

LIFE PROBE

A Novel By

Michael McCollum

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Michael McCollum

Sci Fi - Arizona

PO Box 14026

Tempe, AZ 85284-0068

mccollum@scifi-az.com

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PROLOGUE

The Makers had never heard of *Homo sapiens Terra*, nor would they have been particularly impressed if they had. By their standards, mankind had little to brag about. The Makers' cities were old when *Australopithecus* first ventured out onto the plains of Africa. By the time *Homo erectus* was lord of the Earth, they had touched each of the twelve planets that circled their KO sun.

Individually, Makers were long lived, industrious, and generally content. Their population was stabilized at an easily supported fifty billion and war was an ancient nightmare not discussed in polite company. So, when the Makers came to the limits of their stellar system, it was with a sense of adventure that they prepared to venture out into the great blackness beyond.

The first ships to leave the Maker sun were 'slowboats', huge vessels that took a lifetime to visit the nearer stars. After three dozen such ventures, the Makers found they had made two important discoveries. The first was that life is pervasive throughout the universe. Nearly every stellar system studied had a planet in the temperate zone where water is liquid. Such worlds were found to be teeming with life. More exciting to the Maker scientists, on twelve percent of the worlds visited, evolutionary pressures had led to the development of intelligence. Two were the homes of civilizations nearly as advanced as the Makers' own.

The second great intellectual discovery was the realization that the Galaxy is a very large place, much too large to be explored by slowboat. In a spirit of curiosity more than anything else, the Makers set out to circumvent the one thing that retarded their progress. They began searching for a means to exceed the speed of light. A million years of scientific endeavor had taught them that the first step in any new project is to develop a rational theory of the phenomenon to be studied. The Makers, being who they were, did not stop when they had one theory of how faster-than-light might be achieved.

They developed two.

Each was supported by an impressive body of experimental evidence and astronomical observation. Each should have resulted in the development of an FTL drive. Yet, every effort for a hundred thousand years ended in failure.

There is a limit to the quantity of resources any civilization can divert to satisfy an itch of its curiosity bump. The FTL program had long since passed the point of economic viability. Yet, the effort continued apace. For while the Makers were mounting their assault on the light barrier, they found a more compelling reason than mere curiosity to break free of their prison.

Their stellar system was beginning to run low on the raw materials Maker civilization needed to sustain itself.

The first signs were barely noticeable, even to the economists who kept careful watch over such things. Eventually curves could be projected far enough into the future to foretell a time when civilization must inevitably collapse of resource starvation. To avert catastrophe the

Makers would have to obtain an infusion of new resources, either by importing raw materials from nearby stars or else transplanting their civilization to virgin territory.

Unfortunately, both options required a working faster-than-light drive.

The frustrated scientists redoubled their efforts. It was not until another hundred millennia had passed that a Maker philosopher began to wonder if they were asking the right questions. The Great Thinker had dedicated his life to the study of the years immediately following the slowboats' return from the stars. He noted that Maker science had taken great intuitive leaps in those years. The old records told of many cases where the combined knowledge of two races had led to discoveries unsuspected by either.

His questions were as fundamental as they were simple: "Could it be that our concepts of how FTL may be achieved are wrong? Is the failure to break the light barrier simply a matter of having missed the obvious? If so, might not some other civilization have avoided our error and found the true path to FTL?"

Once the questions were asked, they could not be ignored. A program was immediately begun to provide an answer. At first, it was a minor adjunct to the FTL research project. But as answers kept coming up negative, as each promising avenue of approach turned out to be a dead end, the program to probe the knowledge of alien civilizations grew.

By the time humanity discovered agriculture, it was all the program there was.

PART I: MUTUAL DISCOVERY

CHAPTER 1

“It is unfortunate that events leading up to the truly important milestones in the History of Man are often so veiled by the passage of time as to be forever lost. Happily, this is not the case with the Pathfinder Mission. In retrospect, we are able to pinpoint the initiating event with considerable exactitude. Therefore, let it be recorded that 15 January 2065 was possibly the most important day the human race has ever known. Of course, it was quite some time before any human being became aware of that fact.”

—Excerpt from *“Prelude to Pathfinder: An Official History,”* Pathfinder Memorial Edition, Aurelius Publications, New York and Luna, September 2096. By permission of the Publishers.

#

PROBE woke ... in quick stages ... of jumbled impressions ... and stray memories.

The attack of integration vertigo lasted a dozen nanoseconds while its brain assembled itself into a functioning whole. Finally, the fuzziness was gone and it was once more awake and aware.

The next step in the preprogrammed “wake up” sequence was a complete sensor scan of the heavens. As expected, PROBE found itself in interstellar space. The stars were cold, hard points of radiance etched against the fathomless black of the cosmos. All save one.

PROBE checked its elapsed time chronometer and found that it had been ten thousand years since the Makers first launched it outbound on its quest. It had been a long journey — as Jurul had warned that it might.

The thought of Jurul brought a sudden flood of long dormant memories to PROBE’s main processing units. Jurul had been the Maker in charge of constructing Life Probe Model CXI, Mark III, Hull Number 53935.

Jurul’s voice was the last thing PROBE had listened to before launch.

PROBE remembered that day vividly. A smallish planet of dark blues and purples slid by in silence below while a full dozen of its brethren in various stages of construction trailed it in orbit. The scene in the external sensors was calm, almost serene. However, the external views showed nothing of the frantic activity inside PROBE as the Makers completed their final systems checkouts.

Then the poking and prodding of the ground controllers had fallen off and Jurul’s voice had ridden the laser beam that tied PROBE to its creators.

JURUL: “Final status check, Nine-three-five.”

PROBE: “Status is go, Jurul. Ready for launch.”

JURUL: “Pre-launch sequence has begun. Repeat your mission objectives, Nine-three-five.”

PROBE: “I am to seek out a technologically advanced civilization among the stars and make contact. I will learn all I am able of their scientific knowledge and obtain their help to return home and report.”

JURUL: “And if you should happen to discover a civilization that has developed a means of

traveling faster-than-light?"

PROBE: "I will conceal all evidence of my origins until I have confirmed that such beings can be trusted. When I am sure that it is safe to do so, I will direct them here to the home world to bargain for their secret."

JURUL: "Very good. How long to initial boost?"

PROBE: "Coming up on eight-to-the-second-power seconds."

JURUL: "Good luck and good hunting, Nine-three-five"

PROBE: "Luck to you as well, Jurul."

PROBE had remained in communication with the Makers for nearly a full year following launch, but the contact had consisted solely of exchanges of engineering data with the ground computers. Never again had Jurul's voice — or that of any other Maker — ridden the laser beam. Shortly after PROBE reached cruising velocity, even that tenuous link with home was broken, and with it, all hope of ever speaking to Jurul again.

For when PROBE returned to point of launch (if it returned), Jurul would be ancient dust and it would fall to one of his descendants to take the report.

However, to report, PROBE must first return home. That was proving no easy task. It had accepted the same gamble every life probe took when it boosted into the unknown, a bet five of six eventually lost. It was beginning to look as though PROBE might become another grim statistic.

Life probes, the direct descendants of the ancient slowboats, were the ultimate of the Makers' many creations. Powered by gravitational singularities, they climbed to nearly one-tenth the speed of light before shutting down their boosters. Thus, PROBE was destined to spend most of its life in transit, plodding slowly outbound toward the galactic rim, with the eternity between stars its greatest danger. No intelligent construct, whether organic or machine, could maintain its sanity on such a journey. Its memory banks would overflow with data long before the first waypoint sun if nothing were done to protect them.

It was for this reason that the Makers had created CARETAKER and the long sleep.

CARETAKER was PROBE's alter ego. Its brain shared the same basic circuitry as PROBE's. The difference came in the way those circuits were connected. PROBE was truly sentient, with a firm grasp of the meaning of the pronoun *I*. CARETAKER, however, was merely a computer, an idiot savant — very good at performing its function, but lacking any single iota of imagination. It was CARETAKER's function to watch the sky during the long flights between suns, to remain ever vigilant for that one stray bit of energy that betrayed its creators as intelligent beings.

When it found one, it signaled PROBE awake. It had done so four times now.

The first sighting had come less than two hundred years into the mission, when PROBE was barely within its search area. Excitement welled up in its circuits like a nova sun. The excitement grew as it scanned the star in question, noting unmistakable signs of an advanced civilization. However, a quick check of the star's position showed it to be outside the narrow cone of space that marked PROBE's ability to maneuver.

That was PROBE's first great disappointment.

The next two contacts were no better. One was with a race on its way back to savagery, no longer able to repair the few machines that still operated. The other was sketchy and far out of range.

Now it was time to turn to Contact Number Four.

#

A single bright star loomed directly ahead on PROBE's predicted orbit. It was a yellow dwarf (GO spectral type) and close. In fact, too close. The star actually showed a visible disc in the multi-spectral telescopes.

The realization of the star's proximity sent PROBE's damage control circuits surging. To come so close and not wake until the last instant suggested a serious component failure. When the damage control report came back negative, PROBE resolved to look elsewhere.

The problem was quickly located in the memory banks where ten thousand years of systematic observations of the heavens were stored. A hundred years earlier, while still ten light-years closer to the galactic core, CARETAKER had detected a pattern of sinusoidal electromagnetic radiation emanating from the vicinity of the yellow dwarf.

CARETAKER had taken a disgracefully long thousand nanoseconds to recognize the incoming signal for what it was. Then the analysis had taken more precious time. The signal was taken apart and its various parts were studied singly and in groups: amplitude modulated . . . mid-communications band . . . a raster pattern of parallel lines . . . high and low intensities that formed a two dimensional array when arranged in proper sequence . . .

Clearly, CARETAKER had intercepted a primitive televid signal.

Such an event should have brought PROBE to wakefulness in short order. However, the very capabilities that rendered CARETAKER immune to the senility that strikes between the stars also made it a bit too literal in its interpretation of orders. The quality of the contact had been disappointingly bad. From the nature of the intercepted signal, it was obvious that the originating civilization was far below mission parameters of acceptability.

PROBE slept on.

The star continued to grow larger. Soon after contact, the telescopes were able to detect two of the system's planets, gas giants to judge by the interference lobes they cast on the star's diffraction pattern.

The signals grew vastly stronger with time. Much of the apparent increase was due to the lessened distance to the source. But not all. Some was due to an exponential increase in transmitter power level. It was a hopeful sign, but still insufficient reason for CARETAKER to wake PROBE.

Then the creatures that created the signals had burst out into space. As CARETAKER closed the distance to five light-years, the system of the yellow-dwarf came alive with primitive ships. By now, CARETAKER could see the outer gas giants directly and could infer the existence of at

least four other worlds closer in. The third out from the star was the primary source of the signals and the planet of major interest.

Finally, when the projected upward curve of the creatures' progress showed they would reach minimum acceptable standards within a few decades; CARETAKER judged the time to be ripe.

PROBE stirred from its slumber.

PROBE pondered these facts for nearly a second before deciding how to handle the new contact. True, the observed civilization was still a relatively crude one, but the speed with which it had moved into space was encouraging. The final decision to make rendezvous or not could be postponed for two-thirds of a year — not much time in which to gain an understanding of an alien civilization. Still, should the decision be a positive one, it would be better to be in the proper position for a minimum energy rendezvous orbit.

PROBE calculated the fuel required to perform the necessary midcourse correction. The drain on its precious reserves was minuscule, but increasing with every second it delayed. PROBE swiveled its body to point its booster at the yellow sun and slid protective shields over all exposed sensors.

There was a brief delay while PROBE double-checked its internal status. Everything continued to report "ready for acceleration." Then, for only the second time in ten thousand years, a tiny, powerful sun burst forth from PROBE's innards.

#

Independent Prospector Ship *Liar's Luck* fell through space near the edge of the asteroid belt as the strains of the Gilbert and Sullivan's *Mikado Overture* echoed through the control bubble. Breon Gallagher hummed in time with the music as she busied herself with the usual end-of-watch duties.

Brea was a tall woman of about thirty, with black hair sufficiently long to accent her femininity, but short enough to preclude its interfering with the neck seal of a vacsuit in an emergency. Her green eyes scanned the status screens, while long, thin fingers danced across the computer terminal built into her acceleration couch. On Earth, she would merely have been pleasant looking, pretty if you stretched the point. However, in the male dominated society of the Asteroid Belt, Brea was considered beautiful.

Her attire consisted solely of shorts and halter. She stretched her supple form against the restraining harness and reached around to scratch at an itch in the small of her back where the plastic covering made her sweat. Afterwards, she continued the check of *Liar's* major subsystems, calling up engineering displays for environmental control, fuel state, and power pod status. She noted that the carbon dioxide level in the living quarters was on the high side of tolerance and entered instructions into the ship's computer to reduce it.

Liar's Luck, like all ships of her class, was a modified dumbbell shape. Crew quarters and control spaces were housed in a ten-meter diameter sphere at the forward end of a thirty-meter long I-beam thrust member. Clustered around the thrust beam were cylindrical fuel tanks, each heavily insulated to hold the cryogenic hydrogen that fueled *Liar* at -270 degrees C. At the rear

of the ship was the power pod, a ten-meter hemisphere that housed the ship's mass converter.

As Brea punched up the display for power pod status, her gaze was automatically drawn to the scarlet point of light and accompanying readouts that measured the health of the tiny I-mass. The *I-mass singularity* was second cousin to a Hawking Black Hole, the answer to two of the most perplexing scientific mysteries of the twentieth century; and ultimately, *Liar's* primary source of power.

The singularity massed ten thousand kilograms and had a diameter of 10^{-13} angstroms. It was held in check by a strong magnetic field that had the secondary function of funneling charged hydrogen into the tiny bottomless pit's tidal region during periods of boost.

Brea studied the status graphs for thirty seconds before satisfying herself that all parameters were nominal. The converter was almost foolproof, but it never paid to be slipshod when dealing with something in which so many of the fundamental forces of nature were wrapped into such a tiny package.

She cleared the screen and turned her attention to the countdown clock. Still a few seconds to go yet. She settled back into her couch, brushed a strand of jet black hair from her eyes, and whistled off key as she watched the red digits blink down towards 00:00:00. In ten minutes, she would be off watch and it would be Bailey's turn to strap himself into the torture rack of the duty-couch while she headed for that shower she had been dreaming about for the last couple of hours.

The timer buzzed briefly in her ear, signifying that it was time to start the search for asteroid ALF37416, an undistinguished, unnamed hunk of rock that could (just possibly) make the two of them rich beyond their wildest dreams.

The music had entered *The Noble's Chorus* when Brea reached out to turn it off and unship the control stick. A quick press of her thumb on the jet control toggle and a twist of the control stick itself caused a number of things to happen in quick succession. She listened to the faint noise the attitude control jets made as they fired — the sound conducted into the control cabin through the metal of the hull. The stars began to rotate left-front to right-rear around the control bubble as Brea was tugged forward by a few-hundredths-of-a-gee acceleration.

Bailey's kinky hairdo, worry lined visage appeared on the intercom screen before her. As usual, he was in the galley. Of the two of them, he was the better cook by far.

"What's up, Brea?"

Her green eyes turned briefly to his image and then back to the artificial horizon display. She watched the imaginary plane of the ecliptic rotate past on the screen. She gave the control stick a backward twist and thumbed the jet switch again. The quiet hiss of jets rumbled through the cabin and died away as the stars ceased their lazy dance. The universe returned to the illusion of rock steadiness once more.

"Not to worry, Stinky. I'm just lining up for the visual search."

"Kind of early yet, isn't it?"

"Nonsense," she said. "We should have been able to spot the rock two hours ago."

“You know what I think?”

“No, but I imagine you’ll tell me anyway.”

“I think that old habits die hard and you just want to get your hands on a set of telescope controls again.”

She made the expected rude noise in answer to the not altogether unfounded accusation. *Liar’s* little scope did not hold a candle to the big “thousand meter effective” compound instrument at Ceres observatory, but it too was a precision instrument — of sorts.

“Care to make a small wager on your chances of success?” Bailey asked. She could almost see him rubbing his hands together out of the screen’s field of view.

She hesitated. In the three years since Greg’s death, Brea had learned her lesson when it came to wagering with Bailey. In many ways, he reminded her of her late husband. Greg had been something of a gambler too . . .

“What are the conditions and the stakes?”

“If you spot it before end-of-watch, I’ll take your turn cleaning out the recycling system next week. If not, you take mine in two weeks. Deal?”

“Deal!”

“It doesn’t count unless it’s old ‘Alfie-416’. How are you going to prove you won?”

“I’ll turn on the recorders and we’ll settle up when we get close enough for a naked eyeball ident. Fair enough?”

“Fair enough. Your dinner will be ready in fifteen minutes and I’ll be up in ten.”

“Yeastburger again?”

He made a show of sniffing at the air. “Either that or the head’s backed up.”

“Wonderful,” She said, switching off the intercom. Her face settled into a pensive expression as she wondered if Bailey had sandbagged her again. Bailey had been a prospector since before she was born — a difference in age she kidded him about on the rare occasions when loneliness drove her to seek companionship in his bunk — and if he thought they were too far out to see the rock, he was probably right. Still, cleaning the filters was the worst job aboard, and any possibility of getting out of it was well worth jumping at.

She let her fingers dance over the computer keyboard and listened to the high-pitched whine of the main scope being turned on its mounts. Within seconds, the image on the workscreen had steadied to show a section of the Milky Way in the Constellation of Aquila . . . and little else.

There was no telltale, misshapen speck of light among the crowded star clouds.

Brea swore softly under her breath and called for magnification. The scene swelled, with various fixed and charted stars moving out from the center and then falling completely off the screen. One point of light was dimmer than any star and hovered at the right edge of the screen. She stopped the expansion and coaxed the telescope a few seconds of arc to starboard. This was where things began to get tricky.

With no air to distort the image, a spaceborne telescope can theoretically operate at any level of magnification. There are limits, of course. There are *always* limits. In practice, the maximum resolution possible was a function of both the mirror's diameter and of how steady the telescope mount could be held. It was the latter effect that usually predominated.

As Brea watched, the tiny blob of light slowly drifted across the screen. Rotating *Liar* had changed the pattern of solar heating on the hull. The changing thermal stresses led to variations in the telescope mount that made it hard to hold the scope on center.

Brea struggled to hold the suspect point of light in the scope's field of view. When things had stabilized out, she punched for auto/suppression mode. The main viewscreen showed no change. However, the view on the small repeater screen beside her showed an immediate effect. The known and charted stars began to disappear as the computer wiped out the fixed landmarks of space one by one. It was an old Belter trick. Erasing the known stars from a visual made the rocks stand out that much starker.

She activated the video recorder and then zoomed the view once more. The tiny blob expanded into an image of a misshapen asteroid half in light, half in dark. The image itself was barely the size of a half decad piece, and reminded Brea of that classic first photograph of Deimos taken by one of the early space probes. The sun was at a good angle and even though the image was small, it was detailed enough to make future identification possible. Twice the image darted off the edge of the screen, quickly to be recentered as Brea wrestled with the scope stabilization controls. She held the scope centered for nearly half a minute before reaching over to snap off the recorder.

A spacer picks up careful habits if they live long enough. Where a groundhog would have left the record for later, Brea always checked and double-checked everything.

She called for replay.

There was the quick expansion of the zoom, followed by the jerky recentering of the asteroid image, followed by another quick zoom. Brea nodded in satisfaction. It was a good shot of the target.

She was about to reach up to turn the recorder off when a new star appeared on the screen. Apparently, she had missed its original appearance when the star field had cluttered the main viewscreen. Now, with only the asteroid image for competition, the newcomer stood out sharp and bright. She watched dumbfounded as it brightened over a period of ten seconds, until its apparent magnitude was nearly 2.5. Then, without warning, the star went out as quickly as it had been born.

Brea blinked, suddenly unwilling to believe what she had just seen.

"Well?" Bailey's voice asked, emanating from the intercom speaker. "Did you get it?"

Brea swallowed hard.

"I think you'd better come up here, Stinky."

"What's the matter?"

"I want you to look at the record I just made."

Bailey raised his eyebrows in a quizzical expression, but did not comment as he turned his back to the screen pickup and launched himself out through the galley hatch. Five seconds later his two-meter long, muscular body popped out of the hatch at her side. As usual, he wore a faded red jumpsuit unzipped to the chest. She could see the forest of silky gray hair entwined in the Velcro and contrasting sharply with the mahogany skin beneath it. He pulled himself into the other control couch and strapped down.

Brea finished resetting the recorder and pressed the playback control. She remained mute as Bailey watched the whole sequence unfold again. Bailey said nothing, but reset the recorder after the scene had played itself out. He viewed the record a second time before scratching at a three-day growth of beard.

"What is it?" Brea asked.

"Don't know," he said. "It sure isn't sunlight reflecting off a rock beyond '416. The color's all wrong."

"Besides, we're practically out of the Belt now. There's nothing big enough or shiny enough to catch the sun like that out there."

"Maybe two smaller rocks went crunch and vaporized each other."

Brea hesitated, unsure of how to broach a taboo subject among prospectors. "Do you think it could have been a ship?"

Bailey considered it for a moment before nodding. "Could have been. It is too violet to be a normal drive flare. I've never heard of a mass converter blowing up, but I guess it would look something like that if it did."

"What do we do?"

"We report, of course. If it was a miner's boat, the expanding cloud of monatomic H should stand out like a sore thumb to a search scope. Besides the possibility of survivors, there is always the I-mass to consider. Salvage of an already energized singularity will bring a lot of decads."

"Can we line up on Ceres close enough to get a radio message through?"

"No need. Where is that PE cruiser that was in conjunction with us last week?"

"*UNS Valiant*? She should be a few million kilometers foreorbit and sunward from here."

"Get her on the horn and transmit a copy of this record to them. When you get the cruiser, suggest that they start a visual search and tell them we will do the same on the emergency frequencies. If anyone survived, we should be able to pick up his or her emergency beacon. If not . . ." Bailey let his expansive shrug complete the sentence. If there were no survivors, or if there were and their suit emergency beacons had been damaged; then it really did not matter.

#

Sir Harry Gresham, Sky Watch Administrator, Overseer of space traffic throughout the solar system, Protector of Planet Earth (at least insofar as the continuous watch for meteors large

enough to cause significant damage was concerned), drummed his fingers on his desktop and considered his future. After thirty years of politicking his way up the ladder of success in the UN Bureaucracy, he had come to what appeared to be an insurmountable obstacle. Sky Watch Administrator had seemed a good career opportunity at the time he had taken the job. Now, however, he was not so sure.

For one thing, being four hundred thousand kilometers from UN Headquarters limited his access to the men who held his fate in their hands. Like a provincial Baron of old, the mere fact of distance tended to place him at a disadvantage in the never-ending struggle for promotion. Besides, Blanche did not like the small town ambiance of life aboard *Galileo Station*. She was forever nagging him about obtaining a position in New York. She claimed she would not even mind his taking a step down in such a transfer, but he knew differently. Blanche enjoyed being “The Colonel’s Wife” and would never let him forget the loss of status that would accompany demotion.

No, his only solution was promotion to the UN Policy Committee, the next step up for any ministry-level bureaucrat. Unfortunately, the Promotions Board was top heavy with scientific types this year. A mere civil servant had little or no chance of attracting their attention. Now, if Gresham had taken a technical course of study at University rather than political organization, or if he had written a scientific paper of note, it might have been a different story entirely. As it was, it looked like permanent exile for him.

He sighed and punched up the morning report. He scanned over the usual garbage, things like young Esterhauser complaining that he needed more photo-interpreting equipment, or old Max Ravell complaining that the backup computer had been down for ten minutes again on Thursday. Some things were eternal in this universe. One such was that a department head was never satisfied with the resources you provided him.

The maintenance report was one bright spot in the sea of complaints. Maintenance was Fusako Matsuo’s bailiwick, and she had it running like a well-oiled machine. Preventative maintenance was nearly a week ahead of schedule this quarter. He made a note to stroke Fusako’s ego by giving her another letter of commendation for her personnel file.

Finally, he turned to the Anomaly Reports for the previous twenty-four hours. There were not more than half a dozen. Most were the normal clutter that Sky Watch always picked up. Three involved Peace Enforcer vessels on maneuvers; two were merchant ships that had deviated from flight plan without reporting that fact. The latter would receive routine citations and fines.

His gaze fell on the final AR: “Unidentified Incident of Radiance at 1925 Right Ascension, -00.05 Declination.” On a hunch, he called up the report reference. The screen flashed through a rainbow of colors — indicative of a video recording about to start — and then settled down to the absolute black of space punctuated by a spectacular cloud of stars.

A new star suddenly appeared near the edge of the screen. Gresham would not have noticed it at all except for the red rectangle the computer used to highlight it. The speck of light persisted for exactly 9.85 seconds and then winked out. Gresham frowned and punched for replay. Half an hour later, he was still ignoring all the CALLS PENDING signals on his desk and watching the playback for the twentieth time. He whistled while he watched.

If he played his cards right, “Unidentified Incidence of Radiance” just might be his ticket home!

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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.