I'd rather hate," said Mora, "to have to live with the knowledge that I'd helped to father these flesh and blood robots of yours."

Lewisham laughed. "I'm afraid you'd never have been among the selected parents, Captain. You're overweight, for a start. You can't be overly efficient in your profession, otherwise, at your age, you'd not still be Master of a Delta Class tramp."

"And my hobbies," said Mora bitterly, "are writing poetry and experimenting with artificial mutations in the hydroponics tanks—when the Bio-Chemist will let me get near them. I know. Other people, like your made-to-measure astronauts, live, think and dream astronautics. I prefer to be a civilised man—as far as that is possible in my trade."

"Deep Space," said Lewisham, "is no place for a civilised man. That's why you lose efficiency by being, essentially, a square peg in a round hole. Our spacemen are not civilised men. They're nothing else but spacemen."

The door of the incubation station opened and a white-coated technician admitted them. He was a young man, obviously one of the natives of the planet. Mora wondered briefly who his parents had been. *What* they had been was obvious. The terran was rather amused by the obvious affection felt by the young man for the building of which he was in charge. *But*, thought the spaceman, *why not? I feel affection for my ship, yet she—even though she has a personality—was never a mother to me*

There was, however, little to see. The tanks were empty and the pumps were still, neither nutrient fluids nor waste products coursed through the miles of piping. Once the place must have had a macabre life of its own, now it was dead. The two spacemen were relieved when Lewisham led them out of the place and back to the waiting car.

It was evening when the first of the bad news was released. Mora and Willis—with Lewisham, who was their guest—were lingering over their coffee and liqueurs in the dining-room of their hotel when the recorded music to which they had been listening abruptly stopped.

"This is the Commander-in-Chief speaking," announced a dry, official voice. "All service personnel will report at once to their stations and bases. All defences, from this moment, will be in the first state of readiness. That is all."

"Now what's happened?" asked Mora.

"I don't know," said Lewisham, "but I'll find out. I may be only the ex-Governor, but many people still think that I have some authority. If you'll excuse me, I'll go to the 'phone."

"Sounds bad, sir," said Willis after Lewisham had left the table.

"It does, Willis. However, there's nothing that *we* can do about it."

After a remarkably short wait they saw the tall old man threading his way through those who were hastily leaving the dining-room.

" It's bad," he said, without preamble. " Very bad. Our First Fleet tangled with the Huqua forces off Thule, the outermost planet of our system. There isn't any more First Fleet. The Huquas are on their way here now, on Interstellar Drive. It'll not be long before the shooting starts."

" Suicidal of them," said Mora optimistically. " FTL Drive through a planetary system, even if they keep well to the north or south of the ecliptic ."

" You did it, Captain."

" Yes, but I had to."

" No more than the Huquas have to. The way I look at it is this. The Huqua Admiral played around off Thule to lure the First Fleet to its destruction. Now he's going to smack Lauristane before the Second Fleet is clear of the atmosphere."

" That's all very well. I can appreciate that it's a justifiable risk so far as the Huquas are concerned. What I want to know is this, Mr. Lewisham. What happened to your perfect spaceman? They should—according to you—have been able to lick anything in the Galaxy. But they got licked. What happened?"

Lewisham, suddenly, looked very old. " I don't know," he whispered. " The men were good, and the ships were good. From what reports that came through before communications failed altogether it doesn't seem that the enemy had anything special in the way of weapons ."

" So what happened?"

" I don't know, damn you. As a matter of fact one ship did get away, the destroyer *Vindicatrix*, Commander Jones . ."

" One of the many Commander Joneses, doubtless."

" One of the many twins of the Commander Jones you know," admitted Lewisham. " He's with the C.I.C. now. The C.I.C. is very worried. He wants me to go along to make my own interrogation—as I told you, I still have considerable standing here—after he's finished. He thinks, somehow, that there may be some factor that will be obvious only to an outsider—that's how they regard me —like myself. Come to that—you're outsiders too."

" We're hardly qualified to poke our noses into military matters," said Mora. " Even though we do hold commissions in the T.S.N.R."

" So you're officers of the Terran Space Navy Reserve," said

Lewisham. "I'd forgotten that. That gives you some standing. You will come with me as my technical advisers."

They left the hotel shortly afterwards. They looked up at the night sky—it was a glowing bowl of milky opalescence. The screen was on. All over the planet the force fields would be in operation; over every city, every major town, every important industry the hemispheres of impregnable luminescence would have flashed into being at the touch of a switch. Inside the screens the people could live in absolute safety—until they starved.

They drove in Lewisham's car through the almost deserted streets to G.H.Q., a grim, fortress-like building. A guard escorted them through a maze of corridors to a room in which they found the C.I.C., a youngish man in Admiral's uniform, his aides, and Commander Jones. Jones was the double of the other Jones, the one who had told Mora that his ship had been commandeered. Or, thought Mora, he *had* been the double. But that had been before he had known the bitter taste of defeat, before he had witnessed the destruction of a fleet.

"So you've come, Lewisham," said the Admiral. "But who are these gentlemen?"

"My technical advisers," said Lewisham. "Commander Mora and Lieutenant Commander Willis, T.S.N.R."

"What business has the Terran Space Navy to send officers here? Oh, I see. You're from the merchant ship we commandeered."

"Yes, sir," said Mora.

"I'll leave you to it, then. I'll tell you that advance Huqua units have already engaged the space stations, and that Troon had a screen breakdown and collected a missile with a fusion warhead in consequence—so I've plenty to worry about. See what sense you can get out of Jones."

"I've told the Admiral all I know," said Jones wearily.

"Doubtless you have," said Lewisham. He pulled a chair towards himself, sat down. Mora and Willis followed suit. "Doubtless you have." He waited until the door had shut behind the C.I.C. and his aides. "But when you were talking to the Admiral you were talking to yourself. He thinks as you do—allowing for difference in age and rank. What's needed is a fresh viewpoint."

"We approached Thule from north of the ecliptic," said Jones. "Our scouts—*Vindicatrix* was one of them—used the technique of shutting off the Drive every few minutes so as to keep the enemy under observation. Admiral Hughes' intention was to englobe the

enemy and then to open fire with every weapon that could be brought to bear. We did not reckon on the suicidal tactics of the Huquas."

"What did they do?" asked Lewisham.

"*You* know," said Jones to Mora, "that a ship with her Mannschenn Drive in operation is untouchable. She's out of the normal Continuum. *If* you could design a missile that would be subjected to exactly the same rate of temporal precession—and I mean *exactly*, to the microsecond—you'd be able to hit her. But only then. Ships can fight only when they're in normal Space-Time."

"That is so," said Mora.

"What happened?" demanded Lewisham.

"The Huqua Admiral anticipated the englobing tactics. That didn't surprise us. We fully expected that his ships would be somewhere else when our main fleet re-entered normal Space-Time. We didn't expect to find them where they were. They were spread through the shell of the sphere that *we* tried to occupy. There were collisions, of course, and explosions that made a 3F bomb look like a firecracker. The Huqua ships that weren't destroyed by collision were ready and waiting for us. They let loose with all available armament. Somehow they missed *Vindicatrix*. We were the only ship to get clear."

"It's a pity," said Mora, "that Admiral Hughes didn't try the same tactics as the enemy Admiral. I'm only a Reserve Officer, but I do know that such a manœuvre has been considered by the high brass back on Earth."

"But it's just throwing away ships," said Jones.

"You lost all your ships," pointed out Mora.

"But you don't understand," said the other. "It's against all the principles of naval warfare to throw ships away like that."

"Principles!" snorted Mora. "You think that warfare has rules, don't you?"

"Of course."

"You think that war's like a game of chess?"

"Of course. You have to play according to the rules."

"I see. Did you ever hear of Sir Richard Grenville?"

"No. Who was he?"

"He was an Admiral. He wasn't an Admiral of a fleet of spaceships. He wasn't an Admiral of a fleet of submarines and aircraft carriers in the days when they still had nations on Earth and they used to fight battles on Earth's seas. He was an Admiral further back still, in the days when men had wooden ships, driven by the

wind, and crude, muzzle loading cannon for weapons. Anyhow, old Grenville in his ship *Revenge* blundered, by night, into the middle of a fleet owned by the Spaniards—*my* ancestors—with whom England was at war. He refused to surrender but just went down fighting, doing as much damage as he could in the process. Back on Earth that manœuvre used by the Huqua Admiral is known as the Grenville Manœuvre."

"He had no option," said Jones.

"Perhaps not. But it's all part of the tradition of the Terran Space Navy, which has inherited the traditions of all the old, national surface navies."

"*We* have no traditions," said Jones. "Fighting should be done without all this absurd emotionalism."

"Look where it got you," replied Mora.

"What are you driving at, Captain?" asked Lewisham.

"I'm finding out what's wrong with this cock-eyed culture of yours." He turned again to Jones. "Talking of tradition, we'll let the English rest for a while and have a look at my own people. Did you ever read Cervantes, Commander?"

"Who was he?"

"Oh, never mind. He was a writer. He wrote a book about the adventures of a mad knight called Don Quixote. One of his disastrous—to himself—exploits was tilting against windmills. But the trouble with you people is that you'd never dream of doing a thing like that."

"I don't understand," said Jones.

"I think that I do," murmured Lewisham.

"You have no traditions," said Mora. "You don't tilt at windmills. War, to you, is an emotionless game of chess which, incidentally, you lost. Tell me, Commander, do you *love* this world?"

"I I'm not sure. One can love a ship. One can love a woman. But a world ."

"You put the ship first," said Mora.

"Of course. I'm a spaceman."

"Let that be an example to you, Willis," said Mora to his Chief Officer.

"Come to the point, Captain," said Lewisham.

"I've done so. I've been showing you that these poor bastards —and I use the word in its proper sense—are as much use for fighting as a bunch of those Rigellian robots would be. You've heard about them, of course? Intelligent, up to a point. Emotion-

less, naturally. Devoid of imagination and initiative . . ."

"And what's the answer?"

"It's too late for one. You should have caught 'em young and given 'em some sort of imitation of family life, some warmth, some softness. They're going through the motions of warfare—everything according to the book, no cowardice on anybody's part, everybody highly efficient and well disciplined, but it's not enough. There are none of the incidences of quite crazy valour that have won battles in Earth's past. There's no fanaticism. As I said—it's all a game of chess. Jones here and the Admiral are sore because the Huqua High Commander used a gambit that's not in any of their books—but they don't feel like going out and tearing the nearest Huqua apart with their bare hands. Do you, Jones?"

"Of course not," said Jones. "Hand to hand combat is for the Army."

"What shall I tell the Admiral?" asked Lewisham.

"Tell him to whip up some real enthusiasm for the war. Tell him to put out posters on the lines of: WOULD YOU LET A HUQUA RAPE YOUR SISTER? WOULD YOU LET A HUQUA EAT YOUR BABY?"

"The first," said Jones, "would be biologically impossible. Regarding the second—the Huquas are vegetarians."

"They can still kill us," said Mora gloomily. "And they will."

The Huqua Armada was off Lauristane before the Second Fleet was ready for action. The space stations put up a technically correct but not very spirited resistance, then were blasted into clouds of debris, some of which plunged through the atmosphere as meteors, while others continued circling in their old orbits. The Second Fleet and the Reserve Fleet squatted secure under the screens over the spaceports, as did the cities and industries. Everybody knew that this security would last only as long as the food supplies—the screens themselves would last as long as the generators that powered them and that, barring accidents, would be a fair slice of eternity.

The Air Force went into action against the Huqua transports as they dropped to the surface. It put up a rather better showing than had the Space Navy, until the Huquas launched swarms of suicidally vicious atmosphere fliers. Thereafter the remnants of the Air Force skulked under the protective domes, except for occasional sorties in support of the Army. The Army did its best, armour and infantry fighting classically correct delaying actions—they were

delaying actions rather than battles—inflicting quite heavy losses on the enemy in return for relatively light ones upon themselves.

But still the big transports dropped from the sky on their flaring rockets, still the endless columns of grey skinned, grey uniformed soldiers disembarked, overwhelming all defences by sheer fanaticism and weight of numbers.

"What happens now?" Mora asked Lewisham when the old man called in to see him at the hotel at which he was still staying. "They've got Lauristane, to all practical intents and purposes. All they have to do is to set up their own defences and ignore us until starvation forces us out."

"A desperate sortie would still work," said Lewisham.

"Yes. A desperate sortie. *Desperate* being the word. Win or bust. Better to die on our feet than live on our knees. The people who said *that*, by the way, had tradition behind them. A tradition of hatred and fear—hatred rather than fear—of the Moors whom a militaristic dictator brought back into Spain. They had a tradition. They had motivation. And that's what's lacking here."

"What do you suggest?" asked Lewisham.

"Build a Time Machine, the same as the bright boys are always doing in the science fiction stories. Go back in Time. Bring these

mass produced, rootless spacemen, soldiers and airmen of yours up with some sort of tradition. Try to instil some fanaticism into them."

"That's not very helpful," said Lewisham.

"It's all that I can suggest. It's a pity that the Huquas aren't given to committing atrocities—not that they've had much chance to do so the way that this war is being fought . . ." He paused. "Or aren't they? Tell me, Lewisham, would it be possible to get out of the city? We should need a small armoured column, and a film unit Or perhaps airborne troops would be better ."

"What are you getting at, Mora?"

"I'm not quite sure myself It just might work."

"What is it?" asked Lewisham again.

Mora told him.

The rest is history.

The people of Lauristane emerged from under their impregnable domes of force and fought with a fanatic intensity. The Battle of Lauristane, in which the Second and the Reserve Fleets lost two-thirds of their strength, was notable for the utterly reckless employment of the Grenville Manœuvre by both sides, with the greater recklessness being shown by the human forces. Only two of the Huqua warships escaped the slaughter.

Mora himself was among those taking part in the battle, in command of his own ship, *Delta Sextans*. Lewisham was with him, as an observer. Neither man expected to survive, but their vessel was one of the lucky ones and came through almost without a scratch.

It was Mora who demonstrated that it was possible to use spaceships against ground forces, that the incandescent exhaust of the interplanetary drive was a weapon at least as good as any that could be brought to bear from the ground.

It was Mora who became sickened by the slaughter at the finish and who, with Lewisham, had a stormy interview with the Commander-in-Chief in which he roundly condemned the blood lust of the Lauristanians, their refusal to take prisoners, their firing upon white flags of truce.

"You started this, Captain Mora," said the Admiral. "Can you stop it?"

"We could tell them the truth," said Mora without enthusiasm.

"We could," said Lewisham, "but dare we? Dare any of us who were with you that night?"

"No," said Mora.

He remembered the brief lifting of the screen, the sortie, under

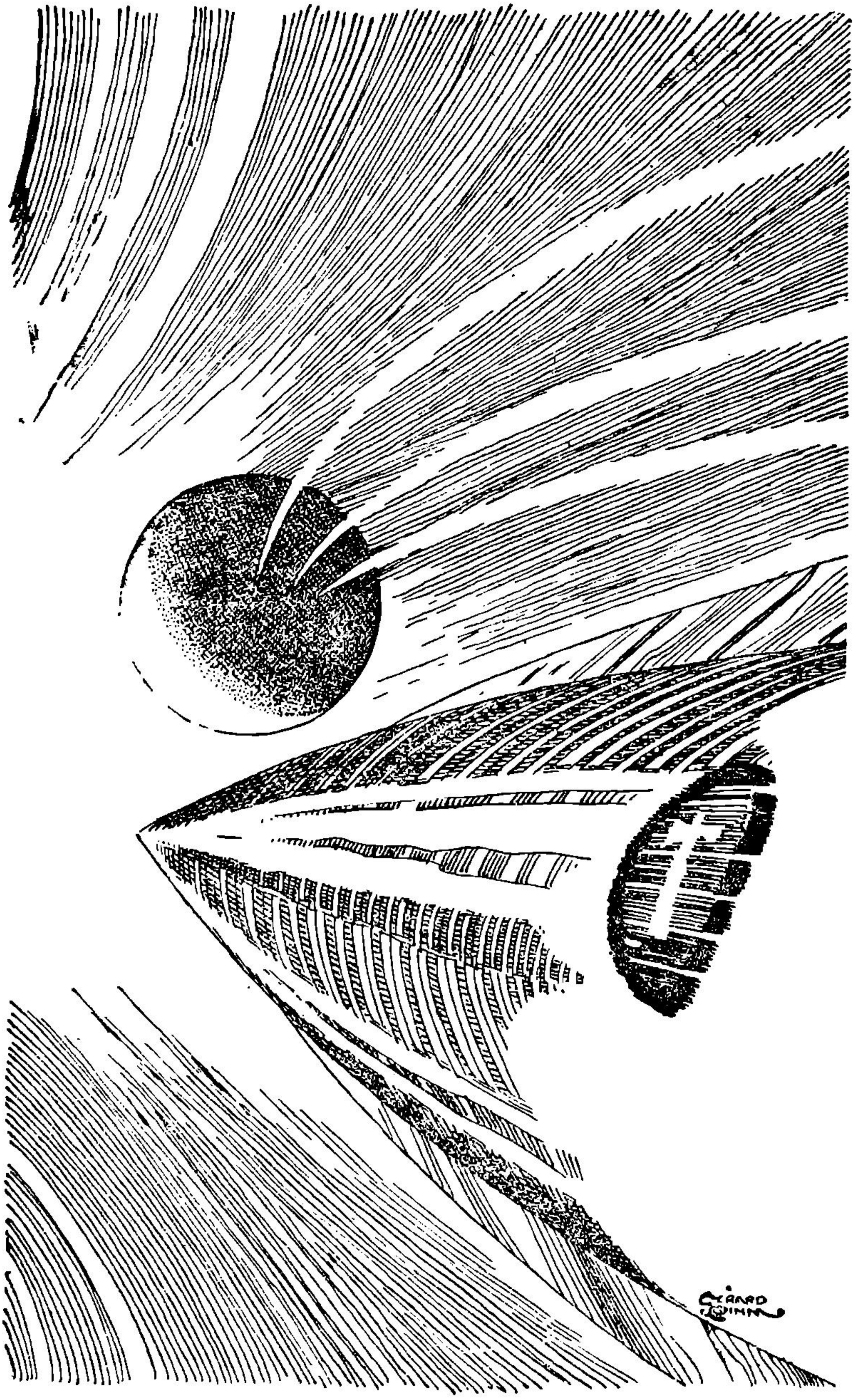
cover of night, from the city. He remembered the hazardous flight, low over the dark fields, over the hills, to the incubation station. He remembered the brief, bloody fight with the Huqua troops who were guarding the place, and the disappointment with which Lewisham, Willis and himself had found it undamaged, all its equipment in perfect order.

He remembered how he and Willis and Lewisham had raged through the building like madmen, smashing tanks and machinery and switch-boards, tearing pipes from the walls and ceilings, building fires on the polished floors, while the Lauristanians—airborne troops and film unit—looked on in horror. He remembered bullying the camera-men into taking pictures that would show the destruction to the best advantage.

He remembered his surprise when, in spite of its crudity, the propaganda had been successful—the televised films, the posters, the caption: SEE WHAT THE ENEMY DID TO YOUR MOTHER.

"The worst of it," he said, "is that I feel like a rapist and murderer myself."

BERTRAM CHANDLER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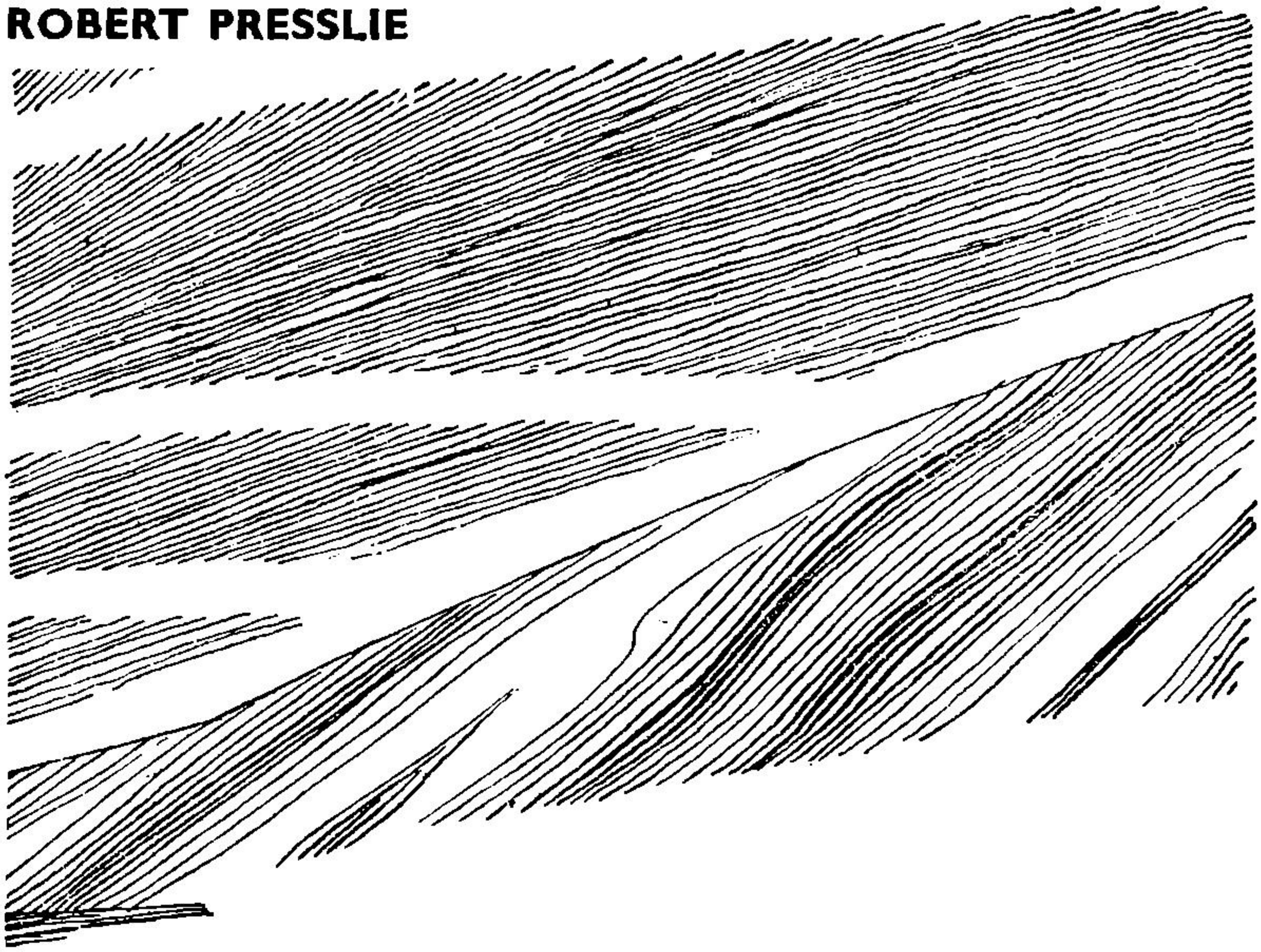


Old Macdonald

His genius had brought happiness and plenty to one world. Could he also permit it to bring death and destruction to another?

Illustrated by Gerard Quinn

Calamity has two approaches. It can hit its victim smack in the face, instantly and without warning. Or it can leer at him across the years, giving him all the time in the world to prepare for its coming, yet making that time seem frighteningly short because of the immensity of its menace. Calamity used both approaches in its threat to Venus. There was the immediate prospect of going under in the fight with Mars. And there was the older and more certain prospect that whatever the outcome of the interplanetary struggle, Venus would be bankrupt in half a century or less.

Planetary economy is basically simple. It can be described in terms of one man and one tree on a desert island: he can keep his

bones fleshed by eating the fruit of the tree, knowing that the fruit will be replaced in due course; but if he tries to warm his flesh in the chill of winter by burning the wood of the tree, he can do so only once.

Using the same metaphor, the people of Venus had chopped down all their trees. In factual terms, they had exhausted the p'anet's meagre supply of essential elements. Every ton of iron they used was a ton less available in the future. Reclamation schemes made it obligatory that all scrap was reworked. But in any process there is always loss in working and coupled with loss due to atmospheric corrosion there comes a time when there is nothing to rework. That time was estimated to be within the next fifty years.

With peace, the survival period might have been extended to two or three centuries. In bitter self-defensive war with Mars, every precious bomb-carrying missile lopped a year off that period and brought complete bankruptcy nearer and nearer.

And there was no way out. On the face of it, capitulation would have brought a reprieve, an extension of living time. But there can be no capitulation when a man has nothing to gain or lose; Venus had no hope of beating Mars and no enthusiasm for a poverty-stricken peace. Nor could there be capitulation when the enemy would not countenance it and was bent only on destruction for destruction's sake and extinction for the sake of seeing an old adversary lying in the dust, never to rise again. Mars did not covet the larger planet. All Mars wanted was blood.

Charles Gerard Lithgo, President of Venus, was standing as he addressed the Council of the Seven Islands. His voice was firm and steady, giving no indication of the strain under which he had been living for his eight years of office.

"I make no apology for having reviewed the current situation for you. At least it did not take much of your time. Our past history is brief."

He lifted his head and every representative present would have sworn that the deep-set eyes were staring straight at him.

"Our past history is brief," he repeated for emphasis. "And our future is non-existent. Unless——"

He left the last word hanging in silence.

Perry Drake from North Island was the first to lead the conversation in Old Macdonald's direction. "Mr. President," he said, "has any attempt been made to solicit help from former inhabitants? I refer to those who emigrated further from Earth than our fore-

fathers did. While such an attempt would almost certainly be futile, I nevertheless submit that we should be failing in our duty if we omitted to make the attempt."

The other governors, older and more orthodox thinkers, waited in doubtful silence for Drake to continue.

Forty years after the mass exodus to Venus the planet had been completely tamed, the culture of its new inhabitants almost completely restored. They were in a position to take up again the building of mighty space-ships. From the impoverished ores of Venus they had wrested enough material to build fourteen ships. But the project of interstellar travel was shelved. Only twelve ships were despatched. The others were turned back into ingots of metal which could no longer be spared. They had begun to feel the pinch.

Of the twelve ships that left Venus, five were never heard from again. Four were beyond sub-radio contact. Of the remaining three, all within a dozen light years, one had settled on a world poorer even than Venus; another colony was rich in materials but so depleted by disease that it could not help.

The third colony was Old Macdonald's one.

"Gentlemen," Drake glanced around the silent room, "I suggest that we dip into our rather bare cupboard for sufficient material for the erection of one small transmitter. I realise the old ones were dismantled for the sake of economy. But I repeat that we must attempt to make contact with the emigrants. In their hands lies our only possible salvation."

The others were none too keen on the proposal and it required Lithgo's presidential backing to push it through. Six months and several emergency meetings later, Drake put his case again.

He said, "I have been in touch with Macdonald. I have pleaded our case. But I am afraid the man has peculiar ideas."

Ward, governor of the western equatorial reef, asked the obvious question and scowled when he got his answer.

"You mean to say," he rasped, "that he refused to send us cobalt, titanium, vanadium, ruthenium . . . any of the materials we need so urgently?"

"He said he wasn't interested."

Ward slapped his rostrum. "Has he no gratitude? Doesn't he realise that but for this planet's sacrifice he wouldn't be sitting pretty out there? Venus gave him his ship. Without the ship he would be here, right in the middle of the mess with us!"

Lithgo extinguished Ward's anger for the moment by bringing

the discussion back to more pertinent matters when he asked, "Does this Ruthan of Macdonald's have raw materials to spare?"

"I would say so," Drake ventured carefully.

The president had a fine nose for prevarication. He asked, "Did Macdonald say so?"

"He gave me that impression." Drake sighed and launched into the explanation he had been trying to avoid. He repeated that Macdonald was an awkward customer with peculiar ideas. He told them that instead of giving a direct answer about Ruthan's resources, Macdonald had bent his ear with a tirade about the lack of foresight of Venusians and their pig-headedness in not accepting the solution which he had put before the reigning Council of his day.

"Personally," Drake said, "I am convinced he could help. Certainly he didn't say so, but I am sure his contempt was backed by the knowledge that his particular planet was self-sufficient."

There was silence while the governors considered. Then Ward asked, "What do you want us to do about it?"

"Build a ship and send someone to Ruthan to find the truth."

There was no silence now, only an excited babble of voices. When the froth had subsided from the effervescence, the loud voice of Ward persisted.

"Build a ship! What with, may I ask? As we stand, we are on, roughly, equal terms with the Martians. We have as many men and missiles as they have. For that reason they have not dared too much as yet. I believe they are playing a waiting game. I believe their agents here have told them that we are using our last rounds of ammunition and that they are abstaining from an all-out assault until we are in no position to defend ourselves. Gentlemen, it would be folly to strip our armoury for the vast amount of material necessary to build an interstellar ship. Particularly when there is no guarantee of any good being accomplished."

The governor of the eastern half of the equatorial reef, who normally had no great love for his opposite number of the western half, weighed in with these words: "I agree with Governor Ward. Even if Macdonald has the stuff, what use would one ship be to bring back the mountains of ore we require? We are not seeking to return a lawn; we are trying to replenish a planet." He sat down and smirked at his own metaphor.

Drake took the floor again. There was aggressive confidence in his wide-legged stance.

"If I am right," he said, "only one ship will be needed. If Ruthan has the resources I believe it has, it can also supply the

requisite ferry ships. Let me tell you more about Macdonald."

Ruthan's founder had been a brilliant biochemist. And somehow he had also managed to find the time to major in navigation and engineering. On his ship, he had been no mere figurehead. He had known his craft from tip to tail—for which reason he had actually been able to reject the first two planets he came across and pick one of his own choosing.

"The planet he chose," Drake said, and waited a moment for effect, "the planet he chose was the dead spit of Venus! Nine-tenths ocean and one-tenth land. He called it Ruthan after his wife, dropping the final letter of her name. He told me he had deliberately picked such a world because it would give him a chance to prove his theories."

Drake used the oratorial trick of hesitation again and let another moment pass in silence before continuing: "His theories were concerned with biological farming. Since that phrase probably will not signify much I will enlarge on it——"

In his capacity as a biochemist, Macdonald had made a special study of plant and animal nutrition. It was well known that a plant will thrive for a time on a nutrient containing three basic elements in one form or another, namely, potassium, phosphorus and nitrogen. From hydroponic experiments it was also known that these three elements were not enough; without minute supplies of micro-nutrients a plant will die before reaching maturity. Magnesium, iron, molybdenum—these were typical micro-nutrients.

It was only in the narrower field of biochemistry that it was known that an element which might constitute a micro-nutrient for one species of plant was of no use to another. Higher plants for instance require copper in their diet; but copper in any concentration is lethal to the lower algae.

By collation of other biochemists' work and by his own researches Macdonald compiled an immense pile of data concerning the special nutritional requirements of plants. He went on to do the same for animals—from unicellular diatoms to human beings. Then he had a brilliant idea, a stroke of true genius . . .

Until that time (when he had just turned twenty-one) his sole interest had been the acquiring of an education, the assimilation of knowledge. With maturity he began to look around and saw that there was more to the world of Venus than Hamish Macdonald's grasping greed for facts. He became actively interested in the major problem of mineral starvation and plunged into investigating the problem with his usual driving enthusiasm. Among the many things

he learned was that from the days of Hoyle it had been accepted that all the inner planets of Sol contained in their make-up all the elements, from hydrogen to uranium. The difficulty was to unlock them from their compounds. On some planets, such as the old abandoned Earth, many of the elements occurred in aggregations; it had been comparatively simple to mine a particular section of Earth and know that you could bring up ores rich in gold or silver or uranium or whatever you were seeking. But on other planets the oceans constituted most of the world and in the few areas of surface land the elements were nowhere aggregated but were spread out thinly in the soil and the rocks.

Macdonald's brilliant idea was to take his comprehensive nutrition data and rewrite it. From a list of plants and animals with their requirements it became a list of elements and their biological extractors.

The common duckweed will flourish in most soils but it must have the element gallium for maximum growth and development. In Macdonald's rewritten files it could be read that to extract gallium which is thinly spread throughout the soil the answer is to cultivate duckweed.

He cited plants and animals for the selective extraction of every element in the atomic table. In the same patch of soil it was possible to have plants growing side by side which would absorb their own favourite elements from the soil. Gallium and selenium are rare elements; yet duckweed and astragalus will thread their rootlets through the ground and the duckweed will seek out the gallium while the astragalus absorbs the selenium.

The only flaw in Macdonald's idea was its novelty. If it had been the result of the combined work of several teams of senior scientists it might have been accepted. But Macdonald was young and his youth went against him. Nor had he the cool temperament necessary for putting his proposal in the best way. He did not go to the Council of the Seven Islands and make a suggestion—he gave them a lecture; and in tones which implied the Council representatives were doddering old fools who should step down and let him take on the running of Venus single-handed.

When he said he wanted to farm the sea they misunderstood him. Oceanic extraction had been tried before, but the necessary equipment was worth more than what it extracted.

Macdonald did his best to show where the governors' thinking had gone wrong. He cited the case of iodine. The amount of iodine in Venusian sea water was one part in ten million, almost the same as on

Earth. Seaweed, without pumps or any other machinery, can take up the sea water, extract its food and discard the rest. And in seaweed the extractive process is so effective that the iodine concentration in fresh kelp has been raised to one part in a thousand. But the kelp also contains a great deal of water and if it is reduced to ash, the ash contains one part in fifty of iodine. The iodine has been concentrated about a quarter million times.

The Council accepted the iodine concept—because it was a familiar scientific fact. But when Macdonald ranted on about getting all Venus's requirements in a similar fashion, when he left the familiar iodine and went on to nickel, vanadium, copper, caesium and all the rest, his cause was as good as lost. Nobody else but he could conceive biological farming on such a vast scale. He was given a pat on the head and that was the last anyone heard of his schemes.

" until now," Drake concluded. " And it is my belief that Macdonald has applied his theories on Ruthan and that if anyone can save Venus from bankruptcy it is the same Macdonald."

Ward was as sceptical as the governors who had heard out Macdonald. He could not conceive a mere youth being right where his elders were wrong—and he said so. However, Drake had all the tact, cunning and ability to express himself which Macdonald had lacked. He did not get as far as convincing the governors that Ruthan was a land of plenty but he did make them see that Macdonald's theories were feasible.

President Lithgo took over from there. He made a nice conventional speech of thanks to Drake for the research work he had done. Then he thrust aside protocol and pretty speaking and talked to the governors as only a strong man could.

" The time has come for action," he said. " We can sit and do nothing while our supplies decrease and our might grows less. We can continue to evolve reclamation schemes, even the best of which are subject to the law of diminishing returns. Or we can despatch a ship to Ruthan as Governor Drake suggests. My own proposal is this: let us build the ship and send it with our hopes. And then let us continue as if those hopes did not exist, let us continue to seek other solutions."

Put that way, nobody could argue. Sending the ship was not going to be the shooting of a last bolt. Naturally, since these men were politicians, they *did* argue. But their complaints mostly concerned the cost in material of building the ship. Lithgo answered these arguments by going back to the allegory of the man on the desert island; with a handful of food left, he could eat it all and still

starve, or he could cast a little on the waters as bait for the trapping of more food and, if he caught anything, continue to live.

The ship left Venus four months later. It was small as interstellar ships go, its controls were almost entirely in the reliable care of computing machines, and its human crew numbered only two—one of them being Perry Drake, Governor of North Island.

Neither Drake nor Flett, the biochemist chosen to go with him, was particularly impressed at being in the first starship to leave Venus for three decades. For one thing, the terminus was far more important than the journey; for another, they were in complete stasis throughout the hyperspatial jaunt and knew nothing of the flight from the moment of take-off until they were automatically awakened at touch-down on Ruthan.

Their first thought was one of relief that they had crossed the gulf of space safely and had touched down without plunging into an ocean. It was a superfluous, foolish thought because Macdonald had furnished precise co-ordinates and the Landseeker mechanism of the ship had smelled out a sizable atoll for the landing. Their second thought was one of hope; they hoped they were on an inhabited piece of land and that it was not on the opposite side of Ruthan from wherever Macdonald had his headquarters. Again the thought was unnecessary. Macdonald had awaited their coming, had got an early fix on their ship after its exit from hyperspace and had made for the atoll as soon as their touch-down was reported.

He arrived in a shallow craft that skimmed in from the horizon, bouncing buoyantly across the calm sea, almost flying at times. From its shape, Drake guessed the craft was actually capable of aerial flight. From its speed of approach—one minute it was nowhere in sight, next it was braking by flaps that sent up a fan of spray—he knew his gamble had paid off. This was no sluggish frail wooden boat like the ones used on Venus, this was a swift sturdy ship built entirely of metal and capable of slicing across the water without danger of shattering if driven too fast. If Ruthan had metal to build boats she must have metal in abundance.

Drake introduced Flett and himself. Macdonald followed suit and named his companions. The obviously human one was Joseph Hamm, as big as Macdonald but a good deal younger. The small brown naked humanoid with enormous hands and feet, all of them webbed, was called Skoon.

"Get in," Macdonald said curtly.

Drake looked over his shoulder to the starship. He had a sudden

feeling of uncertainty and loneliness which he put down to being a stranger in a strange world. He asked, "Where are we going?"

"You'll want fed and quartered, won't you?" The tones were abrupt, almost insolent. "And never heed about your ship—it will still be there when the time comes for you to leave again."

Drake was to become familiar with the old man's trick of answering unspoken questions. He followed Flett into the boat. When he got his breath back after the violent acceleration with which the boat started up, he said to Macdonald, "I'm sorry you seem to regard our presence unfavourably but we wouldn't be here if it wasn't absolutely necessary."

"You weren't invited," the old man growled.

Drake forced himself to smile while he bit back the desire to call Macdonald a liar. "There must be some misunderstanding," he said. "You sent us co-ordinates and . ."

"I said you could come if you were so minded. Nobody is barred from Ruthan if they can get here. I didn't *ask* you to come."

Drake kept his mouth shut for the rest of the journey. Macdonald was even more awkward than he had expected. It was best to keep off controversial subjects until he had sized him up and decided on the right way to tackle him. For the duration of the trip, which was partly aquatic and partly aerial, he occupied his mind by trying to figure out Macdonald's motive for indirectly inviting him to Ruthan.

The ship pulled up at the quayside of an island harbour. Drake judged the island to be as large as North Island on Venus. But there the resemblance ended. Macdonald's island looked like the end result of Drake's dreams. It looked exactly like the futuristic plans which had been drawn up for the development of Venus but which had been shelved forever through force of circumstance.

The entire shoreline appeared to have been man-handled until every little bight had been made into a wharf-edged harbour. From north to south, east to west, the ports were connected by canals. Not a square yard of land had been wasted on roads or cities. Transport was by water and all buildings were concentrated around the ports. The land was marked out in precise geometric patterns. Drake knew without asking that every particle of soil was producing vegetation in full fertility, that not an inch lay fallow.

Macdonald led the way on a short walk through wide streets. If Drake and Flett had been first-generation Venusians fresh from Earth they would have had difficulty in identifying the material used for the square buildings they passed, few of which were more than two storeys high. It was only because they were familiar with oceanic

stone that they recognised it. The conflicting ideas of parsimonious non-obstruction of land and spendthrift wastage by not building multi-storeyed structures puzzled Drake—until he later learned that the native Ruthanians lived outdoors and that the buildings were mostly factories and smelting shops.

The building Macdonald ushered them into was no bigger, no more ostentatious than the rest. The old man saw the looks they exchanged.

"Expect something showy, did you?" he said. "You'll find none of that here. Size means complexity and where there's complexity there's ponderousness. I learned all the possible mistakes on Venus and avoided them here. If you were looking for our headquarters, you've found them. This also happens to be my home."

Drake thought he was exaggerating. "This? For a whole planet?"

"What more do we need?"

"You must have scientists; astronomers, agronomists, metallurgists, chemists where is their work co-ordinated? You didn't find the interspatial route from Venus to Ruthan in a drawer."

Macdonald's beard twitched. Possibly he was smiling underneath it. "We have a place for everything. We have a man who specialises in astronomy. He has a house to himself. Why should everybody be packed under one roof? It is a simple matter to send a message to any particular expert whose advice is required."

They were now seated round a table. Food was brought for Drake and Flett. Macdonald would have waited in polite silence until they had finished eating but Drake did not let the arrival of the meal interrupt his argument.

"How can you possibly look after production without co-ordination?" he asked. "How can you be sure there will be a supply of this, for instance?" He held a cube of cooked vegetable speared on a fork. He bit off the food and waggled the fork. " . or the nickel and silver to make more of these?"

"Every man has his job."

Drake sneered. "Utopia! I'd like to work here! Put me in charge of a project and I would either under-produce because I knew I would get my daily bread through somebody else's sweat or else I would over-produce, keep the lion's share to myself and lord it over the peasants."

"You would." Macdonald turned the sneer into a back-firing insult. "Ruthanians wouldn't."

"What are they—angels?"

"They're contented. In spite of the fact that Ruthan is nine-tenths ocean, we grow sufficient food to fill every belly. *Because* the planet is nine-tenths ocean we have more metals and minerals than we can use. If anyone under-produces he is hurting only himself. As for over-production, we already have that and nobody can lord it when everyone has a lion's share."

"It must be very cosy for you."

"It is—very cosy!" Macdonald's beard twitched in another smile and Drake thought he knew now why the co-ordinates for Ruthan had been given so freely: Macdonald wanted to show off. Spurned on Venus, he had devoted his life to turning Ruthan into a paradise by the very methods which had been scoffed at. And he wanted to make sure Venus, through Drake's eyes, saw how successful he had been.

Drake decided to play along. He pushed back his plate, wiped his mouth and said, "That was most enjoyable. I must admit it had more taste to it than anything I've eaten for years." He tapped the plate with a fingernail. "Solid chromium, eh? It certainly seems you can back your boast."

Macdonald's pale blue eyes stared through him. "You're a bit late with the flattery. More than thirty years late."

For want of a better line, Drake stuck to the same one even if the old man had rumbled it. He shook his head in admiration that was not all feigned. "I don't see how you do it," he said. "In size and make-up Ruthan could be Venus. Yet you have plenty while we are starving. The soil must be better, the minerals more concentrated . . ."

Macdonald went to a small glass case and took out two jars. He unscrewed the lids and tipped the contents on the table in front of Drake.

"I wasn't boasting," he said. "That's a sample of your soil, this is a sample of ours. Can you see any difference? You won't. Because there is hardly any. They almost exactly match in density and all other physical properties. Analyse them and you'll find they are almost identical chemically. We've got nothing on Ruthan that you don't have on Venus. We have the same elements tied up in the same compounds and they are every bit as widely dispersed as on Venus. In the soil or in the seas—on both planets—there is everything God provided for man. But we didn't curse God for making it difficult to get at. We used the brains and the strength He gave us to extract what we wanted."

He fixed Drake with an accusing stare. "Venus could have been like this, too—if I had been listened to."

It looked a good moment for getting down to business. Drake said, "I'm convinced. I still don't understand how you did it—my friend Flett is better equipped for that—but I've seen enough to convince me you can help us."

"Help you?"

"That's right. Help is what I came for, your help. I'll be quite blunt. I'm asking you to do one or both of two things."

"Which are?"

"Build starships and send us all your surplus resources. That would solve our immediate problem. And teach us how to make Venus as self-supporting as Ruthan, which would take care of the future. We are at war with Mars. We may be able to hold our own for five years, certainly no longer. Were there no war we would still cease to exist as a civilisation in fifty years' time. Venus is bankrupt. Our only chance of survival would be another mass emigration like the one from Earth. But that is impossible. We have no ships. Even if we had, we would arrive on our new home with nothing. It would be centuries before we got off our knees. Perhaps never."

Macdonald said pensively, "We had nothing when we came to Ruthan. We had none of the things which are the foundation stones of civilisation. We had no bricks and mortar, no machines and tools, no laboratories and libraries. Our only raw material was the ship itself, our only tools our wits and our muscles. Do you know what we stocked the ship with?"

"I would have said tools and books if you hadn't told me otherwise——"

"Life. That's what we carried. Life. The ship was a second Noah's ark, but Noah never heard of half the creatures we brought with us. Our ship bulged with animals large and small, from mammals to bacteria. We had plant life from young saplings to lichens and mosses. We had tanks full of the creatures of the ocean, fish and flora, crustaceans, molluscs, weeds, anemones. Not all of it survived the journey. But the remnants have flourished and multiplied in Ruthan's soils and seas and the deficiencies have been made up by using native plants and animals."

Drake kept him going: "And with life alone you have managed to extract all the essential elements from the soil and the seas?"

"In the beginning that was all we had. We built as we went along. The first smelting furnace was made out of the ship. Every-

thing afterwards was constructed of materials we had extracted."

Drake opened his mouth to repeat his request for aid. Macdonald forestalled him. "Now you think you can reap the fruits of our labour, the fruits which you could have had decades ago but refused. You show nerve in asking but no pride, none of the pride you showed when my proposal was turned down. You had your chance once and missed it."

Drake dropped all pretence of tact and stormed at the old man in anger. "You're the one with pride now. Crabbed, caustic, ingrown pride! At least we've managed to retain its counterpart—humility. All right, you got a kick in the pants some thirty years ago but do you have to nurse a grudge that long, feed it with hatred and coddle it with pride? We came in humility. I asked your help humbly. Where's your humility?"

Macdonald's reaction came as a complete surprise. He laughed out loud. Not derisively, but in good-humoured appreciation of the Venusian's attack. Drake learned a lesson at that moment. From then on he dealt with Macdonald on a man-to-man basis. Obviously he preferred fire to subservience.

"A lot has happened since you left," Drake went on. "A helluva lot. As I said before, you've had it cosy here. You've been free to go ahead with your schemes with nothing else to steal your time and attention. We've had a war to contend with. This is Ruthan. Things have been different on Venus."

The old man leaned across the table. "Tell me about them," he invited.

The prologue of Drake's story was quite familiar to Macdonald. The Final War on Earth had ended in victory for no one, defeat for all. East and West alike had been forced to ask for a cessation of hostilities. Earth had become too hot to live on. The last of each side's resources were rallied in a frantic race to escape the radioactivity while there was time. The Asiatics and Orientals had won the race. They had got their ships ready first and had evacuated the chosen cream of their population long before the West was ready. They picked the plum of the two possible worlds. The East got Mars. The West had to be content with Venus.

The new Venusians would have been happy to forget the past. They had enough on their plate just licking their planet into shape. But Mars was an easier proposition and it was not long before the new Martians could afford to revive old animosities. They began a systematic programme of wiping out the old enemy. And the defensive and retaliative measures of Venus devoured more men

and material than she could spare; yet she dared not do less without admitting defeat.

Venus was handicapped from the start. The seven islands were widely scattered, integration of effort was difficult. The sparse dissemination of ores made the restoration of culture a hard enough task. To find material for the conduct of a defensive war was a crippling extra load. Forty years after the first landing the future had looked bearable if not exactly rosy. Thirty-five years later the future was as black as the face of doom.

"Forty years ago," said Drake, "we might have been able to build starships for emigrants like you. Today we took the desperate chance of crippling our economy in building a single small ship, the one we used to reach Ruthan. Can you still refuse to help us?"

The old man stood up. His stiff straight back belied his years. He looked like a judge passing sentence. "What good would it do?" he asked. "If I made you strong the war would be protracted until maybe both you and the Martians were completely wiped out. Do you want me to have that on my conscience? Or if you used the strength I gave you to seek out a new home among the stars, that would be worse, for then you would carry your war into new territory, involving new innocent people—because if a world is habitable you may be sure it already has its native population. Do you want me to have their deaths on my conscience?"

Drake reasoned with him. "I was sent only to ask for help. What we should do with it I do not know. There was no point in making a decision until we knew if help was available and forthcoming. But I think you're deliberately looking for disaster. If we could show the Martians we were as strong as they, we could then discuss peace with a reasonable chance of success."

"You didn't do that back on Earth," the old man said pointedly.

Drake let it slide. "If we made a second exodus we would be far enough away from the Martians for the assurance of peace. Either way your conscience can have nothing lying on it but the satisfaction of having secured the end of a war which has gone on too long."

"That would be true except for one thing which you have apparently forgotten. If you can build starships, so can the Martians."

The old man signalled a Ruthanian, who opened a side door and ushered in a little yellow man with a broad Slavonic face and a wide Nipponese smile.

" Greetings, gentlemen," said Vashimoto, President of Mars. He bowed daintily with more mockery than deference.

The presence of the Martian president was no small shock in itself but it was nothing to the terrible sense of doom and defeat which Drake experienced when he saw how the old man openly showed his support of the enemy cause.

The old man was insane. His insanity was the unreasonable dotage of senility. He wanted Venus to lose the war. Strangely enough, Drake believed him when he said his personal feud with the mother planet had not swayed his decision. He was partial to the enemy because he thought they were the most likely winners and if he backed them with the supplies the war would be over all the sooner. And that was the prime motive behind his insane decision to help Mars instead of Venus.

" I don't like it," Macdonald said. " My soul shall probably suffer eternal damnation for making a victor of one and a vanquished of the other. But much as I dislike what I am going to do, I dislike war even more. I had two reasons for leaving Venus. One you know already. The other was born of nausea—I could see the war

coming and it made me sick to see that after the destruction of Earth you still hadn't learned your lesson."

Drake could hardly believe his ears. "But——" he spluttered. "Good God, man, it was Vashimoto and his kind that started it! Why condemn us?"

"It takes two sides to wage a war."

"It takes only one to begin it! What the hell were we supposed to do? Sit back and let them take over without any resistance?"

"Just that," said Macdonald. "And I'm not the first to advocate turning the other cheek."

He screwed his eyes in a shrewd expression and showed one of his typical flashes of insight. "You think I've gone mad in my old age, don't you? You think I've outgrown any usefulness I might have had, that I'm just an old crank with a crazy notion under his bonnet. But you're mistaken. My opinions about wars and how to end them haven't changed in half a century. If I'm crazy now I was crazy then——"

"You took the words out of my mouth!"

Macdonald went on undaunted. "Don't you see? Don't you understand that the only way to avoid war is never to let it begin? What would you have lost by ceding? Perhaps your pride. Nothing else."

Drake looked at Flett and shrugged his opinion.

"You don't believe me," the old man said. "All right, forget about it being my crazy creed. Look at history if you need proof. Look at England. Did she cease to exist because the Romans and the Danes and the Normans invaded her? Look at America, invaded in turn by the mixed descendants of English natives and invaders. Look at——"

"Look at Hungary!" Drake cited grimly. "Look at all the countries overrun by the Asiatics!"

Macdonald waved them away. "I've looked," he said. "And they were still there up to the time of the Exodus. There were still Hungarians, Indians, Syrians no nationality ceased to exist. I'll admit many small countries were combined to make a large one, but what did they lose?"

"Liberty for one thing. Instead of freedom they had subjugation. Instead of life they had a bare existence. Their only gains were terror and poverty."

Macdonald agreed—in his own fashion. "Correct. But only because they had resisted. None of the things you mention would

have happened if they had absorbed the invader instead of fighting him."

"How much you have forgotten," Drake said quietly. He could think of nothing else to say.

It was Flett who put a tactful end to the fruitless discussion. The biochemist was short, boyishly built and featured, extremely competent in his field and slightly prim in his manner of speaking. He did not speak often, generally giving a silent impression of deep cogitation—which was generally an accurate one.

"I look at it this way," he said, his tones suggesting apology for the intrusion. "We need your help to win the war, help which you have refused to give. But we also need your help to lose the war and frankly I don't see how you can refuse it."

For the first time Vashimoto looked worried. This youngish hitherto silent man had an air of cleverness. Vashimoto was wary of clever men. It was difficult to know which way they would jump.

"It is a trick," he warned the old man.

Flett gave the Martian a sidewise look for the naughty thought. "Really," he said earnestly, "I did not intend to be devious in any way. Material aid has already been refused and I am not trying to reopen any negotiations in that direction. But as I see it, even in subjugation we shall cease to exist unless you show us how to refashion our world as you have done here. The presence of the gentleman from Mars would seem to indicate that they, too, are not exactly well off for readily available minerals. No doubt the scarcity of water makes extraction difficult. And if the Martians cannot support themselves I fail to see how they can support a vassal planet. So you see, Mr. Macdonald, win or lose, fight or yield, our future is in your hands."

Drake congratulated himself on having picked his man well. Yet even he was surprised at Flett's little speech. And he knew it was not slyness. He could have thought that about anybody else who had used the biochemist's approach, but Flett was sincere, he meant every word he had said. Drake also rebuked himself. Flett had turned up an argument which his superior should have put forward.

Vashimoto apparently saw validity in it, too. He scowled and repeated that it was a trick.

Macdonald, however, knew sincerity when he heard it. "That's where you're wrong," he told the Martian. "Sanctions are something else I've always been against. I never did see what one nation hoped to achieve by starving another. Unless it was animosity. I say the

lad is right. Mars and Venus are both welcome to Ruthan's know-how."

Drake started to thank him.

" ——but only Mars can have material aid," the old man added.

It was better than nothing. Drake's mind raced ahead, figuring plans for putting Macdonald's long-term methods into quick productive action. If he could get the desired information back to Venus fast enough, there was still a chance of being able to match the enemy ship for ship and missile for missile.

He put his acceptance formally. " On behalf of Venus I accept your decision with gratitude. For myself—please forgive my hasty words. Let's start again as if they had never been uttered."

Macdonald took both statements without comment.

The week that followed was one of perpetual surprise for Drake and infinite delight for Flett. From the grand tour of Ruthan's major islands, Drake realised that old Macdonald had every reason to be proud of his achievements. Starting with the same assets as Venus he had transformed the apparently hopeless combination of scattered islands and unending oceans into a world of plenty. He had farmed the land and the seas and made them give up their riches. Flett went about with his mouth and his notebook open. The only thing that marred the trip was the presence of Vashimoto.

Both parties were seeing Ruthan for the first time, as the Martian had arrived just one day before Drake and Flett. He made no notes. For him it was not necessary. All he had to do was fill his avid eyes with the spoils which were going to be sent to Mars.

Vashimoto's plan was similar to Drake's. Starships would be built on Ruthan, using native labour. The ships would then be used to ferry grist to the Martian munition mills. But where Drake had intended leaving the entire export operation to Macdonald and the Ruthanians, Vashimoto had a labour supervisory force coming out in a few days to integrate the operation. At this news, Drake's hope of being able to catch up on munition production sagged.

But he urged Flett to continue borrowing Ruthan's wisdom.

Since the old man insisted on spending most of his attention on Vashimoto, it was from Joseph Hamm that Flett got most of his information. Hamm was a big, quiet man, steeped in Macdonald's methods and evidently trained to be his successor when the old man died. Born and brought up in the new world, he had none of Macdonald's inflated pride and took the various extraction processes as being normal practice. Flett had to drag every scrap of information from him with ceaseless questions.

Ruthan being nine-tenths ocean, it followed that by far the greater proportion of Ruthan's wealth came from the sea. Farming the sea—or Mariculture, as Hamm called it—had few of the difficulties an observer would expect. The oceans were calm, more like great lakes than seas. And although the waters were widely spread they were also thinly spread. For upwards of a hundred miles around each island they were no deeper than a man could stand in without being completely covered.

These immense shallows had been penned into neat fifty-acre pastures. The fencing had been done with the deliberate cultivation of thick, rank weed; open enough to permit the eternal interchange of water; close-meshed enough to prevent the escape of the animal life which lived in each pen, assiduously yet unwittingly doing the hardest work on the planet—gathering the elements from the sea and bringing them into concentration.

Some of the processes were familiar to Flett. The extraction of iodine from kelp dated back to Terran days. So also did the extraction of vanadium, although not on such a vast scale. From a single pen stocked with ascidians and holothurians, Hamm said they could get seven ounces of vanadium every day. At monthly intervals the pen was fished, the sea-squirts were pressed in shore-based factories for their blood, which was then dried and shipped to the extraction and smelting works. Ruthan never had a shortage of vanadium toughened steel.

Flett admired the streamlined efficiency of the pens. No pen was stocked with only one species. He saw farms with ascidians, prawns, gastropods and diatoms all living happily together. The nutritional requirements of each species were different and they dutifully collected different elements from the water while ignoring each other blithely. From the prawns the Ruthanians got arsenic. Murex gastropods absorbed bromine from the sea and from their purple juice the element was extracted. The diatoms were harvested for the rubidium they had collected.

The inshore farms showed the same economy. Wheat and astragalus were grown side by side. One took up manganese from the soil and stored it in the heart of its seed; the other spread its roots in search of rare selenium.

Familiar plants were grown in eye-opening prodigality for unheard-of purposes. Drake and Flett gasped at the sight of seemingly endless fields of lettuce. But as Joseph Hamm pointed out, the lettuce was a quick-growing source of so many riches. Molybdenum, chlorine, zinc, cadmium—these were only a few of the elements

which were widely scattered throughout the soil but conveniently concentrated in the lettuce leaves.

Some elements were obtained from more than one source. Joseph Hamm instanced zinc. Lettuce was grown primarily as a source of molybdenum and chlorine; its partiality for zinc was not outstanding. The main source of this white metal was the common oyster. The oceans contained only about one part per hundred million of zinc. The concentration in oyster flesh was forty thousand times as great. And since the flesh was mostly water, the dried oyster contained nearly four thousand parts per million of zinc. Zinc was by no means all that the obliging oyster extracted from the sea. It also toiled prodigiously to concentrate the copper in the water by six million times.

Flett rapidly filled his notebook with a double-columned inventory of raw materials and their source of supply. Opposite silver he wrote fungi. Nickel was paired with cabbage, gallium with duckweed, aluminium with mosses, lead with certain grasses, germanium with seaweed, tin with the helpful oyster again.

Macdonald had not stopped at straightforward farming. Where a particular element was available only from one particular plant or animal and even that species was not very efficient, he bred new species which could do the work better. Despite the fact that strontium was the fifth most abundant element in the oceans, it was not found in any great concentration in any natural marine organism. By experiment, Macdonald had discovered that the best source of strontium was the fœtus of Ruthanian sea mammals not unlike whales. Further experiment disclosed that the strontium was chiefly located in the embryonic retina. The whales that Drake and Flett saw had eyes measuring a foot in diameter, the result of deliberate breeding.

The supreme touch to all this efficiency was the fact that the farms, land and sea, yielded food as well as minerals. There was no waste on Ruthan.

Drake's spirits were high when he talked things over with Flett back in their quarters after the grand excursion. They had seen enough to convince them that the future of Venus could be secured, provided she survived all Martian attacks in the meantime. Flett maintained that in one year Venusian biological farms could be turning out all the material required.

"A year," Drake said thoughtfully. "We might just be able to do it. It depends on how long Vashimoto's squad takes to get ships built to ferry stuff to Mars. If we can get the facts you've

collected back home immediately, we could have all our defences up to par by the time Vashimoto's work is finished. I don't see how he can do it in less than a year, and a year is all we need."

But the morning brought calamity back into the picture. Macdonald was quick to see the implications of Drake's request to be taken back to the Venusian ship. He refused outright.

"I won't be a party to helping prolong your fight with Mars," he said.

Drake flared: "Do you intend to restrict our movements, keep us prisoners?"

"Until Vashimoto leaves."

"You're condemning the entire population of a planet to death!"

"You can ask for armistice," the old man reminded him.

"Sure. We can ask. But what makes you think we'll get it? Every ingot of metal you give them will be forged into a weapon against us. And they'll use them. We can ask, we can beg for armistice and they'll still wipe us out!"

Macdonald shook his shaggy head in annoyance. "Now you're being stupid. What good to them is a dead world?"

Drake met the old man's annoyance with a searing look of scorn and pity. "Can't you get it into your head, you senile idiot! I told you before—it's blood they want. Blood and revenge. Blind murder and destruction!"

He thought Macdonald's exit from the argument was feeble. "I have already secured President Vashimoto's word that nothing like that will happen," the old man said. "He will honour your surrender."

Then when Drake went outside to cool off and relay his news to Flett, the first thing he saw was a veritable fleet of Ruthanian airboats berthing in the harbour. Vashimoto's task force numbered a full hundred men. The building of munition ships was going to take nothing like a year.

The odds were distinctly discouraging. Drake and Flett were two against a hundred—with a million neutral bystanders on the sidelines. And even the Ruthanians' neutrality was questionable. Macdonald was the cheerleader and Macdonald was rooting for the Martians.

There was little Drake could do to make the odds more even. His movements were restricted. With Flett, he was still allowed to roam the island as fancy took him. But any tendency to roam in the direction of the airboats, which were the only means of reaching

their ship and its radio, was curbed. Every time they approached the dockside a wall of web-footed natives blocked their path. Nothing was said but it was plain that further progress was impossible without violence, and Drake had no intention of antagonising the Ruthanians; not while there was hope of making allies of them.

They had two keepers. The hulking Joseph Hamm was big enough and strong enough to swat them down on his own. They guessed Skoon tagged along in case they should split and try diversified action.

Hamm and the little native chief kept discreetly in the background. They made no attempt to stop the Venusian pair so long as they kept away from the dockside. On the other hand, they did not stay close or make any conversation unless spoken to. Yet their unobtrusive presence was always felt.

Occasionally Drake dropped back or moved forward to have a few words with Hamm. He kept the conversation on general lines; yet a less simple man than Hamm would have seen how Drake was delicately sounding the possibilities of a native uprising against Vashimoto and his crew.

The approach was too subtle. Blind to the veiled questions behind Drake's words, Hamm failed to make the right responses.

Drake decided to try Skoon and a more direct approach. He waited for an opportune moment and chose a time when they were watching a gang of Martian overseers supervising the harvesting and resowing of a field.

"It must be strange for your people," he said.

The little brown man looked at him in genuine wonder. "Strange?" he asked.

"Once you worked only for yourselves. Now you work for others. Once you worked of your own free will. Now you work to the orders of others—and work very hard by the look of it."

Skoon gazed at the rhythmic movement of man and machine but failed to see it as Drake did. "The work is the same," he said.

"What about *them*?" This time Drake's meaning was unmistakable.

"Macdonald said it must be so." Skoon spoke the old man's name with reverence.

Drake saw that he would have to tread warily. He asked gently, "Do you always do what Macdonald tells you?"

The answer was spoken with great simplicity. "Macdonald made the world what it is. Before Macdonald we had nothing. We do not question his wisdom."

And Drake knew then what held Ruthan together, why Macdonald was able to speak with such authority. By his work and the benefits it had brought, the old man had given the natives a creed, a religion of which he was the godhead.

"Did you starve before Macdonald came?" Drake asked.

Unaccustomed to leading questions, Skoon replied honestly, "Oh, no. We had the fruits of the land and the fish of the sea."

"That's what I thought. And what have you now that you lacked before?"

Skoon swung an arm. "Homes for the families of Macdonald. Machines to reap the fields. Workshops for making metals." He still did not seem to realise he was playing into Drake's hands.

Wisely, Drake did not press his point then. He stored his weapon for future use. Later, when the time was ripe, he would show that Skoon's people had gained nothing. Their earlier existence had been adequate by their own standards. Macdonald had been clever; clever and fair. He had not exploited the little Ruthanians or tried to change their culture. He had merely built on that culture, extending its scope so that without changing the native way of life, without unduly increasing their labours, there was room in the culture for Macdonald, the other settlers and all their descendants. Acting on a hunch that Vashimoto's men would be less scrupulous, Drake kept his new weapon sheathed.

But the next few weeks brought his opportunity no nearer. The Martians fulfilled his expectations by stepping up the pace. The fields and seabeds were reaped and sown and reaped again in a frenzy of activity. Three-fourths of Vashimoto's party were deployed on other islands of Ruthan and the Martian president made a point of telling Drake that the same progress was being made everywhere. A perpetual stream of barges bore the harvest from land and sea to the smelting shops. At the end of a month the ring of forge on metal filled the air as the foundations of the first Ruthanian starship were laid. The nights were lit by welding arcs. The acrid stench of hot metal was everywhere.

Yet Skoon and his people made no protest. As always, they took their lead from Macdonald and the old man was rapt in enthusiasm and wonder at the smooth progress made by the Martians. It followed that the visitors must be greater gods than Macdonald even.

When the women and the older children were brought in to step up production further, Drake's hopes rose. He could see Skoon's uneasiness, although the little man made no complaint. Drake held his tongue until the inevitable sequel followed.

Working in close proximity to the women, who were attractive in their nakedness, the Martian overseers began to cast eyes. Their overtures did not stop there. It became impossible not to see what was going on. In the absence of any protest by the native women—who were only yielding to the requests of the gods—the Martians were quite open about their conquests.

Drake tackled Hamm about it. "I thought it was only ships and munitions they came for——"

Hamm frowned, but made no answer.

"Don't you mind?" Drake prodded.

"I don't like it," the big man replied gruffly. "I'm surprised."

"Surprised at it happening or surprised at Macdonald for not stopping it?"

Hamm found it difficult to speak against his mentor. Yet he was honest and his honesty overcame his reluctance. "The latter, of course," he admitted. "The thing itself is understandable. Many of us have loved and wedded Ruthanian girls. My own wife is a——"

Drake cut in: "There's no marriage or love in this and I hope the women don't think that's what the Martians are offering. You know what comes next, don't you? They'll tire of the natives. They'll want something better, something less acquiescent. Maybe at first it will be the mixed descendants of early marriages. Then it will be white women, pure descendants of the early settlers."

"They wouldn't do that," Hamm declared. His doubt showed when he added, "Would they?"

"Not openly like this. But truly or falsely they'll say they need still more workers. That will give them the opportunity to meet the women. Then well, you'll see."

If he had not gone so far, Drake would have had him. But Hamm, judging the Martians by the standards of his own morality, shook his head and declared, "No. You're trying to turn me against them. I forgot for the moment that they were your enemies."

Drake shrugged and left it there. Time would bring the truth into the open.

Unfortunately, Macdonald was less fatalistic. Joseph Hamm must have reported his conversation with Drake, for the old man came storming into the Venusians' sleeping quarters for the first time in weeks.

"Give you people a privilege," he shouted, "and you abuse it right and left! I gave you a certain amount of freedom and find

you using it to incite riot. If you're trying to be confined to close quarters, you're going the right way about it!"

Drake forgot to be cautious. He answered with as much fire as Macdonald. "Maybe it's just as well somebody isn't blind to what is going on! Go ahead, lock us up. With or without any prompting there's going to be a riot on your hands sooner or later. You know, apart from your stubborn attitude towards Venus I thought you were all right. In a way I liked you, admired how you had transformed this planet. But now? Ugh!"

The two thickets above the old man's eyes came together in a frown. "Just watch your step," he warned. And Drake knew he had won a victory, even if only a small one. He called on his diplomatic training after that and was more subtle than ever when quizzing Hamm or Skoon.

In the sixth month of their stay, the Martians began making fissile material for the new ships' drive, using the reactor from their home ship as a breeder. A great pyramid of oceanic stone was built as a shield while the reactor was in operation. There was a sharp drop in harvesting when half the island's air boats were drafted to carrying hot waste far out to sea.

The temporary sag in the harvest was soon made up. Non-natives were requested by Macdonald to go out into the fields and help.

"Well?" Drake said to Joseph Hamm. "Didn't I tell you?"

Hamm pretended not to hear and Drake swallowed the question. He did not want to be reported again for inciting riot. He tried another line.

"Has your wife been commandeered?"

Hamm put it less bluntly. "She is helping."

Drake said flatly, "It's your wife," and left Hamm to worry it over.

About the same time, Flett was quizzing Skoon. He discovered that every member of the little man's family was in harness, and that Skoon had doubts about their safety. In their drive for material, Vashimoto's men were pressing the naturally amphibious Ruthanians to stay submerged to the limit of their endurance.

Skoon added, "We have also been told to work new pens, further out to sea than the old ones." From the way he said it, Flett wondered if the natives were superstitious about the deeps.

"We are not children," Skoon declared. "But my people have never needed to work the deeps before and only a fool is unafraid in

strange territory. Besides, it is making them sick. They say there is poison in the deeps."

Flett got Drake on his own. "You can see what's happening. They're running into the fringes of the radio-active dumps."

"They shouldn't be. Not if——"

"Not if Vashimoto's men took the waste as far as they should have. But they're so intent on saving time they have obviously dumped the stuff not more than two hundred miles out. Why should they care? It will be months before diffusion brings the inshore waters to a dangerous level. By then they'll be back on Mars."

"That does it," Drake said. "I'm going to raise a stink about this even if I get thrown in chains. If Macdonald can't see the danger, it's up to us to make him see. Let's find him."

They did not have to go as far as the old man's house. There was a hullabaloo at the adjacent quayside. A crowd of natives was ringed around an inert form on the ground. Macdonald and Vashimoto were kneeling at the side of the still figure. Drake pushed his way inside the ring. One glance at the dead native was enough. He recognised the sores.

"What happened?" he asked.

"He was diving," Vashimoto said. "He came up belly first. He must have stayed down too long."

"And the sores?"

"Jellyfish. Perhaps the shock of the sting made him drown."

Drake blew out his breath in derision. He addressed Macdonald. "How long are you going to keep your eyes and ears shut? You know as well as I do those are gamma scabs. That man has been dying for days. Drowning wasn't the prime cause of death. He died because he has been working too long and too close to the radioactive waste dumps—and he's not the only one. There will be more deaths like this."

Vashimoto opened his mouth in denial but Drake rushed on while he had the initiative. "I'm not just trying to cause trouble again. Ask your people if you don't believe me. That's how I heard about it. The waste wasn't dumped nearly half as far away as it should have been and with the new pens being worked, deaths like this were bound to happen. And those who don't die through radiation will die of overwork. The natives may be wonderful swimmers and divers but they're not accustomed to deep waters and high pressures, especially when they are made to endure them to the limit of their lung capacity."

Drake got it all out in one long breath, the only sure way of

being heard. A murmur from the crowd told him he had reached the audience he had sought. The odds were beginning to shorten. It was no longer two men against a hundred. The murmur changed to an angry mutter and Drake knew it was also no longer only his word against the enemy's. He was going to enjoy watching Vashimoto try to talk himself out of this one.

The Martian made a wonderful attempt. He asserted that the lethal waste had been dumped beyond the agreed five-hundred-mile limit. The presence of radioactive material within that limit could only be due to unpredictable deep-water currents—on their own admission the natives knew little of what went on in the depths. And if by any chance the waste had been dumped closer to the islands then it was without his knowledge, strictly against his orders, and the overseers responsible would be severely punished.

"As for Drake's insinuation about overwork——" Vashimoto concluded. "That's nonsense, of course. Your help was given voluntarily and under that circumstance we can't *force* anyone to do more than he wants to, can we?"

His attempt to explain the native's death was good enough—but only just. When the Ruthanians dispersed at Macdonald's signal they were still whispering among themselves. The old man

gave Vashimoto a stern warning to make sure the waste from the breeder was properly disposed of.

"The oceans are big enough," he said. "Raise the limit to a thousand miles."

"A thousand!" The Martian's dismay was patent. "That's going to cut our rate of progress by half."

"What's your hurry?" the old man asked and Drake could have kissed him. Then the old man spoiled the effect: "You've got nothing to fear from Venus while Drake is here."

He dismissed the Martian, nodded to Joseph Hamm and said to Drake, "I told you not to make trouble. I'm placing you and Flett under arrest. Take them to the house, Joseph."

It was not the confinement that surprised Drake but the place of confinement. Instead of being locked in the house which had been temporarily theirs, they were taken to Macdonald's house where Hamm told them they could move around as much as they pleased so long as they stayed indoors.

He left them to it and it did not take them long to discover that the old man's house was far from being the simple abode they had thought. In one room they found a library of sound and vision tapes as comprehensive as any Venus had. In another they found a mass of radio equipment and guessed this was the room in which Macdonald communicated with the rest of Ruthan's islands. Drake thought it probably linked up with a transpatial sub-radio transmitter somewhere but he also realised there was little chance of being able to use it to call the home planet. The first fumbling attempt to find the link would bring the old man and his wrath.

The other rooms in the house were purely domestic. Drake and Flett were on their second tour and just about to leave the communications room, resigned to passing the time with the library of tapes, when Flett called out.

The biochemist was lying on his stomach on the floor. He had unclipped one of the wall panels below the waist-high bench of equipment. He pointed to a pair of thick cables.

"Power lines," Drake commented and waited to see why Flett thought they were significant.

"They go underground."

"They usually do——"

Flett put his hand inside the panel. "Feel the current of air coming up. It's warm. These cables must go down to an underground room."

Drake nodded and put a finger to his lips. He signalled Flett to remain where he was and left the room. He came back in a few seconds with the whispered information that Hamm was outside the house, still on guard but not apparently worried about what they did inside the house.

They started a silent methodical search for the entry to the underground room. What they would find there they did not know. However, it seemed obvious that it must contain something very special. They could think of no other reason why it should be concealed. Likewise, it followed that a secret room was not meant for their eyes and they searched as quietly as possible to avoid discovery.

The trapdoor was under the table in the dining room. The underground chamber was several times bigger than the assembly hall where the Council of the Seven Islands of Venus met. It was a powerhouse that made a lie of Macdonald's statement that there was no centralisation on Ruthan. And the immense chamber was not all. Drake and Flett found passages leading to other chambers equally vast. They found reactors, computers, laboratories for physical, chemical and biological research. Ruthan must have been the most up-to-date hick planet in the universe.

When their eyes had had their fill, Drake said to Flett, "This set-up smells more than somewhat." He pointed to right and left. "All this—machines, reactors, labs—and not a soul in sight!"

Flett said he thought everybody had been diverted to helping Vashimoto.

Drake disagreed. "Old Macdonald is a crafty character. If he can keep this place a secret from us he can keep it a secret from Vashimoto too. And he can likewise forget to mention the people who work here."

Flett blinked owlishly at his superior. "But where are they, then?"

"Conveniently absent. Somebody meant us to find this, somebody we didn't realise was on our side, somebody who made sure the underground technicians had a few hours off duty so that we could find this place without being ourselves discovered."

Flett blinked again. "Macdonald?" he asked.

"Not Macdonald. Joseph Hamm. He has enough at stake to make him an ally. His wife is a local girl."

"Why the subterfuge? Why doesn't he tell us straight which side he's on?"

"Would you? Imagine how Macdonald would react if he knew. And our Joseph has been under the old man's thumb so long

he can't bring himself to open defiance. In fact, the slightest tactical error on our part will tip his allegiance back the other way."

"What do we do now?"

"Play according to Hamm's cue. Which means that for the moment we don't acknowledge his allegiance. We act the innocents until he says when."

But as the weeks went by without a sign from Joseph Hamm they began to wonder if their assumption had been correct. He was at the table daily with them, yet never once did he indicate his alliance to their cause.

The knowledge that their mission had been a failure weighed heavily on them.

Just when they thought nothing could make them feel any lower, Macdonald announced at the supper table that they could go outside. That was almost exactly nine months after the day of their arrival.

"I want you to see this," the old man said cryptically.

This was the congregation of the Martian starships. One by one they came screaming in from the islands on which they had been built, until they were gathered in wide-spaced array on one immense field. They made a staggering picture of power and beauty wedded together. As far as Drake and Flett were concerned it was a preview of the end of Venus.

Drake took it in grim silence until the tenth and last ship stood in line. Then he turned on Macdonald and unleashed a stream of words, none of them diplomatic and few of them in any dictionary. Having vented his spleen he got down to cases and gave his opinion about Macdonald's act of parading the ships for Mars in front of the representatives from Venus.

"I take it we are free to go home now," he said, adding bitterly, "Empty handed."

"Not yet," the old man said.

"Let them go," Vashimoto sneered. "They can't do any harm now. We'll be home as soon as they are. All we need now are the coordinates."

Old Macdonald gave him the reply he had given Drake. "Not yet," he said.

"Why not?" Vashimoto had difficulty in controlling his temper. "Granted we are carrying a fair cargo, but it is only the beginning and it will take many journeys to stockpile all we need. The sooner we start the better."

He would have said more but his words would have been lost

in the ear-filling unmistakable roar of a starship. It was not one of the Martian ships and it was coming in, not taking off. An airboat went to meet it, collected the single passenger who alighted, and deposited him before the waiting group.

The visitor smiled to Drake, ignored Vashimoto and held out a hand to Macdonald. "Charles Gerard Lithgo," he introduced himself. "Pleased to meet you, Hamish."

All around him, Drake noticed a mild shuffle. When it was over, each and every Martian overseer was surrounded and made immobile by a group of Ruthanians. Quite obviously President Lithgo's arrival had been a prearranged signal for action. The stage was set for the principal actors—and there was not the slightest doubt as to who was the leading character.

Revelling in his rôle, Macdonald returned Lithgo's greeting and said, "Tell him how many ships you have!"

"With pleasure." Lithgo faced Vashimoto. "For every ship you have built here in the past nine months we have built five on Venus. You had a hundred overseers and the rest was unskilled labour. We had our entire technical strength at our disposal."

Right on cue, Macdonald continued his assault on the Martian. "You asked for help and got it. You asked for ships and got them. But Venus got more. Now you are as strong as you wanted to be. But Venus is stronger. Do you still want to carry on your war?"

"Until Venus is crushed!" the Martian raved. "We fought you on Earth, we'll fight you on Venus and we'll fight you here on Ruthan. And destroy you! To think of the months I've tolerated your silly drivel and now this!"

Drake saw how the play would unfold. "You swallowed it," he remarked.

"Because I was foolish enough to think you placed great store on honour. Because Macdonald lied about wanting Mars to win. Because——"

The old man cut in. "Everything I said was essentially true. I still believe the only way to stop your war is for one side to yield. My only deception was to say Venus should be the loser. Your mistake was to believe I could nurse a grudge for over thirty years."

"And you think *we* will yield?"

"That's for you to say. That's why President Lithgo is here. These things must be decided by the heads of state."

"Never!" The Martian was seething. "If they had ten ships for every one of ours I would still fight. Submission is for weaklings.

We may lose a few battles but you gave us the knowledge of how to get wealth from poverty. We'll use it and build until we are strong enough. Hate is a great sustainer."

Looking like a shaggy Old Testament prophet, Macdonald told him, " We gave you nothing—nothing you can take with you. What we gave was given to Venus nine months ago; as soon as we knew you were coming here. What you got was something to obsess you, to occupy you, to give Venus the time she needed."

Drake was sharp enough to realise why he had been kept in the dark. He had no quarrel on that score. But something bothered him. He said, " Wouldn't it have been simpler to keep the Martians locked up? You lost a lot of men. And look what happened to the women."

Macdonald acknowledged the question with a nod. " It had to be done thoroughly or not at all," he said. " Vashimoto was allowed to use our stellar radio. One reason was to ensure that all suspicion was lulled on Mars. Another reason was to glean from his conversations the names of his agents on Venus. Your president was able to apprehend the main ones and from them he learned the names of the smaller fry. As for the men who died through radiation—well, that was a price my people were prepared to pay on your behalf. The women you mentioned were volunteers who deliberately put temptation in the Martians' way."

Drake remembered his argument with Skoon. " I'm not being ungrateful," he said. " But wasn't that taking advantage of their simplicity, of the hold you have over them?"

Skoon answered that one himself. " I regret not being able to tell you before," he said apologetically, "but your conclusion was wrong. The Master did not develop our world solely for the benefit of his own people. You assumed that we had plenty before the Master came; that the fruits of the land and the fish of the sea would have sustained us forever. But in truth we were starving. We knew little of agriculture. Our crops grew less every season. The inshore fish beds were almost depleted and without deep sea plankton near the islands the fish did not migrate from the deep waters."

Drake thought the picture of a little naked near-primitive spouting words like *agriculture* and *plankton* was incongruous. But he realised that Skoon was probably quoting facts which were now part of Ruthanian legend.

The native continued, " The Master saved us from starvation. He sowed the fields and the sea beds with new stock, strong stock which bred with our weakling stock to give healthy, thriving life

again. Just as our cousins who are the children of the Master's people and ours are stronger than we are."

Drake put a hand on his shoulder to indicate that he understood; if Macdonald's efforts to prove his biological theory and to make a home for himself had called for much hard work from the Ruthanians, the natives too had gained and had been amply paid for their labours.

Vashimoto sneered. "Do you believe all that?" he asked Skoon. "If you do, you've been taken in as much as I was by Macdonald's forked tongue. Can't you see you've been exploited for thirty-five years?"

He looked around him. "You are many and the people of Venus are few. Rise from your slavery and put them down. Help me and I will help you. Let me take the ships to Mars and I'll come back and give you anything you ask for!"

Skoon simply smiled. "We have everything," he said.

"You're wasting your time," Macdonald said. "They know all about Earth's history. They know that men are good and bad. From experience they have learned that we who came from Venus are more good than bad while you have very little virtue in your make-up. And if our work and behaviour here have made deities of us, I have no regrets. A religion gives a race unity and purpose."

"More drivel!" the Martian president snarled.

The old man addressed Skoon. "What would have happened if we had not come?"

"We would have died," replied the native quietly.

"Then you leave me no choice," the Martian announced. "We haven't been idle on Mars. The fleet we were building here was our trump card—but not our only one. At this moment a smaller fleet of four ships is on its way here. They were coming to carry cargo. But as we always try to see the unforeseeable, they are coming with full armour. They will blast your little paradise planet right out of this galaxy!"

The old man smiled at him in pity. "They will never get here. A radar-negative field has been pulsing round this planet since the Venus ship pulled in. I told you before how much I cherish peace. One way to get it is self-isolation. With the R-N field we have achieved that. Until nine months ago it was never broken. After you leave and the other Venus ships arrive it will probably remain in operation for a century or more."

Vashimoto frowned. "What other ships?"

The old man turned to President Lithgo who took over. "You

wanted Venus and you can have it! Venus, Mars, Jupiter—right out to Pluto, the entire solar system is yours. In a few hours you will be sent home. There you will remain until the end of time, masters of an empty kingdom."

"Empty?"

"We both built fleets of ships. And in doing that we both stripped our planets to starvation level. Earth is also depleted and will be radioactive for at least another thousand years—you can't go there for the stuff to furnish a new army. As for the other planets —Well, nobody knows to this day if there is anything under their frozen surfaces."

Lithgo went on relentlessly, "You're doomed to solitude, Vashimoto. You'll live—but you will never carry war to anyone again. For one thing, you won't have the strength. For another, there won't be anyone to fight. Our ships are going to ferry my people from Venus to Ruthan."

"Then you won't be much better off," the Martian said. His voice had lost its crispness but he still tried to sneer: "Stuck out here, shut off from the universe."

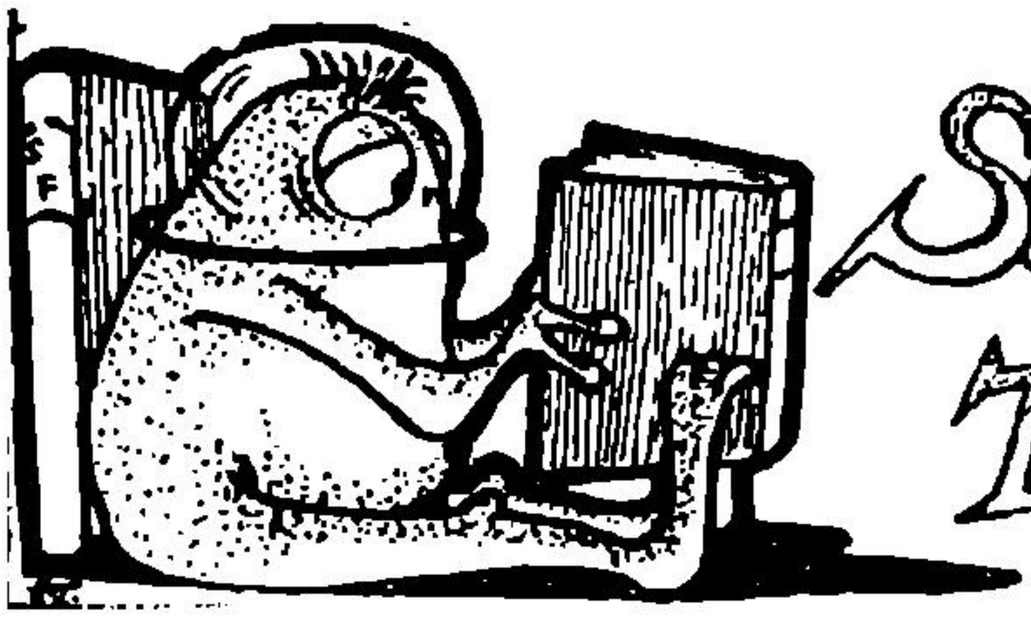
Lithgo had the last word. "It won't be forever. Hamish Macdonald's researches have gone much further than the study of the feeding habits of lower life. His work has shown that the time has come for human stock to be improved. In a century the new race born of Venusian and Ruthanian should be sufficiently established for the next move outwards. Some day when your people are huddled over their last fire, weak, decadent, gone to seed, ours will be reaching out to the furthest galaxies, alive and strong."

He bent, took a handful of soil and let it dribble through his fingers. "One man has ensured the future of the human race. One man with an idea."

He turned to Macdonald who was blinking his eyes. He said, "There was a comic song my grandfather used to sing. Some day it may be sung again, not in fun but as a hymn. Some day *Homo superior* may think of Ruthan and raise his voice in praise——"

As the Martians were led away, he put an arm around the old man's shoulders and softly hummed: "Old Macdonald had a farm——"

ROBERT PRESSLIE



SOMETHING TO READ

New Hard-Cover Science Fiction Reviewed by

KENNETH F. SLATER

The novel of catastrophe has, even at the lowest slump in science fiction, always managed to find a publisher. So it is not surprising that today, when science fiction is still reasonably popular (despite efforts to disguise all such books as something different), that Faber & Faber should produce John Bowen's AFTER THE RAIN (15/-, 203 pp.).

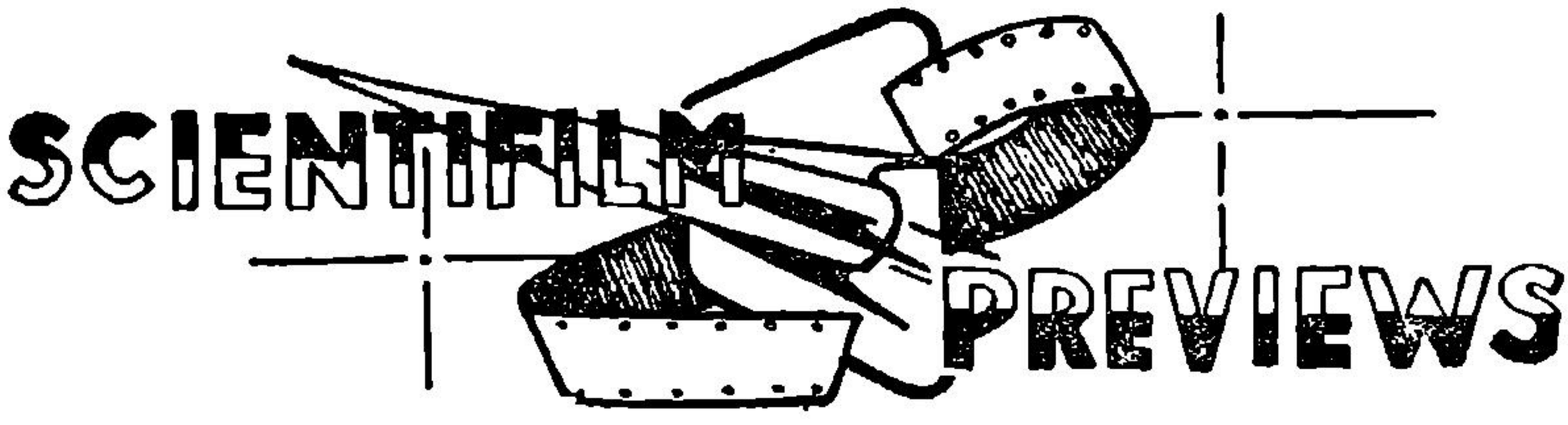
The first twenty pages consist of a sort of preamble in which the "hero" (*sic*) meets the Rainmaker in the book-buying department of Foyles (delightful episode) and then accompanies him to Texas on a rain-making expedition. The Rainmaker, using some Heath Robinsonish apparatus, successfully blows himself up—and as a storm was in the offing when he started out it is very uncertain whether he started the rain or not. Needless to say, it does rain . . and rain . . and rain. There follow thirty-odd pages during which the havoc wrought on the world is told, as seen through the strictly local viewpoint of the hero; he has returned (we suppose) to England during the early days of the rain, and we read of his experiences while the flood waters rise, while plague and starvation reduce the population—which is all very unrealistically and off-handedly presented. What would be the major part of an epic from the pen of Wyndham or Christopher is a purely incidental matter here. Finally, Clarke and two women find their way to the Mendip Camp, an official refuge of sorts, and Clarke and one of the women, Sonya, depart again when the plague strikes here; using the rubber dinghy in which they arrived, they travel from rooftop to steeple until the desperation of the survivors and the rising waters make this impossible. Soon they are alone on a watery waste—and then they see the raft. It is with the raft and the people on it that the rest of the story is concerned. In this microcosm parade Arthur, the dictatorial and egotistic leader; Hunter, an inconsequential person who does what he is told, mainly, it seems, because he is too lazy to do anything else; Banner and Muriel, sycophant worshippers of the God Arthur (Banner was a priest without a vocation, driven to the Church by a desire to "do good", to help his neighbours—and possibly to order them around). Then there is Tony, a devotee of

physical culture, slow in thought —but with definite views; Wesley, self-convinced murderer who looks on the flood as a personal vengeance wreaked upon him by God. And Gertrude, one-time actress, who, though stronger willed than Muriel, also falls under the sway of Arthur's godhood—for Arthur is convinced that he and this small party are being saved by a form of divine intervention known as Natural Selection; from this, by easy stages, he proceeds to the position of being the Saving Power in person; thence he becomes his own high priest.

You will grasp that the story is primarily concerned with personalities, the interaction of this tiny group of survivors. This action varies from the straight "adventure" aspect demanded by the plot to the "satiristic" demanded by the author, and this conflict of themes tends to weaken the interest from the viewpoint of the science fiction reader. Despite this, if you do like stories of cataclysm, I recommend you read this book. It contains some truly delightful episodes, entertaining sidelights and some deep thinking.

For the ardent space enthusiast, Isaac Asimov's THE NAKED SUN (13/6, 238 pp.) is worthy of attention. This is, of course, a sequel to THE CAVES OF STEEL, and continues the theme of robot and man, of science fiction detection. Whilst "CAVES" was, for scene, restricted to Earth, in THE NAKED SUN we follow the adventures of the first Earthman to go into space for a millennium—Lije Baley, who is given the task of solving a murder on Solaria, a Spacer world occupied by 20,000 people. Mr. Asimov presents a problem on three levels. The first, and outward one, is the detective story—absorbing in itself. Underlying this we have the conflicting cultures—Lije Baley, representative of Earth's teeming and gregarious millions to whom privacy (even as we understand it) is almost unknown, and Galdia, a woman of the Spacers, to whom privacy is all-important. Privacy, however, implies lack of personal contact to a Spacer. "Viewing" between the sexes has no nudity taboo—but even to be together in the same building, clothed and separate, is unbearable. Then, on the third level, we have the personal problem of Baley. Admittedly, one which would be shared by any other Earthman in his position—but his problem in this instance. His overpowering agoraphobia, an inbred fear of the open, a lifetime in which he has never seen the sky—his personal problem is to overcome this, in the face of the opposition of his partner, Daneel, who, being subject to the three laws of robitics, cannot permit Lije to take the risk.

Space-opera, perhaps, but good Space-opera.



News and Advance Film Reviews Direct from Hollywood's

FORREST J. ACKERMAN

Pseudo-scienti-flimflam. Are you getting tired of it? I am.

Increasingly fans, friends and readers of my columns on both sides of the Atlantic ask me, "Are there any *good* science fiction films coming up?" I have to think long and hard, discarding *Queen of the Universe, Monster from the Sputnik, Satellite in Blood, The Astounding She Monster, Colossus of New York, The Giant Behemoth,* and a dozen others no different, before coming up with some tentative affirmatives. George Sanders and Joseph Cotten in Jules Verne's FROM THE EARTH TO THE MOON holds promise. VILLAGE OF THE DAMNED (*née* "The Midwich Cuckoos", by John Wyndham) should be okay. Science fiction author, Jerome Bixby, scripted "It" with affection; what cast, direction, etc., are to do to it remains to be seen—the retitling to VAMPIRE FROM OUTER SPACE is, of course, a step in the *wrong* direction. Speaking of vampires, Dick Matheson tells me the script he did in England of his own novel, "I am Legend", is running into preproduction censorship trouble: the screenplay is considered so ghastly that it may never be made. Universal Studios shelved Matheson's FANTASTIC LITTLE GIRL.

Meanwhile—back at the marquee: the third BODY SNATCHERS (no relation to the Karloff-Lugosi Stevenson story nor Jack Finney's INVASION OF same) is the poorest of the trio. It is little more than another Jekyll-Hyde yarn. The locale is mainly a Mexican sports arena. There is a series of mysterious murders involving athletes, their brains brutally bashed out. A foreign scientist is behind it all, attempting to prolong human life by exchanging the brains of his victims with those of anthropoids. A wrestler called "The Vampire" is killed by the mad scientist, his brain replaced by that of a gorilla, and his strength increases day by day. Masked, the apeman is sent into the ring. During the fight the face of the wrestler is revealed, and it has now undergone an animalistic degeneration. The crowd panics. The monster undergoes two or three more facial changes as he chases the scientist, finally catching up with his personal Dr. Frankenstein and impaling him on a hat-rack (a very crunchy scene). Comes now the Quasimodo sequence of the monster running around rooftops with the heroine under his arm, till she faints and he falls

ONE GUINEA PRIZE

To the reader whose Ballot Form (below) is first opened at the NEBULA publishing office.

All you have to do, both to win this attractive prize and to help your favourite author win the 1958 Author's Award, is to number the stories in this issue in the order of your preference on the Ballot Form below, or on a postcard if preferred, and mail it immediately to NEBULA, 159 Crownpoint Road, Glasgow, S.E.

Advertise Your Cyanide	
Godling, Go Home!	
End Planet	
Motivation	
Old Macdonald	

Name and Address:

Miss Joan Couzens of Rushden, Northants, wins the One Guinea Prize offered in Nebula No. 26. The final result of the poll on the stories in that issue was:—

1. DEAR DEVIL
   By Eric Frank Russell 31·5%
2. TRAINING AID
   By E. C. Tubb 20·2%
3. THE MEEK SHALL INHERIT
   By Philip E. High 20·2%
4. FIENDS FOR NEIGHBOURS
   By Robert Tilley 17·9%
5. TEN STOREY JIGSAW
   By Brian W Aldiss 10·2%

The result of the poll on the stories in this issue will appear in NEBULA No. 32.

and—in the words of the programme notes—"the night of horror ends, and with it calm returns to the troubled metropolis".

In the genre of THE DEVIL DOLL (filmisation of A. Merritt's "Burn! Witch Burn!"), DR. CYCLOPS (the technicolour big one of the early '40s) and, latterly, Matheson's microscppicture, THE FANTASTIC PUPPET PEOPLE, is the poorest of the quartet. We have a doll-maker who makes legitimate toys by day and, in the locked lab in the back of his shop, illegitimate experiments in "reducing" people by night. It wasn't clear to me at the preview just why said body-shrinker was queer for making little people out of big ones, but anyway he turned the diminishing ray from his machine on about half a dozen acquaintances and friends who, having lost all sense of proportion, then referred to each other as "living dolls" rocked 'n' rolled on table-tops, and indulged in small talk. Viewing Matheson's Incredible Shrinking Man, I could suspend disbelief and share grief with the situation; for the Puppet People of the present picture I could feel nothing but a sense of contrivedness. The special effects are fair, the best being the dialling of the giant phone and the living puppets themselves in a state of suspended animation in their cylindrical glass coffins. The ray-machine itself is modernistically appealing without being too flashgordony. But my capsule comment would have to be: Dolls dull.

WALTER WILLIS writes for you

I hesitate to suggest this of such intelligent and well-read people as the readership of NEBULA, but it is possible that some of you may have missed a recent article in the *Justice of the Peace and Local Government Review*. It was called "Bleep Law", an unusually snappy title for this serious minded publication, and it dealt with the fascinating legal problems raised by space flight. Being something of a legal expert myself . . well, I once got sixpence worth of chips wrapped in the *News of the World* . . . I thought I would explain it all to you. Apparently up until recently the legal position in these matters has been governed by the old common law maxim *cujus est solum, ejus est usque ad saelum et ad inferos*. (And you must admit that you don't get high class stuff like that in just any old magazine column.) My Latin has got a bit rusty. I should never have left him out in the rain . . but looking at that lot with my eyes half closed I figure it means he who owns the land owns above it as far as the heavens and below it as far as you care to mention. You can see the sense of that—you can't have people digging subways under your rhododendrons or viaducts half an inch above your convolvulus—but you can also see it might get pretty silly when the same people get up to their antics a hundred miles up. It seems, for instance, that when the first Russian satellite went up into its orbit the Americans complained it was violating their airspace: nuts said the Russians in diplomatic language, we fired our sputnik straight up into our airspace and it's still there, it's just that America keeps sneaking round underneath it. Well, you can see both points of view, and it's obvious that our old friend *cujus est solum* has just about had it, the same as happened to poor old Isaac Newton's laws when they came up against space. I can't help feeling it's a pity though, because the old law had some wonderful implications. It meant that if you owned a bit of ground, you owned it not only right down to the centre of the earth, a long narrow cone 4,000 miles long, but that you owned everything contained in the continuation of this cone upwards. Since your fences are at right angles to the ground and the earth is curved, your cone of possession keeps getting wider and wider and wider. Do you realise that at this very moment you probably own a couple of nebulae? Makes you feel good, doesn't it, even if they don't contain copies of this column. Unfortunately you won't own them

long, because your cone of possession is sweeping through space like a demented searchlight, and possession has probably already passed to the man next door. Ah well, they wouldn't have been much use to you anyway. Even if you were fortunate enough to live on the Equator you wouldn't own the Sun long enough to file an injunction on other people using it, and anyhow they'd probably plead ancient lights or something. Maybe it's just as well they're going to change the law, come to think of it. Think of the rates on the Sun! No, it's a sticky problem and we'd better leave it to the legal Einsteins to fix up.

Talking about sticky problems, I notice that a certain American science fiction magazine has been running articles about a psionic machine. I have skipped other articles in this magazine because they contain mathematics, and mathematics always sends me into a sort of coma from which I awake to find myself reading some other magazine, but I've been reading these articles and I think I've found out where everybody has been going wrong. As far as I can make out, they've been feeding electricity in at one end of this machine and getting a sticky feeling on a plate at the other end. Well, it seems to me that this is going about it the wrong way altogether. What good is a sticky plate to anyone? (Except of course people who have lost their teeth.) My own view is that, generally speaking, there is far too much stickiness in the world as it is. Why, just look at all the energy, lubrication and talcum powder we expend trying to get rid of it. Why produce more? Conversely, there isn't nearly enough electricity. The sensible thing, it seems to me, is just to reverse the connections on this machine so that it absorbs stickiness at one end and produces electricity at the other! There could be great psionic power stations all over the country, fed by wads of chewing gum, old stamps, bits of cellotape, burnt rubber, old caramels and similar hitherto useless junk and producing clean useful electricity, not to mention reconditioned caramels. You might even develop a new type of motor car driven by a miniature psionic pile powered by the friction between the tyres and the road—the faster you went the more power the pile would deliver. I think I'll take out a patent on this, as soon as I can figure out a way to get it started.

Review

British fandom has been resting on its rather wilted laurels since the World Convention and things have been prenaturally quiet in the fan publishing world. So it's a pleasant surprise to be able to welcome the reappearance of *S F NEWS*, a guiding light which has left us in the dark for far too long. It's published by Vincent Clarke at 7 Inchmery Road, Catford, London, SE6, with the assistance of Joy Clarke and H. P. Sanderson. The price is 6d. per copy and worth much more to anyone interested in what's going on in the science fiction world, and who appreciates intelligent comment and thoughtful reviews. Very highly recommended. Why not send for a sample copy?

GUIDED MISSIVES

LETTERS TO THE EDITOR

Dear Mr. Hamilton: The comments in your editorial in NEBULA No. 26 about the poor little space dog disgusted me. If mankind cannot reach the stars without subjecting helpless animals to the horrors of "take-off" and "free fall" so graphically described by your authors, then let the human race stay where it is. In fact, since the human race has proved so often that it is incapable of getting along without wars, perhaps it would be better for any really civilised race in the galaxy if man never really got away from Earth at all.

Man will have to answer for what he has done and continues to do to the animals put into his care.

S. WRIGHT,

London, S.W. 18.

* *As you are very possibly aware, Mr. Wright, the precise physical and mental reactions of a living creature to the unusual conditions aboard a vessel orbiting in space are not yet fully investigated. So, when the Russians decided that they were capable of building and launching an artificial satellite large enough to contain a "passenger" they had the option of sending a human being to almost certain death, or of sending a dog, whose chances of getting back were much greater.*

The only possible choice was made and, while "Little Lemon" did not return, the information collected as a result of her flight brings the day much closer when a man can venture out into space—and return unharmed.

The sacrifice of the life of one dog seems a very small price to pay for such a decisive step towards the ultimate goal of spaceflight and the new age of peace, expansion and racial maturity which it will surely bring.

Dear Mr. Hamilton: Thank you so much for your editorial in NEBULA No. 26. It was wonderful to read the views of someone broadminded enough to give honour where it is due, regardless of the political colour of its recipient.

J. D. MACDONALD,

Glasgow, W. 4.

* *Thanks for the kind words, Mr. MacDonald. As you imply, it was difficult to escape the impression that had it been a Western Power which launched Sputnik II, rather than Russia, we should all have heard a great deal less from "outraged" dog lovers.*

Dear Ed.: Having read NEBULA since it first appeared, I think it is about time I wrote to you giving my own views on the magazine so far. Naturally, the first thing you come to is the covers. Maybe I am prejudiced on art, not having studied it in any great detail, but I don't like your front covers at all. The back covers are totally different in outlook. It makes me see red when I read in the letter column that someone doesn't like them. Your back covers on Nos. 13 and 14 were masterpieces, and I'd like more of this type. They appeal to me much more than the front covers on the same issues.

Your best authors are Eric Frank Russell and E. C. Tubb. I look forward to more of their stories in the future.

I disagree with the idea that fantasy should be allowed in NEBULA, unless, of course, it is a true masterpiece. The magazine is labelled science fiction, so why not keep it that way?

All the letters in your "Guided Missives" section seem to say the same thing, that is, how good your magazine is. Don't you ever get any criticising ones? Who wants to read about how good the magazine is, and the story ratings? Some of this used to be interesting, but now it is monotonous. A printed letter should be in the form of an argument or something controversial centring in the magazine in question.

BRYAN WELHAM,
Clacton-on-Sea, Essex.

* *Print nothing but the critical letters? I wouldn't think of it, Bryan. "Guided Missives" would have to close down for lack of material!*

Dear Mr. Hamilton: I have one minor criticism of NEBULA No. 26 which, incidentally, I found most enjoyable. While I do enjoy "horror" stories like "Fiends For Neighbours", I do like to keep them separate from interstellar wars. If any question of dropping supernatural yarns from a science fiction magazine arises, then I vote in favour of the said dropping.

J. H. WHITEHEAD,
Cambridge.

* *Well, what do other readers think?*

Dear Mr. Hamilton: I would like to be in touch with a Flying Saucer Club. I am interested in U.F.O.s, but I realise that for some reason sightings of these objects are played down in the Press. I believe that some of the Saucer Clubs have journals of one sort or another. Can you help me?

ARTHUR E. BOYETT,
Croxley Green, Herts.

* *Certainly, Arthur. The Flying Saucer Club of Great Britain is at 71 Chedworth Road, Horfield, Bristol, and I am sure that they will be very pleased to supply you with the address of your local U.F.O. Club.*

One of the best journals for the flying saucer enthusiast can be had by sending 21/- (which covers a year's subscription) to "The Flying Saucer Review", 1 Doughty Street, London, W. C. 1.

MOONS OF JUPITER—*Continued from inside front cover*

of which, Ganymede and Callisto, are larger than the planet Mercury. Some of them are probably rocky in nature. The larger ones have highly reflective surfaces and low densities which might indicate that they are great balls of ice, as was suggested by Jeffries.

From a long series of observations by many astronomers, including Stebbins, Guthnick and Barnard, it has been deduced that the Galilean satellites always turn the same face towards their primary, each rotating once on its axis in the time it takes to move round Jupiter. With a small telescope or even a powerful pair of binoculars it is possible to view these moons and over a few hours detect changes in their relative positions.

In 1675, Olaus Roemer, a Danish astronomer, noticed that there were differences between the predicted and observed times of the eclipses of the Galilean satellites. When Jupiter was approaching Earth, the eclipses took place earlier; if Jupiter was receding, the eclipses became gradually later. The maximum discrepancy was about eight minutes early or late.

Roemer solved the puzzle by suggesting that the phenomena could be due to the finite velocity of light, hitherto believed to be infinite. He was the first man to obtain a value for the velocity of light.

The satellite system as a whole falls into three distinct groups. The first group contains the Galilean moons and Jupiter V, which lies closest to the planet. This group lies between 100,000 and 1,200,000 miles out.

Group two has three small photographic bodies, VI, X, and VII, at a mean distance of 7 million miles. All have orbits highly inclined to Jupiter's equatorial plane.

The remaining four moons, XII, XI, VIII and IX revolve at a mean distance of 15 million miles. Two of them, VIII and IX, have highly inclined orbits and all four have retrograde motion about the planet.

This circumstance has aroused speculation regarding the origin of these moons. Apart from Phoebe, the outermost moon of Saturn, no other body in the Solar System travels in a retrograde direction and to account for these exceptions it has been suggested that they are captured asteroids from the Belt.

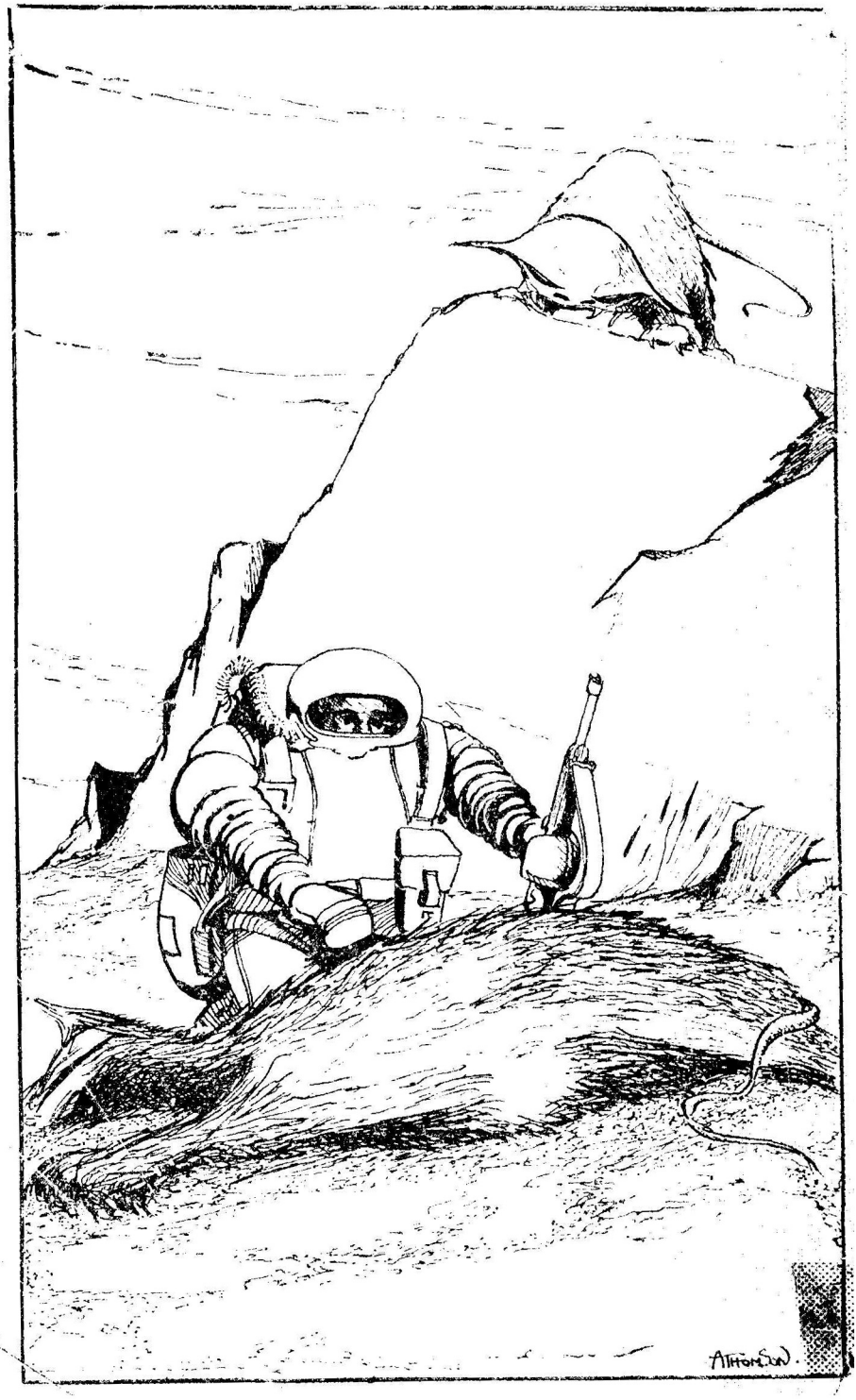
The gravitational attraction of massive Jupiter alters many cometary orbits. The four moons are small and if they travelled at the edge of the Belt, they might gradually have come under Jupiter's influence. Retrograde orbits are likely to occur in such a case.

In 1913, Miss Blagg, an Oxford astronomer, published a paper, "On a Suggested Substitute for Bode's Law." She suggested that her formula for determining the distances of planets and satellites from their primaries, if correct, should predict the approximate mean distances of bodies unknown in 1913. At Glasgow University Observatory in 1953, A. E. Roy, acting on her suggestion, found that the six bodies discovered since 1913, namely, Pluto, Jupiter IX, X, XI, XII and Uranus V, fitted very closely the positions given by her formula.

The four retrograde satellites cluster round a position given by this formula. Perhaps they have now reached a position of relative stability suggesting that the present orbits of the planets and satellites are stable ones to which they have drifted since their formation under the complex gravitational tides of the Solar System.

Satellites I, II and III share an interesting relationship of their own. Their mean daily motions are so related that the same *exact* configurations of these three bodies is repeated every seven days. The three moons can never be seen on the same side of the planet at the same time. Also, they can never be observed together in transit and an eclipse of all three at the same time is impossible.

So far, no trace of atmosphere has been detected on any of the moons. Thus, life as we know it is ruled out.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