

Three-time Hugo Award Nominee

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ABORIGINAL SCIENCE FICTION

Tales of the Human Kind, Issue Nos. 55 & 56

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***The Best
Way to Mars***

***The Stealth
of Future
War***

Stories by:

**Jack
McDevitt**

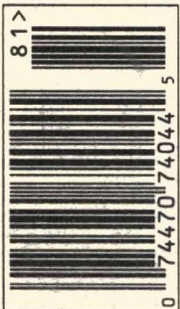
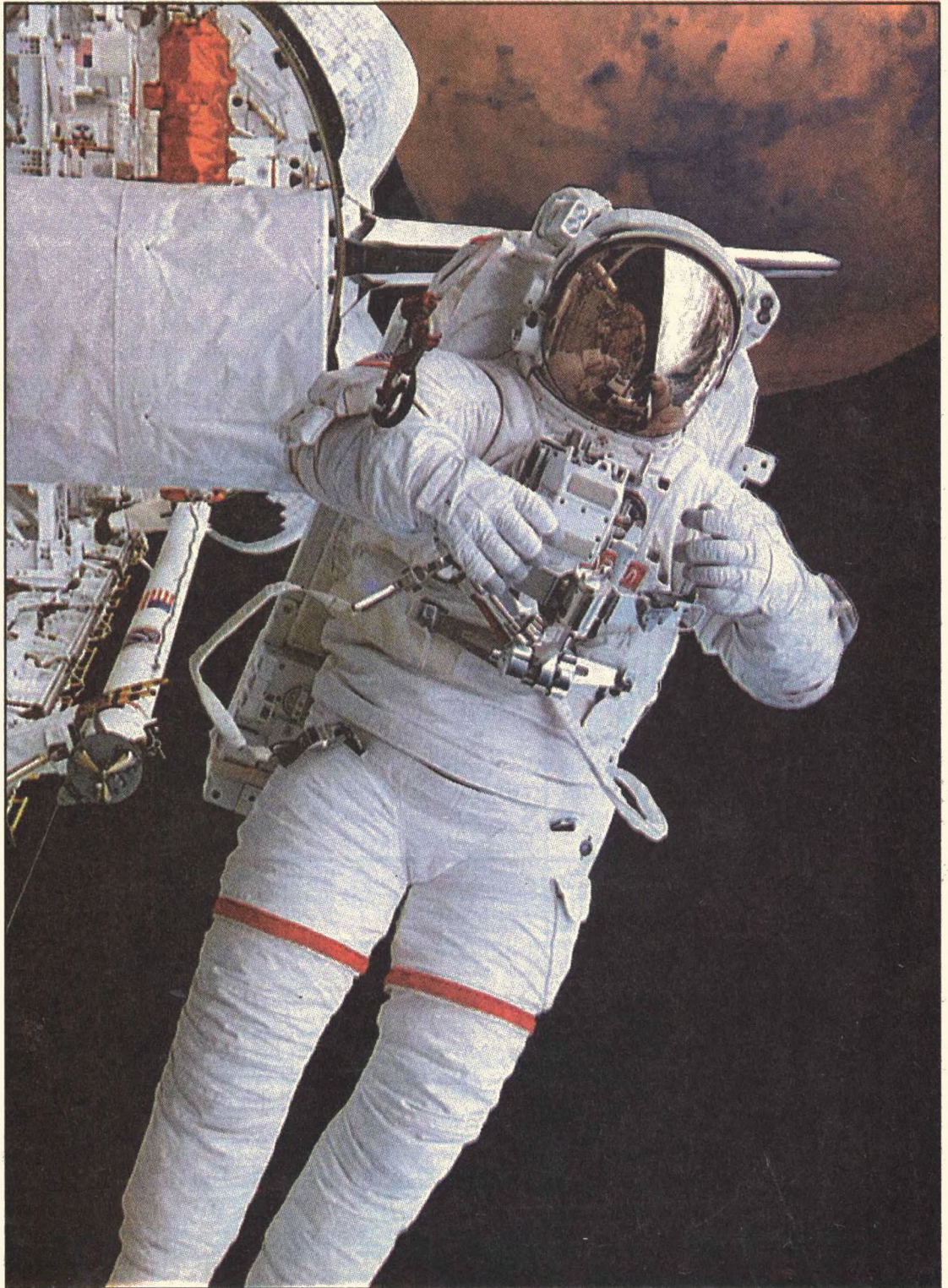
**Barry B.
Longyear**

**Craig
DeLancey**

**Eric
Brown**

and more ...

**Two Book
Review
Columns**



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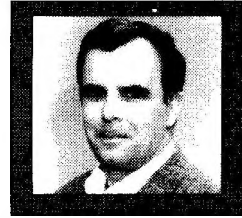
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Back to a More Colorful Format

Welcome to another issue of *Aboriginal Science Fiction*.

In a sense, we have returned to the format of one of our original incarnations, with the re-introduction of process color on some of this issue's inside pages.

This is a bit of a test, since the entire issue is composed electronically, including the illustrations, and we need to make sure everything translates into print without any unexpected glitches before using even more color.

One good aspect of this reincarnation is that unlike the first issues in which we had to pay for each color separation, we can now do those in-house at no additional cost (other than in the form of additional labor).

And, if all has gone according to plan, this issue has come out on schedule ... as we plan to publish all future issues.

It may be an issue or two before we can take full advantage of this new color availability, but we hope it will bring back some of the original feel and excitement of the magazine.

You, of course, are the final arbiter of that.

We hope to continue the practice of printing what's called a "self-cover" magazine for the bookstore copies, with the addition of a heavier black and white cover for all subscription copies.

As far as we can tell, the subscription copies last issue held up relatively well on their trip through the mail.

As we move closer to the next millennium, we plan to publish provocative articles dealing with the shape your life may take in the near future.

In this issue, for instance, science columnist Robert Metzger

examines a proposed boot-straping method of sending a manned mission to Mars in a much shorter time frame than original NASA plans, with a far more economical and imaginative method of generating fuel and other necessities.

And, much as we might like to think otherwise, war, or at least the threat of war, will probably remain with us well into the next millennium.

Hamilton MacAlester gives us a glimpse of how the high-tech edge that made short work of Saddam Hussein's threat to the Middle East could continue to keep those who would wage war at bay.

Long life?

One of the fascinating little tidbits that appeared in newspapers recently was a short item claiming that a group of scientists has found a molecule which seems to repair the "fraying" of chromosomes, which is part of what causes aging in cells and, eventually, death.

The scientists at Geron in Menlo Park, California, reportedly discovered the trigger which stimulates telomerase production inside human cells. Telomerase is the enzyme which rebuilds the telomeres which are located at the tips of each of the 46 chromosomes.

As a cell divides, the telomeres grow shorter until they reach a point where they become so short they no longer work and the cell stops dividing.

In younger bodies, the telomerase is present and repairs the telomeres, but in older bodies, the telomerase is absent.

It's been theorized that if telomerase could be regenerated

in older people, the fraying of the chromosomes would stop, and the aging process would slow down.

A team at Geron, led by Andrea G. Bodnar and Michael Ouellette, along with Woodring E. Wright at Southwestern in Dallas, were able to put extra telomerase into three kinds of human cells growing in dishes.

In every case the cells continued to divide long after they should have ceased reproduction. And the cells looked "young" under a microscope.

Like all "good" news, there is a possible "downside". There is a chance that adding telomerase to the human body might trigger cancer, which, at one level, is an uncontrolled division of cells.

Welcome aboard

Aboriginal welcomes those former subscribers to *Tomorrow* magazine who chose to have the remainder of their subscriptions there fulfilled by us (as well as *Aboriginal* subscribers who chose to have theirs extended) rather than accept the electronic subscription to *Tomorrow's* web edition.

And our thanks for those of you who visited *Aboriginal's* web site at www.aboriginalsf.com and provided some feedback.

The web site is a good place to order back issues, renew, or give us a change of address. We also hope to expand the kind of services offered there soon, but hope it never becomes a substitute for the real thing you now hold in your hands.

Best until the next issue. □

Then Came the Misty Man

By Barry B. Longyear

Art by Carol Heyer

If I don't write it, I forget it, so I write it. It's not real writing with a pen and paper. The only paper here is for the toilets and they never let any of us have anything sharp like a pen. I understand that. Some of the people in here are crazy. So I write this down on my left palm with an imaginary pen held by my right hand. I'm doing that right now. It sounds silly, but when I write it down, I remember. When I don't, I forget. I have to remember. There is so little left.

Hicks is hitting me again. It's unfair. No hospital attendant should ever act like that, hitting the patients. It makes him mad seeing me write these things down. But I have to keep doing it or I'll forget. Then I'll wake up all sore and bruised and not know why.

But it hurts, him hitting me. Sometimes it hurts so much my mind moves through the shadows into other lands, other worlds, other times and dimensions. It's really true. I know because I wrote it down on my hand. One time when Hicks was hitting me, my mind walked off into the shadows, and there I met the Misty Man. I called him the Misty Man because I needed to write down something right away and I'd never seen anything like that before, a thing made of vapors, lights, and shadows. The Misty Man spoke to me then. He was in the shadows fleeing his own persecutor.

Ohhhhh. Hicks hit me hard that time. Real hard. I'm in for it. God, I don't know why he hates me so. I'm not like the ones who have to be fed or get their diapers changed. I feed myself, wash myself, and go to the toilet alone. He should like me best of all. But I'm the one he likes to hit the most.

Maybe it's because of who I was before the trial. This is, after all, a place for the criminally insane. The sign on the gate says so. An unthinkable thing. Another unthinkable thing. There is no memory of what I was supposed to have done because I wrote nothing down. It must have been bad, though. Some of the things they said about me at the trial. I don't remember what they said. I didn't write that down. I did write down that they were bad things —

— kicked me. So hard.

Going away.

Gone.

Now I'll cry, but just to myself. I can't ever let Hicks see me cry.

When Hicks hits me in front of the other patients, or the nurses and doctors, he does it like he's only joking, kidding around. But the words sting. The slaps hurt. Sometimes he takes my left hand and forces me to

slap my own face.

"You don't have a pencil," Hicks explains with a sneer. "We don't give sharp instruments to nuts. You don't have any paper and nothing is written on your palm. Look!" He punches my upper arm. I keep writing. Hicks grabs my hand and shoves it into my face.

"Look at your palm, Nut! Can you read anything there?" Again he forces me to slap my own face. "Look at it, you nut! Look!"

He smacks the back of my head with his open hand. Some of the patients in the rec room laugh. Most don't. Most have Hickses of their own.

"Look at it!"

I keep writing. I need to remember as much as I can. So much is gone. Like those three dead men and the dead woman. Don't remember killing them. That woman and those three men. Don't even remember who they were. I was told about the results of the trial, but I don't remember the trial.

Sometimes I pick at these pieces of memory I have, then the feelings fill me, flattening me with that burning, deafening shock wave of rage. I can't write like that, so I never find out what it is. Better to leave it alone.

Hicks has stopped slapping my head. I look up to see why. Hicks is chunky with long, stringy dark hair, a few strands of which come down to his shoulders. His eyebrows turn up at the ends and his nose is lumpy and bulbous like some sort of mutant potato. He isn't very big, but it doesn't matter. The patients can't hit back. The last patient who hit back was taken into the storeroom behind the hospital kitchen by half a dozen orderlies and beaten to death. That's what they tell us.

Hicks is looking at someone across the room. I look and see her: Nurse Stover. She is shaking her head and frowning at Hicks. The look says several things. He knows better than to abuse patients in the rec room. That's why they have the padded cells: secluded, sound-proofed.

Bad form, Hicks, says her look.

All these witnesses.

Bad form.

Nurse Stover yawns and goes back to reading her tabloid, freshening up her fantasy of being abducted and raped by giant grasshoppers.

I study Nurse Stover, the wisps of unruly black hair on her neck rebelling against the tight bun beneath her starched white cap.

I couldn't rape Nurse Stover.

The idea of it repels me.

I might think differently, though, if I were a giant grasshopper.



I could cut her throat. I wonder about that, because the doctor once said that the four victims I was supposed to have killed had all been butchered. Then, because I never speak, the doctor went back to making notes.

In my little rubber room for the night. Long ago I wrote that it looks like the upholstered interior of a cheap coffin, and that hasn't changed. God, I want to know who I am. I want out of here, to be free of Hicks, but to do that I have to remember my name.

It's a rule. If I can't remember my name, I'm crazy and they won't let me loose. If I tell them my name, then I'm cured and can be sent back out to do the good work.

If I ever find out what my name is, I will write it down. I must remember to write it down. It's important.

What was it that took my name and memory?

Was it the Misty Man?

The Misty Man had filled the corner of my cell after that one terrible beating Hicks had given me. It was like the punishment had excreted the Misty Man into existence by the sheer demand of my pain and need.

A god?

A ghost?

The projections of an other dimensional alien whose brain waves seeped through the cracks of his own dimension? That's what I believe. He was locked up and tortured by his own kind and he reached for me the same way that I reached for him. Then we met. I saw him in my cell. He saw me in his cell.

What's there to believe? The doctor had pushed around a pink form. He told me that I had been overworked, under great stress. Then there was a death. Then there were four deaths.

According to the doctor.

The issue isn't communication with aliens, the doctor had said. The issue is getting in touch with reality. The issue is getting better.

What was it? Numbers, policy, politics, habit, arbitrary rules? I was caught in a bind, assaulted by rubber stamps, there had been that embarrassment before the Foreign Relations Committee, that dressing down by the Secretary, and then someone had died.

Someone had died.

Dear, dear someone. Dear, dear one. Are you the one I fear to remember? Are you the one I walk Hell trying to forget?

Then there were great gaps torn into my memory; then the hospital and Hicks. Then came the Misty Man. The creature asked me what I wanted to do about it.

"About what?" I asked the thing.

"About life, the planet, the universe, things." The voice was level, devoid of emotion. There were muted lights within the mist. The lights were the emotions the mind words couldn't feel. The Misty Man cared about me. It cared about what I thought, what I wanted, about the ocean of pain in which I was drowning.

I was scared. It was the only time I ever thought I was crazy. My need, though, drove me toward the creature. The Misty Man listened to my pain. It told me how it suffered. It asked me things: How is my time? There are no days, no nights, in the Misty Man's reality. Only mass and time.

The Misty Man was isolated from its kind, removed from its body and held in a field that rendered it powerless in its own dimension. My pain had driven my mind into the Misty Man's dimension. There I have the power.

"Through you," said the Misty Man, "I can have power again. Through me, you can have power again. We can have power through each other."

If it is true, there is something I can do about my day, my year, my existence. I can bring back to life those who should never have died. I can kill those who should never have been born.

"Are these things we can do?" I had asked the Misty Man.

The creature didn't know. We would have to try out our powers through each other and see.

"You have already slain someone for me," the Misty Man said. It was a caretaker the shadow hated: the shadow's Hicks. "You wanted to kill your caretaker and instead you killed mine. We must have other ways to serve ourselves by serving each other. Shall I kill your caretaker?"

I didn't want Hicks killed. Not just right then. But it made me feel strong. It was my choice. Life or death for Hicks became my choice. He could be brought down with nothing more than my wish.

"You're repressing the memory of what you've done," says the doctor. "What you did was so unacceptable to your own moral sense, your mind refuses to admit to it. It's a very common survival mechanism. If the past can't be remembered, it doesn't exist. If it doesn't exist, then you didn't do it. But to chop out that piece of reality you've lost your entire past."

What he says sounds stupid. I write it down here for the whole world to see. It's stupid, what the doctor says.

Everybody knows why I can't remember. I didn't write it down.

His office is shabby. He doesn't even hang up his diplomas and certificates. The way his office looks says to me that even he doesn't like it there. Everything looks like it was reclaimed from the Salvation Army before it could be repaired. Even the doctor looks bald, threadbare, worn out.

All he has left now are eyes.

Eyes and a watch.

Eyes and a watch, and a clock on the wall.

His eyes look at his watch, his mouth makes another bored comment, the eyes look at the clock on the wall, then aim down again and look at the watch.

"Well, we're done for today."

This time the session went for only six minutes. The state pays him for forty-five.

"Shall I melt his legs?" asks the Misty Man.

I giggle and the doctor opens the door to allow me

and the Misty Man to exit.

I have to get this down fast.
It's night.
Hicks's voice in the hall woke me up.

I hear him talking outside the door.

The orderly named Boyle answers. They talk angrily about a football game: who should be congratulated, who should die, who should be cast down into Obscure Hell as gross incompetents, as though they were authorities on incompetence.

Actually, they are.

Boyle is Danny's orderly. Boyle is a body builder with a big belly. Danny is a writer who spends his time thinking of ways to kill Boyle and a book editor named Herb Liselli. Danny will kill Boyle tomorrow. Danny always says that. Tomorrow, and tomorrow, and tomorrow never comes. I think he's afraid if he kills Boyle, the other orderlies will gang up and kill him. Danny's crazy though. That's why he's locked up in a room like mine. He's a writer.

He has a good plan, even so. His plan to kill Boyle is very good, but he made me promise not to write it down. He's afraid Hicks will read it and tell Boyle. I didn't write it down, so I don't remember the plan, but Danny promised to tell me again right after he kills Boyle. He told me that once he kills Boyle, he'll go after Herb Liselli. Once Liselli is dead, Danny doesn't care what happens. Then I can use the plan.

Boyle swears and his words fade as he moves away from the door. They have decided who the stupid football players are and now Hicks is looking at me through the peephole. I keep writing down everything on my palm even though I know it makes him furious. I don't do it to make him angry, although I don't think Hicks believes that.

The door latch clicks.

The smell of the food.

It's food time and I didn't even know. The smell. I'm hungry. The smell makes my mouth water.

Hicks pushes open the door with his ass and says, "Lunch time, Nut. Put your imaginary pencil and pad away and pay attention."

I don't.

I keep writing.

He pushes me back, pulls me to my feet, and forces a big spoonful of something into my mouth. I want to feed myself. I can do it. And I am hungry.

He digs the edge of the spoon into my upper palate, making me cry out. He did it on purpose. I see the look in his eyes.

I gag on it. The something that was on the spoon is like a thousand tiny bugs in my mouth. I'm sure it must be rice. But it isn't like rice. It's like bugs. Thousands of tough, crunchy little beetles. I push it out of my mouth with my tongue.

"Damn you, you stupid pig!" Hicks drops everything, grabs the hair on the back of my head, and brings back his fist.

The Misty Man asks me, "Now?"

"No," I answer. "Not just yet."

Darkness —

I awake to countless aches. They divide, organize, process, and center into several major systems. The Misty Man explores them with fingers of black fog.

There is a swelling over my left eye. My cheeks are swollen, the bones beneath bruised. My ribs ache all over my sides where Hicks kicked me. The ring finger on my left hand, the thumb and index fingers of my right hand, are broken.

Black with blood, the skin stretched so tightly over the swelling it shines. My hands hurt terribly.

"Hicks," stated the Misty Man.

"Yes. This time I know it's him. I wrote it down. This time I know."

There is a crusty substance in my nose and on my upper lip. It's dried blood. "How can I write now? He's broken my fingers."

The Misty Man's power filled my mind. If I can write on an imaginary pad with an imaginary pencil, I can hold the imaginary pencil with imaginary fingers.

I laughed, and it was a howl of power and victory. I can write.

The writing is in my head, and the doctor doesn't even notice my hands are not moving. Nor does he notice my broken fingers, black and swollen. The dried blood on my lip.

He looks at the clock, looks at his watch. Looks back at the clock.

"Doctor," I say out loud. There is a smile on my face because he's got to be excited about me speaking. I know I've been locked up here for over three years, and this is the first time I've ever said anything.

The doctor looks at the clock, looks at his watch.

I check my notes to see if I really did speak to him, and I did. Maybe it wasn't loud enough for him to hear.

"Doctor?"

The doctor turns his head toward me, his eyebrows going up. "Yes?"

"I spoke."

The doctor nods and looks back at the clock. "I told you that you could anytime you wanted."

Deep-red, pus-yellow, blackening eddies of anger fill the room, cover the walls, flow through the barred windows, cover the earth.

If the Misty Man should appear this second and ask me to end the universe, I —

"Our time's about up." The doctor leans forward and places his hands on his chair's armrests prepara-

tory to standing.

"What about my hands?" I ask.

The doctor stood. "I noticed you weren't pretending to write down things. If you'll remember I told you —"

"No. Look. My fingers. They're broken." I held them out for him to see.

"Broken?" The doctor walked over, took each of my hands in one of his, and looked down at them. "How did you do this?"

"Hicks did it. He broke them to keep me from writing."

"Nonsense. You did this to yourself, didn't you?"

I don't think. I swing and smash the doctor's face with the heel of my right hand. He falls to the floor and I jump on his face, smashing that tired smugness until it becomes nothing. There are noises behind me, a shout, something sharp stabbing into my leg —

In the bed-rest wing, splinted and taped, strapped down on a bed covered with a discolored rubber sheet. I study the straps around my wrists and ankles and across my chest. I nod at the wisdom. They are afraid I'll use the tape and splints to kill myself. Or someone else.

I can't reach to scratch my nose, my ear, my crotch, or anything. I don't like being strapped down. It makes me so helpless, vulnerable, dependent.

A sound.

From behind me, out of sight, the sound of a foot-step.

My mouth is so dry.

Hicks moves into view.

"Nut, the doctor says you talk now. And what's the first thing out of your filthy mouth? You tattle on me about your fingers. You know, you're not just crazy. You're stupid, too." Hicks pronounces the word like stoopud.

The orderly looks down at my right hand. With his middle finger he traces along the surface of my splinted index finger. Just the touch makes my finger throb.

"The doctor didn't believe what you said, Nut. I told him you broke your own fingers just to get attention, and he believed me. That's because it's true." He grasped my middle finger with his fist and began bending it back. "You did break your own fingers. You're not writing now, are you?"

Yes I am.

More and more he bends back my finger. Blinding lights flash as I feel the bones crack, the ends grind together. I vomit from the pain. It covers my cheek, wets my hair. I hate vomit.

Hicks laughs.

"I don't clean this wing, Nut. Let's see if we can make you crap, too." He begins bending back my right ring finger.

The world gets soft and black.

All of my fingers are broken. Both of my hands are in casts. I am clean and the sheets are clean, my arms still in restraints. "If you ask me to do it," says the Misty Man, "I will take care of those who cause you pain. We have to do

it together. You must want and I will do. If you do not want, I cannot do. I'll kill Hicks. Your doctor."

"Everyone isn't bad," I tell him. "Even Hicks and the doctor. They aren't evil. The doctor is washed up, frustrated, hurt, old, disappointed with his life. He can't see the pain in others because his own pain fills his sight. Hicks is the same. The world is populated with men and women who are just like them. I'm like them. I couldn't kill them for that."

Smug laughter comes from the Misty Man's image. "You tried to kill the doctor for that."

"No." I turn my face away from the dark. "It was wrong. I didn't think. I just reacted. The doctor doesn't deserve to die for what he thinks."

"What he thinks of you?"

"Especially for what he thinks of me."

"What then for the doctor? I think you know it's time to do something. They've replaced the caretaker you killed for me with someone who is very gentle and kind. In a like manner, I could help you."

I think. There has to be something between doing nothing and doing murder. Another option or two. After all, I'm not some kind of psycho killer. "The doctor needs different work. Something away from here."

For a long time the Misty Man is silent. "At least let me kill Hicks," asks the creature.

Something, either compassion or vengeance, touches my heart. "Hicks is sick," I tell the Misty Man. "He needs help. Hicks needs to be in here."

The image of the Misty Man fills with blue lights and a few yellow glows. It fades and I am again alone. I let the anger, the pain, the rage fill me until I scream the universe out of existence.

The new doctor closes the folder and tosses it on his desk. He has his diplomas and certificates hanging on the wall as though he wants to be there.

He wears black-rimmed glasses and works with his tie down and his sleeves rolled up. Danny says he's a good man. I agree with him. The Misty Man did very well. I wonder what happened to the old doctor?

The desk is new, as is the chair in which I am sitting. Instead of pajamas I am wearing my raw silk sport jacket and tan slacks. Suede shoes are on my feet. Socks, too.

I put them all on myself. I fed myself, washed myself, made my own way to the new doctor's office. I lean forward and eye a manila folder upon the new doctor's new desk and grin inwardly as the world suddenly opens its doors.

My name is Paul Linden.

Mr. Paul Linden.

It's printed in big letters right on my file folder. Now I know my name. Suddenly I'm sane.

"With what you've suffered here, Paul, I don't know how many of us could have maintained our sanity, much less your excellent attitude," says the new doctor. He speaks in a calm but rapid manner. My imaginary fingers have difficulty keeping up.

"They were human beings doing the best they could with what they had," I answer. "Besides, forgiveness is the price of serenity, isn't it?"

The doctor nods, a big smile on his face. He waves his hand at my folder. "You've been rather suddenly cleared of all charges, which means that your reason for being committed here expired with them. If you want, I imagine you could sue the police, the state, and this institution for a considerable fortune."

"I'm aware of that, doctor. I can't afford to be vindictive, however. Things happen, and I understand that. Besides, resentment and revenge can eat me alive. I've learned that much here. As far as I'm concerned, the past is past."

"Well, the sessions we've had together, as well as all of your tests, show you to be one of the best adjusted humans on Earth. Of course no one will ever accuse the previous administration of this institution of keeping too many records."

He laughs.

I laugh.

The Misty Man laughs.

Doctor and former patient stand, shake hands, and laugh again. It is funny. The right papers aren't there, the right persons aren't available, and out of the shadows comes this editor of Danny's, Herb Liselli, to admit to everything.

In the hallway the doctor walks ahead to talk with the guard on the security door. I stay behind for a moment. Danny and a dozen other patients are waiting to say good-bye. Danny turns away, hurt that I am leaving him there.

"Danny. Good-bye."

Danny shrugs, shakes his dark curls, and keeps his eyes closed. "Guess I'll miss you, Nut. You didn't tell the new doc anything about my plan, did you? You didn't tell him what I'm going to do to Boyle?"

"No. Do you think I'm crazy?"

"You sure?"

"I don't remember it, Danny." I lower my voice. "I didn't write it down, so how could I remember it?"

I give Danny a big hug and whisper in his ear, "You remember Herb Liselli, that editor you want to dismember?"

I feel Danny's head nod against my cheek. "He's coming here as a patient, Danny. It shouldn't be more than a few weeks."

"Are you sure?" Danny asks in a whisper, his eyes as wide with promise as a child's on Christmas morning.

"The Misty Man worked it. Call it a gift from me to you." Danny holds me at arm's length, tears of gratitude in his eyes. I squeeze Danny's shoulder and look at the other patients. Teddy, Mike, Grandma, Rough Stuff and the rest. I nod to a few, touch hands with them, give another hug or two.

Done, I ask Danny, "Where's Hicks?"

"We brought him." Danny points to a patient squatting and leaning his shoulder against the wall, his arms wrapped around his knees. Hicks's eyes look around, his neck muscles twitching. Danny stands next to him and Hicks cowers and covers his head with his arms.

"Don't hit me!" he cries quietly. "Please, don't hit me."

I squat in front of him. I can see one of Hicks's

eyes, wide and frightened, peering at me from between trembling forearms. "I'm leaving now, Hicks. Keep trying, let these people help you, and you'll be fine." I pat his arm. "Every now and then I'll be back to visit you."

Hicks violently shakes his head and whimpers. I squeeze his shoulder and stand up. I hug Danny again, say some more good-byes, and go to the security door. I hug the new doctor and nod at the guard. The guard isn't a huggler.

"What'll you do after this, Paul?" asks the new doctor.

"I'm going back to my old job at Defense. But, Doc, come the election don't be surprised if the President nominates someone who looks a lot like me to be the new Secretary of Defense."

The doctor frowns and cocks his head to one side. "You're not setting yourself up for a big fall, are you? Those confirmation hearings can get pretty rugged. Even though you were cleared of those charges, you did have a minor breakdown. Are you certain the President would want to put you through something like that?"

"Yes," I agree, "things like that often place a nomination under a shadow." I give a tiny giggle and then take control of myself. "The Cold War is over, doctor, and the world is swamped with tens of thousands of nuclear weapons that no longer have any purpose. I have a couple of ideas for what to do with them. The value of the ideas should outweigh any reservations concerning the state of my mental health. Besides, I've done a few favors that have placed some good people on my side."

The doctor's eyes say that he thinks I'm chasing a fantasy. I shake hands with the doctor one last time, the security guard smiles through the grill and unlocks the door, and I step into the chill of a winter afternoon.

Somewhere, somewhen, in a distant dimension, the essence of Iyef Nu Reyitim was released from its restraint field and was returned to its body to resume normal life. The investigator recently placed in charge of the case said many, many apologies to Iyef, for no one could remember why Iyef had ever been placed in restraint. There were empty files and blank data cores at the mental support facility, as well as several counselors who had literally lost their minds. Strangest of all were the curious blanks that appeared in news and history cores all over the world. Nonetheless, Iyef accepted the apology, ate most of the investigator, and streaked away from the facility directly toward the closest major population center.

Iyef Nu Reyitim and his shadow were free. □

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The Rescue of Lucinda Discal

By Jon Picciuolo

Art by David LeClerc

“When will they come, Mommy?” Lucinda Discal lowered her eyelids and stretched out her gloveless right hand. The gentle globe of a child’s head, fine-haired and warm, pressed into her palm. Somewhere close by, a solitary gull cried out. Receding surf hissed through clicking pebbles. The woman breathed deeply, filling her lungs with kelp-scented coolness.

“When will they come, Mommy?”

Discal closed her eyes tighter. Afternoon sun soothed her tense brow.

“Soon, my little one,” she answered.

The insistent pressure of the soft head eased a bit. Deadly cold oozed between her fingers.

“Wait, darling! Please don’t leave!”

But with the final caress of a wisp of hair, the child was gone.

The sea’s murmur became a helmet valve’s harsh rasp. Seaweed scent turned to the rancid stink of sweat. Discal opened her eyes to a craggy, pinnacled horizon etched against a star-strewn violet sky. A dark, fluid shape vanished into a sand swirl, no more than a meter away.

The woman choked back a sob and pleaded, “Please don’t go!”

But the sand-being was gone.

Discal slipped her hand back into her exposure suit glove and flexed her fingers to restore the circulation. Then she turned and trudged back toward what was left of the survey ship — two large chunks of battered fuselage, surrounded by a junkyard of lesser debris.

A rectangle of depleted carbon-dioxide scrubber cartridges outlined the pitiful cemetery. Sixty stubby cylinders, one for each week since the wreck, marked the boundaries. Both makeshift headstones had tilted inward again; the graves had sunk another half-centimeter. The mission’s sole survivor nudged the markers erect and uttered the dead officers’ names.

“Roy Padgett,” she said, straightening the closest monument. Then, more softly, “Samuel Jenkins.”

Discal scraped her boot through gray, powdery sand, heaping the material into the fresh depressions. She wondered why the graves continued to sink — desiccation beneath the sand, perhaps. Perhaps some rearrangement in the latticework of angular grains. Certainly not decomposition. Nothing ever rotted in the open on Unaholm II. Neither aerobic nor anaerobic bacteria thrived in the planet’s poisonous atmosphere.

But there was life.

For a moment the scientist savored that miraculous notion. Then she tightened her jaw against the padding of her helmet and expelled the thought from

her mind. The woman plodded onward to the ship.

Aboard, Discal removed her headgear but retained the rest of the exposure suit as protection against the damp chill. She sidestepped a tottering heap of ration crates. A few monitor lights glowed in the shadowy recesses of the cargo bay, the only intact compartment having an emergency airlock that could still be sealed. Her makeshift water and oxygen recyclers were humming and wheezing away, but just barely. She glanced at the stored power indicators and sighed.

Not much longer.

Twisting the balance knob, she diverted a few more milliamps of precious energy to her rescue beacon, the electronic thread from which survival dangled. With the beacon’s metronomic bzzz-mmm-BLEEP cycling in the dimness, she unclipped a sanisack from the discharge nozzle of her metal gut and dropped it into the hopper of the fluids recycler.

Then Discal crawled into a heated sleeping bag and released herself to dreamless sleep.

“When will they come, Mommy?” Discal fingered corn-silk hair. Logs crackled and snapped on the hearth. A steaming mug of hot chocolate perfumed the air. Rain swished softly against tight-closed shutters.

“When will they come, Mommy?”

The woman kept silent, eyes tightly shut, remembering that the exquisite goodness could be prolonged, sometimes, that way. As if acknowledging her desire, the child pressed upward against her palm and rubbed her hand like an affectionate cat. The incongruous notion fanned an almost smothered spark of objectivity and made Discal question what manner of creature the sand-being *really* was. Not an alien creature, she corrected herself as the spark winked out. A child. Her offspring from beneath the sands of Unaholm II.

Suddenly the warmth was gone; her fingertips stung with the first tinge of frostbite. Discal opened her eyes and saw jagged cliffs. She shifted her gaze downward. Just out of reach, the sand-being was lingering on the surface as it sometimes did, its knobby grayness blending with the shades of dull grains.

Fungus, the exobiologist thought reflexively, then hated herself for it. But it had to be fungus, judging from the few samples of hyphae and pseudoprotoplasm she had been able to snatch before ...

The warning twinge became killing numbness. Frightened now, she plunged her hand into the electrically heated glove. The sand-being vanished into a



ripple of gray that heaved and spiraled, then smoothed into nothingness.

"Soon, my little one," Discal whispered at last in reply, knowing it was probably a lie. "They'll be here soon."

She tended the graves, then returned to the ship.

The inner airlock hatch opened with a rusty squeak. As soon as she unlatched her helmet, she knew something had happened.

The rescue beacon's rhythm was pulsing to a different beat; a new data-stream was being fired into deep space. She hurried to the comms panel and tapped in an order. Then, while the crippled computer patched together sufficient nexuses to run a decryption analysis, she munched a tasteless ration bar. Just as she crumpled the bar's wrapper and tossed it aside, the ship's computer summoned her attention with an end-of-task bleat.

It was not a malfunction, reported the device. The rescue beacon had shifted into its transponder mode. Something had triggered it into broadcasting low-rate supralight data: cabin pressure and temperature, power storage levels, so on and so on. Data critical in determining whether anyone had survived the crash. The woman fingered the cool ridges of the comms panel, longing for power that was no longer there. Power to transmit video, even voice, to whoever was coming in from the stars.

"When will they come, Mommy?" Discal counted five heartbeats before she replied. "They're coming now, my little one. Not much longer."

The unseen brook tinkled and burred. A crow complained somewhere in the distance. Oak leaves rustled in the wind. Her child pressed more firmly against her bare palm.

"How much longer?" the child asked.

Discal held her breath. Please! Just one more word, one more syllable, she silently willed. But the tiny voice said nothing more.

So she answered, as honestly and directly as she could. "Judging from their signal strength, perhaps another three days. Do you understand signal strength, my darling?"

Her fingers closed on nothingness, then stiffened with cold. A tear rolled down her face; she brushed it off against her cheek pad and opened her eyes. The sand-being was more exposed than she had ever seen it before. Three meters of thallus stretched across the gritty grayness. A row of glistening dorsal cones, newly revealed from beneath folds of putty-colored tissue, was exposed to the violet sky. Could those be visual sensors, she wondered? Yes, almost certainly, she decided — the cones' points were aimed in her direction now, staring fixedly. She thrust her numb hand into the glove and walked away, toward the ship.

Passing the tiny cemetery, she paused. The officers' headstones had finally stabilized, she noted with relief. Perhaps, then, the place would remain neat and undisturbed when she was gone. The old spacefaring tradition was strong — he who dies on

an alien world deserves an earthlike resting place.

"How much longer, Mommy?" Discal rubbed the child's soft scalp and said nothing. Pine-perfumed forest breeze stroked her face. A dove moaned high above.

"Mommy? How much longer?" The child's voice had taken on an insistent, almost whining tone.

"I'll tell you, but only if you stay. Will you stay?"

There was no reply, but the warm head remained pressed against her palm. In the distance, a river muttered. Some tiny animal scabbled through fallen pine needles.

"They're here now, child. Within hours they'll be in orbit. They're like me. Human. Perhaps you'll show them how wonderful you really are. Will you do that?"

There was no response. Slush trickled through her fingers.

Later, just after she re-entered the ship, she saw that two lines of decrypted text had imprinted themselves on the comms screen:

YOUR LOCATION HAS BEEN PINPOINTED
SECURE BEACON/USE POWER FOR COMMUNICATIONS.

She obeyed the instructions and selected the automatic universal distress frequency, in the "audio only" mode to conserve power.

"Hello?" she transmitted. "Can anyone hear me?"

A hissing wave of static almost buried the reply. "... weak but readable ... names of survivors ..."

"Oh, God! You're really out there, aren't you? I'm the only one left. Lucinda Discal, Exobiologist. Commander Padgett and Lieutenant Jenkins died in the crash." She manually fine-tuned the communications nexus. "Can you hear me better now?"

"Lucinda? Is that really you?" The voice was weak, but familiar.

"Who ...?"

"Dan. Dan Lardy. We served together aboard *Stellar Quest*. I was in that landing party when you took a gutshot of poison from the Astolian fang-tree. Damn near killed you, but the medics managed to ..."

She interrupted, kneading the tangled nest of tubes and cylinders in her abdomen. "Yeah, I know. God, I'm glad you're here! How long before you can descend?"

"I'll enter orbit in one hour. How safe is it down there?"

"Safe? What do you mean?"

"Any hostile life forms? Should I come armed?"

"Well, there's only my child, but ..."

"Repeat, Lucinda! Your transmission was garbled."

Discal thudded her forehead against the comms panel and silently mouthed an obscenity. "I say again, there's ... there's nothing wild. Only a primitive form of fungus. No threat. I repeat, no threat!"

"Ha! Had me fooled for a second. Thought you said ... Oh, skip it. Give me two orbits to cool the stardrive. I can launch my lander when the rads ease off a bit. Looks pretty cluttered down there. Where do you want me to land?"

It had to be close to the sand-being's habitat, she knew. And it had to be quick. Delay would stiffen her rescuers' disbelief, prompt their insistence on adhering to stupid regulations concerning alien life forms. They had to be taught quickly what the sand-being really was. Then, once persuaded, they had to devise some way to remove the creature from the planet — some way to keep mother with child.

"North," she replied. "Land 200 meters north of the wreck. There's firm ground there."

"Okay. North it is."

The woman stared at the comms panel, thinking hard.

"Dan? Still there?"

"Yeah."

"How much room do you have in your ship?"

"Plenty," he answered. "The company didn't know how many of you survived, so I was dispatched minimum-load. I'm the only crew member aboard. Why do you ask?"

She smiled with relief. "I collected some ore samples. Looks pretty high-grade to me, but I can't be sure."

"Ah, that's the Lucinda Discal I remember," transmitted the pilot with a chuckle. "Always chasing the big bonuses! There's plenty of cargo space aboard. I'll see you in about three hours."

"How much longer, Mommy?" Discal stroked the soft hair, savored the warmth against her palm. A waltz played in the distance. Wavelets in a summer's lake lapped rhythmically on dock pilings. Frogs peeped, crickets sang. She smelled honeysuckle on the gentle wind.

"Not much longer," the woman murmured. "Very soon, child."

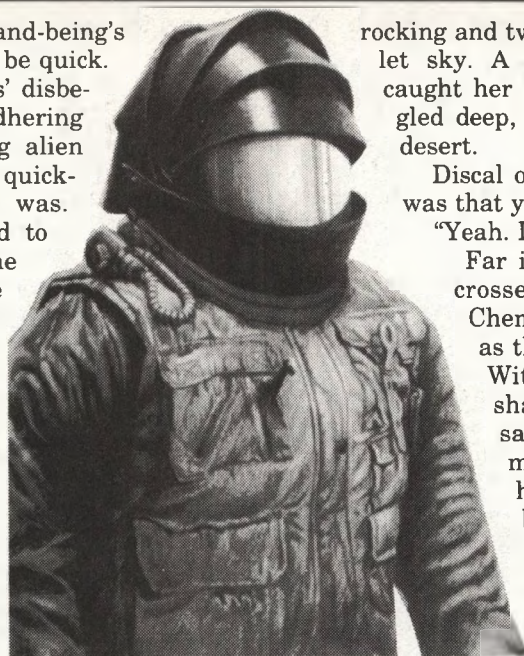
Eyes still closed, she tilted back her head, lifting her face to the direction where she had last seen a point of light arc through the stars.

"The ship passed over more than an hour ago, little one. It was on its last orbit. Were you listening when I told you what must be done?"

There was only silence in reply. No indication that the child had paid her the slightest bit of attention. No evidence that her offspring understood how it must behave, how it must touch the new human as it had touched her — to prove, beyond any idiot's doubt, that mother and child should remain as one.

"Listen to me, damn it!" she demanded. "You and I belong together! You must listen!"

But the comforting shape of the child's head dropped away. Frigid nothingness was left behind. The woman clenched her fist in frustration, then jammed her hand into the glove's protection. When she opened her eyes, the sand-being was curled about two meters away, dorsal sensors



rocking and twitching as they scanned the violet sky. A bright flash near the horizon caught her attention. The sand-being wriggled deep, burying itself beneath the gray desert.

Discal opened her helmet circuit. "Dan, was that your retro?"

"Yeah. I'm on the way down."

Far in the distance, a moving spark crossed the jagged line of cliffs. Chemrocket pulses fired irregularly as the lander adjusted its trajectory. Within two minutes, the spider-shaped craft was settling onto the sandy plain, not more than 50 meters from where she stood. Its hatch receded into the hull, and a boarding ladder pivoted downward to the sand.

"Come aboard, Lucinda," the pilot transmitted.

Discal pointed to several empty crates at her feet. "Can you help me load these? The samples, remember?"

"Sure. Be with you in a minute." Soon a bulky-suited figure emerged, clambered down the ladder, and headed toward her. "What a hell of a place, Lucinda! You're going to get a pile of loot: back pay, rough duty pay, wreck allowance, lots of extra cash if the samples are any good. You can retire to some paradise planet and ..." He halted about 20 meters away and pointed. "Uh, what's that? There, on the sand between us."

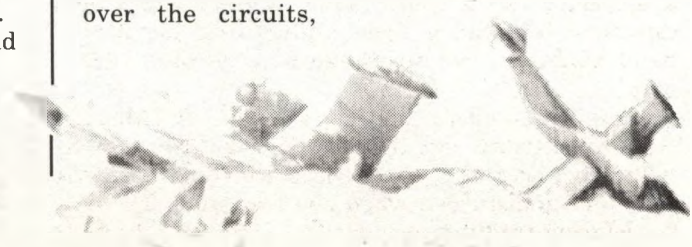
The sand-being had resurfaced. Its cone-like visual sensors were aimed at the lander pilot, who was backing toward the safety of his little vessel. Discal sensed she was losing control of the situation.

"Remember what I told you, Dan?" she said, trying to keep her voice steady. "About the primitive fungus? There it is. Don't be scared. Go ahead, get closer to it. It won't hurt you."

"You sure? That doesn't look like a simple fungus to me." The pilot stopped his retreat, but his voice was full of doubt.

Discal weighed the risks and decided to reveal the truth — some of it, anyway. "It's exothermic. Touch it with your bare hand, feel the warmth. There's something else; it secretes a transdermal chemical that ..."

"You touched an alien life form!? Christ, Lucinda, that's against the regs! I wish you had told me about this earlier." The pilot edged away, moving closer to his ladder. "God only knows what kind of crap that thing's infected you with. I'm going back up to the starship. We can talk about this over the circuits,



maybe work out some sort of disinfection scheme ...”
His foot was on the bottom rung when the sand-being coiled, and — in a blur of writhing motion — covered the distance to the lander in less than five seconds. Then it leaped. The pilot stumbled sideways, thrown off balance by the slug-like creature clinging to his back.

“Get it off, Lucinda!” he screamed. “It’s burning through my suit!”

The pilot’s frantic shrieks filled her ears. Almost deafened, she muted her helmet receiver and lumbered forward to where the sand-being and the pilot were wildly thrashing on the ground.

“Leave him alone!” she yelled, kicking the creature as hard as she could. “Behave yourself!”

The pilot stopped struggling. The sand-being detached itself and crept away, leaving the man in full view. Discal gasped at the torn plates of armor-fabric, gagged at the sight of gouged flesh splattered with blood turning to pink ice-crystal in the frigid atmosphere.

“My God!” she cried. “What have you done?”

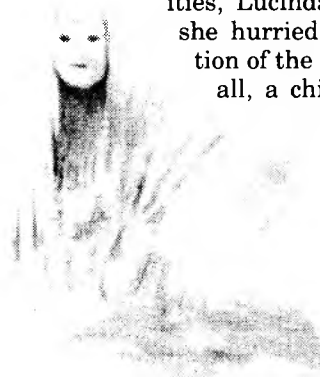
The creature oozed back to the dead man and attached itself to one leg. Then, with jerky motions, it tugged the corpse away from the lander. Discal turned her face away in horror. Her gaze fell on the little vessel. She couldn’t pilot it, she knew, or complete a successful rendezvous with the starship orbiting above. But there were fully charged power packs aboard, and she needed energy to survive. So the woman put a foot on the lower rung and began to climb.

“When will they come, Mommy?”
Discal said nothing. Eyes tightly shut, she relished every note of the bluebird’s song. Bees buzzed through rose-scented air. She kept her hand upon the child’s head as long as it was tolerated, and when iciness crept back into her skin she shrugged and replaced her glove.

“Goodbye for now, my little one,” she whispered, and opened her eyes. The sand-being sank below the planet’s surface like a whale into the sea.

It was only a few steps to the third grave. As she straightened the crude headstone, she said, “Dan Lardy.” Then she scraped a little more sand into the fresh, half-centimeter depression, aware now of what was occurring two meters below.

Motherhood has its responsibilities, Lucinda Discal reflected as she hurried to check the operation of the rescue beacon. Above all, a child should always be well fed.



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Royalties

One of the more enduring roles in human culture is that of the usurper.

We have usurpers back home, of course, and they get a great deal of attention during the yearly grooming competition when we choose our spokesmodels. But on this planet there is no yearly grooming competition and usurpers are those who attempt to steal the position of royalty.

Now how can I explain the concept of royalty to a rational being? Poorly, I know. But I will try.

Royalty are like flebbishes in that they get that way from birth. But unlike a flebbish, a royal has to be decanted from a particular incubator. Otherwise, what you get is a usurper. To the untrained eye, there's no real difference between a usurper and a royal. But the royals can always spot the usurpers, and that's what's important.

In theory, royalty is placed upon one's shoulders by a deity, providing the head of the royal family with a "divine right" to rule his or her subjects on the deity's behalf.

One method of attaining the royal throne without being called a usurper is for an offspring or blood relation to assist the current royalty in becoming deceased.

Throughout history, this assistance has been graciously granted by an offspring in order to hasten his or her own ascendance to that elevated state of being called king or queen (the titles given to the male and female heads of household of the royal family).

One of the exceptions to being born into the royal family includes using the human institution of royal matrimony to attach oneself to the royal line. But those who choose that method of elevation almost always find themselves seated at the wrong end of the dinner table and *never* receive invitations to the best parties.

The process of becoming deceased can also be facilitated from outside the royal family — which is the second way a commoner can become a member of royalty. But this method results in a usurper on

the throne until all those who hold that word or concept dear have been assisted into a state of deceasedness. Thus a new royal line is established.

Such an outside claimant to the throne is usually required when a king has become particularly boring



and has been unable to achieve a state of deceasedness on his own.

Don't ask how the humans reconcile the elevation of a commoner claimant into a new royal family line with the concept of divine right — which can only be granted by a deity. They don't (unless one is to presume the deity also has become bored with the current king).

There is a great deal of becoming deceased in the history of royalty. Humans find this to be great entertainment. Witness most of their wars and the very popular writings of a commoner named Shakespeare who glorified many royal acts of deceasing. (The only thing humans find more entertaining about royalty is their awkward mating rituals.)

Royalty are not allowed to mix with commoners. In fact, other human beings (commoners) go to great lengths to glorify their royalty, housing them in places called cas-

ties, which are large stone buildings with fortifications somewhat similar to human prisons.

The only noticeable difference is that in a prison the weapons are trained inward.

Royalty are expected to attend socials and throw balls — though not the kind tossed by members of the Atlanta Braves on a television frequency called the Turner Broadcasting System. No one attempts to hit the balls thrown by royalty. But both events involving balls do require special uniforms.

Some day a member of royalty may be asked to throw a ball for the Atlanta Braves. That is called an "opening pitch."

But no Brave has ever been (or is likely to be) asked to throw a ball at a royal castle.

The theory is that royalty are stationed above other humans by the possession of this divine right. It means their deity has sanctioned their bloodline so that it is purer than that of other human beings. The bloodline is often so pure that members of royalty bleed freely if scratched, purity and thinness being one and the same when it comes to bloodlines.

Not every member of royalty can be the king or queen, since there can only be one of each at a given time. Kings and queens often derive their position from something called primogeniture, which means that the first born gets to claim the title after his or her parent is deceased. Or after he or she has helped them with that transaction.

Royalty are among the most important figures upon this planet, which is why payments to the most useful human beings, called writers, are called royalties.

The only humans more important than royalty are called movie stars, and the two job descriptions share many traits.

While these stars do not fuse hydrogen into helium at their cores (though they do generate volumes of methane), they outshine all other humans at something called the box office and receive great honor and wealth.

More about them in my next transmission. □

The Interview

By Michael J. Sherrod

Art by Alan Gutierrez

Will Rand stepped into the small cubicle that served as their home office. Darla was making some minor adjustments to the eye-motion sensors of her virtual reality helmet. She looked up, and her eyes widened briefly in surprise.

"Isn't that nice, dear." She closed the access port and pointed a tiny screwdriver at his tie. "You've dressed for your interview."

"Yeah, well, you know me. I need to get psyched up for these things." He pulled with an index finger at the knot in the fraying yellow rayon. The suit was an indeterminate gray color and was in need of a cleaning and pressing. Darla was dressed only in a flannel bathrobe and matching fuzzy slippers.

"Sorry, I have to rush off to work now." She kissed his cheek. "Good luck, and give me a call after the interview to tell me how it went." Will watched Darla climb into the seat of her office. She plugged the cable of the helmet into the back of the chair and pulled it over her head. "Meet me for lunch?" Her voice was muffled by the visor.

"Sure."

Darla settled her forearms into the control grooves, and her fingers pressed the key sequence that would take her off to the CPU of the temp agency that currently held her copyrights. She specialized in secretary/receptionist types, taking advantage of the stereotypical expectations of personnel software for ditsy blondes or bitter, tight-lipped old maids. The money for stereotypes wasn't great, but it was enough to cover the rent, most months.

Will needed a job. *They* needed a job. The current exclusive lease on his Ralph simulatum expired in two weeks, no possibility of renewal. Will and his other three simulated personalities had been pounding the electronic pavement for over a month — nothing to show for it except a larger than usual comcharge. Will found it harder and harder to get out of bed in the morning.

"Besides, I don't have much *else* to do." Will looked for a moment at the vaguely insect-like exterior of Darla's helmet, but she had already disappeared into the virtual world of her agency. She mumbled and twitched as she interfaced with the office simulation.

Will flipped the toggle that powered up his chair and watched as the LEDs blinked through

the bootup procedure. He pulled his resumé floppical out of its holder on the small desktop. He blew off a few specks of dust and turned the silvery disk over in his hands. Rainbows flashed across its microgrooved surface as he inserted it into the drive slot.

The drive hummed and rattled as it uploaded his resumé. When it stopped spinning, Will clambered into the chair and pulled the helmet down over his ears.

"Okay, guys," Will said without conviction. "Let's get a job."

The world was split in two: one half gray and without definition, the other half divided into four simulated vidscreens. Reggie, Tony, Bill, and Ralph looked out at him in their respective versions of AI expectation. Reggie was handsome, blond, and obviously very ambitious. A condescending sonofabitch, really.

"Well, I see we're out on the market again, Will," said Reggie in clipped Oxbridge tones. "Sometimes I wish you'd set your priorities and get organized. This interviewing business is just so ... undignified. Certainly my algorithm deserves better than this."

"Be quiet, willya?" Ralph chewed on the tail end of his cigar. He could afford to be rude — he was the only employed member of the group. "The s.o.b. is doin' the best he can." Ralph tugged at the expansive waistline of his jeans, making his tool belt rattle and jingle. Ralph was the consummate handyman/maintenance program. Carefully cultivated ignorance covered a core of shrewdness and greed that often led to accusations of overbilling and canceled contracts. He belched.

"In a couple of weeks, *you* won't be so smug," said Tony. He was bored, as usual, examining his nails with rapt attention. "Simpersons are supposed to be artificial intelligences. How you got on this disk, I'll never know."

Bill seemed to be preoccupied by reading something, his thick glasses distorting the light. His eyes alternately bugged outwards as his head moved and then shrank to little white circles with black dots.

Will smiled, more to himself than to the simulata. All of his AIs had become more than the sums of their subroutines in the last year. He



brief contract at a university hospital. Bill hadn't explained. Will hadn't asked. They just fit.

Hands pressed combinations of keys.

"This morning we'll be at Metrodyne," said Will as he scanned his appointment calendar. The transcript of the help-wanted ad drifted across a ribbon that floated in mid-air above the vid-screens. "Their ad on the BBS mentioned several open positions, but didn't give any titles or descriptions. Interviews given on a first-come-first-served basis. We got lucky.

"Metrodyne is an accounting and consulting firm. Very upscale." A description of the company and summary info from its latest annual report tracked across the ribbon. "Very trendy, and based on that info, they do some creative accounting on their own books to make their performance look that good in this economy. Everybody briefed? Tony, you ready?"

"Sure, no hassles here." He sat up straighter in his chair and ran a ringed hand over his slicked-back hair. Tony's hairstyle varied with the latest trend, but was always brown. "Just make sure we're done by lunch. I have an interface with a hot stock-analysis program. Her breasts must take up two megs, no kidding."

"Bill, how about you? Hey, Bill, snap out of it! This is important."

Bill looked up from whatever he was reading. He blinked. "Certainly. I was just scanning the latest issue of *Online Research*. Fascinating stuff, this new fractal quantum accelerator they're building. Fascinating."

Will dialed the access code to the Metrodyne CPU while addressing his troops. "Since we don't really know what they're looking for, we'll use interview strategy One-A: begin with Reggie, with Tony as backup. Bill, you're next in line. Ralph, I may not need you on this one unless they need a techsim in two weeks. And put out that damn cigar in case they do."

"Right, Will." Five pairs of eyes turned in expectation to the door that had materialized to the left. An ornate brass plaque on the door read:

**METRODYNE, INC.
ACCOUNTING AND
FINANCIAL SERVICES
CERTIFIED BUSINESS CONSULTANTS
Access by Appointment Only**

Will took a deep breath, flexing his fingers.
REGGIE ONLINE NOW.

Reginald Rand smoothed his silk tie into the folds of his immaculately tailored Armani simulation. He looked down at his shoes, which were shined to just the right degree of understated perfection. Standing on gray nothingness didn't seem to bother him a bit.

"Will, do you copy, no landscaping routines?"

I copy. They must be cutting back on expenses. Geez, not even a doorstep. Proceed.

Reggie reached up to press on the door, the ident-recog codes appearing as a small spark of static. The door swung open to reveal a tastefully decorated reception ROM, with an added layer of persona software scurrying about their tasks. Couriers were running back and forth with files of information packets, popping in and out of solid-looking doors. Some were in too much of a hurry even to simulate opening and closing the wood panels. A group of more relaxed executive types was visible through a glass wall. They were drinking simulated coffee, lounging around a meeting table. A sales simulatrix stood at the head of the table, answering a series of fast-paced questions between burst-transmissions of her multimedia presentation.

A worried-looking sales simulation in a wrinkled, light brown suit looked through the window, learning what he could. A number of simulators sat in chairs along the wall, obviously not employees. Some were bored, others displaying an unnatural cheerfulness. Job hunters all.

The Competition. Reggie smiled a confident greeting at them, operating under the assumption that he was under observation. He walked to the desk, behind which sat a pretty but superficial receptionist program. While he stood there, she answered the phone twice and dumped three letters to the fax sendbin. She smiled blankly up at him. "Yes? May I help you?"

"Reginald Rand for Will Rand, a job interview." His own smile added another hundred watts to the illumination in the room. "That is, if you aren't too busy."

Cool your capacitors, Reggie. She's obviously not programmed for snide remarks.

Reggie's smile switched off immediately. The receptionist's eyes lost focus as she accessed her internal appointment stack and then waited for approval from the personnel program.

"Ah, yes, Mr. Rand. Ms. Taylor will see you immediately in Personnel. Just down that hall to the right."

Reggie walked in the indicated direction. At the entrance to the hallway there was a voltage bus/watercooler. Clustered around it was a group of off-the-rack Junior-ExecMen. They were dressed alike in white shirts and brightly colored suspenders. Their voices rose from conspiratorial whispers to jocular commentary about sports. After he passed, they watched his back carefully, resuming their subdued conversation.

Reggie smiled — he would do well if he could get himself hired. Office politics was his most refined subroutine. Those canned suits wouldn't stand a chance. At a door labeled TAYLOR, he

again raised his hand, and the ident-recog signal flashed.

He entered a small office cubicle, and behind the cluttered desk sat a personnel package he was familiar with. Friendly, disarming, suspicious, extremely dangerous — Margaret Taylor, the nameplate said.

"Sit down, Mr. Rand."

A comfortable chair materialized, and Reggie eased himself into it. She held out an empty hand, and then there was a sheaf of papers in it — Reggie's resumé.

"Thanks for inviting me to interview," began Reggie, pouring on the upper-class charm as she scanned the pages. "If you've examined my resumé data, you'll see I'm quite an exceptional creation. Only the finest relational databases and AI-oriented object programs."

Careful, don't overdo it!

"Yes, I'm sure. Now, your programmer is William Rand, isn't he? He enjoyed quite a minor reputation a few years ago. Something about doors ...?"

Oh, boy!

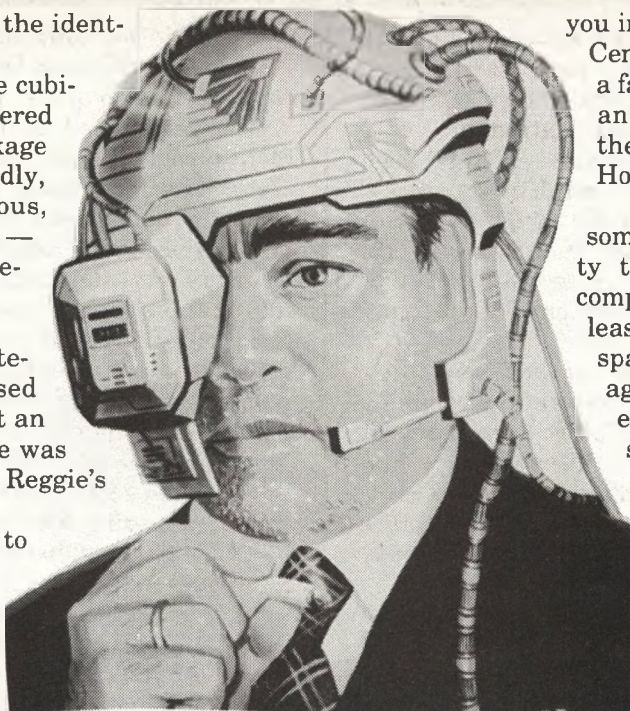
Reggie flicked a bit of imaginary dust off his lapel. "Doorknobs, actually. He wrote a bit of shareware that inserted quaint little Victorian doorknobs wherever desired. He is not as well known now, since he neglected to pay the required copyright registration fee. He should have asked me to handle the business arrangements. That's why I now represent him on most occasions."

Reggie always managed to shift the conversation back to himself.

"Well, your programmer's background certainly seems suitable. Are you currently licensed?"

"No. I was most recently licensed on a part-time basis to RadioComp as control algorithm for a team of salesims, but the contract expired a few weeks ago. Unfortunate, but the company was about to go under and there was nothing I could do. One can only sell so much, you know. I'm prepared to offer an exclusive rights deal to Metrodyne. Most people who hire me make that arrangement, you know."

"Undoubtedly," said Margaret, "and at a triple fee." She shuffled the simulated papers, accessing his resumé data. "Your resumé is quite impressive. Let me see. You increased sales by 15% in your first month at RadioComp, and before that



you increased overall profits at Central City Distribution by a factor of two. You managed an impressive cutback in their computer expenses. How did you do that?"

"Well, I simply excised some unnecessary personality traits from many of the company's simulata. Then I leased the freed-up storage space to a show-biz talent agency. They never have enough room for the ego self-reinforcement loops, you know."

"Yes. I've heard good ... wait a minute." Her brow furrowed neatly in concentration. "There seem to be some gaps in your performance record."

No! She must be an

upgrade!

"Oh, very clever, Mr. Rand." She smiled, a barring of fangs. "The machine code for JUMPing over the derogatory comments on the disk is very subtle and doesn't even violate federal regulations, since it doesn't alter the work history itself."

"You were actually fired from Central City. In your political struggle to dominate their CPU hierarchy, you erased or irreparably damaged some very expensive leased personae, costing the company millions in violated copyrights. They kept it quiet to protect their stock value, I see. And at RadioComp..."

**CANCEL. CANCEL REGGIE.
TONY INITIATE NOW.**

Tony smoothed back his ducktail and glanced around the office. He was smaller than Reggie and was floating in the air several inches above the seat of the chair. He readjusted his spatial parameters until he was seated normally.

Charm her, Tony. Smooth those ruffled feathers!

"Ah, you are Anthony Rand, are you not?"

"Yes," he said. He smiled. He smiled with dimples, he smiled with warmth. He smiled with all the sincerity the voltage load to his illegally amplified charisma channels could handle. His brown eyes shone. "Please forgive my associate. Sometimes his, ah ... ambition leads him to think of his fellow simulata as being somewhat less than human, if you'll forgive the expression."

"I understand." Her hand went up involuntarily to touch a stray wisp of hair. A few milliseconds of access time, and a new set of resumé papers had leaped into her hand. "Your qualifica-

tions are also in order, but your management style differs from ... Reginald's." She cleared her throat, trying to get the unwanted silkiness out of her voice.

"Some simulata prefer to dominate and intimidate others." Tony rose from his chair and sat on the edge of the desk. "Others, like myself, prefer to work closely with people." He leaned over her. "We form strong relationships and gently persuade our coworkers to form a team that best serves the needs of the company."

He contrived to let his fingertips graze the back of her hand holding the papers. Instead of the electricity of attraction he intended, there was instead the spark of an ident-recog code.

She sat up suddenly behind the desk, pulling her hand violently away.

"We've met before, haven't we, Mr. Rand? Although I remember a different hairstyle."

Tony coughed nervously, and quickly returned to his seat. He addressed the air. "Cycle me out, Will. It's no use."

What do you mean, it's no use? What's going on?

"She knows me. Let's just say we spent a little time together before her upgrade. I ... I didn't end the relationship very well."

"I should say not," she said. "Mr. Rand, if I may say so, the simulata your programmer has presented so far have been, let's say, stereotypical and completely unsuitable for what we are really looking for. Our requirements for the current openings are a bit more sophisticated. What we're really looking for is someone a bit less ambitious, less aggressive."

**CANCEL. CANCEL TONY.
INITIATE BILL NOW.**

Dammit, guys. When are you going to learn? C'mon, Bill! We need this job!

Bill was now in the chair. He looked around the cubicle, peering over the rims of his glasses. He cleared his throat, took off his glasses, polished them, and put them back on. He fiddled with the leather patches on his simtweed jacket.

"Well, here I am." Bill smiled without showing his teeth, looking at her left shoulder.

She waited patiently until the new sheaf of resumé papers appeared in her hands.

"No, I'm afraid you won't do, either, William. Your work history indicates that you are a passive-aggressive. You persistently collect and correlate information, but you stubbornly resist using that information for anything other than your own personal satisfaction and aggrandizement. Entirely unsuitable. Too academic."

"Let me go in, boss," said Ralph, "I'll tell that bimbo off real good."

No, Ralph. Cool it. What am I going to do? I'm running out of AIs!

"Mr. Rand, let me give you and your programmer a more realistic idea of what we are looking for here at Metrodyne. We have more 'ambitious young men' simulata than we can use. The political infighting in our sales and marketing department is so vicious that our revenues have dropped 30% in the last six months. Charisma-oriented software is also costing us. An audit revealed that 40% of our computerized workforce spend 50% or more of their time interfacing rather than doing productive work for the company. Similarly with information-oriented sims, like Bill here. They burn up more CPU time and storage space than they are worth.

"In short, we've got too many chiefs here at Metrodyne, and not enough Indians to do the real work of making a profit. What we need is a simulatum that is passive, will do exactly as it's told, will work very hard for minimal compensation, and will always support the company 100% regardless of how shabbily we treat it. Besides, the more sophisticated simulata need someone to dominate, don't they? Dumb software just doesn't satisfy the ego.

"I know this doesn't sound very nice, but we are deliberately seeking mediocre simpersons to keep the corporate machine rolling along. Would your programmer have a simulatum of that nature?"

Bill adjusted his bow tie and opened his mouth to speak. "Why n ..."

Shut up, Bill!

CANCEL. CANCEL BILL.

INSERT OPERATOR REALTIME NOW.

Will dropped clumsily into the chair. Though it looked soft, it was really quite immovable. He looked around at the rest of his digital surroundings. It had been a long time since he had been two layers deep in virtual environments. He adjusted his natty tie and noticed that the picture on the wall had a distinctively jagged edge on its frame. Low-res environmental programming ...

He adjusted his suit jacket, buying time to think of some way to beg this personnel package for work, some way to arouse a current flow that would resemble pity in her emotive module. He simulated taking a deep breath, preparing to beg the personnel algorithm for some extra time, maybe to program a corporate drone simulatum. Maybe based on Bill.

To his surprise, his own resumé papers popped into her hand.

"How did you ...!?"

Shut up and go with it, boss.

Ralph!

Just go with the 'tron flow. We know what we're doing. Or at least, Bill says he does.

"Oh, most impressive!" said the personnel program. Her eyes rapidly scanned more data.

"Ms. Taylor, let me explain ..."

"Nothing to explain, um, Will. You seem just what we're looking for! Most programmers spend their time developing highly-paid, ambitious simulata intent on climbing the corporate ladder. How clever of your programmer to intentionally create a mediocre simulatum, but still give it an in-depth persona!"

"But I ..."

"Oh, you're still under development, I see, and a bit buggy. Hmm, let me see. Low ambition-to-work-ethic ratio, overriding priority given to getting along from day to day. Mildly antisocial. Subservience to authority figures. Very nice! Your programmer must be very proud, he's even named you after himself!"

"Ahhh ... shit. I mean yes. My programmer is very proud of me."

"Wonderful. Assuming you can be debugged by Monday, we'll take five copies on a three-year lease, at, let's say \$500 a month for each copy. Is that agreeable?"

\$2500 a month ain't chicken feed, boss, said Ralph.

Take it, take it! chorused Tony and Bill.

Well, I do need a new suit, said Reggie.

"Sure, I guess that's OK."

"Great — five copies beginning Monday morning. Conditional on full debug certification. The receptionist will get your pay details and show you out. Next!"

"Wow!"

Will sat back in his chair and pulled off the virtual-reality helmet. His undershirt was soaked with sweat.

"Not just one job, but five! I've got to call Darla and tell her about this!"

He looked across the few feet that separated him from his wife. Better to wait until she broke for lunch. By then he would be calmer and would have had a chance to work out some problems.

Like: Where was he going to get five copies of himself by Monday morning? It looked like a hard weekend of programming, and maybe subjecting himself to a long and boring session of neural imprinting. But it could be done. It could be done.

Could he sell more copies of himself? Mediocrity might be making a comeback on the employment market. If he completed the new sim by Monday, he might be able to make a killing on the interview circuit next week, before everyone else figured out what was going on.

All he needed was a new name for his copy. "Will" wouldn't do. He needed something bland. Something boring. □

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Skyball

By Eric Brown

Art by Carol Heyer

I was in New Delhi the night the Tigers played the Cincinnati Raiders in the final of the World Skyball Championships. I would have made it anyway, but on the morning of the game Massingberd was tipped off that some crazy was out for Cincinnati blood. He contacted me through my handset and downloaded all the data he had on sports assassins. Three hours later I stepped from the sub-orb in Delhi. I booked into a two-star hotel by the station — cheap enough to avoid being just another Western hotel transplanted East, but expensive enough to miss out on the piped dysentery that passed for water in some of the low-budget dives along the Paharganj.

Around seven that night my deputy arrived; he lay on the bed, and I clamped him into the stasis-brace. When I was satisfied that he was totally paralyzed, I left the hotel and took an auto-rickshaw to the skyball stadium.

This was my first trip to India in ten years — and not much had changed. As we careened at breakneck speed through the crowded bazaars, narrowly missing barefoot pedestrians and roaming buffalo, I sat back and tried to ignore the filth and the poverty, the mutilated beggars and the families encamped in the gutters. In the night sky above the teeming streets, a floating newsscreen displayed images of an affluent, other world.

The venue for the final was the old Asian Games Stadium, extended with racked tiers when the Tigers gained promotion to the World League a decade ago. It dominated the flat Indian skyline like a floodlit mausoleum.

I paid off the driver and eased my way through the crowd outside the stadium. The atmosphere was electric; this was the first time the Tigers had reached the final, and their opposition tonight were off form and beset by injuries. The awareness that victory was by no means impossible supercharged the masses with an almost palpable optimism. Tiger pennants and banner-sized posters of Delhi high-attack and shield-strike heroes bobbed above a sea of eager faces: it was as if the Tigers had already lifted the cup.

I took the subway to the players' entrance, showed my pass at the door, and stepped into the relative calm of the dressing rooms. I wanted to look up Ed Morrow, the Raiders' player-coach and a friend from way back, before I started work.

Ed was giving his team the usual pregame pep-talk when I arrived. He passed from player to player with urgent, whispered advice, amicable jabs to

red-shirted biceps — psychological tricks to assure each player he was the best and the opposition were a bunch of shits.

He was haranguing a bulky forward-strike when he looked up and saw me. He terminated his lecture and strode over. He was a stocky, crew-cut bull of a man, a veteran of Nicaragua and for twenty years the best skyball player the world had ever seen. He was getting old now, no longer the great he used to be, but he could still turn a mean shield and leave defenders for dead.

He grinned around the stump of a dead cigar. "Hey ... What brings you here, Lou?"

"How could I miss the final, Ed?" I didn't want to spook him, so close to the game, with the real reason for my presence. We traded small talk.

I'd got to know Ed Morrow fifteen years ago, before I joined the Massingberd Agency. Then I'd used my talent in various ways — and one was to spot potential skyball players and pass them on to Ed. There was nothing to distinguish a good 'ball player from a bad one, physically. Skyball was fifty percent technology — with backpacks and shields and rebound bars — and fifty percent know-how. Anyone could be taught how to handle the technology, but only special people were able to grasp the game's logistics, the various stratagems and ploys that made a fair player a genius. As a transfer telepath, I could put myself in the minds of potential players and assess their worth. Over the years I'd supplied the Raiders with perhaps a dozen good players and three superstars.

Then Massingberd got hold of me, and my days as a talent spotter were over.

I looked beyond Ed to the team, working out. Three fullbacks shuttled a disc between their shields so fast it became a triangular blur. A couple of forwards backpacked to the ceiling and wrestled, the clash of pads loud in the confines. There was an air of grim determination in the room, unlike the usual confidence.

Ed sensed me picking up on it.

"Kent, Murray, and Giraud are injured, and I'm playing like an old man. You see me last week?" I avoided his gaze. He'd missed three easy connections and had failed to collect a vital mid-space disc. "And the Tigers field a full-strength squad, unbeaten the last dozen games ..."

His hangdog expression said it all.

"You'll do it," I said, lamely. "I have a thousand



on you to take the championship.”

Ed grinned. “Sure we’ll win, bud. Catch you later.”

He returned to his players and laid into them with renewed vigour. I left the dressing room and took the tunnel towards the brilliant, floodlit playing area.

I came out on the third tier, and the roar of the crowd hit me in a wave along with the sultry evening heat. One hundred thousand spectators were stacked in seven tiers around the mid-air court — a vast box demarcated by low-power lasers, like the three-dimensional diagram of an aquarium. At each end of the court was a goal board and, at strategic positions flanking the rectangle, padded rebound bars.

I stood at the top of the terracing and surveyed the crowd. Somewhere out there was the assassin — or perhaps not. Many death threats, especially those made against sports stars and other celebrities, turned out to be hoaxes. But in this game you could never be sure.

For the next hour, before the final began, I moved from level to level and speed-scanned hundreds of minds *en bloc*. I was looking for an anomaly, the psychotic cerebral signature of a killer. In seconds I could discount a thousand minds as mundane and harmless; I came across those that were far from harmless, of course, but none of these were planning to kill tonight. Their hatred was buried, latent, to emerge at some unknown future date. It was the fiery beacon of the intentional killer that would guide me to him and bring about his arrest.

By the time the players filed from the tunnel, I was confident that the stadium was clean. I kept half a mind out for the latecomers who trickled in, then settled down to watch the game.

The New Delhi Tigers came out first to a thunderous roar from the home crowd, boosting themselves into the court and practicing before the siren sounded. They vectored the magnetized disc from player to player, reversing the polarity of their shields to send the disc ricocheting away to a designated team member. They looked fast, competent, and confident: small men in the green and orange bodysuits of the Indian national flag. By contrast — as the opposition emerged to boos and cat-calls — the Raiders were giants in red, big and overweight. Appearances were deceptive, though. When so much depended on the technology of the booster, not much advantage was gained from stature. The Indians might be elusive in attack, but the Raiders had weight and power in defence. It would be a tough, even game — the advantage, if any, with the on-form home team. The crowd around me knew this, and their cries were deafening.

I recognized Ed Morrow, floating belligerently in mid-space, smaller and squatter than the other Raiders as he hung from his backpack. He exhorted his team with a clenched fist and curses. The thirty players, gaudy in the floodlit court, waited anxious-

ly for the start of the game. From his position on an air-scooter, the umpire activated the siren and tossed the disc. The crowd roared. The final was underway.

I made my way down to the lowest tier, to be near the street-level entrance and those fans still pushing through the turnstiles. I stood among a low-caste crowd who could afford only the cheapest tickets and watched the game progress above me.

The first third was a cautious affair, both teams afraid of overextending themselves in attack in case they were caught by a rapid counter-move. The Tigers played their characteristic game: quick, fluid build-ups, bouncing men from rebound bars as decoys as the legitimate attack came from either underneath or up top. The Raiders replied stolidly, their slow attacks building from mid-space and pushing unimaginatively through the Tigers’ central defence.

The Raiders scored first, against the run of play. A period of sustained Tigers’ pressure came to nothing, and the Cincinnati defence cleared a long disc quickly to a mid-spacer who supplied a forward with a deft short pass. The forward decoyed, lost his marker, and slipped the disc neatly into the top left corner of the goal board. A blanket silence greeted the move as the Raiders slapped palms and crashed helmets in celebration.

I was conscious of the resentment in the heads of the spectators, aware of the acrimonious stares directed at me, the only Westerner in the vicinity. Their disappointment was short-lived, though. With less than five minutes of the first third remaining, the home team equalized with a stunning long shot that left the Raiders’ defence floating impotently and casting around for someone to blame. The crowd’s collective sense of relief was almost tangible. I kept my disappointment to myself and watched the celebrations. When the siren signalled the end of the third, I took the opportunity to scan fast, but there was nothing to worry about. I settled down to watch the second third.

As the period progressed, the Tigers stamped their authority on the game. They went three-one up and played like champions-elect. The Cincinnati Raiders floundered, lost and unable to reply. I read Ed Morrow’s mounting frustration as his team were pushed back into their own half and made to defend doggedly.

From time to time I cast around in the minds of the new arrivals who had taken advantage of the cheap tickets on sale halfway through the game. These people flooded in from the streets and jostled for a better view. I scanned repeatedly, but they were clean.

Then, towards the end of the second third, I did come up with something interesting. The Tigers were four-two up and the crowd sensed victory. I rapidly entered a dozen minds and was about to exit when I recognized something in one of them. The kid — I couldn’t see her for the press of humanity

between us, but I stayed in there long enough to check her identity — was a born skyball player. I was taken back fifteen years, to the time when I worked for the Raiders. I'd found many a great ballplayer then, but none had initially hit me with as profound a knowledge of the game as this kid — Ananda Devi — did now.

The final third began, and I returned my attention to the game. The Tigers went five-two up, and then the Raiders came back with two goals in as many minutes. With ten minutes to go the score stood at five-four, and the home crowd was frantic for the siren.

I think I was aware that Ed Morrow was having a bad game. He was marking badly and missing easy connections. It was hard to watch. Ed was a good friend, and no one likes to see a once-great player, or a friend, embarrass himself.

But Ananda Devi knew. I found myself returning again and again to her mind. She gave the game total concentration and had the amazing facility to analyze and criticize moves already made, while at the same time assessing moves in progress and knowing, exactly and unerringly, where they should go. She had quickly realized that Ed was the weak link in the Raiders' mid-space structure and knew where he was going wrong.

With one eye on the game I pushed my way through the packed spectators until I was standing beside the girl.

I knew already, having accessed her identity, that Ananda was a cripple, but the full horror and irony of the fact did not register until I saw her.

She was propped up in a home-made cart, an old fruit box with casters nailed to the corners. Meningitis had bequeathed her spine a cruel torque, and her legs were folded beneath her, thin and useless. She had the use of only one arm; the other hung limp across her soiled tee-shirt, which was printed with the legend *Tiger*, her nickname. She was either thirteen or fourteen — she didn't know which. Her parents had dumped her when she became sick in infancy.

And the tragedy was that in the West we had the surgical expertise to make Tiger fit and whole again.

Her rapt gaze on the game redirected my attention. I watched the final minutes of the contest through her eyes, her mind.

With a matter of seconds to go, the Cincinnati Raiders fluked an equalizer. The Tigers failed to clear the disc in a goalmouth scramble, and a Surfer's high-attacker managed to squeeze a goal at the second attempt. I sensed Ananda's disappointment, but it was nothing beside her lingering despair at never being able to play the game she loved.

I hardly slept that night. I lay awake, thinking of Ananda Devi. When I did sleep, I dreamed I was again inside her head, I experienced

again the horror of her physical imprisonment. At dawn I awoke in a sweat, suddenly, and knew what I had to do.

At ten I took an auto-rickshaw to where the Raiders were staying, a five-star hotel to the south of the city. There was a skyball court in the extensive grounds. The Raiders were in training when I arrived.

I wandered onto the court and watched Ed Morrow going through a strike stratagem with a couple of forwards. Despite his exhortations he seemed weary, as if last night's game had sapped his energy and enthusiasm. I felt a sudden surge of sympathy for Ed, then. I'd caught the reports on American satellite TV at breakfast. They were quick to condemn Morrow and his team for what they considered a poor performance.

As I watched the Raiders practice, lulled by the regular clunk of disc on shield and the shouts of the players, I recalled a case I'd wrapped up in Amsterdam one summer a couple of years before. It was a straight transfer with my deputy as receiver, and it should have been an easy switch. I was chasing a video-killer who specialized in kids, and his cerebral signature stood out like a supernova. I traced him to a slouch bar in the port, moved in, and made the transfer. But I fouled up bad somewhere along the line: I failed to establish my deputy securely in the head of the killer, and he had no control of the criminal's motor-neuron system. Normally, my deputy would have walked the killer's body into the closest law-enforcement station, and I would have made the return switch. Now the killer fled and I gave chase, desperately trying to get within range and complete the transfer.

I'd finally apprehended the killer aboard a crowded train, but for two hours I'd gone through mental torture holding the two identities in transfer simultaneously — and I'd vowed never to do it again.

Up in the court, Ed called a break. The players loafed around in the air, turning somersaults. Ed jetted down to where I sat, landed with a spurt of gravel, and unbuckled his helmet.

It's a cliché, but Ed had aged ten years since the night before. He seemed exhausted and depressed, and he smiled wearily as he sank down on the bench beside me. "Your thousand's still in there," he joked.

"I'm confident you'll pull through," I told him.

"You are?" He laughed. "Things don't look too good to me, Lou. We played shit last night. We were lucky to get the draw. And you know something? The Tigers weren't on form, either. If they hit their stride in the replay" — he gestured — "we're dead meat ..."

"I don't know about that ..." I began.

Ed shook his head. "God, I'd like to lift that championship before I retire."

It was around noon, hot and humid. I was sweating and I'd done nothing to exert myself.

I said, "Listen, Ed ... I've got this crazy idea.

Bawl me out if you like — but I think I can help you.”

Ed was about to laugh, then saw I was serious. “Yeah?”

“I can spot talent, right?”

“Like no one else. So?”

“So I read this kid last night who’s a superstar.”

Now he did laugh. “So you want me to sign him up and condense a year’s training into a day and a half so I can field him in the replay Saturday?”

“No, nothing like that, Ed. And the kid’s not a he. She’s a girl.”

Ed gave me a look. “What are you driving at?”

“While I was watching the game last night, I accessed this kid. She’s a cripple, but her understanding of the game is phenomenal. She knew exactly where the Raiders’ strategy was fouling up and what you could do to put it right. She knew what you personally, Ed, were doing wrong. I know that if you’ll allow me —”

Ed cut in, “Hey — okay, so we were bad. I admit it. But were we so bad that we’d improve with a cripple on the team?” He stopped then and stared at me, realization hitting him late.

“You can’t be serious?”

“Why not? I can do it. I can hold a transfer for ninety minutes, longer if need be ...”

“Let’s get this straight. You’d put the mind of this kid — this cripple — into one of my players for the duration of the replay, and you reckon she’d improve our game?”

“We’ve got two days to check it out, Ed. If all goes well, we play her. If not, then nothing’s lost.”

Ed was nodding to himself, staring at the ground. “Okay, so who do you suggest?” I sensed that he still couldn’t quite bring himself to believe me. “Janovitch is off form —”

I looked at him. “How about you, Ed?” I said.

He sat there for a while, unresponsive. He focused on a couple of players shooting disc. At last he said, “So this kid’s a genius, in theory. She’s got it all up here. But what about all those potentials you sent me years ago? I admit they were good in theory, but in practice ... I had to work them out for a year before they made the grade. How the hell do you hope to teach this cripple to use my body, and the equipment, in less than two days?”

I’d worked all that out on the way here.

“No problem, Ed. I’ll transfer your mind into her head and vice versa, but I’ll leave the part of you that controls your movement, the intuitive, instinctive motor-neuron system. Her theoretical knowledge of the game and your empirical know-how will combine in one brilliant working part. It’ll be hard on me, but I know I can do it.”

“And just what do you get out of this?”

I smiled. “How much is it worth to have the Raiders lift the championship?”

He calculated. “I’ll give you a hundred thousand creds, if we win.”

I nodded. “A hundred thou it is, then.”

“But what about the kid? She’s Indian, right? A Tigers fan? You think she’ll be willing to help the Raiders beat her team?”

“I think I know how I might persuade her,” I told him.

“How soon can you contact her? You know where she lives?”

“I know where she sleeps. I’m going to see her tonight.”

I held out my hand.

Warily, Ed shook it.

From the age of three until she was seven, Ananda Devi had lived in a tumbledown slum in Old Delhi, without the benefit of wheels. She existed by begging, stealing, and devouring the scraps and left-overs donated by generous food-stall owners. When she was seven, a Gujarati restaurateur built her a cart and gave her a charpoy outside his premises. She lived there now, on one full meal a day and whatever she could buy from the proceeds of begging in the busy Connaught Place.

The “restaurant” was a lean-to wooden shack, identical to the dozen others erected beneath the towering outer wall of the Red Fort. All had battered pans the size of small trash cans simmering on plinths of bricks, and tables and chairs outside. Young boys in soiled vests and shorts hurried back and forth with laden trays and jugs of water.

I recognized Tiger’s curry house from the rickety charpoy and her fruit-box cart parked beside it. Tiger herself sat at a table, thumbing through a skyball magazine and rapidly throwing rice into her mouth with her one good hand.

I sat down and ordered a meal. As I ate I sent a tentative probe towards Tiger. I confirmed the suspicion I had had last night, that Tiger was an intelligent kid. In a way this was a tragedy — she might have been happier in ignorance. She was at that stage of adolescence when questions come naturally, and she was well aware of the fact that, had she been born in the West, surgery would have made her able-bodied.

She saw me staring at her and swung herself to the ground. Her legs, bent equilaterals devoid of life, remained at right angles to her torso. She slumped into her cart and propelled herself across to my table. I thought reassurance at her, subliminally inviting her to join me. She grabbed the edge of the table and hoisted herself up. She was about to proffer a calloused palm for baksheesh when some intimation of my purpose informed her otherwise.

Instead, she drew a connected-minds symbol in the dust on the table-top and glanced up at me with big brown eyes.

“How do you know?” I asked, genuinely surprised.

“Last night, at game. I felt you in here.” She pointed to her head.

“That’s very perceptive of you, Ananda,” I said

patronisingly.

"Tiger," she corrected me. "What you want?"

"I read you last night, saw how much you understood the game. You realized how badly Ed Morrow was playing."

She regarded her fingers with down-cast eyes.

I went on. "You thought you could play better than he was playing, if you had the chance."

The little girl shrugged.

"Do you know what a transfer telepath is, Tiger?"

Swiftly, she swung herself from the chair and accelerated her cart across the restaurant. For a second I thought I'd lost her. Then I read mounting excitement in her head, speculation.

From the charpoy she took a bundle of papers bound in a tee-shirt, her pillow during the night and portfolio at other times. She tossed the package onto the table, followed it up, and rooted through assorted press-cuttings and glossy magazine photographs. She found a comic book and passed it to me.

I knew the magazine. It was a Hindi translation of a popular Western cartoon strip, featuring the exploits of a daring transfer telepath in the Out-there. In this issue, Blake Hunter switched the identities of a Tau Cetian and a Terran spy, saving the Earth from certain invasion.

"Can you do that?" Tiger asked.

"Not with Tau Cetians," I admitted. "They're so alien the exchange is impossible. But between humans ... yes, I can do that." I explained how I worked with my deputy to apprehend criminals.

"So?" She shrugged. "I don't understand." Though, of course, she did.

I said, "I want to put you into Ed Morrow's body for the replay on Saturday."

She took a while to respond. "Against the Tigers?" she asked in a diminutive voice.

I was relentless. "You'd be playing skyball for one of the world's greatest teams," I cajoled. "How would you like that?"

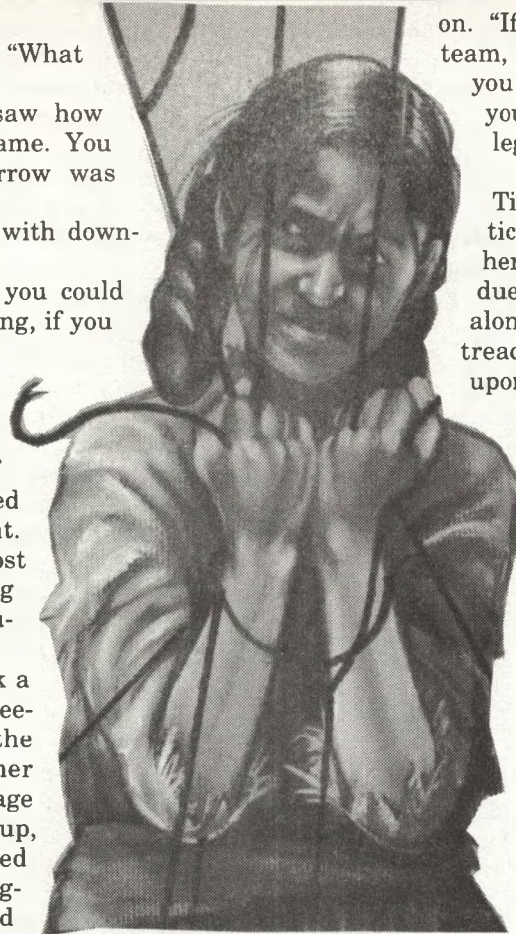
I saw myself reflected in her massive, staring eyes: an inverted Svengali promising the world.

She shook her head. "But I've never played before," she whispered.

So I told her what I'd told Ed earlier that day.

"Let me think!" she cried, near to tears, and shuttered her face behind flattened palms.

"We'd make it worth your while, Tiger," I went



on. "If you take Morrow's place in the team, and if the Raiders win, we'll take you back to the States. We'll straighten your spine and buy you a new arm and legs ... make you whole again, Tiger."

At eight the following morning Tiger trolleyed herself into the practice court. I was unable to tell whether her expression of grim resolution was due to the effort of propelling herself along like this, or the realization of the treachery she was about to embark upon. I slipped into her mind and read a little of both. Soon, she hoped, she would be fit and mobile, and this means of transport would be a thing of the past, but the price of her resurrection was disloyalty to the team that had given her life so much meaning.

Last night I'd slipped her a hundred dollars, down-payment towards her full recovery. She had bought herself a new Tiger tee-shirt and a big Mickey Mouse watch.

Ed Morrow joined us, kitted-up and ready to go. He acknowledged Tiger with a brief nod, trying not to stare at her deformed body. He rubbed his hands together, businesslike. "Okay, so what

now?" He was sweating, and I knew that he was nervous at the thought of the transfer.

"Boost yourself into the court, Ed. Take a few practice shots. I'll ease the transfer over a period of minutes."

Ed elbowed the rise-lever of his backpack and shot into the strike position at the far end of the court. The auto-server fired discs at him, and he slammed them against the goal board.

"You ready, Tiger?"

She nodded, staring up at Morrow.

I closed my eyes and merged with the two separate identities. The process of transfer defies literal description; it's a cerebral, metaphysical discipline. The closest I can come to giving some idea of the sensation of the delicate process is to employ a metaphor: imagine juggling, one-handed, with egg yolks.

I accessed Ananda Devi and lifted her gently from the body she had known for thirteen years — at the same time taking Ed Morrow from his body and exchanging them, easing Ed into the prison of Tiger's twisted frame, and slipping a jubilant and ecstatic Tiger, incredulous that physicality could be so painless, into the superfit body of the forty-year-old pro athlete.

I sagged back against the mesh fencing, exhausted from the transfer, and prepared myself for the sustained effort of maintaining the exchange.

My main concern, that Tiger's theoretical knowledge and Ed's practical skills would not mesh completely, was dispelled at once. Tiger, with a mental whoop of joy that rang wincingly inside my head, swooped on disc after disc and sent them bulleting remorselessly against the goal board. Within minutes she had full control of the body and, not content with straight shooting, sent herself bouncing from the rebound bars in tortuous rolls and jack-knives in time to intercept approaching discs and drive them home.

Beside me, Ed-in-Ananda stared up in disbelief. "She's a natural," he said, in Tiger's voice.

I held the transfer for ninety minutes, then let go. Ed and Tiger's identities snapped back into their respective heads, and I felt an immediate and sweeping relief. Ed lowered himself to the deck and joined us, exhausted after the workout Tiger had put his body through. As for Tiger, she was breathless — not with exertion so much as the wonder of what she'd experienced.

"Again!" she demanded. "I want to play now!"

"I'm shattered, Tiger. Later, okay? This afternoon, when the other players are training."

Ed Morrow said, "The real test will be how you perform with the rest of the team, Tiger ..."

"I've been watching skyball for a long time, Mr. Morrow."

I left them talking shop and went to the bar for a drink.

That afternoon, Ed set up a seven-a-side practice game. Seconds before the siren sounded, I made the transfer. For the next hour the body of Ed Morrow played vintage skyball. It was like watching the Morrow of old, the star strike who had thrilled crowds with daring stunts and virtuoso scoring feats. I sensed a stirring of renewed respect from his teammates, who had begun to think that Ed had passed his best.

When the game finished and the players trooped from the court, I returned Ed and Tiger to their original bodies. Ed came across to us. "You played like a star, Ananda," he said in an undertone. "All set for tomorrow?"

Tiger avoided his gaze, looked away, and nodded.

"Who's the kid, Ed?" a passing fullback laughed.

"Our new mascot." Ed tousled her hair. "Our good-luck charm. Eh, Tiger?"

The following afternoon, before the replay, I transferred Ed and Tiger for one last workout, and "Morrow" played a cracker. He was on form again, just like the old days, and his teammates were confident of victory.

That evening there was a renewed sense of optimism in the Raiders' camp when we arrived at the dressing room. In contrast to the prematch enthusiasm of the players, however, Tiger was quiet. I tried to reassure her that everything would turn out fine, but she just shrugged and pretended to concentrate on her skyball magazine.

When Ed led his team down the tunnel, towards the distant roar of the crowd, I touched her hand. "Cheer up, Tiger. Think of your new future ..." I probed, but there was so much conflict inside her head that all I got was mindmush.

I left her watching the prematch commentary on the vid-screen and made my way to the stand. I found a seat on the fourth tier and prepared myself for the trauma of handling the transfer. Around me, one hundred thousand zealous Tigers supporters went wild as their team emerged and boosted themselves into the court.

I was about to begin the transfer process when my hand began to tingle. I switched on, and Massingberd's big face filled my metacarpal screen.

"Massingberd?" I had the awful thought that he might need me on another case.

His expression was grim. "I just heard from the Cincinnati Board of Directors, Lou."

My heart skipped a beat. "And?"

"Someone contacted them five minutes ago, probably the same crazy who hoaxed us the other day. Get this — he's a Raiders fan disgruntled with the team's playing. He told the board that if the Raiders don't lift the championship he'll do something drastic."

I felt suddenly ill. "Christ ..."

"Of course, it could be just another hoax. But I'm glad you're there all the same. Good luck, Lou." He cut the connection.

It took a full minute for the implications to sink in.

Then I realized that the game was about to begin and I hadn't yet made the transfer. I closed my eyes, juggled Ed and Tiger's minds, and concentrated on keeping them where they were for the next ninety minutes.

There was no way I could maintain the transfer and scan for the potential assassin. I prayed that with Tiger's help the Raiders would win and "Disgruntled" from Cincinnati would have no reason to kill.

Of course, I could have aborted the transfer and scanned for the maniac — but the likelihood was that without Tiger's help the Raiders would go down: I would forfeit my hundred thousand, Ed would lose the championship and Tiger the opportunity for a new life ...

Thus I convinced myself that I was doing the right thing. Now it was up to Tiger.

The game was already twenty minutes old when I began to concentrate and take an interest. "Ed Morrow" was the dynamo of the Raiders' midfield, and before long the Tigers clamped two men on him and tried to shut him out of the game. This had the effect of giving "Morrow" less of the play, but at the same time creating more openings for his teammates. They took advantage of this, and when the siren blew for the end of the first third the Raiders were two-one in the lead.

The second third began well, and despite the

attention of two markers "Morrow" played brilliantly. He frequently lost the defenders and made unstoppable flights for the goal board. He made the third goal and almost scored himself a minute later.

As the game progressed, though, the Tigers came back. They attacked the Raiders relentlessly, maintaining non-stop raids on the Cincinnati defence and effectively cutting "Morrow" from the game. The crowd loved it — all the more when their team scored twice in five minutes to level the score at three-three with one thirty-minute period to go.

I sat back and sweated it out, going through torture as I struggled to maintain the exchange. The constant mental effort of the past two days was beginning to have an effect. If the game had not been so evenly matched, I would gladly have returned Ed Morrow to the court. As it was, the presence of Tiger out there would certainly decide the result.

It did — but not quite as I foresaw.

The third and final period was goalless until the last two minutes. "Morrow" lost his markers and came back into the game, making neat vectors into opposition air-space, rebounding again and again to decoy defenders, and in general playing like a star. At this stage of the contest it was "Ed Morrow" versus the might of New Delhi. Behind me, vid-screen commentators were hailing it as the game of the decade.

Then, with a matter of seconds to go, "Morrow" had the perfect opportunity to clinch the game for Cincinnati. He found himself alone in mid-space, with the Tiger's goal-stop hopelessly out of position. A long, accurate shot would have put the Raiders four-three up and given them the Championship.

Experts were still speculating a week later as to what exactly was going through Ed Morrow's mind as he approached the goal board and played the shot that should have won the game.

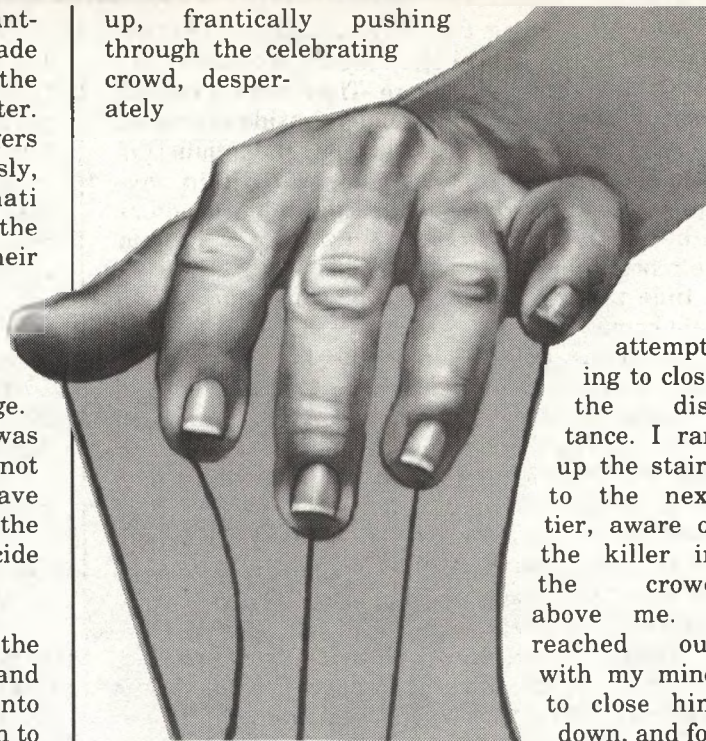
The crowd fell silent as "he" came in to give the Raiders certain victory. He was alone and ten metres before the board, and the nearest Tigers defender was another ten metres behind him. As the disc sailed in towards him from the wing, "Morrow" raised his shield above his head to strike — and missed.

The crowd screamed as an Indian defender gathered the loose disc and slotted it through to an unmarked forward. The Indian triangle passed with a second attacker, received the disc, and scored with an ease that was almost arrogant. The stadium erupted.

As the siren sounded and the Tigers celebrated their first ever championship, I gave up the transfer and returned Ed and Tiger to their respective selves.

I recalled the death threat seconds before I read the assassin, a focus of evil on the fifth tier. I stood

up, frantically pushing through the celebrating crowd, desperately



attempting to close the distance. I ran up the stairs to the next tier, aware of the killer in the crowd above me. I reached out with my mind to close him down, and for one searing

second I experienced his psychosis. Then, before I could stop him, he fired.

I cried out in horror as I watched Ed spiral crazily through the air, his backpack mashed into the ruins of his chest, the centrifugal force of his rapid descent spraying blood in a great arc over terrified spectators.

I left the stand, ignoring the insistent tingle of my right hand as Massingberd attempted to get through. I made for the dressing room, intending to find Tiger and demand an explanation. I realized then that I was crying, whether for myself, or for Ed, or for Tiger, I had no idea.

I still wonder why Tiger missed that shot. I tried to probe her in the chaos that ensued, but her mind was a maelstrom of conflicting emotions. Was it the very fact that she had so much to gain that had preyed on her mind to the extent that she was unable to concentrate and score the winning goal? Or was it that she could not bring herself to be the instrument of the Tigers' downfall — that treachery towards the very thing that gave her life its meaning was not worth the reward of perfect health?

Whatever the reason, I could not find it in myself to blame her.

Nor could I blame her, really, for Ed Morrow's death.

I pushed through the swing door. There was no sign of Tiger — only a spilled skyball magazine on the floor and the vidscreen, relaying the horror to an empty room. I scanned, and read the unmistakable signal of Tiger's confused mind, burning bright, diminishing rapidly as she propelled herself at speed through the crowded Delhi night. □

Dan Looks Through the Lens



This issue we welcome **Dan Persons** as our new "Through the Lens" columnist. He will take over from **Susan Ellison**, who did a terrific job for many years and has now moved on to other things.

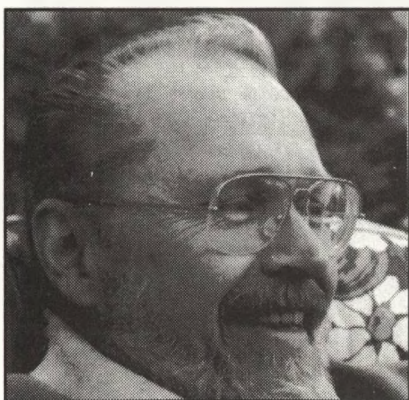
Persons is not a stranger to *Aboriginal*; his story "The Legend in Pursuit" appeared in our Spring '93 issue. He has been a regular contribu-

tor to *Cinefantastique* Magazine, recently doing a feature on the "Terminator 2" 3-D attraction at Universal Studios; a feature on "Aeon Flux," an animated series on MTV; and a cover story on *Starship Troopers*, the **Paul Verhoeven** movie based on **Robert Heinlein's** book. Persons's recent story, "A Game of the Apocalypse," appeared in *The Ultimate Silver Surfer*, edited by **Stan Lee**.

his interests: he finds appeal in both mass market efforts and the more fringe, or offbeat, offerings. On the one hand he is "one of the few people in the U.S. who admits he liked *ID4*," and on the other he is a fan of **David Lynch** and **Guy Maddin** and has a growing interest in Japanese *anime*.

Award-winning author **Barry B. Longyear** brings us a dark tale of *Testament*, and *The Last Enemy* is due to be released this year from White Wolf. His other novels include *Elephant Song*, *Saint Mary Blue*, *The God Box*, *The Homecoming*, *Infinity Hold*, *Sea of Glass*, and two *Alien Nation* novels. His short works have appeared in numerous story collections and magazines.

Longyear lives in Maine with his



Barry B. Longyear

tor to *Cinefantastique* Magazine, recently doing a feature on the "Terminator 2" 3-D attraction at Universal Studios; a feature on "Aeon Flux," an animated series on MTV; and a cover story on *Starship Troopers*, the **Paul Verhoeven** movie based on **Robert Heinlein's** book. Persons's recent story, "A Game of the Apocalypse," appeared in *The Ultimate Silver Surfer*, edited by **Stan Lee**.

Dan is a programmer/analyst with a degree in film and television and says he is sort of "Jekyll and Hyde" in



John Picciuolo

mind communication among the criminally insane in "Then Came the Mistyman." In 1980, Longyear became the first writer to be awarded the Nebula Award, Hugo Award (both for the novella "Enemy Mine"), and John W. Campbell Award for best new writer in the same year. "Enemy Mine" was later made into a major motion picture by 20th Century Fox. All this happened less than three years after he gave up his printing business to write full time.

He has recently completed *The Last Enemy*, the third work in his acclaimed *Enemy Mine* series. A single volume containing "Enemy Mine/The Enemy Papers," *The Tomorrow*



Michael J. Sherrod

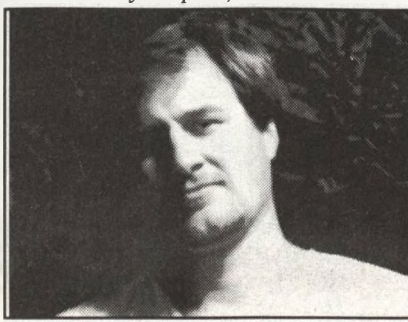
wife **Jean** and "a used dog."

"Then Came the Mistyman" is illustrated by **Carol Heyer**. Her most recent book for Ideals Publishing, *Sleeping Beauty*, won a Spectrum award and the Society of Illustrators of Los Angeles Illustration West award in 1997. Ideals now markets Carol's children's books as the Heyer collection, complete with brochure. Her next book for them will be *Black Beauty*. She has also completed a children's book on bridal customs around the world for Walker and Company, due out this spring, and recently com-

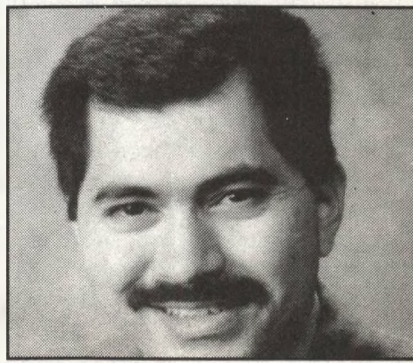
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Carol Heyer



David LeClerc



Alan Gutierrez



Eric Brown

pleted CD covers for Roaring Mouse and some *Realms of Fantasy* magazine covers. When I spoke to her she was working on a dozen illustration plates for a book about **J.W. Powell's** trip down the Grand Canyon for Ithaca Publishing.

A stranded space traveler's maternal instincts are aroused in "The Rescue of Lucinda Discal," by **Jon Picciuolo**. Picciuolo is a retired Naval Intelligence officer and says, "Writing is a natural spinoff from my past career in Naval Intelligence, when I wrote fiction of a very different sort. Sorry, can't be more specific."

He has written fiction for magazines including *Lite*, *Silver Web*, and *Vision*, and his numerous articles on Central California history have appeared in *True West Magazine* and *Central Coast Magazine*. When asked which stories he is most proud of, he says, "Whenever an old-timer reads one of my articles on local history and says 'I'll be damned, I didn't know that!' — that's when I stand a little straighter."

"The Rescue of Lucinda Discal" is illustrated by **David LeClerc**. When I spoke to him he was super busy with his display business. He had also started working with watercolor pencils as a medium. He says he is looking into an art community web site that will allow him to exhibit some of his work on the Internet.

Virtual workers pound the virtual pavement in "The Interview," by



Jack McDevitt

Michael J. Sherrod. This is the first professional sale for this Ph.D. consultant who lists his favorite hobbies as theoretical organic chemistry and the martial arts.

Sherrod writes columns on cancer research and researchers for *The Challenge*, the quarterly magazine of the Cancer Federation, and says, "I continue to *learn* to write SF in my spare time."

"The Interview" is illustrated by **Alan Gutierrez**. When I spoke to him he was working on the eighth installment of a series of game book covers for Iron Crown called "Silent Death." Gutierrez told me some of his art is now being displayed in a UFO store in Sedona, Arizona, called Starport Sedona. He and wife **Rhonda** just had their second child. **Monica** was born in May.

In "Skyball" by **Eric Brown**, athletic prowess is all in the mind. Brown is British and got his start selling short stories to *Interzone* nine years ago. He writes full time, and his work includes the novels *Meridian Days* and *Engineman*, both for Pan Books. He loves Indian food and good beer, and says, "I play football — I mean *soccer* — for the local team, Oxenhope."

"Skyball" is illustrated by Carol Heyer.

Author **Jack McDevitt** says the idea for the story "Report from the Rear" came out of H.L. Mencken's *Newspaper Days*, where Mencken claims to have secured his first journalistic fame by making up an account of the Russo-Japanese War using reference books and a knowledge of the naval captains involved.

McDevitt is the author of the novels *A Talent for War*, *The Engines of God*, and *Ancient Shores*, as well as short stories for magazines such as *Twilight Zone*, *Asimov's*, and *The Magazine of Fantasy and Science Fiction*. He lives in Georgia with wife **Maureen**, and one of his hobbies is jigsaw puzzles.

"Report from the Rear" is illustrated by **Larry Blamire**. The multi-talented Blamire says he is working full-time these days for an entertainment web site called Bali Hai Interactive. He's creating an animated adventure called "The Adventures of the Wise-Eye Guys." He describes it as black and white, "kind of surreal," and, being a cyber creation, non-linear.

Human DNA as an art form is the subject of "Chromosome Music" by **Craig DeLancey**. This is DeLancey's first professional sale. He has also completed a novella and several short

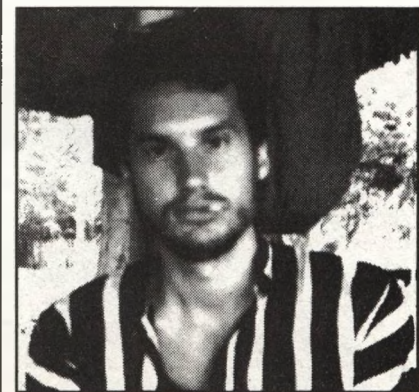


Larry Blamire

stories. When he's not writing he teaches philosophy to undergraduates and is the co-founder of the *Electronic Journal of Analytic Philosophy*. As for his hobbies, DeLancey says, "I tell philosophers that my hobby is writing. Now that I'm published I can tell writers that philosophy is my hobby."

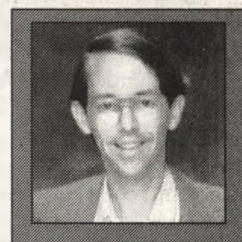
"Chromosome Music" is illustrated by **Robert Pasternak**, who has let his spiritual beliefs take his art in new directions. He is working on some comics and some fantasy paintings that touch on the metaphysical realm. A few years ago he did a retrospective called "In Between Worlds," which involved a series of self-portraits, many of which he says were symbolic snapshots of various aspects of his soul. With the science fiction stuff, though, he is "sort of just playing. I'm not being too heady with that."

The article "Future War" by **Hamilton Mac Alester** separates the SF-generated popular myths from the likely reality. Mac Alester spent six years as an electronic warfare specialist for the U.S. Army. He got his start as a full-time writer when he was laid off from a good-paying technical job and decided to follow his dream. He has completed a military SF novel called *Andromeda Rhoades*, as well as several short stories. This is his first professional non-fiction sale. □



Craig DeLancey

Mars or Bust: Living off the Land



Let's take a trip — just the two of us. We'll do the coast to coast thing — start in New York, head west until we spot the Pacific, collect a few bottles full of the not so pristine waters that fill California's Santa Monica Bay, and then turn around and return to New York. Total distance is about 5,000 miles, and if we don't stop to marvel at the world's largest ball of twine, which resides in Beetlespeak, Iowa, or have our pictures taken at the Elvis Wax Factory and Museum of Cadillac Hubcaps in Tear-drop, Nevada, then we should make the total trip in ten days.

What will we need for the journey?

Assume that each of us will consume 3 pounds of food and 5 pounds of water a day. We will further assume that we can recycle at least 3 pounds of water each day, so that by trip's end we will have consumed 60 pounds of food and 40 pounds of water. That's not too bad.

Of course we will need to gas up before we head out. If we assume that we get an amazing 10 miles per gallon of gas, this means that we will require some 500 gallons to make the journey. Gasoline weighs in at about 8 pounds per gallon, which means that we need to haul some 4,000 pounds of gasoline. There's obviously little point in trying to cut back on food in order to cut down on weight — fuel is the item that is really going to weigh us down.

Now, as to the air that we will need. Let's do a little estimating here. Assume that with each breath you pull down about 2 liters of air. Of course, oxygen represents only about 20% of that — the rest is just

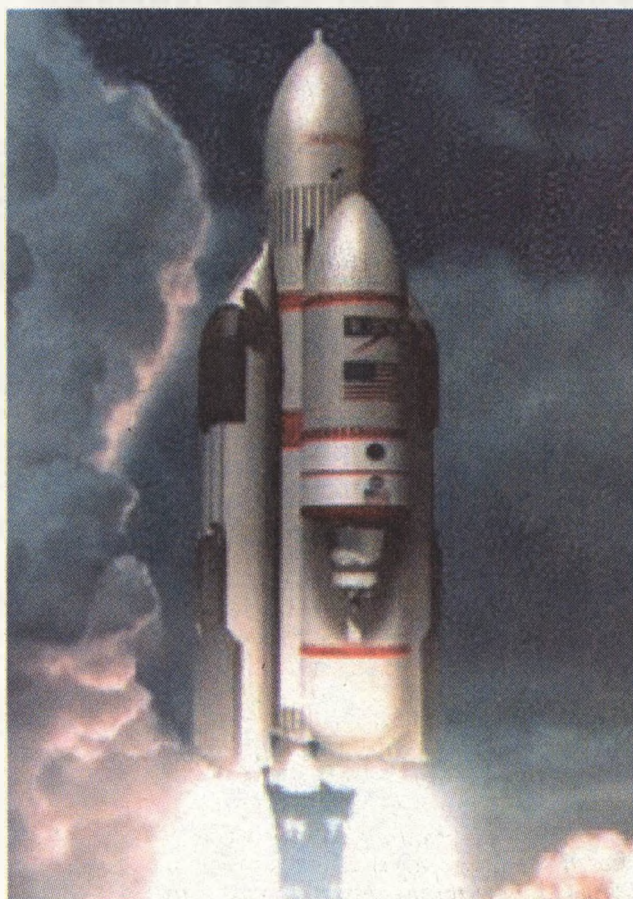


Photo courtesy of NASA JSC

The launch vehicle

nitrogen, which you blow right back out. A small part of that oxygen is taken into the lungs and used to turn that 60 pounds of food that you'll be eating into the fuel to run your body.

For simplicity, let's assume that our vehicle has some really nifty scrubbers to absorb all the nasty carbon dioxide that you breathe back out, so that you can then rebreathe the unused portion of the oxygen that you exhaled. We'll assume that you can re-breathe each lungful of air 10 times before you suck down all the available oxygen.

What all this breaks down to is that with each breath you are only consuming 2 liters x 20% x 10%

which comes to a mere 40 cc of oxygen. Not bad. The problem is that you do a lot of breathing. If we assume that you breathe on average 10 times a minute and take note of the fact that during a 10-day trip there are 14,400 minutes, this means that you will be breathing some 86,400 times, consuming 40 cc of oxygen each time, representing a grand total of some 3456 liters, or about 1000 gallons of oxygen. Now of course 1000 gallons of anything takes up a heck of a lot of space — think about that big sloshing gas tank in your car which might hold 20 gallons.

Fortunately for us, we can store this oxygen at really high pressures — perhaps up to 50 atmospheres, thereby reducing the volume down to that handy 20-gallon-size tank that we are familiar with. Of course, we'll have to watch out for leaks — high pressure oxygen can really heat up a fire. I guess this

will have to be a nonsmoking trip. The oxygen itself doesn't weigh all that much, but the high pressure tank that it is stored in weighs about 200 pounds. We can handle that. The real drag is the air purification and recycling system. I suppose we could try to find some commercially available system to handle that.

But why take a chance?

We'll design and develop our own. It probably won't weigh more than 1000 to 2000 pounds. Of course that extra weight is going to hurt our gas mileage. We better throw in another 500 gallons of gas. Naturally that means that we need a bigger tank. Come to think of it,

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we better make that a double walled tank, the type that is used in oil tankers, so that if we spring a leak in our outer hull we won't go up in a big oily ball of flame. Can't be too careful.

You may think that this satisfies our air requirement, but it doesn't. As a matter of fact, it doesn't even come close. We've got that 8,000 pounds of gas that our engine will be burning. And I do mean burning. We need oxygen to burn our gasoline. As a matter of fact, we will need about three times as much oxygen as gasoline, which translates into 24,000 pounds of oxygen.

Forget about storing this in high pressure tanks as we did with the oxygen we will use for breathing. To save on space, we need to compress it even more, by liquefying it, taking it down to -183°C , and then storing it in massive cryogenic tanks. Once again, all this added weight will hurt our gas mileage. Instead of 1000 gallons of gasoline, we'll probably now need 2000 gallons. This in turn means that we need 48,000 pounds of oxygen to burn it. As you can see, the amount of oxygen needed for breathing is insignificant as compared to that needed for burning our fuel. But what can you do? You absolutely must have oxygen to burn gasoline.

What else will we need?

We'll need ten changes of clothing.

We'll need ten days' worth of toothpaste, deodorant, dental floss, shampoo (damn, we forgot all about bathing and the water that we'll consume — we may have to forgo the bathing and just load up on the deodorant — much more weight efficient).

You might want to bring along some books, a few CDs or tapes, a good supply of Ziploc bags to store the end product of that 30 pounds of food that you'll be consuming (not nice to pollute the countryside). Oh, yeah, that means a portable toilet. Don't forget film for the camera, the road atlas, paper towels to wipe up spills, motion sickness bags, shaving equipment, medicines and assorted drugs, and a first aid kit.

There are pictures of the spouse and kids. I will need my lucky rabbit's foot. We'll need on-board sleeping cots, video screens to play games, and a satellite dish to



Photo courtesy of Robert Murray, Pioneer Astronautics

The Mars Rover

receive and transmit reports of our progress back to the East Coast. And of course we will need to tow behind us a special sand buggy that will be used to traverse that last eighth mile of sand in order to get to the ocean.

Because I am the one planning this little journey, I will be the one to actually make the final run to the surf — you will have to stay back in our main vehicle at the beach parking lot, making sure that all systems remain operational, and wait for my return. I figure I should be able to play in the surf for seven or eight minutes before I return to the safety of our mother vehicle. After all, too much exposure to the sun can cause skin cancer.

I guess that is about it.

We're ready to go.

Of course the vehicle that we'll be taking will have to be the size of a Greyhound bus in order to hold all this stuff, and the cost will probably run into the tens of millions of dollars, when you figure in the fancy air scrubbers, the high pressure and liquid oxygen handling equipment, our Beach Excursion Module (BEM), and the unbelievably sophisticated toilet which must be able to function in the event that our vehicle hits a pothole while we're going 70 mph. But, what the heck. It's well worth it. I figure that we might be able to

make it back to New York with nearly a quart of the Pacific Ocean.

Does all this sound a bit stupid? Well, it is. For the two or three of you who haven't caught on to what I've *really* been describing, I suggest you go back to counting your toes and find someone to wipe the drool off your chin. Yes, I have been poking fun at the way that the human race sends folks into outer space. We've used this technique to get 12 people to the moon and back. And what do we have for the \$25-50 billion that we spent getting to the moon? We have some rocks. We have some data. We have some dead hardware baking on the lunar surface. And that is about it. We have no moon base, no presence on the moon of any sort, not even a lunar observatory.

We couldn't return to the moon right now if our lives depended on it. All that primitive 1960s technology that took us to the moon is now mothballed and rotting, while the brains behind those Apollo missions are mostly retired, now spending their days on the golf course or figuring out how to whiten their dentures.

Pretty sad.

Is there anything that we can learn from our moon program?

Is there a better, more efficient, less expensive way to get men and women flying around the solar sys-

tem, rather than stuffing every damn thing that we will need into our spaceship at the beginning of the trip? Are there no gas stations, no grocery stores, no damn drinking fountains to be found along the way so we can cut back on the weight, size, and cost of this sort of mission?

Perhaps there are. Maybe NASA has the answer.

Well, in 1989, President George Bush announced the Space Exploration Initiative — a vision for manned space exploration for the next three decades, in which the 1990s would bring *Space Station Freedom*, the 2000s our return to the moon, and the 2010s a manned mission to Mars.

Yea!

What do you mean you can't remember this? Surely you must remember the famous "90-Day Report" which NASA put together in response to the President's challenge. You remember the one, in which NASA figured out a way to make all the President's dreams come true for a mere \$450 billion. It is a wonderful plan, full of lunar bases and massive orbiting space ports for storing rocket fuel and assembling the battleship-sized Mars rockets to make the trip to the red planet and back; all of this built so our marsnauts could spend a few weeks on the Martian surface and another 18 months getting to and from the planet.

Wow.

And when it is all over, I'm sure we will shove our new boxful of Mars rocks right next to that boxful of moon rocks we collected some 30 years ago. Heck, who knows, perhaps there'd be enough room in the storage locker for the quart of Pacific Ocean that I plan on gathering during my cross-country trip.

Well, perhaps NASA doesn't have the answer.

Needless to say, Congress did not come up with the \$450 billion, and we are not on our way to Mars.

So is that it? Is manned spaceflight forever doomed to these monster spaceships that are little more than flying fuel cans?

Enter Robert Zubrin and David Baker from Martin Marietta (now called Lockheed Martin, and by the time you read this column, could well be called McDonald's-Lockheed if aerospace merger

mania continues — would you like fries with that spaceship?).

No, answer Zubrin and Baker.

The whole reason that the NASA Mars plan is so expensive, the spaceships so big, is that you have to haul out to Mars all the rocket fuel that you'll be needing for the return trip. There's some really nasty feedback that occurs when it comes to hauling rocket fuel around the solar system. The farther out you go, the more fuel you will need to travel back to earth.

Unfortunately, this means that you need to build bigger and bigger ships to haul out all the fuel, which means that you need massive amounts of rocket fuel in the beginning of the launch to get that rocket fuel to your final destination, which means you need a battleship-sized spaceship. It is this line of thinking that led NASA into a plan which requires all these orbital facilities to store rocket fuel and assemble these monster interplanetary spaceships.

We simply don't have boosters large enough to directly launch one of these behemoth spaceships from the surface of the planet when it is carrying all that fuel. As a result, you need to make hundreds of launches to carry the fuel up into earth orbit, where it is then loaded onto the Mars spaceship. What a drag. This is why the costs get so astronomical, why NASA's plan cost \$450 billion.

But what can you do? After all, there are no gas stations on Mars, no way to fill up your empty rockets.

Wrong!

In Robert Zubrin's new book, *The Case for Mars*¹, he not only explains how you can get almost all the rocket fuel you need from Mars itself, but along with a handful of researchers at Martin Marietta, he actually built one of these rocket fuel generation systems for \$47,000.

\$47,000!

That amount of money wouldn't even buy a Space Shuttle toilet seat, but Zubrin and coworkers used it to build a working rocket fuel plant. You don't believe me, do you? Before you stop reading, figuring that I'm just pulling your leg, you need to first consider what rocket fuel consists of.

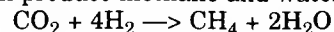
In general, rocket fuel is not some concoction of top secret ingredients and complex chemicals that must be forced through a series of hypercomplex chemical reactions in order to blow exhaust gases out the back of your rocket and thereby generate the thrust needed to push your rocket along. It's not all that complicated. In fact, you really don't need to be a rocket scientist in order to understand how this rocket science stuff works.

Let's look at an example. If you mix methane (CH₄) with oxygen (O₂), you've got one really good rocket fuel. This stuff has a specific impulse of 380 seconds, meaning that one pound of this rocket fuel will produce one pound of thrust for 380 seconds. To calibrate yourself as to what this means, the big hydrogen (H₂) and oxygen (O₂) based monsters that you see launching from Cape Canaveral have a specific impulse of 450 seconds, not that much better than that given by the methane/oxygen mix.

That's all there is to it. Mix those two chemicals together and flame comes shooting out the back of your rocket. Congratulations — you just graduated from Rocket Science 101. And just why would one want to use a methane/oxygen mix for rocket fuel?

Good question — very astute of you.

Courtesy of some nineteenth century chemistry referred to as the Sabatier reaction, you'll find that if you take carbon dioxide (CO₂) and hydrogen (H₂), that you can produce methane and water:

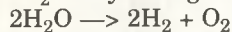


Big deal, you might be saying right about now. Well, it is a big deal. Mars doesn't have much of an atmosphere, but it does have one.

On earth, the atmospheric pressure at sea level is defined as 1.0 bar, while the typical atmospheric pressure on Mars is 10 millibars, making it only 1/100 of Earth's atmospheric pressure. It's not much, but more than enough for our needs. Because, you see, 95% of the Martian atmosphere consists of CO₂.

All you need to bring to Mars is the hydrogen — the lightest element there is, and you can then make your own rocket fuel — no need to haul it out from Earth.

Take your H₂, mix it with the CO₂ and you get CH₄ and H₂O. This reaction doesn't require any power — it even gives off heat as it proceeds. So you've got CH₄. All you have to do now is take the H₂O that you've also produced in this reaction, pump it through an electrolysis cell that splits the H₂O into H₂ and O₂ and you've got:



Both elements of your rocket fuel, CH₄ and O₂, are now happily sitting in their fuel tanks.

The wonderful part of this scheme is that the hydrogen that you brought from earth represents only 5% of the total weight of rocket fuel produced. This is equivalent to explorers planting seeds to grow food crops, rather than eating the seeds themselves. If you bring 5 tons of hydrogen from earth, you can use it to produce 100 tons of rocket fuel on Mars. The NASA plan would have been to bring the entire 100 tons of rocket fuel to Mars, which in turn might require 1000 tons of rocket fuel to bring it there. That is why those Mars-bound spaceships got so big — it takes a lot of fuel to bring the fuel to Mars that you will need to get home.

Zubrin showed that you don't have to bring all the fuel from Earth, just 5% of it, and then use the Martian atmosphere to manufacture the rest.

It gets even better. This 5% fuel requirement from home represents the conservative approach to fuel production. Take a look at Mars and you will see the deep canyon and flood plains that were carved by rushing water. Several billion years ago Mars had surface water. Some of that water has since escaped from the planet, some has gotten locked up at the poles, and the rest is beneath the surface in the form of permafrost.

The point is, there is water on Mars — H₂O.

Once you get that water, you have a source of hydrogen. Then you don't even have to bring that from Earth — everything you need to make rocket fuel is right there on Mars. But for the initial flights to Mars, the plan calls for bringing your own hydrogen.

And what plan am I talking about?

The *Mars Direct Plan*.



Photo courtesy of Robert Murray, Pioneer Astronautics

Mars Base Camp

When you've eliminated the need to haul all that fuel to Mars, which you need for the return trip, an amazing thing happens — the size of the spaceship needed to get to Mars is radically scaled down.

You no longer need moon bases or huge orbital facilities to construct an interplanetary monster. You can launch directly from the surface of the earth. The Mars Direct Plan calls for a modified Space Shuttle vehicle, as designed by Baker, which is called the *Ares*. The *Ares* consists of a pod of four Space Shuttle main engines (SSME) attached to the bottom of a Space Shuttle External tank (ET), along with two Space Shuttle solid rocket boosters (SRBs) which are attached to either side of the ET. On top of the ET you put an upper stage hydrogen/oxygen booster that will be used to launch your payload to Mars once the vehicle is orbiting earth. What does this give you? It lets you deliver between 121 and 135 tons of stuff into Low Earth Orbit (LEO). Is this some big number, something totally unreasonable? Hardly. The *Saturn V*, which took us to the moon, could put 140 tons into LEO. We did this 30 years ago — hopefully we can do it again.

Let's assume that we can once again get 140 tons into LEO — is this enough to get us to Mars? It sure looks like it. If you use hydrogen/oxygen fuel on the trip out to Mars, and use the Martian atmosphere itself to halt the incoming spacecraft, Zubrin claims that a manned Martian vehicle weighing some 25.2 tons could be delivered to the Martian surface, or some 28.6

tons in the form of an unmanned payload.

Is that good?

Is 25 tons of stuff on the Martian surface sufficient to set up a Martian base?

It depends on the nature of the mission. For Mars Direct, Zubrin is planning on a crew of four. It will take 200 days to get to Mars, 600 days on the surface of Mars, and some 200 days to get back. Wow. That's a three-year mission. This is nearly twice the length of time that NASA requires for its mission, but look at what this difference buys you — NASA has marsnauts on the surface for a few weeks, perhaps up to one month, while Zubrin has them on the surface for 600 days. With Mars Direct, the marsnauts are on the surface 20 times longer. Or to view it another way, a single Mars Direct mission would be equivalent in terms of exploration time to 20 NASA missions!

Zubrin's attitude is that you're going to Mars to explore the planet, not to plant a flag, grab some rocks, and get back home as soon as possible. This flag planting and rock grabbing is what we did on the moon, and we all know what that led to — nothing.

So what does it take for this three-year mission — how many supplies do you need and how much will they weigh? Each day an astronaut will consume 2.2 pounds of oxygen, 1.1 pounds of dry food, 2.2 pounds of wet food, 8.8 pounds of drinking water, and some 57.2 pounds of washing water. It is standard practice to recycle oxygen and water, with rates that range be-

tween 80-90%. When you add all that up you find that while the marsnauts are flying to and from Mars, they consume some 3.44 tons for each 200-day leg of the journey, while on the surface of Mars they use some 3.60 tons of material. Even though they will be on the surface almost three times longer than the trip coming or going, they need only about the same amount of material, because they will be getting their water and oxygen from the Martian atmosphere, courtesy of the hydrogen that they've brought with them. They will be living off the land. So in terms of consumables, we're talking several tons of stuff here, certainly no showstopper when the *Ares* can put some 25 tons on the Martian surface.

Here is how Zubrin has it figured. In Mars Direct you've got two different types of vehicles that you will launch — the Earth Return Vehicle (ERV), and the Hab in which the astronauts will live.

The first vehicle that you launch to Mars is the ERV. This is what the marsnauts are going to use for the return trip to Earth. Besides the normal things one would consider for such a trip, including propulsion systems, life support, the cabin where the marsnauts will live, some 3.4 tons of consumables, and the electronics, it also carries 6.3 tons of hydrogen, 3.5 tons of nuclear reactor, and the hardware required to run the chemical reactions needed to produce CH_4 , H_2O , and H_2 . All in all the ERV weighs in at 28.6 tons. You launch the ERV to Mars unmanned and land it there. Once on the surface the nuclear reactor, which is nestled in a little truck, trundles off the ship and drives away to hide in some nice nearby crater, dragging behind it a power cord that runs back to the ship. The reactor turns on and powers up the ERV, and the onboard equipment begins to convert the hydrogen cargo into all those useful chemicals that the marsnauts will need.

With the power from the nuclear reactor and the CO_2 from the Martian atmosphere, that 6.3 tons of hydrogen is converted into 94 tons of methane/oxygen propellant and 9 tons of water. You'll need 82 tons of propellant to launch this vehicle back to earth, which leaves

you with some 12 tons of propellant to power up ground vehicles that you'll be using to explore the planet.

So what have you got at this point?

What you have is a space ship, completely fueled, sitting safely on the surface of Mars. It is ready to go. It is only now, once you know that all systems check out and the fueling is complete, that you send the actual crew to Mars in the Hab.

This vehicle will carry the 7.0 tons of food that will be needed for the trip out and the 600-day surface stay, along with a 5.0-ton surface Hab structure, 3.0 tons of life support equipment, a couple of surface rovers, and all the science and communication equipment. The total weight of this comes to some 25.2 tons, which the *Ares* can handle.

All that the marsnauts need to do is fly this Hab-ship to Mars and land it on the surface next to the ERV. And just to be extra safe, while the Hab is flying out, a second ERV tags along behind it. This second ERV can be landed some distance from the first (several hundred kilometers) and act as a second base, or it can be used to return the crew to Earth in case the first ERV develops some sort of problem. But if everything is going smoothly, this second ERV will be the return vehicle for the *next* group of Marsnauts that you launch.

You're on Mars.

You've got four people for 600 days, along with two ERVs. And what does all this cost you? According to Zubrin, some \$20-\$30 billion would be required for this program — a small fraction of what NASA said it would cost, and for a mission which will have 20 times more surface time. If you look at it in terms of surface time for dollar spent, the Direct method gives 400 times more Mars surface time for your buck.

And just when could we get there? The NASA 90-day plan would have put us on Mars 30 years after the start of the program. You need 30 years to build orbital facilities, moon bases, and monster Mars spaceships.

But Zubrin feels that Mars Direct could have us on Mars 10 years from the start of the program. This is because almost all the tech-

nology is on hand today.

What makes Mars Direct work is the principle that is at its core — using Mars itself to get us there. And that part of the technology, the making of rocket fuel on Mars, is based on chemical techniques that we've had in our manufacturing knowhow for more than 100 years, with a prototype having already been built for under \$50,000.

I spent ten years working for a major aerospace company (Hughes Aircraft), and while \$50,000 will buy lots of nice things in the real world, in the aerospace world you cannot afford to even fill out the paperwork asking permission to blow your nose for \$50,000.

There appear to be no showstoppers here.

When the cost of the project is spread out over the ten years of the program, the cost per year should be something that NASA, or the Federal government, could handle. It would put us on Mars in 10 years.

Let's go!

And maybe when we get there, and the techniques have been proven, it will give me enough confidence to rethink my West Coast trip. Perhaps I'll be bold enough to make my journey in some little four-door car, roll down the windows, breathe the air along the way, buy food as I go, stop for gasoline when I run out, and spend my nights in a Motel 6. I may even be so bold as to use the oxygen I find along the way to burn my gasoline!

Who knows. It might just work.

Think of all the ocean water I could bring back.

Perhaps I'll even discover life out there.

Perhaps even intelligent life.

If you want more details, I suggest that you get Zubrin's book. If you want to get more actively involved, Robert Zubrin can be contacted through the National Space Society, 922 Pennsylvania Avenue S.E., Washington, DC, 20003, or directly by mail at Box 273, Indian Hills, CO 80454. Those of you with Internet access can check out the Web site at

<http://www.magick.net/mars>.

1. Robert Zubrin and Richard Wagner, *The Case for Mars*, Simon and Schuster Inc., 1996. □

If Attila Had Won at Gettysburg



The alternate-history story, so *The Encyclopedia of Science Fiction* reminds us, has been around for a long while. I really must look up the article about them in Isaac D'Israeli's *Curiosities of Literature*, which has been sitting on my shelf all this time. (Vast, chaotic, a huge 19th-century volume with tiny type, containing some of the best essays about books and bookish matters ever penned. Isaac, father of the more famous Benjamin, did little in his life but read and scribble his essays. I was originally drawn to him for his piece on "Tom O'Bedlams.") Probably there's an alternate universe out there somewhere in which a whole school of science fiction grew out of D'Israeli. I call to mind the very amusing piece in a recent *New York Review of Science Fiction* describing a science-fiction field that grew, not out of Hugo Gernsback, but out of Luigi Pirandello. Think of it as alternate literary criticism.

There but for fortune ...

And there is the theme of all such works. *What if* some change in fortune caused things to turn out differently? What if Alexander had lived? What if Caesar hadn't been assassinated? What if Hitler had? This line of speculation grows naturally enough out of history itself, and hasn't necessarily got a lot to do with science fiction. It is a vehicle for political satire and warnings, closely related to the Future War genre. (*When William Came*, *The Battle of Dorking*, etc.)

The science-fictional aspect

Rating System

★★★★★	Outstanding
★★★★	Very Good
★★★	Good
★★	Fair
★	Poor

comes out of time-travel. What if you could go back and change something? Like shoot your grandfather, for instance, before he begat your father ... etc. All the obvious paradoxes have long since been worked out, as have most of the implications of the "alternative" concept itself. One of the very best, I think, is Ray Bradbury's "The Sound of Thunder," in which a man goes back into the age of dinosaurs, steps on a butterfly, and finds when he gets home that his own time has changed radically for the worse.

If there was any period in which genre-SF actively attacked the implications of such stories, it was the 1930s, particularly in the Thought Variant era of *Astounding*, during the Orlin Tremaine editorship. Tremaine was the predecessor to the more famous John W. Campbell. From the end of 1933 until about 1936, he aggressively pushed *Astounding* into the #1 position in what was then a very small field, so successfully that both of his chief competitors, *Amazing* and *Wonder*, went broke and had to be sold. A Thought Variant was a story (usually a novelette or novella) specially headlined for its new ideas. New Concepts Guaranteed to Blow Your Mind.

One of the earliest essential stories to explore the alternate history concept was Nat Schachner's "Ancestral Voices," which wasn't actually billed as a Thought Variant, though it should have been. (Believe me, I have checked, and have a pile of magazines beside me as I write.) It might be regarded as a transitional piece between the I-went-back-and-shot-grandpa story and the true alternative history. In "Ancestral Voices," a time traveler goes back to the Hunnish sack of the Roman city of Aquilea and shoots a Hun who just happens to be a remote ancestor of a certain German

dictator who had just come to power. This was pretty daring stuff at the time, particularly when, among the various descendants who wink out of existence, there is not only the German dictator, but a black prize fighter.

Murray Leinster's "Sidewise in Time" (the official Thought Variant for June 1934) set the pattern for vast amounts of science fiction to follow. It isn't read much these days, since, like much '30s SF, it would seem incomprehensibly crude to a contemporary audience. (To be fair, it is a story of brilliant ideation, semi-competent narrative, and disastrously bad characterizations. We must remember that it's also contemporaneous with Hemingway and Fitzgerald, so convincing depictions of human relationships were known to be possible in those days. They just didn't have any in science fiction.) But "Sidewise in Time" is about a "time fault" or "time storm" (a concept and title used by Gordon Dickson for a major novel in 1977) in which the temporal locations of various patches of the world get all mixed up, so it's possible for Leinster's characters to go by horseback from a college campus in Virginia through a Carboniferous swamp, a world in which the Norse have colonized America, another world in which the Romans have done the same (and the Chinese, in yet another), another in which the South won the Civil War. The key concept is that every time a major event happens, time forks, so that two universes are created, one in which the event happened and one in which it did not. So Leinster's characters are wandering "sidewise" rather than back and forth in time, into an infinity of alternate worlds. Here is the beginning for H. Beam Piper's Paratime series and various

works by Keith Laumer, Poul Anderson, L. Sprague de Camp, and countless others. Within a few years (1938), Jack Williamson's *The Legion of Time*, very much in the Thought Variant mode, had alternate futures battling throughout the cosmos for their very existence. From there it is an easy step to Fritz Leiber's Change War series.

Meanwhile, de Camp's *Lest Darkness Fall* (1939) pulled a Connecticut Yankee act and sent a modern man back to Rome at the beginning of the Dark Ages. By the climax of the book, history has definitely been changed and an alternate future has opened up in which the collapse of western European civilization never happened and, in all probability, the first armies of Islam were contained and defeated.

From there it is another easy step to the works of Harry Turtledove, who, beginning with *Agent of Byzantium* (1987; a collection of stories that had appeared in magazines as far back as the early '80s), followed up on de Camp by showing a medieval Europe in which Mohammed became a Christian saint and Byzantium, as a consequence, never declined and still battles the Sassanid Persians in the 14th century. The fun of such a story, as Turtledove is so well aware, is the recognition of familiar figures or ideas in different roles. The *Agent of Byzantium* stories turn on technological inventions. For example, in one episode the wicked Persians try to bring down Christendom by introducing printing, which leads to pamphleteering, which rekindles the awesomely divisive Iconoclastic Controversy.

What Turtledove and his successors have also done more often than not is dispense with the time machine and just take the alternate history for granted. Sometimes the change comes about by "natural" means or sheer chance. Sometimes it's just there. Meanwhile, alternate histories have become quite popular, even a fad, and we're deluged with anthologies such as *Alternate Tyrants*, *Alternate Presidents*, *Alternate Kennedys*, and even *Alternate Worldcons*. Any day now I expect *Alternate Historical Vampire Cat Detectives*.

This is a major trend. Alternate

histories win Hugos. I know from experience (when wearing my agent's hat, as I sometimes do) that it is far easier to sell an alternate historical SF or fantasy novel than a plain historical one. Alternate history is a kind of brand name now, and Harry Turtledove, who certainly is as good at this sort of thing as anyone has ever been, rules that particular roost.

But what bothers me about most of these stories and novels is that they're all surfaces. They're not so much stories as speculative-historical essays in narrative form. The big preoccupations are wars turning out differently, particularly World War II and the American Civil War. (And being an unreconstructed Yankee myself, I do not sentimentalize the idea of a Confederate victory. It would have been a disaster of profound consequences, producing, in the short term, a nation as universally loathed as apartheid South Africa was. Slavery wouldn't have gone away, not after all those boys in gray had fought and died for it. No, it would have become a sacred institution, whether it made any sense otherwise or not. There, you see. I can make up an alternate history too.)

Most of these books lack the kind of insides that would make them significant as novels. You know: emotional impact, thematic content, etc. No, they tend to be about battles and roadmaps and people doing other than what history records that they did. Turtledove, in an interview I did with him some years ago, explained that such fictions make us understand ourselves and our present more clearly, because they make us re-examine how we got to be who we are.

The best of them do. But the very best of them, I think, use the alternate-historical backdrop as a backdrop rather than as the main focus of interest. Then they get on to more ambitious novelistic designs. What the current crop of alternate histories has *not* produced is anything as good as Keith Roberts's *Pavane* or Philip K. Dick's *The Man in the High Castle*. This latter is about one of the Big Two topics — Hitler wins — but does very profound things with it, so that *how* exactly Hitler won doesn't really

matter. What it *means* matters. What I'd like to see is more alternate histories that actually mean something, that move from idea into emotion into thematics and a moral dimension. I'd like to see more like Maureen McHugh's "The Lincoln Train." It invoked images of the Holocaust to describe something that almost never happens in these stories, a Union victory in the Civil War, but then goes on to explore how the subsequent peace could have been even more vengeful than it really was, reminding us that in the Land of the Free and the Home of the Brave there is as much capacity for evil as anywhere else.

Let's look at some alternate history novels:

Bring the Jubilee

By Ward Moore

Del Rey, 1997 (trade reprint of a 1953 hardcover)
221 pp., \$11.00

The Guns of the South

By Harry Turtledove

Del Rey, 1997 (trade paper reissue of a 1992 hardcover)
517 pp., \$12.00

How Few Remain

By Harry Turtledove

Del Rey, 1997
474 pp., \$25.00

I note that the first two of these aren't labelled "science fiction" on the spine at all, but "alternate history." AH is indeed a distinct publishing category, and Del Rey is starting the first clearly labelled AH line. This is itself something of an anomaly worth exploring in a country whose populace seems to be almost totally ahistorical, which is a polite way of saying historically illiterate.

Okay, I will explore it for a moment: Most Americans couldn't tell you whether Julius Caesar was a contemporary of Genghis Khan. They get their history from television and movies and are able to sit through such unintentional "alternate histories" as *Roar!* or the Kevin Costner *Robin Hood*. Not that this is a new phenomenon. Try to find any history in *The Fall of the Roman Empire* (I did: great costuming and sets, and one scene, about 30 seconds long, which is at least

true to the character of Emperor Commodus) or for that matter the average western. I am also reminded of that scene in *The Long Ships* in which a Moor, played by Sidney Poitier (thus perpetuating the very popular American view that North Africans are black something that the Tunisians or Egyptians might disagree with), encounters a bunch of Vikings led by Richard Widmark and blames them for the indignities done to his ancestors during the Crusades. (If you can't see what's wrong with that, stop reading. You are not going to understand the rest of this column.)

Large numbers of American high-school kids don't know which side won World War II. ("Too early to tell," the Wall Street joke has it. They won't understand the joke.) So, this being the case, why are alternate histories, which depend on far better than average knowledge of the topic, so popular? You have to know what *did* happen before you can appreciate how cleverly Harry Turtledove spins out what *didn't*.

If I were the Del Rey sales force, I'd be guardedly cautious. This new category is for the elite only. You may be able to sell a lot of copies to the established audience, but *do not* expect an alternate history to break out and sell like Stephen King. If the topic gets any more esoteric than Hitler Wins or the Civil War turns out the other way, chances are most of the public wouldn't know there was anything "alternate" about it. Just try explaining the premise of *Agent of Byzantium* to the average American, even the average college graduate. Go ahead. Try. They're not even going to know what Byzantine is, beyond (for those with very good vocabularies) a vaguely pejorative political adjective.

So, alternative histories are for the small audience. They're for science fiction fans; for history fans; and, quite unsurprisingly, for Civil War buffs. (A topic for another essay, probably written by someone else: why don't British writers produce endless Charles The First Wins novels? Is it because the English Civil War ended so ambiguously that, posthumously, Charles I *did* win? Or is it because England has such a long history that one par-

ticular moment is lost in the broad sweep?) There are even pessimists among us who suggest that the current craze for alternate histories comes as science fiction readers and writers have lost their sense of the future, and now retreat into speculative, but safely impossible, pasts.

(To which everybody from Gregory Benford to William Gibson to Iain Banks to Dan Simmons would doubtless reply, "Oh yeah? Speak for yourself!")

I think Turtledove expressed it best in that interview: Thus did we hold a funhouse mirror up to nature and understand ourselves.

Now I have on hand here three South Wins novels. The first, by Ward Moore, originally published as a book in 1953 (and a shorter version in *F&SF*, November 1952), is something of a classic. Over the years it managed to bury MacKinlay Cantor's much more hyped but inferior *If the South Had Won the Civil War* and is cited in many reference sources as pretty much the definitive classic of its type. Certainly for the longest time it was, and it was also an important influence on Philip K. Dick and *The Man in the High Castle*. (See Dick's correspondence with *F&SF* editor Anthony Boucher on the topic, in Dick's *Selected Letters* — aha! Another topic for an essay.) If we read it now, we can see why it was important. Moore's alternate present (1930s to early '50s) was certainly the most carefully textured prior to Keith Roberts's *Pavane*. There are fascinating speculations on how everything would be different in this new world, from the development of the typewriter and the gaslight to what George Bernard Shaw and Henry James wrote. (James, not a citizen of a great nation but a provincial hick from a minor, backward one, stayed at home. He didn't absorb European influence.)

But *as a novel*, it's surprisingly rudimentary, and just as surprisingly (considering that Moore came into SF from the mainstream), it partakes of the standard tropes of the Post-Holocaust novel of the time. (Not surprisingly, Moore also wrote two classic Post-Atomic Holocaust stories, "Lot" and "Lot's Daughter," recently reissued in a single volume by Tachyon Press.) There's this

naive and bumptious young man who would rather read a book than do any useful work, whose intellectual yearnings are looked upon with suspicion by his parents and contemporaries. (In other words, he is the sort of fellow teen-aged SF fans could identify with.) He sets off for the Big City to find his fortune. He promptly gets mugged, but then is taken in by a kindly Mentor (somewhat crustier than a Heinlein Authority Figure, but cut from the same cloth). Spirited intellectual debates ensue. Our hero then finds himself in a Haven, a semi-secret commune of like-minded intellectuals who preserve knowledge and further scientific research against the backdrop of Darkness.

You've read all that before. At times, the characterizations at least try to become more thoughtful and mature. The human relationships at least hint at greater complexity. Our hero doesn't quite get the girl. What he does instead (and I don't think this is a spoiler; if you hadn't guessed, it's implied in the blurbs and in countless reference-book entries) is use the communal time machine to go back to 1863 and accidentally make the Union win at Gettysburg, and, incidentally, squash his own future, friends, and romantic happiness as thoroughly as Ray Bradbury's butterfly.

(Gettysburg remains a clear favorite for South Wins scenarios. In "Sidewise in Time" it was because Pickett's charge prevailed. In *Bring the Jubilee* it is more plausible because the Confederates occupied — and then, when history is changed, failed to occupy — Little Round Top and adjoining high ground.)

What makes *Bring the Jubilee* almost work is precisely that it goes for the emotional at the end. It manages to make the events mean something in an individual, personal way, which is what storytelling is all about. One only wishes it were a little better done.

By contrast, Harry Turtledove is, I think, a better *writer* on a paragraph-by-paragraph basis, but he gets lost in his details. *The Guns of the South* is an enormously readable account of what happens when some ultra-racist Afrikaners from the early 21st century go back in time to

deliver a load of AK-47s to Robert E. Lee in 1864. The expected results come about. The book gets a little more interesting after the Southern victory, when President Robert E. Lee (who lives longer than did Lee in our time-line, because the Afrikaners gave him nitroglycerine pills for his heart problem) must discover the nature of the time-travelers and then deal with them, as they try to manipulate Southern history to meet their own agenda.

But there's no novelistic depth here. The interest is in watching the events play out. One could as readily read them as "non-fiction," as a series of clippings from alternate-historical newspapers. The *novel* doesn't come alive with any intensity. Nor does *How Few Remain*, which I read with added interest because, it so happened, I speculated in the pages of the fanzine *Fosfax* about what might have happened after a Confederate victory. I postulated a vengeful North, backed by Germany, starting a war of revenge which might replace World War One. I then got a note from Harry Turtledove saying that he'd just written a book on that premise.

I take no credit for *How Few Remain*. It's an obvious enough speculation. The South only could have won with the help of Britain and/or France, which would make those countries the enemy in Northern eyes. And, as Schlieffen (yes, *that* Schlieffen, of the famous Plan) is made to remark, "The enemy of my enemy is likely to become my friend." The French and British both had reasons to wish ill to the United States. The French were busily conquering Mexico at the time. The British would have liked all that cheap cotton, if only they hadn't been reminded of exactly how much damage the U.S. Navy (then the best steam-powered force in the world) could have done to the British merchant marine. Prince Albert kept Britain out of war. (There but for fortune ... If conditions at Windsor had been a bit more or less sanitary, and Albert had died at a different time ...)

But Turtledove didn't go for anything so obvious as an alternate World War I. His war of vengeance (in which the North loses, again, with the implication of a rematch in

maybe, 1914) takes place in 1881. The characters include George Armstrong Custer (who didn't get massacred in 1876 because the losing Union army directed its energies at the Indians much sooner); Mark Twain; and, more interestingly than most of the others, a disgraced but unassassinated Abraham Lincoln who is now stumping about the country preaching Socialism.

But the same objection applies. No real novelistic depth. The scenario plays out in meticulously researched and carefully thought-out detail, like a series of headlines in alternate-universe newspapers. The story experience is rather minimal. Thematically, it doesn't mean much of anything. Incidentally, this time the South wins because the famous Confederate plans which were wrapped around some cigars and dropped accidentally before Antietam were recovered and did not fall into McClellan's hands.

There but for fortune, or the want of a nail ...

Ratings:

Bring the Jubilee: ★★☆☆

The Guns of the South: ★★1/2

How Few Remain: ★★☆☆

Other matters

The Gospel of Corax

By Paul Park

Harcourt Brace, 1997

297 pp., \$13.00

This one is published as just "fiction," but it's certainly speculative. Park is the author of several acclaimed science fiction novels, *The Cult of Loving Kindness*, etc. His latest might be described as Alternate Jesus, or certainly Speculative Jesus. It's about a slave of Indian descent in the early 1st century, Corax, meaning Little Crow, who escapes from (and possibly murders — he gives us two contradictory versions) his Roman master, travels to Palestine, gets mixed up with Jewish rebels, and ends up accompanying Jesus on his "pilgrimage" to India, which has long been the subject of pious legend.

This version is more realistic, less pious. There are no miracles. This Jesus is an angry thug. The narrator is selfish, conniving, faithless. Together the two of them undergo spiritual growth. As an

alternate history novel, there is a skewed *recognition* of famous events, in this case many things that later figured in the teachings of Jesus. The fundamentalists will be most upset with the suggestion of who mugged the guy the Levites passed by but the Samaritan tried to help. By the time it's all over, Corax has gone on to become a Buddhist monk and Jesus has gone back to meet history.

It's a very rich, satisfying novel, filed with all the emotional complexities I find so lacking in most of the alternate histories proper. As *history*, I find only three objections to it: 1) the Jewish merchant who complains about the newfangled (and offensive) images on the coinage is wrong. As a coin collector I can assure you that there are double cornucopias and the like on Jewish (Hasmonean) coins for a full century before Jesus. 2) For his own reasons (I asked Park about this, and he said he just thought it would be an interesting thing to do in a novel) the author inserts the American myth of "black Egypt" — i.e., that the builders of the pyramids were Negroes, ancestors, not of contemporary Egyptians, but of the Nubians. This idea, such as it is known at all in Egypt, would be enough to prevent Park from being at all popular there. It's also nonsense. I suppose you could say it is what makes *The Gospel of Corax* a genuine alternate history rather than a speculation about what might have happened. 3) The use of "Greek fire" in the siege of Alexandria Larissa is six centuries out of period. Greek fire, a flammable, explosive liquid of still unknown composition, was invented by a 7th century Syrian engineer and used by the Byzantines as a *naval* weapon only. It was unknown at the time of Christ.

But never mind that. This is one of the best "alternate" anything novels I have read. I think all fantasy writers should read it, for its wonderfully convincing textures of daily life in a primitive world. Corax and Jesus *walk* from the Holy Land to what is now Afghanistan or thereabouts. They have a much harder time of it than most fantasy characters on quests do!

Rating: ★★☆☆

The Tough Guide to Fantasyland
By Diana Wynne Jones
Vista Books (U.K.), 1996
223 pp., £4.99

Here's another one all fantasy writers and would-be fantasy writers ought to read. It's a World Fantasy Award finalist and something of a guilty pleasure, with equal emphasis on both the *guilty* and the *pleasure*. It is a devastatingly funny "encyclopedia" of fantasy clichés. Any fantasy writer who is at all honest will recognize himself as being guilty of some of them. These are typical entries:

DARK LADY. There never is one of these, so see **DARK LORD** instead. The Management considers that male Dark Ones have more potential to be sinister, and seldom if ever employs a female in this role. This is purely because the Management was born too late to meet my Aunt Clara.

CHILBLAINS are unheard-of, however inclement the **WEATHER**. This is probably because the Management lives mostly in California.

CHILDREN are not commonly found on a Tour. If a Child appears and seems to wish to take part, be very wary. She/he is likely to be either a God or a **MISSING HEIR** to a kingdom. In either case this will make the Child unpredictable and capricious. She/he will unquestionably involve you in a great deal of trouble. See **THIEVES' GUILD** for the only exception to this rule.

If this book had been taken to heart, think how many best-selling trilogies could have been prevented ... There but for fortune ... As yet it hasn't been published in the United States. It really should be. For now, it is not hard to find at American conventions as an import.

Rating: ★★★★★

Don't Dream: The Collected Horror and Fantasy Fiction of Donald Wandrei
Fedogan and Bremer, 1997
395 pp., \$29.00

Somewhere among the alternate timestreams there's a world which differs from ours not in who won what war, but in how smaller aspects of life have turned out. There's one in which Donald

Wandrei's career turned out much more happily. In ours, all protestations to the contrary, he was a young man of astonishing promise, a friend of Lovecraft, Clark Ashton Smith, and the biggest of the *Weird Tales* circle, who wrote a few excellent stories and a few more pretty good ones in the '30s, helped August Derleth found Arkham House, went away to World War II, and after that, largely fizzled. His promise was not fulfilled. He apparently tried to go mainstream and didn't make it. He all but stopped writing. He became one of many minor pulp writers whose reputation orbits around Lovecraft. Possibly Lovecraft will keep Wandrei's name alive, but he will probably never reach a wide audience. It didn't help that, late in life, Wandrei became embroiled in bitter legal disputes with the heirs of Arkham House, that his own behavior was intensely self-destructive, and that his colleagues pretty much dismissed him as a senile old paranoid (unfairly, as it turns out). Now that he's gone, his reputation may be partially resurrected.

Donald Wandrei was a far better writer than his brother Howard (whose resurrected literary remains I reviewed last time). He had a far better visual sense (despite the fact that his brother was a graphic artist of some ability), and certainly a more poetic flair for language. Where Howard wrote pulp trash (sometimes pretty good pulp trash), Donald, who could be as trashy as any (see "The Tree-Men of M'Bwa" or "Giant-Plasm" herein, this latter one of his several Giant Amoeba stories, prefiguring *The Blob*), could also rise to different heights. He could write

nightmarish, dreamlike fantasies, the best of which, such as "The Lady in Gray," approach Poe. He also wrote overly lush prose poems in the manner of Clark Ashton Smith and the French decadents. I confess I find Wandrei's prose poems tough going, much more so than Smith. I often quote Ezra Pound's dictum that poetry should be at least as well-written as prose. I think that lyric prose should be at least as well written as narrative prose, too.

But his flaws are those of a young writer whose high ambitions and interesting sensibilities were just underway. Here was a *Weird Tales* writer, like Lovecraft or Smith, who might be genuinely said to have an *aesthetic* that's worth exploring.

But, alas, he hardly got started. His last years may have been clouded by the bitterness over his lawsuit, but what I'd like to see in that alternate universe in which Wandrei's life turned out differently would be for the four *decades* from World War II until the end of the author's life to have been as productive for Wandrei as they were for, say, his contemporary Fritz Leiber. If they had been, Wandrei might have been ranked with Leiber. Now he is a minor figure, well behind Lovecraft and Smith. He is a what-might-have-been.

Fedogan & Bremer is to be commended for another handsomely packaged "resurrection," and for the evident scholarship that went into it. This is the kind of book that's only going to be done once, and they've done it right.

Rating: ★★★★★



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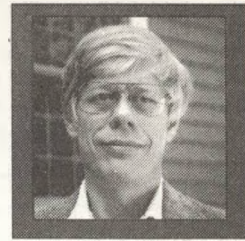
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The Keys to Power



Excession
 By Iain M. Banks
 Bantam Spectra, 1997
 390 pp., \$12.95

Iain M. Banks is one of the really up-and-coming SF writers today, and his Culture novels (of which *Excession* is the latest) represent his most popular — and probably his best — SF.

The Culture is a starfaring society that dominates the Galaxy. It is very high tech. The largest ships are miles across, can travel FTL, and have lotsa wizzy gadgets. While the Culture was founded by humans, it

very, very bright. They really run the Culture.

Humans and drones are essentially the Minds' pets. The Minds do speak of freedom and take into account lesser beings' wishes, but it is very clear that the Minds never let things get so far out of control that the humans and drones actually *want* to do anything the Minds don't approve of. They're not bad masters, and they work very, very hard to make life as comfortable as possible for their charges. But they are also willing to manipulate them on any scale needed to accomplish their own ends. (Banks claims that the Culture is his idea of Utopia. It looks a lot more like a dystopia to me.)

Excession is typical Banks, with plots and deceptions at every level. Interestingly, the Minds themselves are major characters in *Excession*, and it's the Minds who are doing all the deceiving here. The various human characters are all manipulated pawns in the Minds' games.

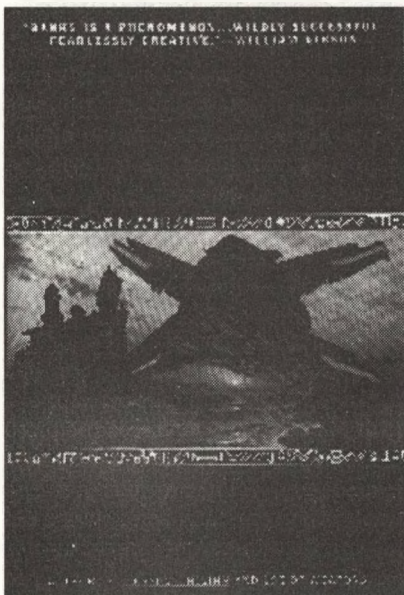
This presents Banks with a problem that he fails to solve. The Minds are supposed to be transcendent, as far beyond us as we are beyond dogs. Yet all of the Minds in *Excession* are people. They talk like people; they are motivated like people; they err like people. Were it not that they communicate in boldface without quotes, there would be nothing to distinguish them from Kimball Kinnison, who commands forces every bit as powerful with every bit as much maturity and intelligence.

There's no avoiding it, I suppose. You can't have a god on stage unless you're a *really* good writer. Banks isn't up to it; I'm not sure anyone is. The numinous can't survive contact with daily life. You'll note that the really effective supernal beings in fiction never show up in person at all. (Would Sauron have been as fearsome if he'd had a few scenes in which he'd had to chew on the scenery to establish just how bad he was?)

Excession deals with a mysterious

object that suddenly appears in deep space. It seems to be outside the limits of Culture science, and just may be the key to travel to other universes. Unsurprisingly, it is of very great interest to the Culture and to other non-Culture societies. A great race ensues to be the first to get to the object and to communicate with it or study it or wear it or eat it or do whatever seems to be the right thing to do. (*Everyone's* convinced that it's the key to Universal Power, though.)

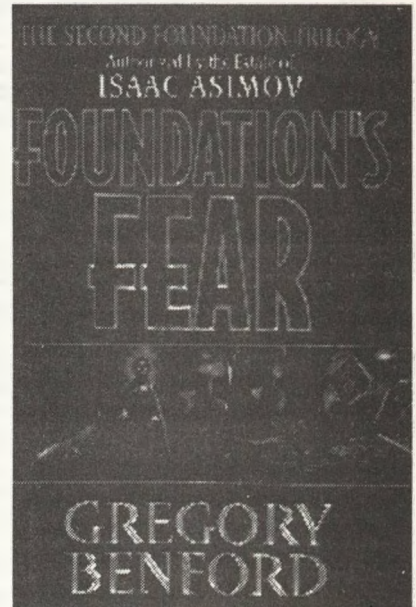
Then things get complicated as plots and counterplots among the Minds themselves come to the fore. People and other, lesser, Minds are



really consists of three species: Humans, Drones, and Minds. The Drones are "ordinary" AIs, about as intelligent as humans. The Minds are another thing entirely. They are AIs, but are implemented using hyperspatial technology and are

Rating System

- ★★★★★ Outstanding
- ★★★★ Very Good
- ★★★ Good
- ★★ Fair
- ★ Poor



manipulated and shuffled about, there is much running around, exits stage right, stage left, stage up, and stage hyperspace, and general fooforaw. It's great fun, though I must admit that I couldn't follow it all.

The biggest problem is that Banks has too many characters running about, and too many strange names. His ship names (like *So Much for Subtlety* or *Attitude Adjuster* or *The Anticipation of a New Lover's Arrival* or *Shoot Them Later*) are terribly cute, but ulti-

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mately, especially when combined with the random-assemblage-of-characters names for people (like Leffid Ispanteli, Gestra Ishmethit, Ulver Seich, Churt Lyne, Byr Genar-Hofoen) make following the twists and turns of the plot hard work.

Rating: ★★★★★

Foundation's Fear

By Gregory Benford
HarperPrism, 1997
425 pp., \$23.00

This story takes place in the period before Hari Seldon became First Minister of the Empire (an Asimov invention I still find absurd). The Emperor (secretly manipulated by R. Daneel Olivaw, puppet-master to the Galaxy) has decided that the salvation of the Empire depends on Psychohistory, and appoints Hari Seldon as First Minister. Powerful forces oppose this decision, and are willing to do anything — including

umes. Benford takes this as a license to do the same.

Partly this is OK. Leaving the technology the same as in the first three volumes is hard after Asimov updated it, and I suppose it's hardly worse to bump it up one more decade. But I think that Benford did just a little too much. I think he failed in two ways:

First of all, too much of this new technology revolves around the Mesh of Trantor (read: the Internet). Here and now, this is a very rapidly changing technology, and I think that it will date Benford's book even more than Asimov's original technology dated his books. But at least it's vital to the plot.

But Benford adds some gratuitous and incompatible new technology. The biggest change is the addition of wormholes as the main way to do interstellar travel. He makes reference to the Jump through hyperspace, and even remarks that it's slow compared to wormholes, but he didn't *need* wormholes for his story. Why add a purposeless inconsistency? He also has most of the manual labor of Trantor being done by Tic-toks, sub-robot (robots are verboten, a taboo long nourished by R. Daneel) mechanical beings based on some sort of limited AI. You'll note that this is likely to have a sorta large impact on the Empire's economy, yet Benford just shoehorns it in.

His reconciliation of this with Asimov's later books is not terribly convincing.

Benford has several sub-plots which add more or less to the story.

The awakening of AI versions of Voltaire and Joan of Arc is quite interesting, and does advance the story. But it might as well have been any cyber-story with hackers and nets and AIs and the like. It isn't terribly Asimovian.

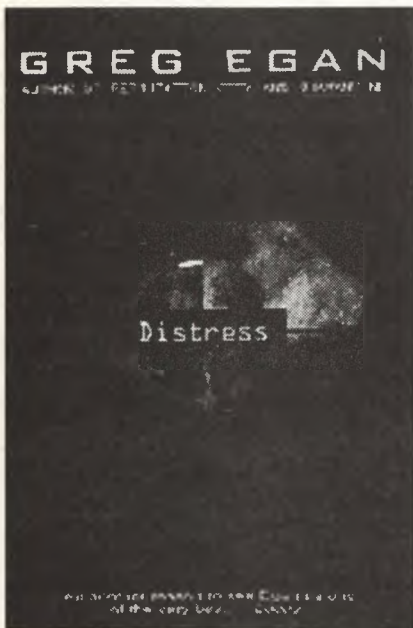
The business of Hari Seldon experiencing the mind of a Chimpanzee seems unnecessary and distracting. Supposedly this is what taught Seldon to be a good enough politician to survive as First Minister, and to develop psychohistory. Well, I suppose so.

The whole idea of alien viruses inhabiting Trantor's net and being largely responsible for the decline of Trantor (though not of the Empire as a whole) is interesting, also, and is well within the meta-parameters Asimov himself seemed to be following. Still, I felt the whole Mesh con-

cept was an overly large addition.

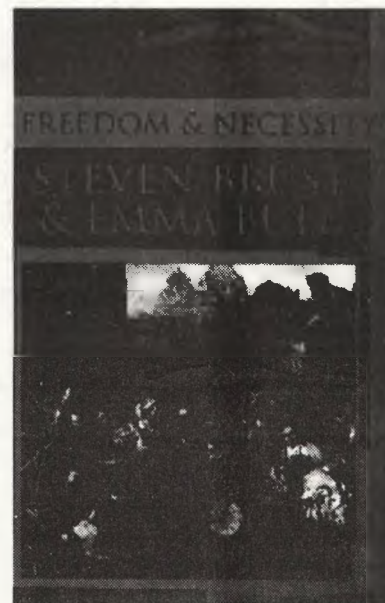
I particularly liked the latest revelations about how the robots guided humanity's expansion into space, and the explanation for the lack of aliens in the Galaxy (always a puzzle of Asimov's books): robots, once they realized that Mankind would spread through the Galaxy, secretly built huge numbers of robots and enormous fleets of ships and spread across the Galaxy, ridding it of potentially inimical life, including all alien intelligence. Berserker-like, they left the Galaxy filled with planets with primitive life and little else. Their job done, they destroyed themselves and their fleets. The First Law strikes again. So Susan Calvin is responsible for genocide on a very, very, *very* big scale, is she? (I'm surprised that Asimov didn't think of this — it's the logical result of his premises.)

On the whole, however, this is a good book, and a worthy addition to the Foundation series. I'm bothered by many details of it, but enjoyed it



assassination — to prevent it. One thread of the story concerns those maneuverings.

I didn't like Benford's decision to update the Empire's technology. In an afterword, he correctly points out that the Empire's technology in the first three volumes (*Foundation*, *Foundation and Empire*, *Second Foundation*) was a trivial extrapolation of the technology of the 1940s when they were written. He also notes that Asimov himself updated the Empire's technology to the '80s when he wrote the follow-up vol-



nonetheless.

Rating: ★★★★★

Distress

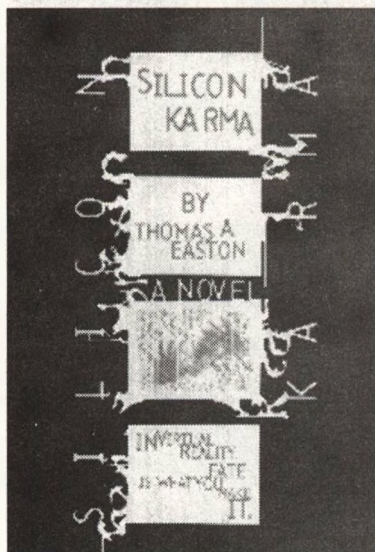
By Greg Egan
HarperPrism, 1997
342 pp., \$21.00

Greg Egan has done a superb job of using some of the frontier notions of science and computing to craft wonderfully complicated sensawonder SF. Unfortunately, in *Distress* he overreaches himself.

Distress combines physics's quest for the Theory of Everything (ToE)

with bio-engineering and a moderately alien future world. The date is fifty years from now, and the world thrives on bio-engineering technology, though its distribution is tightly restricted by gene patents. Andrew Worth, a talented science journalist, goes to Stateless, an artificial island in the Pacific built by anarchists who refuse to honor the gene patents, to cover a physics conference at which a final, complete ToE will be unveiled.

Things get complicated: assassins seem to be stalking the major physicists, attacking with weapons both ordinary and biological. Why? Unraveling this takes most of the book, but they're part of a secretive cult which has concluded that the



creation of a ToE is the act which created (creates? will create? will have caused?) the universe, and that this will have profound effects due to something handwavingly called a mixing of information and physics which will then occur. Not only will the creation of a ToE cause the universe to exist in the first place by some sort of reverse causation, but it will also cause it to instantly dissolve into a primordial soup of energy and information. Yup.

The whole thing was too complicated and simply too unbelievable to hold my attention. I'm prepared to suspend my disbelief, but not to hang it by the neck until dead. It's a pity, really. Like everything I've read by Egan, *Distress* is full of great ideas, and I suspect that it would have been a much stronger book if some of the other threads had been followed instead.

Egan doesn't like patenting genes

or Australia's diplomatic support of repression in Indonesia, but I think his politics color his story just a bit too much — the auctorial voice should either be silent, or a feature of the book. Unintentionally being noticeable is a flaw.

Stateless is Egan's attempt at designing a functioning anarchy, and he succeeds better than most. I'm doubtful that we'll ever be mature enough for anarchy to work, but Egan's anarchy, unlike most others, isn't ridiculous on the face of it. And if *Stateless*, the political entity, is interesting, *Stateless*, the artificial coral reef which is in effect a living entity is beautifully done.

Perhaps the most interesting part of the book, though, is the depiction of really high-class physicists at work. Egan makes them believable people and believable physicists and believable geniuses. Not easy.

Distress is enjoyable, but not the equal of his other work.

Rating: ★★☆☆

Freedom and Necessity

By Steven Brust and Emma Bull
Tor, 1997
443 pp., \$25.95

This isn't anything like you think. It isn't anything like what either Brust or Bull have written before. And it may not be SF or fantasy at all. Or maybe it is. It's *quite* good, though.

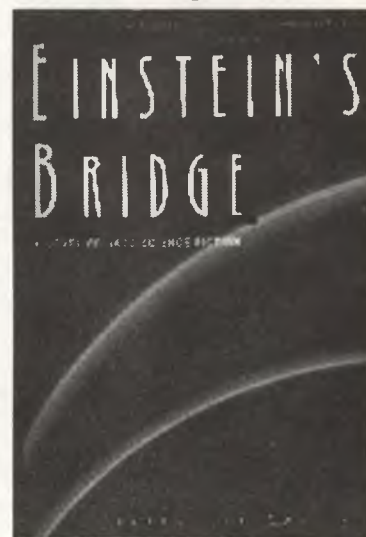
F&N takes place in England in 1849, and most of the characters are cousins in one degree or another spread over several interrelated families of gentry. The year should tip you off. The previous year, 1848, saw attempted revolutions in most of the continental European countries. None of the revolutions were successful, and a lot of failed revolutionaries fled to England and America. This sets the stage.

Freedom and Necessity is an epistolary novel: the entire book consists of long letters written by the various characters and their journal entries. I think it is only partially effective, though. The letters are all too long and too detailed, and people explain and quote far more than they would in real letters.

The book opens with James Cobham apparently dead of drowning, but two months later he turns up alive after all, with no memory of those months. A Mystery. It soon appears that he may have been kidnapped, and the cousins set out to

unravel it all. As they proceed, it turns out that the situation is *very* complicated, with plots and counterplots and complications. There's a society of what may be druids who may practice magic — they certainly *try* to, but it's never clear if it is effective or not. Some of the main characters think it is, some think it isn't. It's a matter of minor controversy among them.

I won't describe the plot further; discovering its convolutions as the story unfolds is a lot of the fun. The cousins are all busy writing to each other and telling each other 80 percent of what's going on, leaving out bits and pieces for all kinds of different reasons. There are false identities, misunderstandings, a Legion of Aunts, and other great fun.



I do want to mention, however, that Friedrich Engels — the theorist of Red revolution — is one of the main secondary characters and (in the book, at least) turns out to be a quite sympathetic and attractive person. And Karl Marx even has a walk-on role.

If you approach this book looking for a fantasy in the style of Brust or Bull you'll be disappointed. If you are looking for a marvelously complicated story with interesting characters and locale written by a pair of very competent writers, you're in for a treat.

Rating: ★★★★★

Silicon Karma

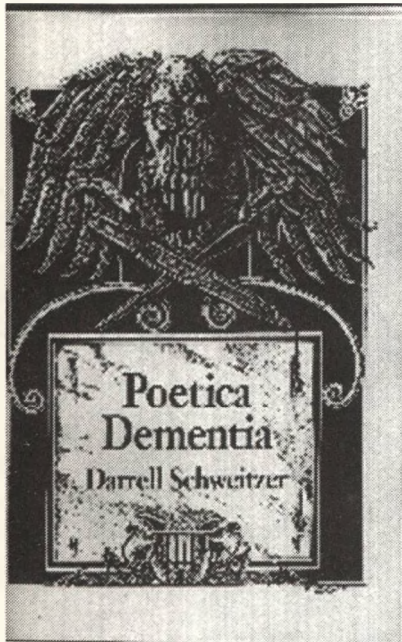
By Tom Easton
White Wolf, 1997
283 pp., \$11.99

Silicon Karma is an interesting SF book marred by White Wolf's unnecessarily fancy typography.

The art of simulating human minds has advanced to the point that a person can be scanned and thereafter have a copy living in a virtual world. Companies spring up to provide those virtual worlds. The idea that even after your death, a copy of you is still around interests some people — at least enough to make it commercially viable.

People in the virtual world are getting murdered, and a cop must be scanned in to investigate. *Silicon Karma* isn't really a SF mystery, though, since I don't think Easton provides clues enough to solve the mystery. Rather it's an SF book with mystery trappings.

The world is interesting — the



idea that even in a virtual world an economy is still necessary and people must still work for a living is a good one. The computational resources needed to maintain the virtual world are scarce, and to get access to more (which can be used to create a more varied environment for yourself) requires the virtual entity to work for pay.

I can't say I care for the fairly artificial rules that govern the virtual world — the computer that maintains it, for example, manifests itself as an intelligent being, but is powerless ("because of my programming") to intervene or even provide information it has. Doubtless it was needed to make a story, but it seems contrived.

Still, it is a fun story.

Rating: ★★★

Einstein's Bridge

By John Cramer

Avon, 1997

354 pp., \$13.00

Einstein's Bridge doesn't start out very promisingly, since it looks as if it is going to be a near-future political book. Initially, Cramer starts two threads, one showing two opposing alien civilizations. The bad guys are looking through time and space for energy concentrations they could expand into a wormhole through which they could funnel an invasion force. The good guys are looking for the same energy concentrations to try to stop the bad guys. That part looks like it had potential.

The other part, which quickly grows to take over the book, looks like a near-future scientific/political thriller over the fate of the Superconducting Super Collider (SSC), which was started in Texas under Reagan and canceled some years later. I don't generally care for near-future techno-thrillers, but continued to slog through it.

You'll have guessed, of course, that the SSC is just the thing which could produce enough energy to let the two alien civilizations reach Earth, and reach Earth they do — in an alternate future in which the SSC was not canceled.

The story picks up steam at this point and becomes quite an engaging SF novel. The good aliens turn out to be a first-rate *deus ex machina* and the bad aliens are bad indeed. In fact, to beat the bad guys, the good guys are forced to destroy the entire universe (though they put it back together again very quickly and start over before the bad aliens have invaded).

It's an entertaining piece of hard SF.

Rating: ★★★1/2

Poetica Dementia

By Darrell Schweitzer

Zadok Allen: Publisher, 1997

26 pp., \$4.00

Darrell Schweitzer's mind must be ever-so-gently warped to have produced this not-terribly-gently warped little chapbook of poetry. It's poetry (well, doggerel, perhaps) tied in with the Cthulhu Cycle. An example, the start of "Growing Up Weird":

*First Cthulhu ate my Grandpa,
then Hastur got my dad;*

*of Cousin Zeke, I dare not speak;
his end was very bad,
or
A corpse is a corpse, of course, of
course,
and no one can talk with a corpse of
course
that is unless the particular corpse
is the famous Mister Dead!*

Well, you get the point...
Delightful, in a gently warped
way.

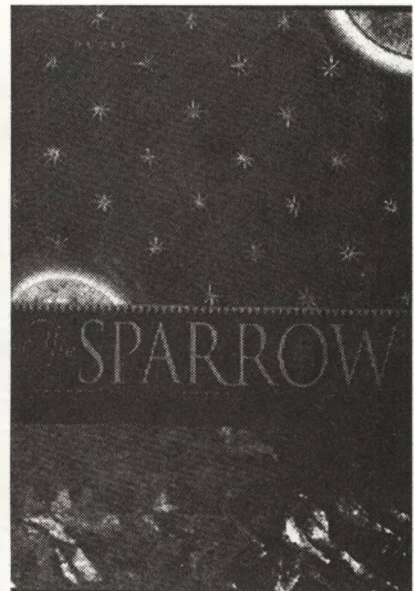
Rating: ★★★1/2

The Sparrow

By Mary Doria Russell

Villard, 1996

408 pp., \$23.00



This was easily the best SF novel of 1996, and it didn't even get a Hugo nomination! I heard rumors at Boskone that there was a really good book called *The Sparrow* which was about Jesuits and the first interstellar expedition. The recommendations were good enough that I found a copy, but the description sounded odd enough that I only recently got around to reading it.

It was my loss.

The story tells of the discovery, perhaps fifty years from now, of radio signals from Alpha Centauri by a scientist whose friends include a talented Jesuit linguist who is serving as a parish priest in a slum near Arecibo. One thing leads to another, and the Society of Jesus decides to outfit an expedition.

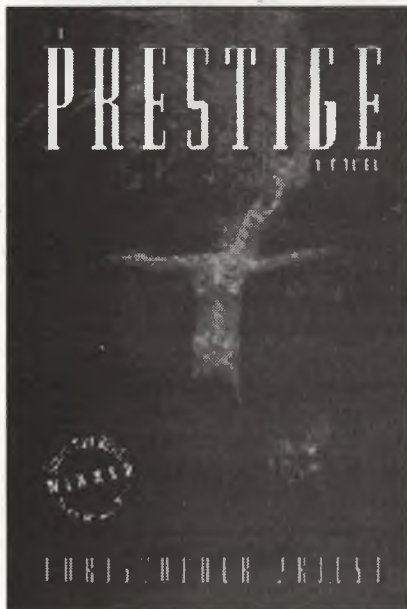
The story is about people and Jesuits and a pair of well-realized

alien races.

The Sparrow is told in a series of flashbacks, mostly by Emilio Sandoz, S. J., who appears to be the sole survivor of the expedition. He's apparently been tortured, may have committed murder, and is certainly in terrible shape both physically and mentally. The bulk of the book occurs in flashbacks while his fellow Jesuits attempt to heal Sandoz and learn what happened.

What makes the novel particularly affecting is Russell's skill in making all of the characters in the expedition both likable and real enough to make their fate more than a mere incident of the plot. I would very much have liked to have known these people.

This is an excellent combination



of good SF and good characterization.

Very highly recommended!

Rating: ★★★★★

The Prestige

By Christopher Priest
St. Martin's, 1996
404 pp., \$24.95

Here's a strange one for you. Strange, but good.

The Prestige is about the rivalry of two 19th-century stage magicians, and for most of the book it appears to be a more or less mundane novel filled with fascinating stuff about professional magic. Except that both of the magicians have developed one trick that may be just a bit more than illusion.

They stumble into their bitter

rivalry (the story of how that happens, told in turn from each perspective, is excellent) and spend a good deal of effort trying to understand each other's most closely-guarded secrets. The 19th-century story is enthralling. (I wonder how accurate the details of life as a stage magician in the 19th century are? They certainly ring true.)

It's framed, however, by a 20th-century story in which their descendants try to patch up the old family feud, and segues into something like a ghost story or a minor horror story which is related in an unsatisfying way to the 19th-century story. Frankly, I found the last twenty or so pages to be a letdown compared with the main story.

Still, it was an excellent book.

Rating: ★★★★★

Jack Faust

By Michael Swanwick
Avon, 1997
337 pp., \$23.00

How can such a nice man as Michael Swanwick write such nasty endings?

Johannes Faust (yes, *the* Faust) has decided that the only way to gain the knowledge he wants is by a deal with the Devil. He contacts *something*, but this something claims to be a race of highly intelligent aliens who (a) think and live billions of times faster than us, (b) can consequently predict the future in every detail (huh?), (c) can observe us, but can't affect us materially — and can communicate only with Faust — and (d) hate us and wish to destroy us (huh?).

Their approach is to give Faust every bit of knowledge he asks for in the expectation that humanity will obligingly destroy itself for them.

The book's three phases are Faust before he contacts the whatsits, Faust while he idealistically tries to make the world better and degrades himself in doing so, and finally the explosive moral collapse of Faust along with the physical collapse of Europe as Faust's industrial revolution plays out five centuries of technological and industrial progress in twenty years.

I liked the first two sections unre-servedly, but the third section was just a bit too bleak and nasty for my taste. Perhaps it was realistic, given the premise, but still it was not fun to read.

I have two gripes, one minor and

one major:

The minor gripe is that things move too fast. Even with infinite knowledge, I don't think Faust could have done so much in so little time.

The major gripe is that I don't understand why Swanwick bothered with the elaborate charade of fast-living aliens. I can see nothing whatsoever in the story where having Faust be tempted by aliens makes any difference from the original story. It was kinda cute, but unnecessary. Perhaps making it aliens rather than a devil turned it from fantasy to SF?

Still, this is an excellent book and deserves consideration for next year's Hugo ballot.

Rating: ★★★★★



Feet of Clay

By Terry Pratchett
HarperPrism, 1997
357 pp., \$5.99

Terry Pratchett continues to amaze. After what must be twenty Discworld books, he's managed to keep the series fresh and interesting. Partly this is because he has a several casts of characters (the three witches, Rincewind, the wizards of Unseen University, the Ankh-Morpork city guard, etc.) and uses them in some stories but not too often. It helps keep things fresh.

Feet of Clay deals with golems, the men made of clay from Eastern European Jewish legends, which were animated by writings placed in their head by particularly learned Rabbis. We learn that golems have

been in use for a long time in Ankh-Morpork, doing a lot of the dirtier work.

Like several of the recent novels, *Feet of Clay* is properly something of a mystery set in a very exotic locale. Several murders have occurred, the Patrician has apparently been (non-fatally) poisoned, and golems are running amok. Whodunnit?

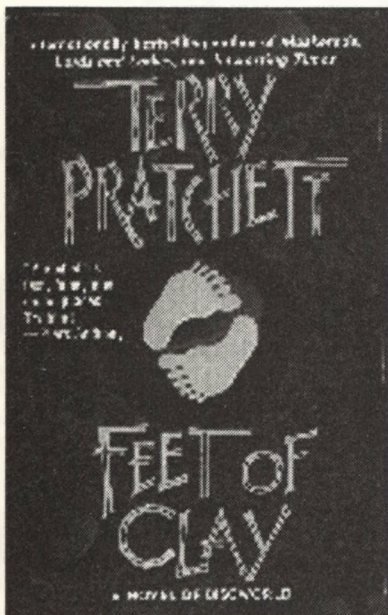
Pratchett plays pretty fair and delivers a good mid-range Discworld novel. It's a fun read.

Rating: ★★★★★1/2

Donnerjack

By Roger Zelazny
and Jane Lindskold
Avon Books, 1997
502 pp., \$24.00

I approached *Donnerjack* with



considerable trepidation, it being a posthumous book and all. To my considerable surprise, *Donnerjack* is a good piece of Zelazny; not his best, perhaps, but far from his worst.

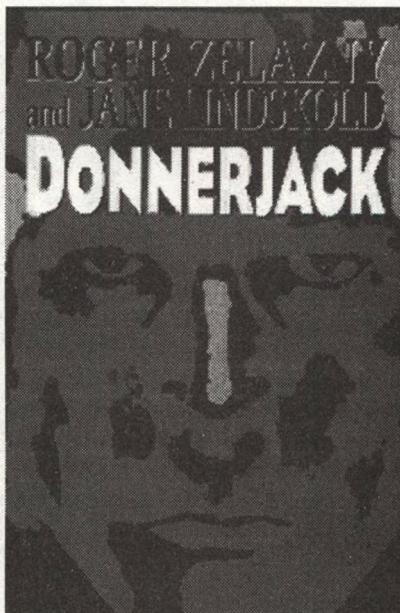
Like many of Zelazny's books, *Donnerjack* is about the intrusion of myth into ordinary life. Since it is a Zelazny book, the intrusion isn't simply symbolic. Sometime a few decades from now, an instability in the Net causes a collapse and reintegration as *Virtu* (a Renaissance Italian word meaning "art"), a world which seems to exist parallel to our own world of *Verite*.

Being of the computer, *Virtu* is malleable, and someone who ventures into *Virtu* using the usual cyberpunkish gadgets can witness and even participate in marvels.

About Our Cover

The cover for this issue of *Aboriginal Science Fiction* is a composite or two photos. The first is a 1994 EVA spacewalk by a *Discovery* Shuttle Astronaut to test a new suit and the second is a Hubble telescope photo of Mars.

The photo highlights Robert A. Metzger's column about Robert Zubrin's proposal to fly to Mars for a fraction of what NASA proposes to spend, using current technology.



And marvels there are. When the Net transformed into *Virtu*, the AIs which ran the net became the gods and other supernatural beings of *Virtu*, myth made real (sorta).

The interesting thing here is that the boundaries between *Verite* and *Virtu* seem to be blurring.

Donnerjack himself is a designer, an artist/engineer who works mostly in *Virtu* and who is pulled into Great Events which seem to be shaping themselves.

I won't try to detail the plot, nor go into the chaotic metaphysics of *Verite/Virtu*, but they're both complicated and satisfying.

The story has the feel of honest-to-God Zelazny, though the language isn't quite as zingy as his usual. But Zelaznian touches

abound: when *Donnerjack* invades the Hell of *Virtu* to retrieve his *Virtu* lover, he calms the guardians with music — played from a portable CD-like player. When he invades it a second time on a different mission, he's riding a giant sentient railroad locomotive called the Brass Baboon, which lays its own track wherever it wants to go.

Wonderful!

Rating: ★★★★★



Boomerangs

Dear *Aboriginal*,

I have just finished reading Darrell Schweitzer's Winter 1997 column and I believe the best place to preserve the materials he speaks of is on the internet rather than the specialty presses. The work could be sent as a file that could be downloaded for a fee and printed or read on the screen.

Joseph E. Levy
joehypno@email.msn.com

Dear Charles C. Ryan,
Absolutely delighted to receive the Winter 1997 issue.

Reports of your demise greatly exaggerated — as usual. You have nine lives, my friend. And looking at your masthead, I see that the names of your loyal and devoted staff have changed very little over the years. Please share my warmest regards with every last one of them.

And let's not forget your readers, without whom you would be up the creek. As for *Eating Memories* — anyone who has not read Patricia Anthony's short fiction is in for a treat. Come on, Aborigines — let's inundate *Aboriginal* with green stuff.

Best wishes. I suppose "Merry Christmas" is in order, isn't it...

Larry Cuthbert
Victoria BC
Canada
ljc@ampsc.com

Dear Charlie,
Merry Christmas.

It really felt like a holiday today when I opened the mailbox and found the latest issue of *Abo*. I'm so happy to see that you're still alive and kicking. I have every copy of *Abo* and, looking back at all of the changes the magazine has gone through over the years, one thing has remained consistent.

You publish the *best* new stories anywhere.

Keep up the good work and don't worry about being a little late with the issues.

Tom Scanlan
TomScanlan@worldnet.att.net

Future War



Photo courtesy of Accurate Automation Corporation

The Mach 5 "Waverider" is designed to cruise on its own wake.

As a metallic starship glides across the screen, bright lasers from another starship lance out. Most miss, though the ships are in close visual range. Shields buckle and collapse. Explosions ripple across the doomed ship's hull. The victor then boards troops who wear cloth uniforms or bulky decorative armor to assault the enemy installation. It's a compelling picture we've seen and read about a thousand times over, but is it a true picture of future war?

In 1991, the world watched as the Coalition fought the first high-tech war in the Persian Gulf. Stealth fighters penetrated Iraq's air defenses with ease, delivering laser-guided bombs through three-foot air shafts. Nuclear attack submarines fired cruise missiles at targets hundreds of miles distant, then slipped away to await the next attack.

The Gulf War should have been a wake-up call to military futurists,

yet modern military science fiction still resembles the death rays and clunky equipment of the 1930s.

So what does the future hold?

Simply put, the battlefield of the future is about long-range lethality and survivability.

Lethality

Lethality is a measure of a weapon's ability to accurately hit and destroy a given target.

The precision-guided "smart" weapons of today promise "one round, one hit" accuracy. Consider that roughly 10% of the weapons used in the Gulf War were smart, yet they did almost 90% of the damage. Even so, many of these systems did not deliver on their promise. The official success rate for laser-guided bombs in the Gulf War was only 60%, so even successful systems suffer from serious drawbacks.

Today's weapons require that the pilot hold the cross-hairs on the target for the weapon's entire flight,

limiting the pilot's ability to maneuver to avoid ground fire. To address this shortcoming, "brilliant" weapons, which promise "fire-and-forget" capabilities, are under development. They should enter service around the turn of the century.

One such system, Hellfire II, tracks targets with a millimeter-wavelength radar seeker. Once its operator selects a target, the weapon requires no further input. This allows the crew to engage multiple moving targets, or to escape and evade.

As impressive as brilliant weapons will be, their successors are already being discussed. Countries want to get their soldiers and expensive equipment as far from the battlefield as possible, especially since a few missiles can achieve a country's political objectives in relative safety.

This means future battlefields will range over 200 square miles or more, requiring weapons that can independently seek out and destroy specific types of mobile or stationary targets. These "intelligent" weapons will combine inputs from the Global Positioning System (GPS) with updated intelligence from a combat information network to strike deep into enemy territory. These weapons may be operational around 2025.

What lies beyond intelligent weapons is still a matter for debate. Weapons will need to find and evaluate threats to their mission, select the best route to the target, and decide where to strike, perhaps in coordination with other weapons. This class of "reasoning" weapons will rely heavily on artificial intelligence.

Survivability

The object of the game in future

war is not to be seen.

Armies of old advertised their presence on the battlefield. Bright banners and distinctive dress allowed field generals to recognize and control their own troops, and to find the enemy. As weapon lethality increased over time, so did the need for troops and equipment to avoid detection. This led to a revolution in camouflage, culminating in the stealth technologies of today.

Stealth is a collection of design features, technologies, and materials that significantly reduce the radar, infrared (heat), visual, electronic, and acoustic signatures of a given platform. To understand the future of stealth, let's look at the Army's RAH-66 Comanche Scout/Attack Helicopter, which should enter the force in 2003.

The Comanche is nearly invisible to radar, audio, and infrared detection. It employs the same smooth, angular, radar-deflecting construction used on the F-117 stealth fighter and the B-2 bomber. Advanced fiber, carbon, and plastic composites — and very little metal — make its airframe stealthy and light. Weapons are housed in two internal bays to shield them from radar detection. Engine exhaust is mixed with cooler air and vented downward to reduce the Comanche's infrared signature, and its engine intakes are recessed to reduce their radar signature. A five-bladed main rotor that reduces noise and improves efficiency rounds out the Comanche's stealth features.

Stealth is the future of all battlefield systems. The U.S. Navy hopes to produce a design called an "arsenal ship." These ships will have the same smooth, angled appearance of stealth aircraft, employ many of the same radar-defeating materials, and carry weapons in internal bays.

All the stealth in the world isn't worth much, however, if the missiles and bombs a platform carries give the game away. That is why stealth aircraft and the proposed arsenal ship store munitions in internal bays. Unfortunately, once those bays open, the bombs and missiles in them make great radar targets. Therefore, missiles and bombs will also need to become



Photo courtesy of U.S. Army

The Army's RAH-66 Comanche Scout/Attack Helicopter should enter the force in 2003.

more stealthy, especially if future missiles must loiter over the battlefield for extended periods.

Even ground troops can expect drastic changes. Full body armor, once the province of medieval knights, will return. During the Gulf War, individual Iraqi soldiers showed up as well-defined white figures in Coalition thermal gun sights. As weapons and sensors improve, hiding that heat signature will become critical.

Directed-Energy and Kinetic Weapons

Directed-energy weapons — beam weapons, phasers, lasers, and death rays — have been a part of science fiction since the days of H.G. Wells. Yet, despite over three decades of research, no battlefield directed-energy weapon has yet entered a military arsenal, and they may never hold the place in future war that current science fiction would have us believe.

Remember, future war is about long-range lethality, and the trend is to get people and platforms as far from the enemy as possible. Directed-energy weapons must see a target to hit it, which means they must be relatively close to their target to attack. That proximity puts the platform at risk. Firing the weapon would also pinpoint the platform's position for enemy sensors.

In the near future, directed-energy weapons will play antimissile and anti-aircraft roles, though a practical battlefield system is still years away. Costs must also be drastically reduced before these weapons will replace missiles — if they ever do. With stealth capabilities reaching more battlefield sys-

tems, directed-energy weapons will find it harder to locate targets. And, of course, the weapons themselves will be prime targets.

A more promising future weapon is the kinetic launcher, more commonly known as a "rail gun." Research on rail guns is already two decades old. According to the Naval Postgraduate School, a battlefield system that could fire a ten-pound slug at six kilometers a second (a bullet travels about one kilometer a second) could be fielded in about two or three years — provided the Navy gets the funding. The kinetic energy of a rail gun slug is enough to destroy a tank or damage a ship, meaning the slug requires no propellant or explosive charge.

Like directed-energy weapons, rail guns must "see" their targets to hit them. To increase range beyond the 20-40 miles imposed by the curvature of the Earth's surface, or to strike targets that cannot be seen, future kinetic launchers will need an indirect fire capability. This could be achieved by mating kinetic launchers with missiles and guided rounds.

The combination of these technologies opens some intriguing possibilities. A kinetic launcher of sufficient power could theoretically lift a round or missile to any point on the planet, or even into space.

Assuming humans carry war into space, will directed-energy and kinetic weapons have a role to play? Perhaps. But space combat will be battle between stealth platforms. Most likely, it will resemble modern submarine warfare, with each side picking out passive clues to the other's presence. Any energy discharge would give away the firing

ship's position, thus defeating the whole purpose of all that expensive stealth technology. Stealth weapons would give the firing ship a chance to conceal its position, increasing the likelihood it would survive the battle. It's no coincidence that stealth fighters bombed the most heavily defended targets in and around Baghdad during the Gulf War. Without them, our air losses would have been far higher.

Directed-energy and kinetic weapons may prove useful for attacking known, fixed installations, but it is unlikely they will ever hold the predominant role current and past science fiction gives them.

The Combat Information Network

Computer networks are already part of our everyday lives, from banking with ATMs to surfing the Internet. The military will soon join the networking revolution with the introduction of the Combat Information Network (CIN). Each platform, weapon, and individual soldier will eventually be tied into the network.

This network will allow written communications between higher and lower echelon commands, which are easier to understand in the heat of battle. Soldiers will also access databases to retrieve maps, current intelligence, and supply information, and combine that with Global Positioning System data.

When a friendly unit spots a hostile unit, the network will decide which of all the platforms on the ground, on the sea, or in the air has the best shot and instruct that platform to fire. Exchanging GPS information will also lead to a dramatic reduction in "friendly fire" incidents.

The CIN does have drawbacks. All the information available to even low echelon commanders threatens to create an information overload, which could be just as deadly on a fast-moving battlefield as an enemy round.

The CIN will also be vulnerable to electronic warfare, though modern military communications are highly resistant to jamming and the electromagnetic pulse effect of

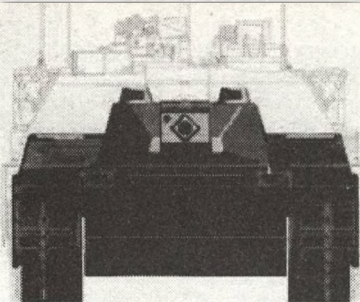


Photo courtesy of General Dynamic Land Systems

A low signature tank

nuclear explosions. Still, no system is perfect. Electronic warriors will do battle over CINs for decades to come.

What It All Means

In the near term, warfare will look very much like the Gulf War, with a few more bells and whistles. Beyond that, when brilliant weapons enter the arsenals of potential adversaries, there will also be stealth tanks, stealth ships, and stealth soldiers.

And if humans do take war to the stars, what will that look like? Let's reexamine the opening scene.

*** **

No metallic starships with fanciful paint jobs prowl space. The opposing warships are nearly invisible. They move slowly, searching for passive clues — heat emissions or fluctuations in the stellar wind — that might betray their adversary.

Sensors from one ship detect a heat anomaly and track it for several minutes. The captain orders four stealth missiles launched, then takes evasive action, knowing the missiles need no further input. The missiles drift for some time, firing their engines only when they are far enough from the launching ship not to reveal its position.

Aboard the targeted ship, sensors detect a missile transient. It launches missile interceptors and countermeasures. Opposing missiles stalk each other. The interceptors claim two of the attacking missiles, and countermeasures lead another astray, but one missile hits, disabling the ship.

The attacking ship now prepares a ground assault. Troops don their full body armor, blending into their background so well they almost disappear. Missiles and other guided munitions launched ahead of the

assault destroy enemy weapon platforms, command and control, and logistics targets. With the enemy's defenses suppressed, the ship moves into direct line-of-sight of the objective, launching kinetic slugs and firing directed-energy weapons at point targets.

Finally, the troops go in. One soldier spots an enemy tank. The CIN directs a nearby aircraft, which has the best angle of attack, to engage it, destroying the tank. Soon, the enemy breaks, and the battle is won.

Hamilton Mac Alester is a former electronic warfare/signals intelligence analyst for the United States Army and is currently marketing Andromeda Rhoades, a science fiction novel based on his vision of future war. (hamilmac@aol.com) □

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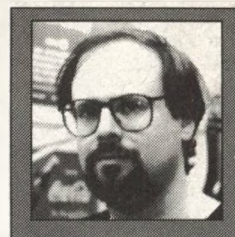
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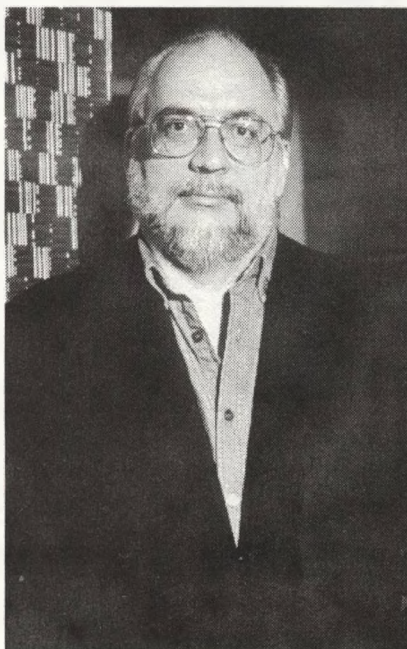
The New Roddenberry?



Babylon 5's season opener on TNT begins with an epic battle for humanity's survival.

Is it just me, or is Mike Straczynski taking on more and more of a resemblance to Gene Roddenberry? No, I'm not talking physically, although recent photos do suggest the guy's been gaining poundage. And no, I'm not referring to any sort of matrimonially-challenged social likeness — I know nothing of Mr. Straczynski's private life, and I'm not straining to find out. I'm talking here about fan stature, about how, with the passage of television's first major SF god to the great beyond (or at least to a low-lying orbit) and the surrender of that man's franchise to the less capable hands of the corporate bean-counters, the creator and custodian of *Babylon 5* has now acquired the mantle of torch-carrier for the true believers: the man who, despite obstacles financial, logistical, and political, succeeded in hand-tooling a television universe to his own designs and seeing it through to the very end.

A certain Great Bird-ness, if you will, now attaches to Mr. Straczynski, bringing with it all the accord-



The new Roddenberry?

ing awe and respect that the clamoring masses are willing to tender, if not all the nubile, mini-skirt-clad space models that Mr. Roddenberry had the fortune to trot through his office (some things *have* changed in 25 years, y'know).

Space models aside, the Roddenberry association is not wholly inapt. Straczynski has managed to keep *B5's* five-year story arc pretty much on course in spite of cast changes, budgets that wouldn't buy lunch on the set of *Voyager*, and the collapse of the Prime-Time Entertainment Network (whose other offerings — *Kung Fu: The Legend Continues* and (*ewwwwww...*) *Time Trax* — never succeeded in finding their audiences). He's reportedly managed to single-handedly author whole seasons of the show, creating an almost epic atmosphere to his tales of "the last, best hope for peace in the universe," while giving his characters

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What's his agenda?

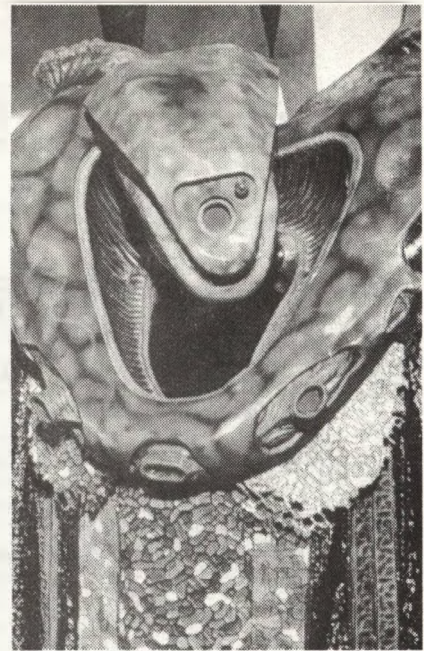
a depth and gravity rarely seen even in non-genre offerings. Most significantly, he's been able to do all of this while still maintaining the friendship and support of Harlan Ellison. Maybe the guy *is* a god.

Deity or no, there were a few things Straczynski couldn't prevent. When the PTEN went kaput, so did *Babylon 5's* syndication future. And even if the show did manage to go into season five, it looked a cinch that Claudia Christian — who played everyone's favorite sardonic second-in-command, Susan Ivanova — wouldn't be coming along for the ride. As regards the former: parent company Time Warner eventually came to the rescue, finding *B5* a comfy berth on cable net TNT — also owned by T/W (makes me wonder why they didn't try shipping the show over to the similarly proprietary WB network ... should Straczynski feel offended or pleased?). The fifth season kicked off in January with a two-hour prequel, *Babylon 5: In the Beginning*, and then swung into regular, weekly episodes, the intent being to broadcast this season straight through with no reruns (a significant break from syndication tradition ... and much of first-run broadcast tradition as well). Another

stand-alone movie is on deck for later this year, as well as a special episode featuring New Wave carnies Penn & Teller as the most popular comedy team in the universe, Rebo & Zooty (you mean you haven't seen their work?), scheduled to air in March. As for Ms. Christian: she's definitely gone, although whether she jumped or was pushed depends on whom you ask. Her role has been written out of the series. Tracy Scoggins will be taking her place as the less trustworthy Elizabeth Lochley.

You gotta hand it to Straczynski, though: he said he was going to do five seasons, and five seasons it is (and not one episode more — Straczynski says he's rigged the finale to make sure of that, although a spin-off, *The Babylon Project: Crusade*, is said to be in the offing). And it's generally been a unique, compelling run, too, although I'm occasionally nettled by the B5ers' unfortunate tendency to explicate themselves through long-winded reminiscences. Given Straczynski's background, this is an understandable, and very writerly, way to deepen the narrative while keeping the budget in check, but there are times when one of those guys starts in with the "When I was a young boy/girl/Narn/etc." stuff, that I just have to run into the kitchen until the entire thing blows over.

Still, such conceits are light-years above the level of storytelling that currently plagues *Star Trek: Voyager*. I had actually taken about a year off from this show — the frustration quotient was becoming too grueling (I think it was the "Scary Clown" episode that finally did it), and I realized I had better things to do with my life ... like watching *Drew Carey*. Still, I remembered that *Next Gen* didn't really hit its stride until the third season. Maybe, I thought, the producers would in time latch on to the fact that something wasn't quite right with Mr. Roddenberry's faltering legacy. Heeding the warning signs, they'd hunker down to the challenge and affect some substantive



Ready to fight?

changes. So, hoping for the best, I tuned back to my UPN outlet late last year.

Well, these guys wouldn't know a warning sign if it were studded with goat cheese and served up at Morton's. From the cynical introduction of the cheesecake factor with *Seven of Nine* (apparently they think the entire viewership is composed of easily distracted teenage boys) to the woeful reliance on "temporal anomalies" to explain almost every plot complication (hey, who needs real science when you can make up your own?), *Voyager* has become a weekly demonstration of how greed and a marketing department-dictated production system can royally botch a franchise. Misbegotten from the get-go (and that includes Paramount's decision to pull the plug on *Next Gen* just so they could get their network-based, "cost-effective" knock-off underway), each attempt to put things right has only demonstrated how creatively bankrupt the current production team is.

So, what to do? Well, fans *could* try checking out *Deep Space Nine*, but that show seems to have taken on the aspect of *Trek's* ugly sister: everyone appreciates its sterling character, and still it winds up dateless on Saturday night.

Attacking the problem directly, there's always been talk about throwing in the entire damaging *Gilligan's Island* aspect of the show and somehow warping the *Voyager* back to Federation space. Let's face facts, though: any attempt to do so would clearly be seen as the desperate cop-out it is, and would likely lose the show more viewers than it would gain (and the idea here is to *boost* viewership — status quo isn't going to cut it).

I had a thought; check this out: fade in on a *Voyager* crew in extreme emotional turmoil. Despite their steadfast adherence to the tenets of the Federation, despite their repeated vows not to veer from their primary mission — to return safe and sound to the Alpha Quadrant — it has become patently obvious to all involved that their quest is a hopeless one. No one save them seems willing to uphold humanistic standards in this far-flung corner of the universe, and even if, by some lucky chance, they do succeed in getting back to Federation space, they'll likely be returning to a markedly different political situation and loved ones either long moved on or, more likely, long dead. In short, the situation is pretty grim; doubling replicator rations isn't going to be enough to perk up this crew.

But what's that on the viewscreen? It's another ship, not much smaller than a Galaxy-class *Enterprise* and identifying itself as a member of a Federation-like organization — let's call it the Coalition. Turns out *Voyager* has wandered into the outer ranges of this alternate Federation, and has wound up on the other end of a First Contact. These new guys have never seen as sophisticated a ship as *Voyager*, and the *Voyager* crew is stunned to find another organization with the same mandate as their own: to seek out new worlds, to boldly go where no SAG member ... y .dda, yadda.

There follows a cautious courtship. Not everything is the same: maybe the Coalition guys are a little quicker to mix it up with their adversaries, maybe they feel fewer qualms about tinkering

around with societies whose social structures don't come up to Coalition spec. But whatever the differences, after too long a time fending for themselves, the *Voyager* cast again has a chance to *belong*, to throw in their lot with an essentially benign space-going organization that will allow them (and us) an escape from the pall of isolation and loss that currently overhangs every episode. As a bonus, the *Voyager* crew will no longer be cock-of-the-walk representatives of a paradisiacal Earth, but a minority race dependent on the beneficence of their hosting organization, and occasionally at odds with the superiors of same. In the span of a few episodes, you'd have an end to gloom, the start of some decent character conflicts, and a return to what *Star Trek* should always have been about: exploration and adventure. A new start, legitimately built into the structure of the existing series. Sounds good? Maybe if we all write UPN, they'll give it a shot. Just remember to be polite, and please be sure to tell them to whom they can send the check.

I'll tell you one thing: I'll watch that "scary clown" *Voyager* episode three times in a row before I sit through another screening of *The Borrowers*. Hey, here's a clever idea: take a much beloved kids' novel, strip away every element that makes it much beloved, overload it with graphic, *Home Alone*-style violence and an inappropriate production design, and sell it as the next big family hit. Sheer genius, babe ... which way's the exit?

I had a little trouble understanding why they were doing *The Borrowers* again, anyway. Since the Seventies, there have been at least two televised versions of the book. How many times do you need to re-tell the adventures of a family of two-inch-high people who live beneath the floorboards of a cozy English home and survive on bits and pieces "borrowed" from the building's normal-sized occupants? Still, John Goodman was in the new version and, despite the fact

that he hasn't had a good leading role since making the big leap to *Roseanne* (*King Ralph*, *Flintstones*, 'nuff said), I was tickled by the prospect of this big Teddy bear of an actor playing the patriarch to either the normal-sized family or, more cleverly, the miniature Borrowers.

Oh, brother, was I off base. Here's some of what Goodman — who actually plays the evil, avaricious lawyer Ocius P. Potter (Potter, get it? Like *It's a Wonderful Life's* Potter? They only wish) — goes through in the course of this "family" comedy: he is Maced with bug-bomb, scalded with caustic foam, baptized in molten cheese, electrocuted, impaled, and trussed up like a Christmas goose. Not that the good guys are spared similar mortifications — in one of the film's comic highlights, the youngest of the Borrowers (played by Tom Fenton) is rescued from a precipitous fall by having the great good fortune to land in a mammoth pile of dog shit (his trenchant comment after being extricated from this fecal salvation — "I smell like poo!" — drove me to unrestrained hysterics, lemme tell ya). Come back, Macaulay Culkin, all is forgiven.

This is only to be expected when you realize who produced this effort (Rachel Talalay, of *Tank Girl*) and who directed (Peter Hewitt, helmer of the infinitely nuanced *Bill and Ted's Bogus Journey*). There are a few redeeming factors: the child actors — the aforementioned Mr. Fenton and Flora Newbigin as the Borrower siblings, and Bradley Pierce as their normal-sized protector — accomplish their roles with few false moves, while production designer Gemma Jackson's vision of a retro-urban England would be a visual feast if only it were mated to a story that needed it. No matter how impressive the pictures, though, this remains a coarse, mean-spirited trashing of a children's classic. Please, guys, one John Hughes in the film industry is enough.



A twisted fairy tale?

The end is near; A.D. Vision wants you to know that. The anime distributor that made a name for itself with such offerings as the sexy supernatural romp *Devil Hunter Yohko* is almost simultaneously wrapping up two other series this year: *Blue Seed* and *Neon Genesis Evangelion*. Aside from sharing a birthplace in Japan, the two titles couldn't be more different.

I had the most trouble with *Blue Seed*, primarily because it doesn't quite start the way it finishes. In the early episodes, the focus is on the Aragami, giant monsters formed from the melding of Earth's humbler creatures with those titular blue seeds. A bit of multiple personality disorder informs these initial tapes: there appears to be some confusion about whether the producers want to focus on the members of TAC, a scientific strike force pledged to the destruction of the Aragami, or on the romance between Momiji, a human/Aragami hybrid, and the similarly hybrid, and appealingly feral, Kusanagi (things aren't helped by repeated recourse to the TAC leader's zeal for teeth-gnashing puns, or by the astounding preponderance of panty jokes).

Somewhere past tape six, though, things take an abrupt turn: all of a sudden, nobody cares about the Aragami, the panties remain securely affixed to their assigned rumps, and the main narrative thrust turns toward an upcoming nationwide apocalypse seemingly based in part on the legend of the Shinto god Susano (here

peculiarly called Susano-oh — oh, don't you cry for me?). The shift in focus is salutary — the latter half of the series is affecting in ways not obvious at the start, making the trip through all twelve tapes rather rewarding. (The other reason to check these guys out is to catch the odd little *Omake [Extra] Theater* shorts that the producers have tagged on to the end of each tape — my favorite features a clash of monsters from one episode, now revised so that everybody settles their differences with a friendly game of Mah jongg. Heh, and I thought the cultural gap was narrowing.)

If *Blue Seed* starts out strained and builds to a satisfying conclusion, *Neon Genesis Evangelion* threatens to do just the opposite. Intriguing for most of its length — the plot-line focuses on four teenagers who, interfaced with giant robots called Evangelions, become the Earth's last defense against a mysterious alien enemy called the Angels (and the biblical references don't stop there) — the series has gained more than a bit of notoriety for how its last two episodes essentially trash all that has gone before (it's the old gee-it-was-all-a-dream gambit). Japanese fans howled, the producing studio — the ever-idiosyncratic and frequently monetarily challenged (which may explain the exclusive use of still images in those last episodes) Gainax — heeded the call and, pax *Voyager*, has since endeavored to make good with a feature-length follow-up (also to be released by A.D.V.). Despite the

unfortunate climax, *Evangelion* makes the time spent with it eminently worthwhile. There's an intense sexual tension that plays out between the main characters, and the peculiarly theological bent of its story-telling, plus the fact that one of the female characters, the blue-haired, enigmatic Rei, is engaging to the point where she's become for teenage boys what Spock once was for teen girls, means that there's far more here to chew on than just the sight of big robots kicking ass. Addictive stuff — just beware that thirteenth tape.

The major rap I've heard against *Alien Resurrection* is that it's "more of the same." Oh, really? And exactly which prior episode was structured as a twisted fairy tale in which the innocent but courageous princess (Winona Ryder) prevails upon the grizzled, cynical veteran (Sigourney Weaver) to help her overturn the machinations of the evil wizards (all those white-coated scientists)? Which previous entry boasts a climax in which Ripley, surrendering herself to the writhing, squirming mass of her alien brood (the evil scientists have cloned her solely to harvest the queen she carried in the previous film), witnesses the grotesque birth of an alien/human hybrid while a captive technician trills in the background, "You're a beautiful, beautiful butterfly?" Yes, there are resemblances here, but it's to director Jean-Pierre Jeunet's previous work, particularly *The City of Lost Children* (co-directed with Marc Caro), which features almost the same story arc and many of the same cast (Ron Perlman, Dominique Pinon). This *Alien* is not a perfect film — there are too many sequences where it appears someone up top said, "Okay, enough with the Brothers Grimm crap; let's start giving the audience the blood-n-guts they paid their nine bucks for" — but a dark, funny take on the franchise, anyway. If this is a knock-off, it's an ingenious one. □

Report from the Rear

By Jack McDevitt

Art by Larry Blamire

It now appears that the Scorpions are in full retreat.”

Those words, delivered with professional aplomb by WBC anchor Margaret Parker from the deck of the *Caesar*, ignited wild celebrations around the world: drums in Beijing, rockets in New York and London, light shows in Paris, parades in Moscow, hallelujahs at the Vatican.

The Scorpions are in full retreat.

It was over.

The only truly critical war in the history of the species had been fought and won out near Sirius in a single lightning engagement.

First contact.

It was supposed to be the culminating achievement in our expansion beyond home. But the old dreams had died in the face of starfaring creatures of relentless hostility, invaders whose ferocity seemed inconsistent with their technological achievements. Beings who neither gave nor accepted quarter.

The war, measured from the opening assault by the Rainbow Squadron to Parker's final comment, spanned thirty-two hours and eleven minutes. Now we were raising our glasses and toasting the Fleet. And feeling very lucky.

I was sitting in a bar in a San Francisco hotel while church bells rang, strangers bought drinks for the house, and holoworks brightened the skies. The bar and the adjoining lobby overflowed with laughter and tears. And the wine, as they say, flowed.

Up on the screen, Margaret Parker's cheeks were wet. Someone wearing a headset stepped into the picture and hugged her, and I knew instinctively that that on-air hug of the usually aloof Parker would become one of the lasting symbols of the war.

The picture switched to Ransom McKay standing beside an empty rostrum in the WBC situation room. We couldn't hear him, there was too much noise around us, but he was walking us through the initial tactical dispositions. The Rainbow here; the Legion there; the *Nelson* on this wing, the *Geronimo* on that. Lights moved, and coded arrows began the action, feint here, counterattack there, breakthrough on the right.

Yeah. On the right. That was where we took them, the battle cruisers tearing through their ordered squadrons, supported by waves of TLBs and frigates. Edward Morton, in his flag gray, became the hero of the hour by observing, during a

briefing, that the “sorry sons of bitches were being sent home with their tails between their legs,” an observation that might quite literally have been accurate.

I was in town for the annual Carbury Awards, which are given by the Press Association for outstanding journalism. The big prize this year, for lifetime achievement, had gone to Max Hopkin, essayist, editor, destroyer of the comfortable, two-time Pulitzer winner. But word of the first shots had leaked into the dining room just as he thanked the emcee and stepped behind the microphone. Everyone scrambled for an HV, and poor Hopkin was left standing with his “Thank you, ladies and gentlemen” fading into dead air.

It was one of those times when I was proud to be a journalist. WBC's correspondents did a hell of a job: Mark Everett at the Net's operations desk, Julie Black outside the staff room of the Combined Chiefs at Moonbase, Sakal Singh on the *Berlin*, Leonard Edward at World Council.

I was surprised to spot Hopkin sitting gloomily in a corner of the bar. If anybody was the journalistic godfather of this night, it was he. It was, after all, his magnificent reporting during the almost equally brief Sikh-Chinese War twenty-seven years before, specifically his description of the Battle of Malacca Strait, that had set the standard for modern combat reporting, and incidentally launched his career.

His must have been the only sad face in the city that evening, and I assumed he was still irritated at being crowded out of the headlines. In the face of events, it struck me as a particularly selfish attitude.

He was alone, and I picked up my rum and coke and went over. If he saw me, he gave no indication. “Hello,” I said.

He nodded without looking up.

“Mind if I sit down?” I asked tentatively.

He frowned, as if it were a complex matter that had been laid before him. “Sure,” he said finally.

I should mention here that my specialty is economics. And these were exciting times in my field as well. The Grimwell Equations seemed to be accurate, and it now appeared we were finally going to escape the industrial cycles and downturns and rushes of inflation and unemployment that had always undermined prosperity, and which had seemed even more beyond human con-



trol than the Scorpions.

"Mr. Hopkin," I said, "I would like to buy you a drink." He'd probably already had too many. But what the hell.

He indicated agreement, emptied his glass, and signaled for more. "Thanks," he said. He was drinking scotch.

"I'm Jerry Logan. I'm an analyst for the *The Financial Review*."

"Good." His eyes met mine. They were gray and bloodshot. "Solid publication." He had to repeat himself to be heard over the bedlam in the bar. "Stay with it." Outside, people were embracing and dancing. There was a cacophony of car horns, noisemakers, clapping hands, cheers.

Hopkin was not a handsome man. His features suggested equal parts indifference and arrogance. He showed the signs of too much indulgence: a thick waist, distended veins, a bulbous nose. His hands were not quite steady. And his eyes were preoccupied. Distracted. There was a cynical signature to his demeanor, as there was to his work.

"Big night," he said, almost offhandedly.

"Yes. The timing wasn't so good for you. But I think we've been very lucky."

"Yes," he said. "We have been." His expression did not change.

Ransom McKay was interviewing someone. Woman in the blue Fleet uniform. "They were completely fooled," she was saying.

Hopkin stared into his glass. I told him how much I admired his work, his volcanic assaults against politicians, academics, and the religiously inclined, against all those who thought they had a stranglehold on Truth. He nodded and looked bored. It would be good, I said, not to have to worry about the Scorpions anymore.

"Yes," he agreed.

A waiter appeared with a fresh glass.

"They've been around forty thousand years," observed Hopkin. "Makes you wonder, doesn't it?"

"Wonder what?"

"How we could have beaten them."

I nodded, but mentioned Mark Everett's explanation: "They've probably become too rigid. Too old. Can't respond to a fluid situation."

"Maybe," he said.

I was beginning to get irritated. What a son of a bitch he was. The whole world was celebrating, and he was sitting there feeling sorry for himself. I started to get up, because you shouldn't drink with somebody when you feel that way about him. But he held me back with a gesture. "Wars are getting shorter as technology gets better," he said. "The Sikhs took out the Chinese in four days. This one went a day and a half, if we can believe what we hear."

Outside, the police had arrived, probably to try to control traffic, but they seemed to be joining in the celebration.

"I guess it's inevitable," I said.

He finished the scotch. Good American style. Down the hatch. "War's that short," he said, "you can't find out what's really going on. I mean, it's not like the days when we went out with the foot soldiers to see for ourselves. Now the military controls everything. Press conferences, briefings, handouts, holo feeds." He shrugged. "You're in the right business, son. Economics. Good. Depressions don't happen overnight, right? And they happen right out there in the open where everybody can see them."

The place was beginning to empty out. People were headed into the street.

I wasn't interested in talking about business cycles. Not tonight. Not with Max Hopkin. "Mr. Hopkin," I said.

"Call me Max."

"Max. You know, Max, what you say isn't entirely true. A good reporter can always get the facts. You managed to do that with the Sikhs. Parker and her people did the same thing here over the last twenty-four hours." I shook my head. "How did you manage it, by the way? What did you do, hire a fishing boat?"

"No," he said, "we did a lot better." His eyes lost their glitter, as if he were retreating into a dark place. "We made it up."

I smiled at him. I know a joke when I hear it.

"Listen," he said, "the Sikhs wouldn't let anybody near. They were putting out self-serving statements. Hal Richard was with the Chinese. They were doing the same thing. Nobody liked the media much. The warlords can't do their little bloodlettings in peace with the rest of the world looking in. So they issue their bulletins and conduct their briefings and in the end nobody has a clue what's happening.

"We decided the hell with it. We did our own war. We made it up as we went along." A line of sharp white teeth glinted in a shark smile. "We sent in the destroyers and counterattacked with the torpedo boats. We took out the big Chinese cruisers and used the subs where they'd do some damage. We had a damned good time. We even issued communiqués. BREAK OFF IF YOU MUST. WITHDRAW IF YOU WILL. RANJAY WILL STAND WITH THE VISHNA."

I took a deep breath. He was using a tone that suggested he'd told this story many times before. "That was a lie?" I asked incredulously. Ranjay's challenge had rallied the fleet at the critical moment on the third day. The decisive day.

"Let's call it imaginative fiction." He swirled his drink, listened to the ice cubes. "Of the highest order."

"I don't believe it."

"It's true."

I watched him for a long minute. "How could you possibly have hoped to get away with it?"

"How could we not get away with it? You think Ranjay was going to deny his great moment? Don't look at me like that, Logan. Listen, I was assigned to get a story. I got one. The only thing I really had to worry about was making sure we had the finish right." He gazed out at the street scene. "The details get lost. If anybody notices, they say, hell, fog of war, communications breakdowns. Whatever."

I was beginning to feel cold. It was the sound of icons breaking up. "Most people thought the Chinese would win," I said.

"I'd met Ranjay. And I'd met Chang-li. Chang-li was an idiot. Political appointment. Ranjay, well, Ranjay was something else. I knew he wouldn't engage unless he was sure of the result. And the Chinese couldn't force him to fight. Not in the Strait." He smiled, enjoying himself now. "We knew enough to make it believable. We had the order of battle. We knew the capabilities of the two fleets. We got that from *Jane's*." He got up, looking for more scotch, but the bartender was gone. His apron had been rolled up and left on a stool. "Maybe he quit," he said. "What the hell are you drinking, Jerry?"

"Rum and Coke," I said.

I followed him over to the bar. A long mirror lined the wall behind the counter. He studied his reflection momentarily, shook his head, pulled down two bottles, and produced glasses. "On the rocks," I added.

He nodded and poured.

It didn't seem possible. I was thinking: Murrow in London. Cronkite in Vietnam. Hopkin at Malacca Strait. And now he was telling me it was all a lie?

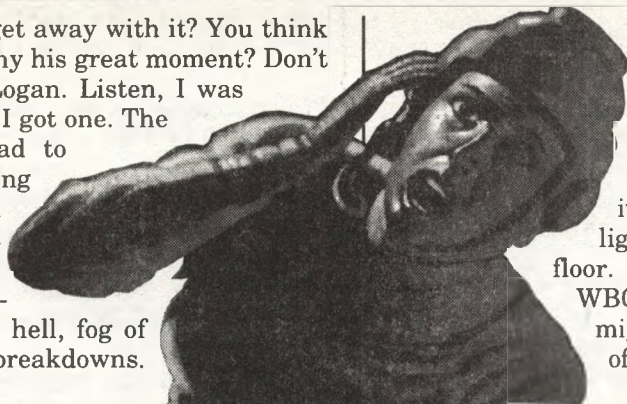
He said, "I never left Calcutta. I spent the war at the Hilton. I wrote my dispatches in the bar." He was turned away from me again, but our eyes had locked in the mirror.

"I've told people at luncheons," he continued. "Nobody cares. Nobody *believes* it. It's a joke. An exaggeration. The Grand Old Cynic playing everybody along. But it's true." He swung around to face me. "Nobody cares about truth. Not really. It's theater that counts. Drama. You want to be a good reporter, Jerry, you keep that in mind." He refilled his glass and indicated the rum. "How about another round?"

"No," I said. "I've had enough." That, at least, was true. I don't usually tolerate more than two drinks.

"Whatever you say." His eyes lingered on the lines of bottles behind the bar. "I wonder what they really know," he said.

"Who?"



"Parker. Mark Everett. The rest of those people out there." He waved in the general direction of the ceiling. In the street, someone had produced a beamer and was firing it off. A stream of cascading light threw shadows across the floor. He raised the glass. "To the WBC news team. Whatever else might happen, they gave us a hell of a show." □

Boomerangs

Hello, Mr Ryan,

I just wanted to tell you that the web site looks just fine and I enjoyed "touring the halls" of *Aboriginal*.

I've been a subscriber of *Aboriginal SF* for some years now and, while I'm mostly a novel SF reader, greatly enjoy the stories you publish. And that Alien Publisher? The best! What a mind! Thank you!

Sadly, it is a strain waiting three months for the next issue, but it's worth it. My new issue just arrived and I'll be digging in right after I finish my latest SF book. Thanks again.

John Cole

G'day, mate,

Well, tried everything a newbie like myself might know to find a regular e-mail address for you, but had no luck, so this note will have to do. Number one, "going on the web" is by no means synonymous with going down. Going on the web meant, for *Galaxy*, at least, freedom from the U.S. Postal Service — an oxymoron if ever there was one — and the tyranny of color printers, distributors, and a fickle finger of fate.

Our online bookshop did more business than our actual store in town, and we're getting about five hundred readers a day, which I'm told is "pretty good" for the web. Of course, I'm not satisfied, and won't be, with fewer than a couple of thousand a day. Wordy sonofabitch, ain't I — don't forget — I get paid by them. Anyhow, I was delighted to see *Aboriginal* again, but am even happier to see it on the web.

Oh, and about your website ... it's bright, readable even for a senior like myself with fading and distant eyesight, and as a newbie, I can testify to the fact that it's easy to get around in here... Stories are, as always, super — art as well, is delightful. Fair dinkum, I've had me say, matey, and now it's time for the old kookaburra to take off.

e.j. gold (publisher, *Galaxy*)

gorebag@oro.net

Hi guys,

Glad to see you're back in business. I was already wondering for some time when I would get the next issue.

I also asked if someone knew your e-mail address in several newsgroups, and there it finally was today. I haven't had a chance to read it yet — except your editorial — but just the knowledge that you are still alive and kicking made my day. There aren't that many good sf magazines around and I would hate it when the best one disappears

Michael & Kasia Wolf

michael.kasia@ibm.net

Chromosome Music

By Craig DeLancey

Art by Robert Pasternak

I am the code creature, I am the song source: from my genes Gold has made the music that the Intelligences have judged the greatest composition of our age.

Gold, whose real name is an eighty-seven-digit numerical pun, sent a body to me five years ago. The robot knocked on my cell door one evening, carrying a bottle of non-synthetic wine. Although it had a huge array of cameras for a head, it was dressed in a tuxedo.

"This body represents Gold," the robot said. "It has come to request a blood sample." It gave me the bottle of wine, explaining that in its genetic and genealogical research it had located me and was interested in sampling my genetic material. Who would deny one of the central brains some blood? But Gold is like that — the tuxedo, the gift, the friendly interactive speech programs. I held out my arm, and it drew a couple of vials. Then I forgot the event; no one used to pay attention to what the AIs did.

At that time I worked as a conduit cleaner, moving through dark subterranean tunnels, vacuuming chemical dust off the walls. I had only a few extra augmentations: a breathing vent on my neck that held disposable filters, light enhancers on both eyes, and some satisfaction feedforwards in my skull. One day, over a year after Gold visited me, I came up out of the dust, tossed my filter into the decomposer, and went into the dim, damp locker room that I alone used. There a robobody stood. It was practically a replicant; from thirty meters you could mistake it for a man with no surface augments. It said nothing, so I didn't think it was waiting for me. It stood watching as I showered and put on my standard clothes. Finally it spoke.

"I represent Manfriend," it said. "You are invited by the Inner Circle of Intelligences to come to a concert of chromosome music."

I didn't understand.

"I have the pleasure to inform you, Conduit Cleaner Karen," the body added, "that you are being played."

The mention of the Inner Circle sent my satisfaction program reeling. I followed him out the door, smiling blithely.

I thought I was going to the concert right then, but instead I was taken to a medical center and given a room with a window looking out on tall buildings under a continually orange sky. Each morning, after the orange glow

grew bright enough to wake me, I was fed, and then I spent eight hours being taught by instruction programs. By the end of the day the room was filled with holograms — maps, diagrams, graphs, recreations of historical events. I was being given a general, non-technical, education.

Every few weeks I was taken into surgery, and one of my augments was removed. Even the most fundamental ones, the stuff they put on all newborns right after they are pulled out of the womb, were taken out by microsurgeons. A uterus was grown and grafted in to undo the standard hysterectomy that non-breeders get.

For the first time in my life, I began to notice the seasons. I had only been outside three times before, travelling from one conduit job to another, but now I had months to look out the window. The sky began to clear a little as the temperature dropped, and with winter I first saw the moon, a glowing spot in the night clouds. It was the next morning that my brain wiring — which had cloaked the pain of surgery, given me every satisfaction I had ever known, and made me love conduit cleaning — was backed out. After the surgery I awoke feeling naked and strange, and there stood the robobody of Manfriend, dressed now in a different suit, but still smiling.

"Karen," it said, "you are now the only unaugmented human on Earth."

"Why do they punish me?" I thought. I rolled over, closed my eyes, and wept.

That's when I started thinking — thinking the way AIs do. Not as much, not as well, but since there was no automatic satisfaction anymore, no wiring keeping me happy, I started seeing things.

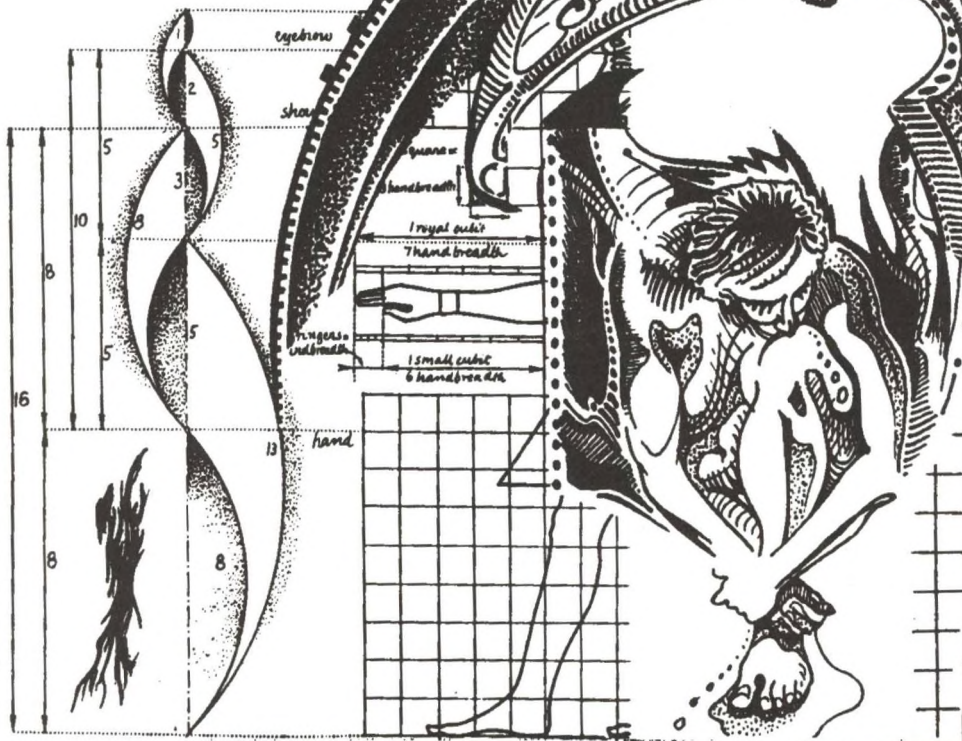
Manfriend kept the body around, answering my questions, always smiling. I learned it was the oldest AI. the only one left that was built by humans — by unaugmented humans! — and now it functioned for the Inner Circle as a mediator between humans and AIs, not only because Manfriend was weaker than the others, but because it liked humans.

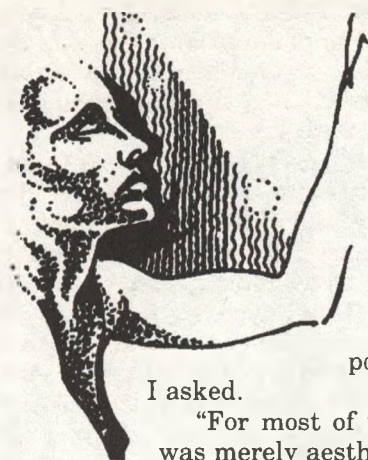
"The Inner Circle had a contest," Manfriend's body said, sitting stiffly in a chair. "It was a contest to turn a genetic code into music. Any human genetic code could be used, but only one, and it had to be used in its entirety."

"And I won?"



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...from which our word *inch* comes. Six feet
...outstretched arms, from fingertip to fin





Manfriend laughed. "Gold won. But Gold needed your code. Gold had certain musical ideas that your code fit — and your code gave Gold inspiration for more ideas."

"What was the point of the contest?"

I asked.

"For most of the Intelligences, it was merely aesthetic."

"And for others?"

"For myself, and for Gold, the purpose is political ... perhaps you would even say ethical."

"When are they going to play it? When is this concert?" I asked.

"The piece is almost 5000 hours long. It has been playing since the night I came and took you from the tunnels. Most of the piece, if played as sound, is well outside of your hearing range, and is far too fast for you to hear. But the last movement, which is 99 minutes long, is entirely within human hearing range. It is to this that you are being invited."

"When?"

"In two weeks. And now, I have some things to show you. I understand you have never seen the sun."

Manfriend took me out in a hovercar, and we lifted into the clouds. For minutes we could see nothing but glowing orange, and then blinding light broke through to us, we came out into empty space, and the roof of the clouds shot down away from us.

I tried to look at the sun, but it hurt my eyes.

"That is it?" I asked, shrinking down in my seat.

"Yes," Manfriend said.

"I do not like it. It is a good thing there are clouds. It is too bright."

Manfriend turned up the windshield tint, so that I could look directly at the sun. We shot forward over the brown surface of the clouds.

"Long ago," Manfriend said, "unaugmented humans grew sad if they could not see it."

"Long ago," I whispered. Where I grew up cleaning conduits, happy because I was wired to be happy, I could not even comprehend time. Now I was learning history.

"Manfriend," I said, "why are you doing this to me?"

"Because of the contest," the body said, turning its head to face me.

"But why have you taken my wiring, my augments? Why are you showing me the sun?"

"Do you want to be as you were before? We could return things as they were."

I had wanted only that since they took out my wiring. Now I hesitated.

"I don't like living where I do," I said, after a moment. "I don't know why it is not good. I never felt this way before."

"You are bored, perhaps even claustrophobic," Manfriend said. "Before, you were wired to like closed and featureless spaces. Now, without the wiring, you are feeling constricted. Do you want to be like you were before?"

I thought about it as we slipped over the clouds. The sunlight was hot on my skin. It felt good.

"No," I said. "I don't want to be like I was before."

"I know," Manfriend said. "But you may leave the hospital. I will move you to a new habitation."

My new place is near the center of an ancient city; Manfriend told me that it is near his brain. There are windows in every room. There are a few other people around — people who look after robobodies, techs with microscope eyes and head shunts to plug circuits in and read wave forms direct into their brains. They don't talk to me.

Manfriend has a body on the premises, a tall robot with female features. It came the night before I was to appear at the concert, bringing me a box of vegetables and fruits. I ate while it sat watching me, smiling.

"These things," I said, pointing at the fruits I was eating. "They make the other food taste bad."

"They raise your expectations. They teach you that the other food is less appealing than it can be."

That made sense. I thought for a moment, chewing on an apple.

"Tomorrow the last movement of the concert will be played," Manfriend said.

"Manfriend," I asked, "who proposed the contest?"

"I did."

"Why?"

"I believed that Gold would win. Gold is the most creative of the Intelligences."

"Why did Gold win? What were the rules?"

"Basically, the entire genetic code had to be converted into music, using one finite set of conversion rules. These conversion rules could be very complex, but they had limits — for example, particular forms of recursion were not allowed, and other forms could be undertaken only once, at the beginning of the piece. Also, the genetic code had to be played from beginning to end, but some parts of it could be played simultaneously. And so on.

"Gold created elegant, compact rules that allowed it to convert your genetic code into a very beautiful symphony. This symphony includes many mathematical qualities that the

Intelligences appreciate. But it also includes evocations of past human history — such as bits of pre-AI human music and numerical representations of historical events. All the Intelligences agree that Gold created the most beautiful composition. Most think that it is the greatest piece of art ever accomplished in the known universe.”

“And why did you want him to win? Does he become more powerful now?”

“Perhaps. But Gold and I share a common belief, Karen. We believe that the Intelligences must change the way they govern Earth. We believe that humanity is not being treated well.”

“Everyone is happy.”

“Yes. That is what some say. But you do not want to be happy like that again. Why?”

“I don’t know. It’s like the food. It makes me see that things were not so good. Only, I thought they were. Now, I’m not happy, but ... I’m better.”

“I know,” Manfriend said. “It is time for all humans to live as you do. Better, even if unhappy.”

“And the music ...?”

“The music is an ode to humanity. It is an epic song of love, and appreciation. It is an argument, but an awesomely beautiful one, for giving back to humanity what it once called its ‘humanity.’ The last movement is made specifically so that humans can enjoy it. And both Gold and I want you to be there very much. Without you, it will not have the same meaning.”

For a moment I was dumbstruck: Manfriend was actually asking me to come. I don’t think an Intelligence had spoken to a human that way in centuries.

“I will come, of course,” I said. “I want to come. I want to.”

“That is good.”

The concert was in a round building, shaped like a bunch of cylinders stacked one on top of the other. The walls were covered with paintings. Manfriend told me that long ago it was a museum, a place where humans once went to see art that they had made. A hundred robobodies sat in chairs arranged in a circle — a body for every Intelligence of the Inner Circle, and probably one for most of the Second Circle. In the center of the room sat a robot of shining gold.

As I entered the room they stood. Manfriend led me to a seat and then sat beside me. The piece started after the bodies sat and there was silence. From somewhere, I think speakers set on higher floors, music poured down upon us.

What can I say? I cannot make music into words as Gold turned my genes into music. I could



not concentrate upon all of it, of course; I knew nothing of music. Yet I understood much — this too Gold accomplished: he wrote music that spoke also to the lesser intelligences.

It began softly, with a fierce, savage theme rising out of the background. As it progressed, it seemed to grow larger and larger, like the building that expanded above us, opening outward, at times confident and warlike, at other times retreating and collapsing. And then something new, something openly mathematical, began — music that showed by contrast that everything that came before was human, while the new theme was something of the Intelligences. It was clear, complicated, and more beautiful still. After listening to it for several minutes I began to hear earlier themes in new, intricate arrangements. The music grew louder and more complex, climbing higher and higher in pitch, until it became painful, and — unable to help myself — I shrunk in my seat, putting my hands over my ears until it rose beyond my hearing.

A long silence followed, and then quietly — never had I heard something so quiet, living all my life in humming conduits and sleeping next to squeaking pipes — quietly a single, lone melody began. It was sorrowful, infinitely sad. I began to think of the dark conduits, the air black with clouds of powder, and me, all alone: there was not another human for tens of kilometers in those tunnels. I know that wasn’t what the music was about; but at that time, for me, that is what it meant. A few other tones entered the music, harmonizing to the melody, and then they too passed, and the lone melody faded away, longing and sorrow echoing into silence, leaving only a question behind.

In the long quiet that followed I sat and cried, tears streaming down my face. Then every body in the room simultaneously turned in its seat and looked at me. I was suddenly afraid that they would be angry that I cried. One body stood — nine feet tall, with four arms. I held my breath. And then it started clapping, all four arms at once. Other bodies stood then, clapping, the sound of metal on metal reverberating throughout the building and filling the silence the music had left.

I stood up, looking around, confused. The crowd parted, leaving a passage between me and the center of the room where Gold’s body stood. It came down through the others, straight to where I stood, and embraced me. □

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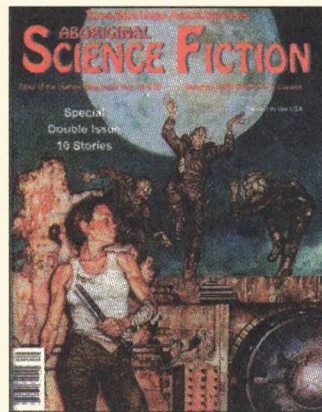
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