

The Cascade  
SEAN McMULLEN

Sean McMullen [[www.bdsonline.net/seanmcmullen/](http://www.bdsonline.net/seanmcmullen/)] lives in Melbourne, and is one of the new Australian SF and fantasy writers to emerge in the late 1980s. He won the William Atheling, Jr. Award three times in the 1990s. His bibliographies are an essential underpinning of the Melbourne University Press Encyclopedia of Australian Science Fiction & Fantasy (1998). Nine early stories are collected in *Call to the Edge* (1992). His first two novels, *Voices in the Light* (1994) and the sequel, *Mirrorsun Rising* (1995), were part of the projected Greatwinter series. He combined and rewrote the first two Greatwinter novels as *Souls in the Great Machine* (Tor, 1999). The sequel, *The Miocene Arrow*, and another, *The Eyes of the Calculator*, were finally published in 2001. *Voyage of the Shadowmoon* and *Glass Dragons*, both fantasy novels, are his latest books.

"The Cascade" was published in the original anthology, *Agog! Terrific Tales*. The Agog annual anthology series, edited and published by Cat Sparks, is currently the flagship annual anthology of Australian SF, fantasy, and horror. This story is told from the point of view of a lonely techie, in love with the idea of space travel, who picks up an overeager but very smart girl in a bar on the night of the Mars landing. Or she picks him, perhaps. She's got a secret she shares with him. It is striking that this story was written by an Australian and published in Australia, which separates it somewhat from assumptions about its politics that would be automatic if it were American.

After years of hearing my grandfather's regrets about not bothering to watch the first moon landing as it happened, I made sure that I watched the Mars landing live-to-air. Firebird descended smoothly to the red sands of a computer-selected landing site that balanced thousands of scientific agendas against the safety of the crew. Its cameras showed the panorama of the surface while the bland, laconic astronaut-patter of the crew gave the impression that it was no more exciting than ordering a beer at a bar.

I had, in fact, just ordered a beer at a bar. The pub was one of a dozen on the edges of the university campus, and was filled with students and staff from the nearby School of Physics. There was near-silence as the Firebird's landing rockets fired briefly to cushion the actual touchdown, then the gently swaying image on the screen became absolutely steady. Everyone found themselves cheering, and even complete strangers exchanged their impressions and opinions.

That was how I met Julia.

"Hey, wasn't that the greatest thing since they invented the orgasm?" she laughed in relief, clinking her glass against mine in a toast to the distant astronauts.

"Oh yeah, but couldn't they have sent the pilot to Toastmasters to get a bit of life into that bland American accent?" I replied.

"A British accent would be just the thing, but we Brits blew our chance to get a manned spaceflight capacity of our own."

"That's the price of a ticket on Firebird," I agreed. "Australia was not even in the hunt."

Julia said that she had been attending a conference on molecular modeling, and now that it was over she was planning to stay a few days longer and explore Melbourne. The word "nondescript" suited her perfectly. She had the look of some postgraduate student who was more interested in molecular structural orientation than dress sense, and had mousey brown hair tied back sharply, a pale, round face, and practical, sexless clothes. Because we were both postgraduate science students, we had been following the Firebird expedition to Mars with interest and had a lot to say to each other on the subject. We were on our third round of drinks when the view from Firebird switched from the camera pointing down at the sand to another at the lander's apex.

We watched with something between rapture and fascination as the camera slowly rotated, showing red plains, distant hills, the lander's parachutes collapsed to the northeast, and a scatter of boulders and rocks.

"How could something so uninteresting be so fascinating?" asked Julia.

"A bit like people," I replied. "They're most interesting when you've just met them."

"Does that mean I'm most fascinating to you right now?" she giggled, giving me a little push.

"Oh no, I, ah, wasn't making a move," I said hurriedly.

"Hey, but I was," she replied. "I just checked out of a room at the conference hotel, and I'm on the way to a motel in Royal Parade...but do you live nearby?"

I am generally shy and clumsy where the smalltalk of seduction is concerned, but the drinks and the excitement of the Mars landing had made me light-headed and bold. Besides, she had already taken the initiative.

"I'm renting a place in North Melbourne. It's only a short walk from here," I suggested.

The first footfall interrupted our negotiations. Clare Garret, one of the American astronauts, was to take the first step on the surface. She had been chosen by flipping the first silver dollar to reach Mars. The camera followed the white-suited figure down the access ladder, then she stepped onto the red sand.

"That's the next big step to the next world," she declared, and everyone cheered and hooted their approval.

Julia and I stayed for a few minutes more, watching Garret padding about on the sands of Mars, poking at rocks and taking samples. The streets were relatively empty as we walked to my place, as most people were still watching the Mars landing. We went straight to bed, but our lovemaking was as brief as such activity tends to be when both parties are vaguely drunk. I was asleep fairly quickly, but at what turned out to be 3 am I awoke to discover Julia awake and watching the Mars landing broadcast. She was listening to the commentary on my headphones. I guessed that she was probably jetlagged and still on British time. She noticed that I was awake, and removed the headphones.

"The first hours on a new world," she said dreamily. "I just couldn't waste the chance to watch it live."

"It's such a big thing," I replied. "I wish I could have been part of it."

"In what way?"

"Any way. Spray painting a bit of equipment that makes the trip, working on an antenna for the comms link. Anything at all."

"I helped," she said, staring at the screen with her chin resting on her knees.

"You did?" I exclaimed. "How?"

"Oh-ah, only a small thing. I calculated some orbits-I have an astronomy major as well as chemistry."

"Astronomy? I'm impressed."

"Don't be. Not much in career prospects, and even less money when you do find a job. I normally work in industrial programming and control systems, but I was offered some contract work for the Firebird project and I took it. The money was not great, and my work was probably around a billionth of the total effort, but I know I helped get them there. I look at the screen and think all my own work."

"Unbelievable," I breathed, putting an arm around her. "Watching the Mars landing, and in bed with someone who made it possible."

"There's nothing special about me," she laughed.

"To me there is."

"Ah, another dreamer," she sighed, leaning against me.

That first night together was strangely surreal. With the television pouring out images from Mars to us, we ate crisps, drank half a cask of wine, made love, watched the astronauts capering on the Martian sands, and occasionally slept. Late in the morning we visited the Victoria Market in my old Toyota. Julia was wearing one of my coats, because she said she liked the style. She bought a new coat of her own plus other clothing while I shopped for the fruit and vegetables. She said she liked buying clothes overseas, because they would always remind her of being away and having fun.

"When do you have to be at university?" she asked as we strolled among the stalls.

"It's Saturday, remember?" I replied.

"Saturday, that's right," she said quietly. "Lost a day...somewhere."

We ate lunch on the floor in front of my little fireplace, watching the astronauts preparing to retire for the Martian night. The coverage cut to the interior of Firebird, where one of the crew had produced a bottle of champagne that had been smuggled aboard, and they toasted their success out of plastic cups. Soon after that the transmission ended, and we were left with local commentators speculating about whether or not the first sexual encounter on Mars was now taking place. Julia turned the television off.

"We do it all night and nobody gives a toss," I sighed, "but everyone cares

about what they do. They're like gods."

"We are no different to the astronauts," she replied. "I've even beaten three of them in some tests and exercises."

I turned to face her so quickly that I spilled my drink.

"Did you say you've met them?" I exclaimed.

"Three of them, yes."

"Hey, that's just, like, awesome. What were they like?"

"Sort of...steady, you know? People who wash their mug and put it away after coffee, or check their car's brake lights once a week. The funny thing is that they were not at all boring in spite of that. The two guys, Brad and Juri, even made the moves on me."

"What, you mean...like they asked you to go to bed with them?"

"That's what I said."

I swallowed. "Oh. Er, well, did you?"

"Do I look stupid? A chance to get laid by the first men going to Mars? Who would say pass on that?"

Firebird was not intended to return to Earth, it was merely a lander crammed with equipment and stores. Another craft had been sent during the previous launch window, and Phoenix contained the ascent and return stages. Firebird had come down fifteen miles from Phoenix, and around midnight Melbourne time Brad Morgan and Svetlana Korrenov set off in the rover to check Phoenix for damage. On the television screen we saw a squat, white cone growing larger on a red horizon. There were some anxious moments as the two astronauts unsealed a hatch and clambered inside, but after twenty minutes of tests and checks the verdict came back that Phoenix was fully operational.

"Notice that the average age of those folk is twenty two," said Julia as we watched Svetlana resealing the hatch.

"Yeah?" I replied. "Well I'm twenty two, and I wish I was there."

"Their average IQ is one hundred and seventy, they all have university degrees, and none of them graduated older than nineteen. They have zero history of cancer and mental illness going all the way back to their grandparents, and those grandparents lived to an average age of ninety one."

"Well, get sick in space and you're screwed," I said with a shrug. "They were chosen to stay healthy."

"Lucel and Mei are both doctors, and Mei is a surgeon, too. The biology lab on Firebird can double as a clinic and operating theater. That crew has better medical coverage than we do."

We turned off the television and went to bed. The following morning we had breakfast as we watched the astronauts drill into the Martian surface. While

we had been sleeping, they had discovered permafrost. The seven explorers now had a local supply of water. The scene switched back to the Fire-bird lander, where the crew was unpacking, setting up a pressure tent and generally cleaning up.

At this point I decided that if housework was good enough for the astronauts, it was good enough for me. I washed the breakfast dishes first, then started on the laundry.

"Anything to wash?" I asked Julia as she sat staring at the television screen with an odd intensity.

"Oh thanks. In my backpack, the middle section. Hold your breath for the socks, I've been making them last a bit longer than is healthy."

The reason that I shall probably never make a very good astronaut is that I am clumsy. I do things without thinking, and that is just what I did when I picked up Julia's bag. I lifted it by the velcro flap at the front, spilling the contents of the pouch. A heavy, angular thing with Smith & Wesson stamped on the side fell to the floor. I backed away from it, then looked to Julia, who had up snatched her coat, drawn a second gun, and trained it on me.

"Smith and Wesson 459," she said in a soft, flat voice. "Fourteen rounds, 9mm, effective range of forty yards, and designed for use with the U.S. Special Forces about thirty years ago. Notice that the barrel has been modified to take a silencer, and notice the safety catch is off on this one."

"But, but, where, how—I mean...?" I managed, then gave up. In my entire life I had never had a real gun pointed at me. I finally thought to raise my hands.

"Just move away from the gun on the floor," she ordered.

"Who are you?" I asked as I backed away.

"They caught up with me in a hotel in the CBD," she said as she picked up the second gun. Their trouble was that they were expecting some college nerd, but my father was once in the British SAS, and he had taught me a thing or two. When the first Special burst in I flung a kitchen knife and hit him in the eye. Lucky throw, but it went nearly all the way in. He dropped quietly, and I took his gun. I stepped out and shot his backup, then I was away with their money, weapons and ID. That was a couple of hours before I met you."

"But a double murder!" I gasped. "It would have been big news."

"I suppose their number three was close by. He would have got my room cleared out and scrubbed. They're not supposed to be operating in this country."

"But why?" I asked, numb with shock. "Are you a terrorist?"

"It's because of that," she said, jerking a thumb in the direction of the television and its scenes from the surface of Mars.

"It's people like you who are to blame," said Julia as we sat with the washing machine sloshing steadily in the kitchen annex. I was by now tied to a chair. "You killed the push into space."

"Me?" I exclaimed, somehow more confident because I was so obviously no longer a threat. "I'm doing post-grad work in robotics and AI. Most of modern space

exploration is based on what people like me are doing."

"I know. A couple of dozen remote-controlled crawlers on the moon—and dozens more robots scattered around the solar system. Real people have not been back to the moon since 1972, because remotes do exploration cheaper."

This seemed like a bad time to tell her that I had once driven a lunar remote for ten minutes. Those minutes had been first prize in a robotics competition that I had won.

"So? We're still exploring out there, which is the important thing."

"We have to go into space because we have to live there!" she said firmly, a dangerous-looking intensity in her stare. "I trained as an astronaut for ESA—in fact I'm still on the list to visit the International Space Station. I shall give it up for the greater good, though."

"You, an astronaut?" I exclaimed. "You're not old enough."

"I'm actually thirty-one, but I keep in good shape and do most of my exercise in gyms. Sunlight ages the skin rather rapidly, you see. I have a rather girlish little face, too. People don't take me seriously. Big mistake."

"I'm taking you very seriously," I assured her.

"Very wise of you."

By now it was Sunday night, and Mars Channel was running. The screen displayed a squat cylinder on the red sand. Within it were a thousand fertilized human eggs in liquid nitrogen. A thousand rich couples had paid ten million dollars each to have their fertilized eggs flown to Mars. The idea was that upon the expedition's return the embryos could be implanted and brought to term. A thousand parents would then have a child that had been to Mars. The money had helped the cash-starved project to survive just long enough to launch Firebird.

"It was supposed to be a lottery, but the prospective couples were secretly screened for a family history of cancer and dementia, and they had very high IQs. Then the draw was rigged."

"I don't follow," I admitted.

"The expedition will never come back."

There is little one can say to a statement like that. Little that's sensible, at any rate. I decided to say nothing. On the screen, sheets of solar paneling were being laid out, while some samples of permafrost water were fed into an electro-catalytic splitter. With oxygen and hydrogen from the water, the expedition would have air to breathe and fuel to burn. Carbon dioxide from the atmosphere would supply carbon, and with carbon, hydrogen and oxygen one has the scope to synthesize effectively limitless amounts of plastics. An announcer was explaining that the expedition was to do a lot of proof-of-concept work for possible future space colonies. Small, robotic units would be left running when the expedition left, to monitor how long the equipment would last without maintenance.

"Just think of what is aboard the ascent stage in Phoenix," said Julia as she checked the rounds in her two spare clips of ammunition. "Tell me, what do you think is aboard?"

"Ah, maybe there's nothing aboard but stores and equipment," I ventured, groping about for a conspiracy. "If the explorers were never meant to return, that is."

"Wrong. Phoenix has a fully functional spacecraft, capable of taking seven people back to Earth. It's powered by solid fuel rockets, however, and that solid fuel is rich in nitrates. There are a several dozen tons of nitrogen ready to harvest, and with nitrogen comes agriculture. Svetlana could easily rig up a conversion plant, and with careful recycling the nitrates could help grow plants to feed dozens of people for a century or more."

Three female hamsters and five bantam hens had survived the journey to Mars, along with frozen semen. Carol Connel was to experiment with raising livestock in Martian colony conditions. When one looked at the expedition through Julia's filter of paranoia, it did look quite alarming, however. The experiments in self-sufficiency could all help support the colonists indefinitely. They even had access to enough genetic diversity to set up a viable offshoot of the human race.

"So, the explorers are all ready to maroon themselves forever," I concluded, clasping my hands tightly. "When do they make their move?"

"They won't," said Julia. "They don't have the slightest idea what's about to happen."

"You mean the return craft is sabotaged?"

"No. It should work perfectly."

"Then what?"

"There is a very small conspiracy by some very dedicated people. Unfortunately, one of them had a big mouth. Had is the operative word."

I called in sick to the university on Monday, the barrel of Julia's gun pressed against my forehead as I spoke into the phone. She then burned her old coat, jeans and shoes in my fireplace, and changed into the clothes she had bought at the market. I got a good look at what was in her backpack. She also burned all the rubbish that could have been associated with her. There were rubber and leather gloves; a laptop PC; a few CDs marked in code; three passports; quite a lot of American, European and Australian money; and five pairs of sunglasses. There was also hair dye, tan coloring, a small radio-frequency scanner, and several other electronic devices that I could not identify.

"You're well prepared for running," I observed.

"All the others like me have vanished," she said softly. "They vanished together, on the same night. I had my suspicions before that, though. Dad always said if I ever had to step outside the law, then I should do it with a cool head. I'd set up a second identity, and as that identity I slept in another apartment. Every morning I phoned a couple of the others to make sure they were still there. One morning I got no reply. I started running when I saw the headline: FIVE KILLED IN MOTORWAY HORROR SMASH."

"You must have been planning something really bad if the government had to do that."

"It involved trillions of dollars. Enough to send hundreds of people to Mars, and have enough left over for an expedition to the Jovian moons as well. Enough talk, though. Where is your toolbox and soldering iron?"

"My-er, what makes you think--"

"You work in robotics, and there are little splatters of solder on the kitchen table."

"In the pantry, top shelf."

She had worn black leather gloves whenever she was outside, but now she put on latex gloves. I watched as she wiped her fingerprints from everything that she had touched over the weekend.

"You can't get them all," I said hopefully.

"Think so? I was very careful and methodical about what I touched when not wearing gloves."

"So, you're going to kill me and leave no evidence of yourself?" I said with resignation.

"No, I am eliminating every trace of myself from your unit, so we shall not be associated with one another. Soon I will be a very, very bad person to be associated with."

She must have guessed what I was thinking.

"Yes, even worse than now. Much, much worse."

The thing that she assembled on the kitchen table did not resemble a bomb. She soldered thirty batteries together, then packed the power source into a cardboard box and sealed it up with packing tape. Her soldering was competent, rather than expert. Someone else had probably built the modules for whatever she was assembling. When it was complete, she emptied two of my boxes of tissues and packed the batteries and components into them. The tissues went onto the fire.

"If you'd been some classics nerd with no technical gear, I'd have been screwed," she said as she worked.

"What are you making?" I asked as she began to work on a collection of aluminum tubes and wire mesh. "It looks like a directional antenna."

"Top marks," she replied.

"What's it for?"

"Sending a message."

"To who?"

"To what. There is a very large industrial satellite called Sunflower in low Earth orbit. It has a subtle flaw in its control software because corners were cut during design work for reasons of economics. It was highly dangerous. Any scabby little terrorist organization with access to a competent technician, a skilled programmer and about five thousand dollars in electronic gear could land Sunflower in New York, London, or even Melbourne. We worked out a far better use for it...but one of my co-conspirators must have panicked and told



the company directors. They evidently decided that it made more economic sense to do nothing instead of flying a couple of astronauts up to hardwire a few safety features into Sunflower. There was the small matter of one small group of amateur terrorists who already knew the secret, but killing us also made good economic sense. You have no idea how I hate the phrase good economic sense—you see I am a dreamer."

"So am I," I admitted automatically.

"Ah, but unlike dreamers like you, I believe in making dreams real."

"I would, given a chance!"

"But I made a chance."

My shoulders sagged as I was forced to accept that she was right. I would have advised Caesar not to cross the Rubicon, I would have suggested that Alexander have a little more patience with the Gordian Knot, and I probably would have told the Wright Brothers to put all their creative energies into designing a better bicycle instead of mucking about with gliders. Given the chance...I would not take it.

"How many will die?" I asked with the resignation of one not expecting to survive until dawn.

"None, with luck."

"None?"

"None."

"But you've killed already."

"I was defending myself. My dream has a very high price tag, one that everyone will have to help with. Can I pay my share, can I dare, can I care? Should I let my dream die? Alas, poor dream, I knew it well..."

Suddenly she was a very different person: softer, stranger. She ran some tests on her antenna, then disassembled it and put everything into her backpack.

"So, you are going?" I observed.

"Yes. I shall go very quietly, watching out for hunters and lurkers."

"How long have I got?"

"Sorry?"

"To live?"

"How long have any of us got? An hour, a month, a fighting chance to see first light of the twenty-second century through the window of some nursing home? In a few minutes I'll go, leaving you untied. You could try calling for the police, but then what evidence do you have that I exist? You don't even know what I'm planning."

I was untied once it was dark outside, and with her gun pressing into my stomach she gave me a light kiss on the forehead.

"Dare to dream, and do not let your dreams be corroded by the acid of budget surpluses that are needed to help governments win elections," she said as she shouldered her backpack. "Space exploration allocations are always the sacrificial lamb that is fed to such surpluses." She opened the door. "And now, I am out of your life."

I did not even hear her footsteps on the stairs. She was right, in a sense. What could I do? Who would believe me? What she did not realize was that I knew who she was, even though I did not know her name. I had seen the headline announcing the death of her friends, and although there are horror smashes on the world's roads and motorways every day, the one involving her friends had found its way to the screen of my PC. It was on the website of the British Interplanetary Society, and I just happened to be a member of the BIS:

FIVE MEMBERS INCINERATED IN HORROR SMASH WITH TANKER.

I logged onto the Net and checked the BIS site again. The item was a week old, but beneath the image of a burned-out car were five photographs. Lissy Galbraith had Julia's face, but somehow I still thought of her as Julia. I read the bio paragraph. "At the time of her death, Lissy was a senior systems engineer in the UK offices of Sunflower Orbital Industries of Chicago." No doubt they had found her missing from her home, but maybe one of her co-conspirators had been sleeping with another girl. They had assumed her to be Julia, and not discovered their mistake until it was too late. Just what had they planned? No lives would be lost through her conspiracy, she had said..

Then I had it! The Mars expedition, an orbital zero-G factory, the dim future for manned space exploration, and trillions of dollars to be lost—it all fitted together! Giddy with shock, I opened the door to my tiny balcony and stepped outside into the fresh air. By now Julia would be miles away, probably in a stolen car, I was sure of that. Almost at once I noticed that one very special car was missing from the street outside. A colleague of mine lived nearby, but was currently overseas. His car had been parked under a gum tree, but now it was missing. Julia would have taken such a car. It was sprinkled with leaves and birdshit, and looked as if it would not be missed for quite a while. I went back inside, turned on the television, sat down, and stared at the images of astronauts preparing to start another day's work on the Martian surface. I picked up the telephone's handset, noted that there was a dial tone, dialed the number for Police and Emergency Services—then made a hasty decision and slammed the handset down. Presently I dozed in my chair.

There was nothing on the news about shootouts or bodies the following morning. I went to the university, I did some work on a research project proposal, I jogged at lunchtime, then I went home and watched the scenes from Mars on television. Everything was so normal, apart from some condoms that were absent from a packet in my bathroom cabinet, and a small, new splatter of solder on the kitchen table that was shaped like a star with eight points. I eased it off the surface with a blade and held it between my fingers. To me, it was the only tangible proof that Julia existed. I also did some calculations concerning the Sunflower orbiting refinery, and thereafter I made sure that I was looking up whenever it was passing over Melbourne.

I did not see Sunflower explode. What I saw, on the third evening after Julia had left, was a vast comet of silvery pinpoints, traveling south, every fragment with a speed of over seventeen thousand miles per hour. Even as I watched, the spreading cloud slammed into something else in an intersecting orbit. There was a flash, a starburst of glitter, then more flashers. I

watched until the cloud had passed out of sight, then went inside and turned on the television.

They were calling it "the cascade." Sunflower had been crammed with refined sand for zero-G processing, and it had burst apart over northern Australia. The huge satellite was orbiting at an inclination of forty-five degrees to the equator, and had an empty weight of sixty tons. The key word was empty. Sunflower was certainly not empty at the time of the explosion—in fact it had four times its own weight in refined sand aboard. It also had enormous solar panels to power the processing of the sand into silicon products.

I watched it all on my small television, not sleeping at all that night. Every satellite, every spent upper stage of every rocket, every piece of space junk that the cascade destroyed became a new cascade. There were soon more visible fragments than stars, and the cascade's fringes spread into higher orbits and latitudes. It started slowly enough for the International Space Station to be evacuated, and for most of the night the entire focus of the world's media was on the astronauts in their two evacuation de-orbiters. The retro rockets were fired as soon as the craft were clear of the station, and no thought was given to where they would land. Any place on Earth was safer than near-Earth orbit. There was worldwide rejoicing as soon as they were on the ground. Thus the cascade claimed no human casualties, but by morning it had become an immense curtain of fine particles, each with the momentum of a car pushed off the roof of a house.

Media attention and public interest now turned to the astronauts on Mars, the seven humans stranded tens of millions of miles away. Two Americans, two Russians, and nationals from Japan, China and France. They were in no immediate danger, because the cascade's threat was confined to everything in near-Earth orbit. Those on Mars had both stored and renewable supplies to last twice the length of the planned expedition, we were assured. The problem was that the return craft would find near-Earth space to be more dangerous than the middle of the most intensely fought battle in all of history. As one expert put it, one would have had a better chance going for a jog through the Battle of the Somme.

There was as structured an interview with the astronauts on Mars as one can have, given the distances and lightspeed delays. Inevitably, that age-old standby of journalists was asked: how did they feel?

"Rather like being diagnosed with a medical condition leaving you with five years to live," Carol replied to the question asked several minutes earlier on another world. "Five years allows you to do a lot of living, and gives you the hope that science can come up with something in that time."

Svetlana was far more optimistic. "If we can last five years, I can give us the raw materials to last until we die of old age," she added confidently.

"How will you cope with being separated from your loved ones for five years, and perhaps forever?" was the next question in the queue.

This question was fielded by Brad, the cool but dynamic pilot and leader.

"We have been carefully screened for emotional stability, intelligence and a history of good health," he said, almost sounding as if he might be pleased. "None of us have close relationships on Earth, either. Right now all exploration work is on hold while we assess how we can extend our existing supplies. We could even recycle a lot more than was planned and hey, we're masters of an entire planet, and there's no taxes here."

Sunflower's demise was an accident, according to Sunflower Orbital Industries. Through a billion-to-one chance, the safety cutoffs in the controlling software had become corrupted and allowed a buildup of current that overloaded the coils of the electric furnace, causing it to explode. White-hot fragments of coil and searing plasma had slashed through Sunflower's innards and hit the fuel tanks. Of course I knew that a radio signal from Australia had touched off the explosion, but I was not silly enough to tell anyone.

As the days passed, estimates of the number of fragments from the cascade climbed through hundreds of millions, to billions, then to trillions. After trillions, nobody bothered with absolute numbers. It was all fragments per cubic kilometer of space. The estimates of the energies remained rather colorful, however. The grain of sand with the energy of a bowling ball dropped from the roof of an office block was popular, and the wristwatch that hit with the force of a truck speeding along a freeway got almost as many mentions.

I watched the light shows in the sky as occasional fragments burned up in the atmosphere, and orbiting debris sparkled against the background of the stars in morning and evening skies. Within five days there were no satellites operational below geostationary orbit—all had been pounded and shattered by fragments the size of ball bearings that hit with the force of cannon shells. Every satellite that shattered produced more fragments in new orbits. The space station's demise was a beautiful blossoming of scintillating glitter, and was described as the most widely watched and most expensive entertainment in history. Every company that depended on satellites was bankrupted, but the majority of people soon learned to cope without their services.

Project Firebird was to have been like Project Apollo—a hurried gesture proving that we could get to Mars, but with no followup. Firebird had been commenced during a decade of prosperity, but by the time it had been ready to launch, times had become tough. The expedition only went ahead because so much money had already been spent and cancellation would have seemed an even greater waste.

Humanity has now been cut off from space for ten years, yet Mars is still being explored and colonized, and it has a population of two dozen. The colony is prospering, in a frugal sort of way, and expertise from Earth pours across the radio links whenever they need help. True, the cost has been hundreds of trillions of dollars in lost satellites and services, and humanity being cut off from space travel for centuries by the twinkling debris that I could have stopped, but did not. Every time I look up at the night sky I feel guilty, but given my time over again, I would still not have reported a certain car stolen.

Mars channel is still operating, pouring scenes into our homes every night from the newest frontier. Farms have been built under greenhouses of plastic from Svetlana's hydrocarbon refinery, and Firebird Base has become a little village of walkway tubes and pressure tents. Microscopic life has been found and studied in springs heated by radioactive decay, ancient seabeds have yielded fossils, caves have been discovered that could accommodate a colony of thousands, and there are strangely regular markings on a sheltered cliff face that are probably natural...but could be script.

Although I can never say it to my wife or our seven-year-old daughter, whenever I look at the television's images from the Mars colony I think I helped create that. Together, Julia and I forced humanity to take a bold but

wonderful step. I often think of her, then I caress a small, star-shaped splatter of solder mounted on a ring that I always wear. I always wonder if she ever thinks of me.