The Sails of Tau Ceti

A Novel By

Michael McCollum

SCI FI - ARIZONA
A Virtual Science Fiction Bookstore and Writer's Workshop on the INTERNET
www.scifi-az.com

ISBN 1-929381-14-X

Michael McCollum
Proprietor
Sci Fi - Arizona
PO Box 14026
Tempe, AZ 85284-0068
mccollum@scifi-az.com

05252015

PROLOGUE

Faslorn of the Phelan stood on the bridge of the starship *Far Horizons* and watched as thick bundles of gossamer thread poured forth from their storage holds. The shroud lines had been streaming aft through half a dozen changes of the watch. Now the first phase of the star brake's deployment was nearing its end.

Faslorn let his eyes roam the ship's instruments as the last few *kel* of bundled lines leaped free. His attention returned to the screens as the star brake's million *kel* long mass stretched to its full length and suddenly grew taut.

"Sound the alarm," Faslorn ordered. "Rebound coming."

The warning echoed through every corridor of the giant starship. Thousands of crewmembers stopped what they were doing and anchored themselves. Faslorn wrapped a six-fingered hand around a nearby stanchion and held on tight. Far out along the star brake, he could see the reflection wave racing toward *Far Horizons*.

The rebound wave struck the ship and caused the deck to jump beneath his feet. He barely noticed the rolling motion as stresses redistributed themselves throughout the starship. All of his attention was taken up by the screens. His twin hearts beat a little faster as he scanned the giant construct on which depended his own fate, and that of one hundred thousand crewmates.

"No damage to brake or ship," one of the deployment technicians reported.

Faslorn emitted the Phelan equivalent of a sigh. "Very well. Cut the restraining straps."

All along the folded brake, tiny glittering lights illuminated the eternal night of space as the straps that kept the brake furled were cut. With the restraints gone, centrifugal force took over. There was a vast rippling as the gossamer fabric of the brake began to unfurl.

It was difficult to observe the progress of the deployment. The furled brake had been a long line that twisted and turned on its way to the vanishing point. As the mass unfolded, it revealed the reflective film that made up the bulk of its surface area. There is nothing in space more difficult to see than a one hundred percent reflective surface. It reflects the blackness of space, while distorting the reflected images of stars. To an observer, it seems as though the universe has been wrenched into convolutions by some giant, unseen claw.

Far behind the starship, a giant flower opened its petals to space, marking the end of a voyage that had lasted more than three Phelan lifetimes. It was a voyage that had begun in fire and would end by grazing the photosphere of the small yellow sun that was their destination, which, at the moment, was merely the brightest point of light in the sky.

Faslorn's would likely be the last generation of Phelan to live their lives between the stars. Within a few dozen *tarn*, they would encounter the thinking beings of the yellow sun. It was Faslorn's task, and that of his shipmates, to win a home among the strange bipedal creatures that styled themselves *Homo sapiens*. If he were successful, the next generation of Phelan would be born with solid ground rather than steel deck beneath their feet. If not, then Faslorn's line would likely end with him.

“Look how it fills the sky,” his assistant said. Overhead the star brake had expanded until it blotted out the cold point of light that had once been home.

Faslorn’s gesture was the Phelan equivalent of a smile. “That it does, Paldar. It won’t be long now before they notice us.”

As the commander of *Far Horizons* watched the continuing dance of deployment, he thought of the difficult task ahead. It was somehow symbolic that the stars behind were slowly being blotted out by reflections of the stars ahead.

Far Horizons was committed. There would be no turning back. The fate of two intelligent species would be decided by what happened next.

1. Starhopper

CHAPTER 1

The ruddy orb of Mars covered one full quadrant of star flecked sky and flooded the transparent dome with a ruby light. As beautiful as the sight was, Victoria Bronson had eyes only for the pyramid shaped collection of fuel tanks and piping silhouetted against the planet. After twenty years of planning and three years of construction, *Starhopper* was nearly ready. Soon tankers would pump a hundred thousand tons of liquid hydrogen into the craft's capacious fuel tanks. Ten days later, assuming no glitches were found during the complex countdown, humanity's first visitor to another star would be hurled outbound on its long journey into the deep black.

People had dreamed of travel to the stars for almost as long as they had known the tiny points of light were distant suns. While poets wrote paeans to starflight, engineers bemoaned the prodigious energies involved. Writers of escapist fiction dreamed up fantastic schemes for flitting between stellar systems, while physicists attacked the problem with no less imagination. Scientists speculated that wormholes, extra spatial dimensions, or warped space-time might prove to be chinks in the armor of the Einstein barrier. Unfortunately, the efforts of the scientists proved no more effective than those of the poets and writers. Despite everything, the stars remained uncomfortably beyond the outstretched grasp of humanity.

That is, until the year 2217. In that year, a young Martian physicist named Dardan Pierce suggested that the time had come to begin explorations of the nearer stars. In a paper published in the *System Journal for Astrophysics*, Pierce laid out the parameters for a successful interstellar crossing. Pierce's starship was no fanciful faster-than-light speedster, but rather a craft requiring most of a human lifetime to make the journey. At the end of his paper, he exhorted his colleagues to build an instrumented probe as a demonstration project and to send that device to explore the worlds known to circle Alpha Centauri, Sol's closest neighbor in the firmament.

The engines that would drive humanity's first interstellar probe would be powered by antimatter, a technology first developed in the middle of the twenty-first century. The earliest antimatter powered spacecraft had used micrograms of the volatile stuff to heat hydrogen, which was then expelled through conventional rocket nozzles. Modern craft consumed kilograms of antiprotons, converting hydrogen to relativistic plasma before channeling it rearward through a series of magnetic nozzles.

The *Starhopper* booster would accelerate the instrument package to one-tenth light speed. As each tank was drained of reaction mass, it would be jettisoned. At the end of the boost phase, the giant engines would grow cold and *Starhopper* would coast outbound toward Alpha Centauri, having left a trail of debris extending all the way back to Mars in its wake. Nearly half a century after launch, the instrument package would command the booster to turn end for end and begin decelerating. Again, fuel tanks and their supporting structure would be jettisoned as they were emptied. Even the engines would be discarded once they finished their task of slowing the instrument package to intrasystem velocity.

The *Starhopper* that entered the Centauri system would bear little resemblance to the one that left Mars. The instrument package represented only 0.1 percent of the original vehicle mass. Even so, at 110 tons, it was as large as a small spaceship. The instrument section contained maneuvering

engines, antimatter, reaction mass, a power reactor, communications gear, and instruments able to wrest the secrets from the half dozen alien worlds known to orbit the Centauri suns.

Tory Bronson lay on her back on the carpeted deck of a Phobos surface dome and gazed up to where the interstellar booster maintained station on the larger of the two Martian moons. She thought of all the problems and crises that had been bested since the program's conception. At times, Dard Pierce had often told her, it had seemed as though the probe would never be built. Even now, the coalition of governments, universities, and corporations that supported *Starhopper* were grudging in their largesse.

Tory had been three years old when Pierce published his original paper. By the time he had gathered up enough backers to begin planning in earnest, Tory had entered the University of Olympus on Mars. It had been her intention to become a lawyer. She first heard about the project at one of Pierce's lectures, which she attended because she needed the extra credit for a science class. That might have been her only exposure to Starhopper had not her career plans changed at the beginning of her sophomore year. The change came about when she was fitted with her first computer implant.

Like antimatter propulsion, the implants were an old technology that had been steadily improved over a century of use. The first implants had been simple aural devices, little more than fancy hearing aids that allowed the user to subvocalize a command, and then receive the computer's response directly to the inner ear. In those days, implants had been little more than status symbols for the rich, subminiature cellular phones for conducting business while pretending to do something else. Not until a method for directly stimulating the brain was developed did the modern computer implant become possible. The heart of an implant was its molecular computer and direct stimulus/response microcircuit. Once implanted behind the left ear (the right ear for left-handed people), it sensed the complex electrical rhythm of the brain and translated conscious thoughts into electrical impulses that were then transmitted to a remote computer. The computer's response was then translated back into brain waves, and the required patterns induced in the sensory centers of the brain.

There were limitations, of course. The wearer had to learn to think in such a manner that the implant interpreted that mental activity as a command, and not as the background noise that was normal thought. It was a little like learning to wiggle one's ears. No one could precisely describe how to accomplish it, but once the skill was mastered, it was never forgotten. The implants did nothing to make the wearer more intelligent. What they did do was provide a phenomenal memory, to the point where one could "remember" things they had never known.

There were other practical limitations on implant use. Most people quickly reached a point where additional data merely confused them. The problem, long known to students, was known as "avalanche effect" because it felt as though one was being buried under an avalanche of data. The symptoms were that anyone who tried to delve too far into a subject ended up disoriented and muddled.

Curiously, a few people seemed immune to the problem. No matter how complex the task, these rare minds were able to keep the goal in view without becoming mired down in detail. Such clear-headedness was an inborn talent. It could not be taught or learned. Those so blessed found

themselves in demand as managers, organizers of complex projects, and most especially, as high level computer synergists.

A synergist was not a computer programmer since the computers had long ago been given the ability to program themselves. Rather, synergists watched over the flow of the automated software generating programs, and nudged them in the proper direction. For like the vast majority of human beings, computers, too, tended to become bogged down in the details.

Upon learning that she was immune to avalanche effect, Tory Bronson switched from the College of Law to Synergistic Science. There she met Ben Tallen. He was another Synergism candidate. After dating for most of their sophomore year, they agreed to move in together. As time went on, they began to talk about landing high paying jobs with some Earth-based megacorp, and though the subject rarely arose, Tory, at least, had visions of marriage.

A month before graduation, Tory was accessing the list of companies who would be interviewing at the university placement center and discovered the Starhopper Project. She remembered the lecture she had attended years earlier and decided to check it out. What she was not prepared for was Ben's reaction when she told him about it that night at dinner.

"What the hell are you interviewing with them for?" he asked around a crust of pizza.

"I've got a free period and it sounds interesting."

"Don't be a frump!"

"Who are you calling a frump, skinker?"

"You, if you interview with that damned black sky project. You know who is behind it, don't you? Old Centauri Pierce over in Astrophysics! It is his hobby. He's gotten a bit of funding from the local yokels and is now trying to scam Earth into lofting the rest."

"So where's the harm in listening?"

"The harm, my dear demented love, is the damage you may do to your chances of getting on with an EarthCorp. If they hear you've been talking to nuts, they might decide you aren't the proper material for them."

Ben's crack about "local yokels" irritated her. Like most Martians, Tory had a deep inferiority complex when it came to anything concerning Earth. She was especially aware that the University of Olympus was considered by some to be a cow college. Ben, on the other hand, was a terrestrial exchange student who never tired of telling everyone he could have gone to New Yale or Harvard. When asked why he had not, he always said something to the effect that he had wanted to improve the curve at Olympus U. instead.

Tory still remembered the hot flash of anger that had surged through her at Ben's crack. "Well I'm *going* to interview with them and if the high and mighty corporations from Earth don't like it, tough!"

She would have forgotten all about it if Ben had not decided to taunt her one final time.

"Don't say I didn't warn you!"

To her surprise, Tory found herself attracted to the idea of being part of humanity's first attempt

to reach the stars. The more she thought about it, the more attracted she became. Her interest, coupled with Ben's clumsy attempts to dissuade her, drove her to accept the offer — at less than half the going pay scale for newly minted synergists. She told Ben of her decision a week before graduation. The resulting argument led to their breakup.

Two weeks later, they sat together in the lounge of Olympus spaceport, waiting for the ferry that would take Ben up to the interplanetary liner docked at Deimos. They made small talk and promised to write every week though both knew the promises were empty. Tory remembered how awkward it had been to kiss Ben goodbye and the feeling of relief as his lanky form disappeared into the embarkation tube.

That had been three years ago. Since then, Tory had held a variety of jobs with the interstellar project. Her latest made her responsible for the software that would fly the interstellar probe on its decades-long journey. Since software was at the heart of any modern system, her position placed her in de facto command of construction on Phobos. There were others more senior, but no one with a clearer picture of the state of the project at any given moment.

She was startled out of her contemplative mood by a silent voice that suddenly emanated from her computer implant.

"Are you awake up there?"

The voice belonged to Vance Newburgh. Vance, like Tory, was a synergist hired directly out of college. His speech was marked by a strong Australasian accent, a hint of which made it through the implant.

"I'm awake," she thought. *"What's up?"*

Her custom of coming up to the surface once each week to view *Starhopper*'s progress was well known. It was, she told the curious, her way of keeping one foot planted firmly in reality. An occupational hazard for those who dealt with direct computer-to-mind interfaces was that they sometimes became unsure of what comprised reality. More than one had fallen to his death because he had forgotten that there is nothing theoretical about the concept of gravity.

"Message from the university. Professor Pierce requests your presence at an emergency meeting of the governing board."

"When?"

"Tonight. Zero eight hundred hours, Conference Room 100, Lowell Hall."

"I'll attend via screen."

"Negative. The message says 'in person.'"

"But that's silly. Doesn't he know how much work we've got to do before next month's launch?"

"I presume he's been reading our progress reports."

"Then he should know that software certification is a week behind schedule and still slipping."

"No argument there, partner."

Tory let her anger cool a moment. *"Does he say what this meeting is about?"*

"No. Shall I tell him you can't make it?"

Tory shook her head. The habit of a lifetime was hard to break though Vance was a kilometer distant and the conversation was taking place inside her skull. *"Negative. You know how fragile the coalition is. How long before the afternoon shuttle leaves for Olympus?"*

"Twenty seven minutes."

"Get me a seat. Tell them to hold until I get there."

#

The ground steward who helped passengers aboard the Phobos-to-Olympus shuttle let his gaze linger on Tory Bronson as she made her way up the embarkation tube. He saw an attractive woman of some 25 standard years. Like many Martians she was tall and lithe, her alabaster skin unmarked by the sun. Her green eyes possessed a barely discernable slant and her hair was so black that it shown with a blue luster. She wore it in a hair net to keep it out of her face in Phobos' minuscule gravity field. He noted her pert nose set above a wide mouth, the lines of which fell most naturally into a smile. She was not smiling now. She had that absentminded look common to people deep in thought or those actively accessing a computer implant.

Tory swarmed through the embarkation tube by pulling herself hand over hand, ignoring the small moon's two-tenths-percent of a standard gee. She found an empty seat near a port and strapped down. Tory failed to notice the stares of the other passengers as the steward went immediately into his pre-launch briefing. She stared at her own dull reflection in the viewport and considered what could possibly have triggered an emergency meeting of the project governing board. Whatever had happened, one thing was certain. It could not be good news.

Almost as complex as the design of *Starhopper* were the politics that went to sustain it. The University of Olympus managed the project for a consortium of institutions of higher learning. Funding was provided by several private foundations and the governments of Mars, Lagrange 3 and four, and several asteroid colonies. Several Earth megacorps had contributed to the project in the hope of being chosen to provide materials and services. Some had, some had not.

It was an arrangement guaranteed to spark arguments. The prime function of the governing board was to arbitrate disputes and to apportion costs equitably. They also delved too much into decisions that, in Tory's opinion, at least, should have been left to the engineers.

Tory hoped she could divine the reason for the unexpected summons by reviewing the minutes of the last several board meetings. She had hurriedly run through them all the way to the spaceport. Her haste was necessitated by the fact that her implant would not work once the ferry departed Phobos. The broadband communications link would lose synchronization once the ferry passed beyond effective transmitter range. Tory had gone through loss-of-sync once in training. It was an experience she did not care to repeat.

She had often tried to describe what it was like to wear an implant to people who lacked the experience. It was like trying to explain sex to a six-year-old. Besides an eidetic memory, implants gave their users an extra set of eyes with which to see. When Tory gazed at the *Starhopper* booster, she saw more than its physical form. In her mind, she could visualize the vehicle's complex plumbing as it snaked through the first stage booster. She could visualize the temperature variations that

would play across the vehicle during launch. To her *Starhopper* was less a machine than a living creature straining to enter its natural environment, the cold black of interstellar space.

Tory was none the wiser when she finished her review of the meeting minutes. Satisfied that there was nothing she herself had done (or failed to do) to trigger a crisis, she willed her implant into silence, leaned back, and resolved to enjoy the flight.

The shuttle lifted away from Phobosport with a burst of attitude control jets. Once clear of Phobos's inner traffic zone, the pilot turned the ship until its nose pointed back along the orbit it shared with the moon. Seconds later, the engines came alight and Tory felt a gentle hand pressing against her. When the initial burst of retrofire was finished, the pilot turned the ship to give his passengers a panoramic view of Mars.

Despite being only half Earth's diameter, the red planet was huge. Phobos had once been a free flying asteroid. Following its capture by Mars — an event the astronomers still argued about — the small moon had stabilized in an orbit 6000 kilometers above the rust colored sands.

It had been nearly two centuries since the first humans had set foot on Mars and died there, a century-and-a-half since the establishment of the first Martian colony. Humankind still had a considerable way to go before the planet would begin to grow crowded. For despite its diminutive size, Mars's lack of an ocean gave it a land area nearly as great as Earth's. The red planet supported 250 million souls, compared to the 10 billion who inhabited Earth.

Twenty minutes after leaving Phobos, Tory noticed a circular shadow detach itself from the sunrise terminator and strike out across the Tharsis highlands. She frowned. Phobos was close enough to cast a shadow on Mars, but in the wrong position. Deimos, on the other hand, was too small and distant to have any hope of shading the Martian landscape.

Having eliminated the only two possibilities, Tory felt the thrill that comes from a suddenly recognized mystery. She watched the shadow for several seconds before a spark of reflected sunlight caught her attention. Understanding burst upon her like the static discharges that illuminate the Martian sky during summer dust storms. The reflection had come from sunlight bouncing off a light sail in a lower orbit than the ferry. It had been the sail's shadow that she had been watching cross the Martian desert.

Light sails used the pressure of reflected sunlight to propel their nonperishable cargoes across the Solar System. They were slow, but less expensive than even a ship in a Hohmann transfer orbit. This sail was probably towing a load of ice from Saturn's rings and using Mars's gravity to shape its approach to the inner moon. The Phobos distillery was the main reason they were building *Starhopper* there. The hydrogen cracking facility was to be the source of the interstellar probe's reaction mass.

As the shuttle dropped, the light sail grew larger beyond the viewport. The sail, Tory knew, was a large circular sheet of metalized plastic only a few angstroms thick. It and its brethren were the largest constructs every built by man, and the flimsiest. The largest sail ever constructed measured a full 100 kilometers across, yet massed only a few hundred tons.

Tory searched for the cargo pod, but could not see it. Within a few minutes, the giant apparition floated across her field of view and was gone. She noted with approval that the shuttle's pilot was

giving the sail a wide berth. While the monomolecular “sail cloth” was as light as the scientists could make it, it could do serious damage to even a warship if encountered at velocity differentials of several kilometers per second.

The shuttle dropped lower. Minutes later their destination came into view over the sharply defined horizon line. Olympus Mons was the largest volcano in the Solar System; so large that it could be seen as a speck in Earth based telescopes. It was one of the dots that Percival Lowell’s subconscious had strung together to produce the most famous optical illusion in the history of science, the famous canals of Mars.

Most Earth dwellers expressed surprise when they learned that the capital of Mars was located in the caldera of a volcano. Olympus had been a spectacular volcano in its day. Luckily, its day was several billion years in the past. The modern Olympus Mons spewed forth nothing more lethal than water vapor saturated with carbon dioxide. These milder eruptions were the reason the Olympus colony had been founded in the first place. For nothing is more precious on dry Mars than water. Olympus Mons was a primary source of water on the planet.

The ferry dropped precipitously toward the spaceport tail first, oblivious to the tug of the rarified atmosphere against its non-aerodynamic shape. A thousand meters above the spaceport, the ferry’s engines came alive. Seconds later, it grounded on a tail of plasma fire without a bump.

CHAPTER 2

Tory emerged from the airlock into a transparent debarkation tube that ran a hundred meters across the fused sand of Olympus Spaceport. Beyond the tube, the Martian night was lit by million-candle-power polyarcs. Another ferry lay near the Phobos craft. Passengers and luggage streamed through that ship's connecting tube and into the subterranean passage that led to the main terminal. Tory grimaced at the sight. It meant that the weekly liner from Earth was in orbit and that the spaceport would be more than its usual madhouse.

As she entered the terminal, Tory willed her implant to synchronize with the Olympus city computer. Once she received the connect signal, she sent a call to Dardan Pierce.

"Hello, Tory," came back the immediate answer. *"Where are you?"*

"Spaceport."

"Good, get over here as soon as you can. The others will have gathered by the time you arrive."

"What's up, Dard?"

"You'll have to ask Hunsacker," came the curt answer. *"He called the meeting."*

"But he's on Earth."

"Not since noon, he isn't. He showed up in my office and asked me to gather up everyone within reach."

"All right, I'm on my way,"

"One more thing," Pierce's silent voice said. *"Hunsacker brought some people with him."*

"Who?"

"Praesert Sadibayan, the Underminister for Science in the Hoffenzoller Administration, and his assistant. I want everyone to be on his or her best behavior. Pierce out."

"Bronson out," Tory replied absentmindedly.

A tube car deposited her at University Station half an hour later. Like most Martian structures, the University of Olympus was mostly underground. It was topped at ground level by a large surface dome anchored by cables woven from the monomolecular filaments used in the construction of light sails. The most direct route from the tube station to Pierce's office was through a series of underground corridors. After nearly a year on Phobos, Tory decided to take a few minutes longer and stroll through the dome.

The dome was home to University Park, a complex of pathways, flowerbeds, and terrestrial shrubbery grown tall in Mars's gravitational field. During the day, the park was crowded with students hurrying between classes. It was no less crowded at night, though less obviously so. After sundown, the surface dome was lit in soft multicolored hues and suffused with herbal fragrance. That made it a favored place for couples to seek solitude together. At the park's center bubbled one of the few water fountains on Mars. The low gravity produced a spectacular display while providing the growing plants with the humidity they required.

As Tory reached the stairwell leading down into the astrophysics department, she inhaled the fragrant air one last time. Classes had ended hours earlier, leaving the corridors below deserted. Her Phobos boots made lonely clicking sounds on the fused rock floor as she walked. The clicks echoed the length of the empty halls. Turning into a side corridor, she noted light spilling through a translucent office door at the far end.

"Tory, thank God!" Pierce said when she knocked on his door. He was a balding man with intense eyes and a manner to match. In his early fifties, the astrophysicist was still a vibrant man. His enthusiasm was contagious, especially where the Starhopper Project was concerned.

The office was as she remembered it. Printouts and record cubes were stacked everywhere. One wall was filled with holograms showing Pierce and various companions posed in front of well-known Earth landmarks. These were souvenirs of his long hunt for money to fund the project.

"What's going on, Dard?"

"What do you mean?"

"Don't give me that innocent look. You would not have interrupted software validation for anything less than a first rate emergency. You especially wouldn't have interrupted the work at Hunsacker's request unless you knew what was going on."

"Guilty as charged," he said. "You're here to give a progress report."

"We file daily progress reports, weekly progress reports, and monthly overviews! Would the board like hourly reports too?"

"They're more interested in your personal perspective on the project. In your position, you have a better feel for how things are going than anyone."

"Can't you even give me a hint?" As she asked the question, Tory was struck by Pierce's expression. It was hard to imagine bad news coming from anyone with that gleam in his eye. It was the same look a child wears on Christmas morning.

"Nope. Just so I won't be unpleasantly surprised, how *are* preparations going?"

"You've read the reports."

"Humor me."

"All right." Tory gave him a quick rundown on what they had accomplished in the last week or so. Most of the work involved software checkout, which could not be hurried.

"Sounds like you're about to get back on schedule."

"I would if I weren't interrupted so often. Give me another month and I'll deliver you a ship ready for space."

Pierce did not respond immediately. Instead, she noted the same look of anticipation he had worn a few minutes earlier. When he finally did speak, it was to suggest that they go to the conference room.

#

Conference Room 100 was large enough for a dozen participants to gather round an oval table. The room was crowded as the two of them arrived, with the project governing board and staff standing around in small groups chatting with one another. The scene resembled a faculty tea.

"Tory, I'd like to introduce Boris Hunsacker, project coordinator on Earth," Pierce said after steering her to one of the groups. "Boris, this is Tory Bronson, of whom you've heard so much."

"Good to meet you at last, Boris." Hunsacker was smaller than Tory had imagined from Pierce's stories. She reached out and shook his hand.

"The same, Tory," he said as he converted the handshake to a kiss on her hand. "I must confess that I envy you. The rest of us are politicians and bean counters. You actually work on humankind's first interstellar probe."

Tory laughed. "You sound like an engineer, Boris."

She received a smile in return. "I'm afraid that I haven't been a practicing engineer for too many years. I still haven't lost the urge to stroke the hardware, I'm afraid."

"I'd be pleased to show you around if you make it up to Phobos this trip."

"Is that a general invitation?" a familiar voice asked from behind her. Simultaneously, her implant came alive. *"How you doing, frump!"*

Tory turned around and gasped. Ben Tallen stood directly behind her with a grin on his face.

"Ben! What are you doing here? *And why didn't you tell me you were coming, skinker?"*

"The subminister brought me. I am his assistant. *Perhaps we can go out for a drink after this is over?*"

"*I'd like that.* When did that happen? I thought you worked for Tramton Industries."

"Not for the past year or so. I find the legislative arena a lot more interesting."

"I take it you two know each other," Pierce said as he watched the two.

"We're old friends, Professor," Tallen replied. As he spoke, he caught the gesture from a small dark man across the room. "You'll have to excuse me. The boss wants something. Would you like to meet him, Tory?"

"Certainly."

The two of them threaded their way to the opposite end of the room. "Tory, may I present my boss, Praesert Sadibayan, Underminister for Science. Sir, Miss Victoria Bronson. I think I may have mentioned her on occasion."

"Oh, just a hundred times or so," Sadibayan replied with a grin. "You broke this young man's heart, Miss Bronson."

"I doubt that, Mr. Subminister."

"It's true! He did nothing on the trip out but worry whether he would have time to see you."

She turned to Ben. "Really?"

He nodded. “If you hadn’t been here tonight, I was going to hop the first Phobos shuttle.”

“I’m flattered.”

Sadibayan turned to face his assistant. “See how easy it is if you’re honest with women, Ben?”

“I only wish I had your skill, sir,” Tallen replied with mock humility.

The buzz of conversation around them was interrupted by the chime that announced the start of a new class period. Dard asked everyone to take his or her seats. He gestured for her to take the chair next to his own.

Pierce began by introducing everyone. Besides Boris Hunsacker and the two terrestrial government representatives, Tory was surprised to learn of the presence of a representative of the Martian parliament.

Pierce said, “Your show, Boris.”

“Thank you, Professor Pierce,” the project’s terrestrial representative said. He nervously shuffled a series of printouts before continuing. “I’m sure all of you are wondering what the hell this is all about, so I won’t keep you in suspense any longer than I must. However, I need to give you some background information, so please bear with me. Lights off, cube on!”

This last was addressed to the room monitor, which dutifully dimmed the lights and activated the holocube perched at the center of the table. The cube showed an old fashioned two-dimensional photograph. It was a picture of a starfield, with a yellow point of light at the center. There were a few other stars scattered across the field of view.

“This, gentlemen and ladies, is a photograph of Tau Ceti taken late in the Twentieth Century. In those days, Tau Ceti was a type K0 yellow-orange dwarf star, quite unremarkable save for its proximity to the sun. It is just twelve light years from here, practically next door.”

The scene changed. Again, the view in the cube was two-dimensional. It was obviously the same starfield since the scattering of stars was largely the same. Only the central point of light had changed. It was now a brilliant burst of white.

“This was taken on August 25, 2001. That was the day that Tau Ceti went nova. The event created quite a stir among astronomers. Like the sun, Tau Ceti was still on the main sequence when it exploded, and main sequence stars are not supposed to do that sort of thing. Even today, we have no theory that explains how a star like Tau Ceti could possibly have exploded. The fact that it did, however, suggests that our theories on the subject need some revision.”

“Wasn’t there another anomaly associated with the nova?” Roger Aaron asked. Aaron was a member of the faculty of the University of Olympus, and the governing board’s recording secretary.

“There was. Initial recordings of the nova suggested a deficiency of a few percent in the nova’s light output. Those readings may have been in error, however, since later observations showed the light curve to be well within tolerance for a Type II nova.”

“All very interesting, Boris,” one of the board members said. “But what has all of this to do with us?”

Hunsacker’s response was to touch the cube control. The nova burst faded from the screen, to

be replaced by a modern holographic image. Again, the view was centered on the same starfield. Tau Ceti was no longer a brilliant flame. The central star had returned to the yellow spark that had preceded the nova. That spark was surrounded by a milk-white ring of light. The ring marked the outermost expansion of the gas cloud that had been ejected by the explosion two centuries past. There was a new point of light in the hologram. Another yellow spark had appeared just beyond the gas shell.

"What's that?" Sharon Milos asked, pointing to the point.

"*That*," Hunsacker replied in triumph, "is the reason for this meeting. This holo was taken two weeks ago by the observatory on Luna. The spectrum is that of Sol, with a slight Doppler shift toward the blue end of the spectrum." Hunsacker paused to let the import of what he had just said sink in. All around the table, there were looks of perplexity that slowly turned to looks of wonder.

"A light sail!" Tory exclaimed, remembering the glint of sunlight she had seen out the port of the Phobos ferry.

"A light sail," Hunsacker agreed. "We've managed to triangulate it using the telescope on Europa. It is two light months out, and moving in at five percent of the speed of light. Its origin is almost certainly the Tau Ceti nova."

"Ladies and gentlemen, it would seem that we are about to receive our first visitor from another star!"

#

Sci Fi - Arizona
A Virtual Science Fiction Bookstore and Writer's Workshop

Michael McCollum, Proprietor
WWW.SCIFI-AZ.COM

If you enjoy technologically sophisticated science fiction or have an interest in writing, you will probably find something to interest you at Sci Fi - Arizona. We have short stories and articles on writing– all for free! If you like what you find, we have full length, professionally written science fiction novels in both electronic form and as hard copy books, and at prices lower than you will find in your local bookstore.

Moreover, if you like space art, you can visit our Art Gallery, where we feature the works of Don Dixon, one of the best astronomical and science fiction artists at work today. Don is the Art Director of the Griffith Observatory. Pick up one or more of his spacescapes for computer wallpaper, or order a high quality print direct from the artist.

We have book length versions of both Writers' Workshop series, "The Art of Writing, Volumes I and II" and "The Art of Science Fiction, Volumes I and II" in both electronic and hard copy formats.

So if you are looking for a fondly remembered novel, or facing six hours strapped into an airplane seat with nothing to read, check out our offerings. We think you will like what you find.

NOVELS

1. Life Probe - ^{US}$7.50

The Makers searched for the secret to faster-than-light travel for 100,000 years. Their chosen instruments were the Life Probes, which they launched in every direction to seek out advanced civilizations among the stars. One such machine searching for intelligent life encounters 21st century Earth. It isn't sure that it has found any...

2. Procyon's Promise - ^{US}$7.50

Three hundred years after humanity made its deal with the Life Probe to search out the secret of faster-than-light travel, the descendants of the original expedition return to Earth in a starship. They find a world that has forgotten the ancient contract. No matter. The colonists have overcome far greater obstacles in their single-minded drive to redeem a promise made before any of them were born...

3. Antares Dawn - US$6.00

When the super giant star Antares exploded in 2512, the human colony on Alta found their pathway to the stars gone, isolating them from the rest of human space for more than a century. Then one day, a powerful warship materialized in the system without warning. Alarmed by the sudden appearance of such a behemoth, the commanders of the Altan Space Navy dispatched one of their most powerful ships to investigate. What ASNS Discovery finds when they finally catch the intruder is a battered hulk manned by a dead crew.

That is disturbing news for the Altans. For the dead battleship could easily have defeated the whole of the Altan navy. If it could find Alta, then so could whomever it was that beat it. Something must be done…

4. Antares Passage - US$7.50

After more than a century of isolation, the paths between stars are again open and the people of Alta in contact with their sister colony on Sandar. The opening of the foldlines has not been the unmixed blessing the Altans had supposed, however.

For the reestablishment of interstellar travel has brought with it news of the Ryall, an alien race whose goal is the extermination of humanity. If they are to avoid defeat at the hands of the aliens, Alta must seek out the military might of Earth. However, to reach Earth requires them to dive into the heart of a supernova.

5. Antares Victory – First Time in Print – US$7.50

After a century of warfare, humanity finally discovered the Achilles heel of the Ryall, their xenophobic reptilian foe. Spica – Alpha Virginis – is the key star system in enemy space. It is the hub through which all Ryall starships must pass, and if humanity can only capture and hold it, they will strangle the Ryall war machine and end their threat to humankind forever.

It all seemed so simple in the computer simulations: Advance by stealth, attack without warning, strike swiftly with overwhelming power. Unfortunately, conquering the Ryall proves the easy part. With the key to victory in hand, Richard and Bethany Drake discover that they must also conquer human nature if they are to bring down the alien foe …

6. Thunderstrike! - US$7.50

The new comet found near Jupiter was an incredible treasure trove of water ice and rock. Immediately, the water-starved Luna Republic and the Sierra Corporation, a leader in asteroid mining, were squabbling over rights to the new resource. However, all thoughts of profit and fame were abandoned when a scientific expedition discovered that the comet's trajectory placed it on a collision course with Earth!

As scientists struggled to find a way to alter the comet's course, world leaders tried desperately to restrain mass panic, and two lovers quarreled over the direction the comet was to take, all Earth waited to see if humanity had any future at all…

7. The Clouds of Saturn - US$7.50

When the sun flared out of control and boiled Earth's oceans, humanity took refuge in a place that few would have predicted. In the greatest migration in history, the entire human race took up residence among the towering clouds and deep clear-air canyons of Saturn's upper atmosphere. Having survived the traitor star, they returned to the all-too-human tradition of internecine strife. The new city-states of Saturn began to resemble those of ancient Greece, with one group of cities taking on the role of militaristic Sparta...

8. The Sails of Tau Ceti – US$7.50

Starhopper was humanity's first interstellar probe. It was designed to search for intelligent life beyond the solar system. Before it could be launched, however, intelligent life found Earth. The discovery of an alien light sail inbound at the edge of the solar system generated considerable excitement in scientific circles. With the interstellar probe nearing completion, it gave scientists the opportunity to launch an expedition to meet the aliens while they were still in space. The second surprise came when *Starhopper's* crew boarded the alien craft. They found beings that, despite their alien physiques, were surprisingly compatible with humans. That two species so similar could have evolved a mere twelve light years from one another seemed too coincidental to be true.

One human being soon discovered that coincidence had nothing to do with it...

9. Gibraltar Earth – First Time in Print — $7.50

It is the 24th Century and humanity is just gaining a toehold out among the stars. Stellar Survey Starship *Magellan* is exploring the New Eden system when they encounter two alien spacecraft. When the encounter is over, the score is one human scout ship and one alien aggressor destroyed. In exploring the wreck of the second alien ship, spacers discover a survivor with a fantastic story.

The alien comes from a million-star Galactic Empire ruled over by a mysterious race known as the Broa. These overlords are the masters of this region of the galaxy and they allow no competitors. This news presents Earth's rulers with a problem. As yet, the Broa are ignorant of humanity's existence. Does the human race retreat to its one small world, quaking in fear that the Broa will eventually discover Earth? Or do they take a more aggressive approach?

Whatever they do, they must do it quickly! Time is running out for the human race…

10. Gibraltar Sun – First Time in Print — $7.50

The expedition to the Crab Nebula has returned to Earth and the news is not good. Out among the stars, a million systems have fallen under Broan domination, the fate awaiting Earth should the Broa ever learn of its existence. The problem would seem to allow but three responses: submit meekly to slavery, fight and risk extermination, or hide and pray the Broa remain ignorant of humankind for at least a few more generations. Are the hairless apes of Sol III finally faced with a problem for which there is no acceptable solution?

While politicians argue, Mark Rykand and Lisa Arden risk everything to spy on the all-powerful enemy that is beginning to wonder at the appearance of mysterious bipeds in their midst…

11. Gibraltar Stars – First Time in Print — [US]$7.50

The great debate is over. The human race has rejected the idea of pulling back from the stars and hiding on Earth in the hope the Broa will overlook us for a few more generations. Instead, the World Parliament, by a vote of 60-40, has decided to throw the dice and go for a win. Parliament Hall resounds with brave words as members declare victory inevitable.

With the balance of forces a million to one against *Homo sapiens Terra*, those who must turn patriotic speeches into hard-won reality have their work cut out for them. They must expand humanity's foothold in Broan space while contending with a supply line that is 7000 light-years long.

If the sheer magnitude of the task isn't enough, Mark and Lisa Rykand discover they are in a race against two very different antagonists. The Broa are beginning to wonder at the strange two-legged interlopers in their domain; while back on Earth, those who lost the great debate are eager to try again.

Whoever wins the race will determine the future of the human species… or, indeed, whether it has one.

12. Gridlock and Other Stories - US$6.00

Where would you visit if you invented a time machine, but could not steer it? What if you went out for a six-pack of beer and never came back? If you think nuclear power is dangerous, you should try black holes as an energy source — or even scarier, solar energy! Visit the many worlds of Michael McCollum. I guarantee that you will be surprised!

Non-Fiction Books

13. The Art of Writing, Volume I - US$10.00

Have you missed any of the articles in the Art of Writing Series? No problem. The first sixteen articles (October, 1996-December, 1997) have been collected into a book-length work of more than 72,000 words. Now you can learn about character, conflict, plot, pacing, dialogue, and the business of writing, all in one document.

14. The Art of Writing, Volume II - US$10.00

This collection covers the Art of Writing articles published during 1998. The book is 62,000 words in length and builds on the foundation of knowledge provided by Volume I of this popular series.

15. The Art of Science Fiction, Volume I - US$10.00

Have you missed any of the articles in the Art of Science Fiction Series? No problem. The first sixteen articles (October, 1996-December, 1997) have been collected into a book-length work of more than 70,000 words. Learn about science fiction techniques and technologies, including starships, time machines, and rocket propulsion. Tour the Solar System and learn astronomy from the science fiction writer's viewpoint. We don't care where the stars appear in the terrestrial sky. We want to know their true positions in space. If you are planning to write an interstellar romance, brushing up on your astronomy may be just what you need.

16. The Art of Science Fiction, Volume II - US$10.00

This collection covers the *Art of Science Fiction* articles published during 1998. The book is 67,000 words in length and builds on the foundation of knowledge provided by Volume I of this popular series.

17. The Astrogator's Handbook – Expanded Edition and Deluxe Editions

The Astrogator's Handbook has been very popular on Sci Fi – Arizona. The handbook has star maps that show science fiction writers where the stars are located in space rather than where they are located in Earth's sky. Because of the popularity, we are expanding the handbook to show nine times as much space and more than ten times as many stars. The expanded handbook includes the positions of 3500 stars as viewed from Polaris on 63 maps. This handbook is a useful resource for every science fiction writer and will appeal to anyone with an interest in astronomy.

