

EUCLID'S WALL

(A Novel)

By

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Definition: Plane (pla_n) n. [Lat. planum, flat surface < planus, flat.] In Euclidean geometry: 1) A surface containing all the straight lines connecting any two points on it; 2) A two dimensional surface defined by three points, extending infinitely in all directions.

—Quoted from Webster's New University Dictionary, last edition.

Prologue

“Ready to make history, Stinky?” Rachel Anderson, Ph.D., asked from her workstation in the Advanced Energy Research Laboratory in the hills above Palo Alto, California.

“Damned right!” her research partner, Benjamin Carter, Ph.D., growled as he perused computer screens before him.

The room in which they sat was surrounded by crinkle-chrome magnetic shielding. The furniture was government-issue plastiform. On one of the work tables sat a battered coffee urn, and next to it, a wire rack from which hung several stained cups, including one with a chip missing from the handle. The latter belonged to Dr. Carter. Below the cups, the table’s mirrored surface glistened with a scattering of sugar crystals.

Behind the coffee table towered a large Faraday cage designed to contain the lightnings they were about to unleash. A dozen silver cables as thick as a man’s thigh ran the length of the U-shaped open mesh tunnel. The cables connected the magnetic concentrator to the fusion generator buried in bedrock more than a kilometer below.

If this experiment went well, the goal Anderson and Carter sought would be one step closer to reality. They would prove the feasibility of tapping into an energy source both infinite and eternal.

They would be that much closer to harnessing the energy of space itself.

* * *

In 1930, British physicist Paul Dirac postulated that the vacuum of space is far from empty. Rather, he theorized, the cosmic vacuum is filled with a seething mass of particle-antiparticle pairs which flash into (and out of) existence so quickly that they do not have a chance to annihilate one another.

That this silly idea was not rejected out of hand was testament both to Dirac’s genius and the numerous experiments that confirmed his insight. Because the frothing sea of particle-antiparticle pairs cannot be seen, they were dubbed *virtual particles*.

Virtual particles define the very fabric of space. There are so many that their energy is effectively infinite. These tiny particles represent the ground state for all the energy in the universe. For this reason, the phenomenon was dubbed *zero point energy*.

It is a widely held myth that civilization runs on energy. In reality, it runs on energy differential. To do useful work, one must obtain power in a high energy state, extract whatever percent you can, and then reject the remainder to a low energy state. Just as a waterwheel works when water from a higher elevation is transported to a lower elevation, so too does every other generation method conceived by man.

The problem with zero point energy is that there is no lower energy state to which the used energy can be dumped. Therefore, while zero point energy has vast potential, there is no way to tap that potential to do useful work.

Anderson and Carter were both astrophysicists. Their studies of supernovae convinced them

that a sufficiently strong magnetic field, suitably focused, would break down the energy potential that separates our universe from the infinity of other universes postulated by superstring theory and its successors. The existence of these other universes, while theoretically elegant, had never been demonstrated by experiment.

Anderson and Carter were about to correct that oversight.

* * *

“How is the reactor performing?” Carter, a large gangly man with bushy silver hair, asked as he gazed at his synoptic diagram of the magnetic concentrator.

Rachel Anderson was a small woman with mousy brown hair styled in a pageboy bob. “We are at standby. All readouts are in the green. All heat pipes are online and ready to begin cooling.”

“Is the evacuation complete?”

“The computer says the building is clear. Phelps left about ten minutes ago. All doors and windows sealed. We have achieved total magnetic isolation.”

“We’d damned better have achieved it,” Carter responded. “The field will be powerful enough to magnetize our red blood cells otherwise.”

“Stop worrying, Stinky. Let’s crank this thing up and see what it will do.” Of the two of them, Rachel was the more adventurous, one reason she was in the second chair today rather than the first.

“All right,” Carter said, watching his screens. “You do the honors.”

Rachel made sure the recording icon on her screen was green, then announced in her best lecture hall voice:

“Experiment One Seven Five, Palo Alto Advanced Energy Research Laboratory. Time: 11:57:08, 25 August 2087. Experimenters: Dr. Benjamin Aloysius Carter, Lead; Dr. Rachel Foley Anderson, Associate Investigator. This will be our first run to full power. Experiment begins... NOW.”

“Unlock the power switch and bring the reactor online. No more than ten percent power to the concentrator.”

“Ten percent. Yes, Master.”

She reached out, inserted an old-fashioned key into a rotary lock and turned it. Even as she did so, she wondered what antique store they had gotten it out of. Next, she pressed a switch. The heat of her finger illuminated a red light within the control.

Immediately, the floor began to vibrate.

“You sure you got that thing properly aligned?” she asked Carter. “It shouldn’t shake like that.”

Carter scanned his diagrams. The concentrator was submerged in a sea of liquid mercury, its buoyancy counteracted by a dozen spindly rods carefully tuned to prevent the transmission of vibration. To minimize all external effects, the magnetic poles of the field were aligned on a

precise north-south axis.

“Must be a fluke in the dampers. I don’t think we’re generating enough back-EMF to make them effective yet. Let’s go to 25 percent to see if that solves the problem.”

“A quarter it is,” Rachel responded.

The vibration ceased almost immediately. An eerie quiet descended on the laboratory.

“Okay, everything seems stable,” Carter said, scanning his readouts. “Bring her up to fifty percent. Gently now.”

As Rachel slowly moved her cursor up the power scale, she watched the readout for reactor power. The bar lengthened to the midpoint of the display and changed from green to yellow. She eased back on her control.

The power continued to climb.

“Damn it, I said fifty percent!” Carter yelled.

“That isn’t me. The damned thing is resonating on us.”

“Okay, pull back the power.”

“No effect,” Rachel answered, her voice an octave higher than normal.

“Stand by; I think we’re going to have to shut down. Magnetic field intensity just went out of range on the high side.”

“Shall I scram the reactor?”

“Negative. Look at the energy. You interrupt the circuit now, it’s going to vaporize us, Palo Alto, and possibly the better part of the Bay Area. No, we’re going to have to coax this one down by hand. Prepare to switch polarity when I tell you to.”

“Right, Stinky,” she said, reaching out to let her finger hover over the control square next to the one she’d just pushed. “Ready, on your command.”

Carter switched the computer from automatic to manual. The field continued to build. With his instrumentation out of range, it was impossible to get accurate figures on the level.

He screamed, “Reverse polarity, now...”

* * *

The Duchy of Hampshire



Chapter 1

Captain Ethan Scott sat in his cabin and pored over the navigation chart showing the Celtic Sea. The chart covered the southern coast of Eire from Ciarrai to Rosslare. It had been copied from some old encyclopedia or map. In addition to fathom markings, it displayed useful navigation reference points. Sprinkled across the chart were a number of crosses that marked the resting spots of ships sunk during the world wars of three centuries past.

Fifteen miles to the north was the *Llandovery Castle*, a hospital ship torpedoed in 1918 by a U-boat that had then surfaced and rammed the lifeboats. Seventy miles northeast, *RMS Lusitania* was on the last leg of its voyage when German submarine U-20 fired its last remaining torpedo. Struck amidships, *Lusitania* sank in 18 minutes with the loss of 1200 out of the 2000 souls onboard.

Tales of the sea had always fascinated Ethan Scott. He'd learned of both disasters as a boy from a water-stained book salvaged from the ruins of a Devonshire library. He remembered wondering how the ancients could have been so cruel to one another considering the high level their civilization had attained. Like most boys, he often daydreamed of living during that golden age, or the even greater one that followed.

What he never expected was to one day find himself in the same position as the *Lusitania's* captain.

Scott's ship was the 2000-ton, 200-foot sailing barque *Hellespont*, currently en route from Oslo, Kingdom of Norway, to Southampton, Duchy of Hampshire. His cargo was a premium load of timber bound for the Duke's shipyards. They were also carrying various naval stores, including turpentine, tar, and pitch.

The direct route would have been down the Skagerrak, across the Jutland Bank, straight south across the North Sea (threading their way among the tangled wrecks of oil drilling platforms), and then down the English Channel to the Solent and the approaches to Southampton.

The trouble with the direct route was that his ship would never have made it. Somewhere along the European coast he would have encountered a Norman battleship and his proud craft would now be flying the Crescent and Fleur-de-lis.

Ever since the Duke of Hampshire and the Calife de Normandie went to war over Guernsey and Sark, ships plied the channel in heavily guarded (and heavily taxed) convoys. Not wanting his profits this trip confiscated in payment for the Duke's 'protection,' Scott chose the long way round to deliver his cargo.

Upon clearing the Skagerrak, he sailed west for the Faroes, turned sou'sou'west to give Eire a wide berth, and then turned back southeast to round Bantry Bay and make directly for the Scilly Isles and Lands End.

Here, passing south of County Cork, his ship had entered the unavoidable area of maximum risk. Like the captain of the *Lusitania*, there was a non-trivial probability that he would encounter an enemy raider.

No sooner had the thought formed than a cry of, "Sail Ho!" filtered through his cabin's open skylight.

The cry triggered a rush of adrenaline. Scott's inclination was to rush up on deck to see for himself. He restrained the impulse. One of the most iron laws of the sea was that the captain must remain unperturbed even as his ship is being dashed against the rocks in a storm. As anxious as he was for news, he willed his hands to continue marking the day's progress on the chart in front of him. Ten minutes later, his patience was rewarded. There came a knock on his door.

"Enter."

The door opened and in strode his first officer.

"What is it, Mr. Wingate?"

"Sail on the horizon, Captain, nor'nor'east. The ship is still hull down, but she's probably Norman. She changed course toward us as soon as we spotted her."

That news was as unwelcome as it was expected.

"Any idea of her rate?"

"Not a battleship, sir. She's only showing two masts. Probably a brigantine. I'd say privateer or pirate."

Scott nodded. While bad, the news wasn't the worst possible. If they encountered one of the Calife's first line units, their only hope would be to flee. Barring that, they would have to strike their colors. A privateer they might fight off, and if that proved impossible, they could always surrender. A pirate in Norman employ was a different matter. While a privateer would seize his ship and imprison his crew, a pirate would merely kill them all before sailing off with his ship.

"Break out the Long Tom and rig it out to port. I will be up presently."

"Aye aye, sir."

Scott sat in his chair for five minutes more to polish the myth of the imperturbable captain. As he did so, he let his eyes scan the chart. If the enemy was coming down from the north, she was probably out of Cobh. That was where the Calife's raiders were based in alliance with the Eirish.

Cobh was a thorn in Hampshire's side. The deep water harbor there was the best in Europe and had been the home of the old Irish Navy.

Finally, Scott scraped his chair back from the chart table and stood.

The wind was up today and they were on a beam reach, causing *Hellespont* to heel to starboard. That meant the unknown coming toward him was running before the wind and could out sail him.

The iron logic of the situation required that he either fight or flee southward. Diverting south would make it devilishly difficult to steer back to Southampton. He didn't relish spending two weeks beating his way north again just because he'd fled at first sight of a strange ship.

He slipped into his heavy coat and then retrieved a key tied to a string around his neck. Kneeling before the strong box bolted to the deck, he used the key to open the lock.

Nestled inside, padded by strips of cloth, were a second box and a book wrapped in oilskin. The box was wooden and polished, with a long strap attached. This he slipped over his head before reaching for the book, which he deposited in the capacious right-hand pocket of his coat.

* * *

Scott's coat and hair were immediately plucked by a brisk wind as he came on deck. He climbed to the quarterdeck where the First Officer was stationed next to the helm.

"Where away, Mr. Wingate?"

"Just abaft the beam," Wingate responded. Around his neck hung the ship's binoculars, an expensive pair with *U.S. Navy* proudly embossed on the prism cover. They were not the most expensive antiques onboard, but their loss or damage would leave an officer in hock for the next several voyages. As soon as the captain appeared, Wingate lifted them off and held them carefully with both hands until Scott relieved him of his burden.

The captain put the strap over his own neck, and then climbed to the weather-side railing. *Hellespont* was trimmed for the condition of the wind. Her mainmast and foremast courses were gasketed to their yards, and only top sails and t'gallants were deployed. The spanker was trimmed out and heavily bowed by the wind. Two jibs were full taut forward.

The ship was heeling eight degrees starboard and doing slow rolls of five degrees either side of that value. After a life at sea, Scott instinctively braced his feet, wrapped one arm around a handy line and lifted the binoculars. After a quick search, he had the enemy ship in his field of view.

As the First Officer had said, it was a two-master, a brigantine. It was just coming hull up, which placed it about five miles off. It could have been anything — a coastal freighter, a courier, or a deep sea fisher. However, the fact that it had immediately turned toward *Hellespont* made it a warship. Nor was it likely any Hampshire brigantine would be this close to Cobh, and if it were, it would steer clear of any and all ships it encountered.

That made it either Eirish or Norman, and while the native Celts had no love for Hampshire or its Duke, they were in no position to provoke their powerful neighbor. Simple deduction made the intruder a Norman commerce raider. Nor did it matter if the deduction was wrong. His actions would be the same regardless of the ship's identity.

Satisfied that they were facing an enemy, Scott lowered the binoculars and waddle-walked his way back to where his first officer stood braced against the ship's motion.

"You'll have the conn, Mr. Wingate, and I will be forward with the gun." He handed the binoculars back. "Muster all hands. If we need to run, we'll want the sails reset as quickly as we can manage."

"Aye aye, sir."

In addition to Wingate, the quartermaster and his helper gripped the wheel and a young

pimple-faced boy in an officer's uniform stood to one side. Scott turned to him.

"You my talker, Mister Ralston?"

"Yes, Captain," the boy said, his voice breaking on the first word.

Scott smiled. "Nothing to be nervous about. We're just going to give him a demonstration of why he should leave us alone. Get your speaking gear on, listen carefully; repeat my orders in a loud, clear voice and you will do fine."

"Aye aye, sir."

With that, Scott nodded to Johnson and Feld, the two steersmen, turned and descended the ladder to the weather deck. From there, he continued his descent.

One thing about a ship at sea, he mused, was that its decks were cluttered. In addition to the forest of ropes and lines for the rigging, all of which had to be tied off somewhere, there were the ship's boats hanging on their davits, tucked in and tied down to prevent damage in heavy seas. There were the many ventilator funnels, the cook fire smokestack, and a plethora of other things to take up valuable deck space. And then there was the cargo.

The shorter timbers from Norway had been laboriously passed down through both forward and aft hatches and were lashed in place in the hold below. However, the most valuable cargo, the big square-trimmed trees destined to become masts and yards were too large for the hatches. These had to be carried in the ship's waist, lashed to temporary scaffolds in every available corner.

Scott had loaded as many large timbers as deck space and the ship's stability would allow. As a result, the best route forward was below decks, through the crew's mess. Though the First Officer had not yet given the order for the crew to assemble, Scott found most of them already there.

As he walked forward with his wooden box, he nodded to the men. They had all heard the 'sail ho' cry and the order to mount the Long Tom. He found them too nonchalant for his peace of mind. One senior seaman, Thaddeus Long, asked, "We going to fight, Captain?"

"Hope not," he replied. "We're just going to give them something to think about."

When he reached the foc's'l, he mounted the ladder there and reemerged into the wind. Onboard *Hellespont*, the foc's'l was nearly as tall as the quarterdeck. As Scott clambered up, he came upon a flurry of activity.

Six sailors were rigging heavy chains to a squat iron frame midway between foremast and bowsprit. One end of the chains hooked to the iron platform that surmounted the structure, and the other to heavy rings screwed into the ship's heaviest beams. The sailors were tightening the turnbuckles with six-foot-long iron bars, pulling them as taut as one man's strength could manage.

The working party then moved en masse to the watertight locker on the port side. There they removed bronze bolts securing the lid, and opened it to expose a long metal tube cradled within. Two of them maneuvered a hook over the box, attached a lifting chain, and then heaved

together. Slowly, with fits and starts, the ship's armament rose into view. Its course through the air was guided by two additional seamen pulling lines to keep the load from swinging.

The cannon had begun life in the mid-twentieth century as a 105-millimeter piece of field artillery. It was a howitzer, and thus, despite the sobriquet of "Long Tom," wasn't really that long. Salvaged from the rubble after the Destruction, it was modified for shipboard use by the addition of a pair of trunnions mounted on heavy iron rings. Only seventeen feet long, the gun weighed one ton, and was dainty compared to some of the cannons that graced the sailing ships of an earlier era.

The two seamen on the guide lines maneuvered it into its cradle with the skill of long practice. The final pair of seamen quickly tightened up the clamps that made it one with the firing stage. When they finished, the cannon's barrel pointed off to the north and its breech overhung the firing stage to the south.

As old as it was, the gun was better than anything that could be produced today. Even when used with the inferior propellants available, it could reach out to the horizon, a capability that Ethan Scott was about to demonstrate to some unknown Norman raider captain.

* * *

"Afternoon, Master Gunner!"

"Afternoon, Captain," Chief Standish replied.

"Feel up to ruining some Norman's day?"

"We're going to try, sir. Do you want to fire manually or electrically?"

"I don't want him to get close enough for a direct shot. We'll fire electrically as a demonstration. Rig the mercury switch and the battery. Zero the mercury switch at negative 8 degrees tilt. Once we have the range, we'll wait for a trough and fire on the up roll."

"Aye aye, sir."

"Kranker!"

"Aye, Captain."

"You and Bidwell are the powder monkeys. Get me two charges each. Use the aft passageway and, for God's sake, don't go near the galley stove. Souter, I want four shells stacked over there," he said, indicating a grate forward of the firing position. On the double!"

"Aye aye, sir," came three simultaneous responses.

While Standish went to the forward locker to obtain the electrical gear, Ethan Scott moved to a glassed-in case. He fished the book out of his pocket and set it under the glass cover before unwrapping and securing it with two brass hold downs. He then carefully removed the strap from around his neck, fit the wooden box into its clamps, and opened it.

Inside was a wonder from another age. On the side, in slanted gold text, were the words BUSHNELL RANGEFINDER 4000. Beneath was a warning in bright white letters on a red background: *Caution! Staring into the laser will cause blindness.*

Outwardly, the device looked like half a binocular. A long twisted pair of wires extended from its side. These were obviously a recent modification. The wires were wrapped individually in strips of linen covered with varnish. The rangefinder had its own carrying strap, which Scott secured around his neck before plugging the wires into the battery Standish had secured to the deck. Another wire ran from the box to the mechanism the gunner was mounting to the firing stage.

“Ready for electrical firing, Captain,” the gunner said just as a green light illuminated on the rangefinder.

“Very good, Master Gunner. Get a round into her.”

Standish issued orders and Souter shoved a 4-inch diameter projectile into the open breech. He pushed it into the barrel with a small rammer.

“All right, we wait,” Scott announced. The raider was still beyond the range of his instrument. He lifted the rangefinder’s eyepiece to his own eye and centered the enemy ship in the crosshairs. With ten power magnification he could make out the Crescent and Lily on the mainsail.

“She’s Norman, all right,” he announced.

As they waited, Chief Standish climbed into the firing saddle and cranked the barrel into alignment with the target. “Crosshairs pass right through him on every roll, Captain.”

“Keep on target, Chief. I’m turning the ship to give you a better angle.” He picked up an instrument that looked like an ancient telephone, but which was connected not to wires, but a pair of flexible tubes that disappeared into the deck. “Are you there, Mr. Ralston?”

“Here, Captain,” the youth replied with surprising clarity even though his words had a hollow echo to them.

“Tell the helmsman to bring us one point to port.”

“One point to port, aye,” the distant voice responded.

Scott watched as the wan sun moved in the sky, causing the forest of fuzzy shadows on the deck to shift in unison. They were now trending north, closing with their enemy more quickly. However, the maneuver had put the enemy ship on their beam, giving the Long Tom more sweep of azimuth before it ran into the ship’s rigging. Also, there was less chance of the muzzle blast impinging on delicate lines or cables.

“Helmsman reports maneuver complete, Captain.”

“Very well, Mr. Ralston. Stand by for further orders.”

Another ten minutes passed, by which time the raider’s insignia was clear to the naked eye. Judging that the time had come for action, Scott lifted his instrument and centered the crosshairs on the enemy’s mainsail. He pressed a stud and was rewarded by the sight of a small red dot reflecting back at him. The rangefinder emitted a beep.

Releasing the stud, he lowered the device and read the digital display. “Three thousand four hundred yards, Master Gunner.”

“Aye, Captain.”

Scott strode to where the book still rested beneath its covering of glass and quickly flipped pages until he found the column of numbers he was looking for. Using his finger to mark the intersection between the row and column headings, he raised his voice and said, “Two bags of powder. Elevate gun to 28 degrees relative to the stage.”

There was a quick flurry of activity as Seaman Kranker rushed forward and rammed two dirty socks filled with powder into the open breech, tamping them forward to rest against the base of the projectile. He then rotated the breechblock closed and secured the locking handle.

“Ready to fire,” he announced loudly as he backed out of the recoil zone.

Chief Standish watched through his telescopic sight as the enemy ship once again transited the crosshairs, then stood back with a large red pushbutton in his hand.

“Alignment dead on, Captain.”

“Very well. Wait for it...” Scott waited for *Hellespont* to complete its roll to port. As soon as it began moving back to starboard, he yelled, “Fire!”

Standish pushed the red button. Nothing happened for long seconds. Then, as the box containing the mercury switch rolled level, the gun emitted a loud boom and bucked backward.

The shot was accompanied by an acrid cloud of powder that blew back on them and then was gone with the wind. The noise rumbled their chests and deafened their ears. Scott ignored the sensations as he lifted the rangefinder to his eye.

Long seconds passed before a plume of water erupted in front of and to the left of the oncoming raider. It looked to be only one hundred yards off target.

“Damned good shooting!” he yelled to make himself heard over the ringing in his ears. “Reload. We’ll try to make him shit his pants with the next one.”

The gun crew jumped to swab out the breech with a wet mop, then rammed another projectile and two bags of powder in before closing the breech.

“No need, Captain,” Standish reported as he reacquired the target in his telescopic sight.

There had only been a dozen books in the small hamlet where Ethan Scott grew up. In addition to the one with stories of the sea, there had been a picture book of African animals. The book was a favorite of all the young girls, and therefore, of interest to the young boys. Scott had read that, too. He was reminded of a picture in which a gazelle had been caught in mid-leap, running from a lion. The animal’s leap into the air had been higher than needed to make its escape. The caption explained that individual gazelles did this to demonstrate their athletic ability to lions. In effect, they were saying, “Go eat someone else. I’m too hard to catch.”

That was just what *Hellespont* had done. They’d demonstrated they were too well armed to be captured by a mere brigantine. After one shot, the enemy commander ordered his ship to veer off. He was now on a non-intersecting course.

“Stay at your posts for the next hour,” Scott ordered. “If he doesn’t come about by then, unload and dismount the gun, oil it down, and pack it away. I will be in my cabin.” He gave similar

instructions through the speaking tube to the helmsmen at the stern.

He repacked the rangefinder in its wooden case, taking great care to wipe spray from its exterior and lens before returning it to its soft bed. Next to the cannon, the laser was the most valuable object aboard and even more irreplaceable. How the ancients managed to invent such a wonder, he knew not; but their wizardry had probably saved his ship today.

He wrapped the book of firing tables in its oilskin cover and slipped it back into his coat. Turning, he made his way past the foremast and down the ladder, treading carefully with his precious cargo. He had already put the skirmish out of his mind. He was wondering instead how he was going to tell the owners that he had fired one of their valuable hand crafted projectiles.

* * *

Chapter 2

Hellespont entered the Solent, the channel between the Isle of Wight and Hampshire, about midnight on the third day after their brush with the Norman raider. By dawn, the ship was off the ruins of Calshot Castle. For the next three hours, Ethan Scott used a northerly wind to tack his ship back and forth between the three barriers that barred free entry into the Hampshire Estuary. The barriers were not a defense against the Normans, although the small forts on the great stone quays performed that function admirably. Rather, they were a defense against a far more powerful enemy.

On August 25, 2087, the 150,000-ton cruise ship *M.S. Queen Victoria III* departed Southampton, outbound for a Mediterranean cruise. The ship turned around at dusk after receiving panicked reports of massive earthquakes all across Europe. By early the next morning, she was en route to her home berth when a tsunami, having crossed the Atlantic from North America, entered the English Channel.

A tsunami, or harbor wave, is generated when a seismic event causes vertical displacement of the ocean floor, a movement that produces a wave capable of crossing between continents in a matter of hours. In deep water, such waves are virtually undetectable. They have crests only a few feet high with wavelengths measuring a hundred miles or more. However, when they reach the shallows these long, flat waves slow down and build in height until they are transformed into monsters capable of devouring entire cities.

Queen Victoria was at Netley, halfway up the channel, when the first wave entered the restricted water of the Solent via Spithead. It built in height while in the channel and grew again as it entered the estuary. If any tourists were drinking their early morning coffee overlooking the fantail, they probably noted the fast moving black line coming up the channel behind them. With horrifying swiftness, that line grew into a wall of water one hundred feet high that traveled at 80 miles per hour.

The wave smashed into *Victoria's* stern four minutes later. It overtopped the uppermost deck and submerged three quarters of the ship in seconds. With the superstructure crushed by thousands of tons of rushing water, *Queen Victoria* broached and then capsized. During the journey to her final resting place, she rolled completely over at least twice, shedding two of her massive engines in the process. She was finally deposited more than a mile inland. None of the ten thousand souls onboard survived.

The broken Queen of the Seas lay on her starboard side for more than a century. For most of that time, she was the Duchy's principal source of iron. At first locals gathered up errant pieces of the ship, and then began to saw away at the hull. The two separated engines were dug out of the mud and put to work in the powerhouse of Hampshire Castle. There they provided electric lights and powered both the nearby foundry and the armory.

However, the corpse of the cruise ship, broken and mangled as though twisted by a giant's fists, was but an afterthought compared to the destruction that began ten hours earlier.

The first quakes started at 19:03, August 25, just at sunset. The computers of the British Geological Survey recorded the shaking automatically and judged the quakes' power at

somewhere above 9.5 on the Richter scale. Of course, it would be decades before anyone discovered this fact. Those who survived the initial temblors were too busy staying alive to worry about the magnitude of the disaster. Besides, they had no need of machines to judge the extent of the destruction for them. Their own eyes provided all the evidence they needed.

Despite two centuries of ever stricter building codes, fully ninety percent of the buildings in England collapsed in the first five minutes. Fire followed. When the waves arrived the next morning to sweep away hundreds of seaside villages and towns, there was little to inundate save for burning piles of rubble and frantic family members digging in mounds that had once been their homes.

Nor did the initial cataclysm cause the worst destruction. Nearly every volcano on Earth chose that same time to explode to life. Of local interest were the fire-belching mountains of Iceland. Most of that island's population died in the first few hours.

By the end of the first day, the shaking had largely subsided and people began to pray that the worst was over. Their prayers proved premature.

By the fifth day, volcanic ash blocked out the sun. For the next eight months, Europe was held in the grip of perpetual darkness. So much ash fell that it seemed winter had come early...

And winter did come early.

The temperature quickly dropped to below freezing and stayed there. Famine followed, especially in the hell that was London. Conditions were not much better in the rest of the island.

Eventually, the skies cleared and humanity got a look at their new slate-gray world. What they discovered was that fully ninety five percent of the population lay dead in the rubble. And so it was that the High Civilization fell, not from the atomic monster they had feared for so long, but in a single titanic convulsion, the origin of which was a mystery to most...but not to all.

* * *

"Western Docks in sight, Captain," Garth Wingate announced just before eleven.

"Very well, Mr. Wingate. I will be up presently."

When the mate left, Scott continued writing his final log entry for this voyage. Save for their one brush with disaster, the trip had been largely uneventful.

The problem was that encounter.

Though the war had driven shipping rates through the overhead, how many trips between Norway and Hampshire would be required to pay for the loss of the ship? Nor was there a modern equivalent to the fabled Lloyds of London to abate the risk by spreading the loss.

The question, therefore, wasn't whether the just completed voyage had been risky. Every ship that put to sea took a risk. The question was whether the current war made the prize unworthy of the struggle.

The Duke needed ships and his shipwrights paid handsomely for prime timber. The trade was based on the fact that even a century of growth after the Endless Night had not replenished England's greenwood sufficiently for the Navy's needs. Luckily, trees grew faster in Norway.

But voyaging anywhere near France or Eire was becoming too damned risky. Yet, where else could he take *Hellespont* to clear enough profit to justify a voyage?

Perhaps the Mediterranean. Normandie had not yet extended the *Ummah* as far south as the Cote d'Azure. There were the pirates of Gibraltar to be dealt with, of course. Even more than the Norman raider, they were sensitive to persuasion by Long Tom. Generally, pirates would not attack a well-armed ship unless they had a three-to-one advantage.

A voyage to Sicily carrying pig iron outbound and Sicilian wine back could turn a handsome profit. Also, the Mediterranean was less subject to the massive rogue waves that periodically rolled ashore from the Atlantic. Neither Etna nor Vesuvius had erupted in his lifetime despite both spewing vapor and smoke continuously.

He finished his log entry and soaked up the excess ink with his blotter. Reading over what he had written, he made a couple of corrections in the margin, blotted again, then closed and latched the leather bound book.

He stood, stretched, slipped on his uniform coat, then left his cabin and headed for the quarterdeck.

"We'll be at the docks in twenty minutes, Captain," Garth Wingate said as Scott joined him.

Once again, *Hellespont* was under topsails, jib, and spanker. Scott moved to the windward railing and gazed out over the city. Like all post-catastrophe cities, Southampton had been rebuilt from the ground up. They were abeam the Eastern Docks, where the *Queen Victoria* had been bound when she met her fate. Though the waves had wiped the wharf clean, the parallel concrete and stone quays and the large expanse of water between were still there.

Up the estuary was the new city that had grown atop the rubble. It was dominated by Hampshire Castle on the low hill in the center of town. The castle bore little resemblance to the medieval defensive structures of the same name. Those grand monuments to warfare were erected with stone and mortar. They had all collapsed when hit by the initial tremors.

Hampshire Castle was built in the modern style, which is to say, earthquake-resistant.

The castle sat on a framework of pilings driven into deep pits filled with loose gravel. The arrangement somewhat isolated the building from ground shocks. On top of the pilings the builders constructed a heavily braced frame. Around the exterior, long beams sloped downward in flying buttresses to brace the walls.

The town was built in the same style using the same materials. Each building was heavily braced and connected to its neighbors at base and roofline to obtain mutual support.

Scott gazed at the city that had been his home port for a decade. Everywhere there were signs of growth. Cranes overtopped the houses where something big was being built in the distance. The streets were bustling with oxcarts and carriages. The smell of coal smoke was adrift in the air; and to the west, he could see the tall masts of some ship nearing completion at the northern end of the estuary.

"It's good to be home, Mr. Wingate."

“It is indeed, sir.”

“Now, let’s see if we can get this ship tied up to the dock without scratching her. All hands on deck. Prepare for arrival.”

“Aye, Captain!”

Their approach to the dock was the usual bustle of men and sails. Scott ordered the main topsail backed to slow their approach. Then, while they were still moving forward against the stream, he had lines pitched to the waiting gangs on the dock. The lines were thin messengers, but soon the heavy mooring lines were paid out.

They lowered or furled the sails while still twenty feet out. The work gangs hauled at the mooring lines. Fenders went over the side, lines were wrapped around bollards, and the gangplank was secured. It was aft of its normal position because the waist was cluttered with deck cargo. Those aloft busied themselves gasketing the sails to their yards.

They finished tying up at noon, but weren’t through with customs inspection until fourteen. Scott and Wingate were standing at the top of the gangplank, having just seen their official visitors ashore. Scott turned to his first officer.

“Get her unloaded, Mr. Wingate.”

“Aye, sir.”

“Make sure the crane operators use double slings for every lift. If they drop just one tree through the deck, we’ll wipe out the profits for this trip. Once the holds are cleared, lower the long boat and tow her to her permanent berth. After that, appoint an anchor watch, pay the men their port stipend, and let them go ashore. Tell them not to get too drunk, though that advice will likely go unheeded.”

Wingate smiled. “If the past is prologue. Where will you be, Captain?”

“I have some calls to make. After that, I will be having dinner with the owners at Stafford’s Inn. I suspect we will then move to the Hare and Hound for some post-voyage celebrating. I should be back aboard before four bells in the first watch.”

With that, Scott returned to his cabin, stripped off his clothes, and gave himself a good scrubbing with soap and cold water. He slipped into his best uniform and cloak. The cargo manifest was still lying on the chart table where the customs’ inspectors had left it. He slipped that and a small ledger into his right inside pocket.

Kneeling, he fished his keys out of his shirt and opened the lock on his sea chest. Inside was his most prized personal possession, a Webley Mark IV revolver. Checking to see that the pistol was loaded, he eased it into the left inside pocket of his cloak. A knife went into the scabbard inside his jacket.

The Duke’s Constabulary was a fine force of men, but Southampton was bustling with all sorts, many of whom would not hesitate to knock him over the head in the dark and rob him. Ethan Scott had no intention of ending the evening bleeding, face down in a gutter, or possibly dead.

* * *

Chapter 3

The meeting with *Hellespont's* owners went well. Clive Harmon, the major stockholder, wore his usual pinched expression as he perused the ledger. That he was pleased with what he saw became apparent when his permanent scowl lightened a bit and almost became the hint of a smile.

Terence Cadwallader was more interested in hearing of the encounter with the raider. He, too, wondered if sailing in the war zone had become more risky than it was worth. Barnaby Dangel, the Duke's sycophant among the owners, met Cadwallader's fears with his usual derision.

Afterward, as predicted, the foursome moved to the Hare and Hound Pub to celebrate. The drinking went on longer than Scott would have liked, and only slowly did the owners beg their leave to stagger off to their wives and homes. Dangel was the last to depart, leaving Ethan Scott at the table alone with a nearly empty glass of scotch whiskey.

Lifting the glass to his lips, he let the last of the brown liquid slide across his anesthetized tongue, then gazed momentarily through the blurry lens of the bottom, before setting it down to scan for the middle-aged frump waiting tables.

The tavern was typical of waterfront establishments. Opposite the door was the rough plank bar, replete with a one eyed ex-seaman who tended bar and kept watch over the clientele. Several men were clustered at the bar or sat around the mismatched collection of tables. Most were local fishermen, judging by their clothes and accents, although the two at the far end spoke like men from Scotland. The two were haggling with a dirty-faced slattern and making little progress.

On the walls were faded photographs rescued from the rubble after the Catastrophe. These, too, were a universal constant among waterfront taverns. It was as though the world's barkeeps longed to be its museum curators.

The owner of the Hare and Hound favored hunt scenes, in keeping with the name of his establishment. Everywhere Scott looked, red coated men and women in white breeches sat astride sleek horses surrounded by fat dogs. He grimaced at the sight. Any dog that survived the collapse of the cities soon found itself in a stew pot.

He scanned the place, looking for the barmaid, only to discover her nowhere to be seen. That probably meant she was fending off questing hands in the back room. As though to confirm that fact, the murmuring conversations were interrupted by a sudden female squeal through the open door at the end of the bar. It was followed by hearty baritone guffaws.

Scott debated signaling the barkeep for another drink, then decided against it. Already the tavern had begun to sway as though in a light swell. It was time to call it a night while he could still navigate back to the ship.

A sharp intake of breath brought the pungent odor of fish, tobacco, stale beer, coal smoke, and the sweat of too many men too long between baths. The accumulated stinks cleared his head enough to make his decision for him. Scott reached for the cloak draped across the bench beside him. Standing, he drew the garment around his shoulders and hooked the silver clasp of the neck

chain. Tossing a copper penny on the table, he made his way carefully between the clumps of drinkers lest he bump someone and precipitate a fight.

Once in the open air, he inhaled deeply to clear his lungs and gain his bearings. The night was dimly lit by a new moon. The hazy sweep of the Milky Way was overhead. Otherwise, the street was lit by widely-spaced gas mantle lanterns whose quiet hissing echoed off the fronts of the tall, crowded buildings. There were other sounds in the night. Somewhere a watchman's bell tinkled with each step while snatches of piano music floated across the rooftops from the bordellos one street over.

Drawing his cloak around him, Ethan started toward the docks. He had just passed the mouth of a muddy alley and stepped up on the sidewalk in the next block when he heard a noise. It was a quiet sound. It took his muzzy brain a few seconds to process the information and identify it.

The sound had been a muffled cry and the voice that of a woman.

He halted and turned to retrace the few steps back to the alley mouth. The chill that ran up his spine went a long way toward sobering him. He moved to hug the storefront — that of a ship's chandler — and sidled back to the end of the sidewalk.

The gaslight in front of the Hare and Hound was in his eyes as he halted, his back flat to the wall, and listened again. This time there was no mistaking the sound. It was a woman's call for help, cut off abruptly in mid-cry.

Scott slipped his right hand into his cloak pocket and withdrew the Webley. With his left, he drew the knife. Cursing himself for a fool, he peeked around the corner with only his right eye. The chandler had some sort of shed built onto his building, obstructing his view of whoever was in the alley. By the same token, however, it also obstructed their view of him.

Carefully, he stepped down into the muck and sidled his way to the front wall of the shed. In doing so, he moved out of the light of the gas lamp and into a darkness lit only by the faint moonlight that reflected off the upper story of the Hare and Hound. He hugged the rough wood wall and let his eyes adjust to the darkness.

It was not unheard for robber gangs to use a female accomplice to lure their victims away from the lighted streets. If that were the case, Ethan would likely wake up face down in the mud with his purse gone and a knot on his head — if he woke at all.

He stood and listened to the sounds. Somewhere in front of him, a desperate struggle was in progress. It was difficult to pinpoint the location because the sound echoed off the blank walls on both sides of the alley. As his eyes adjusted to the dark, he could make out three figures not thirty feet away. They were darker silhouettes in one of the pools of black where the faint moonlight did not reach. As quietly as he could, Scott sidled round the corner of the shed and slipped along the near wall of the alley, feeling his way forward with the tip of his left boot. He kept to the deepest shadows as he attempted to differentiate attackers and victim.

He was twelve feet away when a sharp cry from the tallest figure told of a blow that found its mark. There followed a flurry of male cursing as a feminine scream cut off abruptly. The noise helped Scott sort out the participants. Two were men — one tall and thin, the other short and round. The woman was on the ground. To judge by the way the silhouettes moved, both

assailants were facing away from him as they bent over their victim. That was enough for Scott.

Moving swiftly, he switched hands with the weapons, and advanced on the two attackers. Reversing the knife, he raised it even with his ear, and then brought the heavy handle down hard at the base of the larger man's skull. There was a thumping sound, followed by the whoosh of breath escaping from lungs. One silhouette crumpled forward onto the woman, who screamed anew. The other assailant whirled to confront him. Ethan stepped back into a tiny rivulet of moonlight, which was sufficient to display the dark gun in his hand. A moment later, the second assailant was nothing more than a diminishing clatter of boots against the brick pavement of the nearby street.

Scott moved to help roll the unconscious robber off the woman. She grunted loudly as he lifted her to her feet.

A pleasant contralto issued from out of the dark. "Thank you, sir..."

"Think nothing of it, my lady," he said; returning the knife to its scabbard and transferring the gun back to his right hand. He slipped his left around the woman's waist to steady her and said, "Now, then, let's go somewhere with a bit more light. There may be more of them."

Upon reaching the mouth of the alley and the light of the gas lamp, Scott saw what he had suspected since first encircling the woman's waist. She was young and comely. Her clothes were torn and muddied, and her right eye showed the first signs of bruising. Blood flowed freely from a cut at the corner of her mouth where her lower lip had been split.

"Thank you again, "Mr. ..."

"Captain. Captain Ethan Scott, of the Barque *Hellespont*, gentle lady."

She winced as she smiled. "I am Christa Marin, Captain."

"May I convoy you somewhere, Miss Marin?"

"I... I was on my way back to the university."

"The university is on the north side of the city. My ship is at the Western Docks. Perhaps we should get you cleaned up before taking you home. That wound needs to be disinfected. No telling what one may encounter in the muck."

"That isn't necessary, Captain," she said as she slipped away from Scott's one-armed embrace. "If you can just hail me a cab, I will be on my way."

"Are you sure?"

"Quite sure."

"Very well. There is a cab stand one street over. Here, let me help you."

"No, thank you."

The woman's first step brought a wince of pain and a sharp intake of breath. Scott quickly moved to steady her before she tumbled to the street. The light caught the first glistening of tears in her eyes. "Perhaps I will take you up on your offer to go to your ship."

“Can you walk?” he asked, once again snaking his hand around her waist.

“I think so.”

Their first tentative steps brought another sharp intake of breath. After that, she rested her full weight on him each time her right foot touched pavement. The warmth and fragrance of her was much on Ethan's mind as they made their way down Harbor Street.

* * *

The fog-enshrouded thoroughfare that fronted the docks was deserted, a scene considerably transformed from the organized chaos of daylight with its horse drawn wagons and cursing teamsters. Christa's limp had been transformed into a hobble by the time they reached the gate in the fence that surrounded the docks. Scott debated having her wait while he went for help. He rejected the idea at once. As she had just discovered, the docks were unsafe for a woman alone at night. Besides, abandoning her, even for a few minutes, did not portray the image he wanted her to have of him.

They halted momentarily under another gas lamp.

“Your pardon, my lady,” he said as he lifting her off the ground. She squealed in surprise and some fear, then realized what he was doing as he juggled her weight for the proper balance. She held onto him as he braced his back and strode heavily along the footpath toward the dim shape of *Hellespont*.

By the time Ethan reached the familiar hull with its three dark masts jutting upwards into the silver mist, he was breathing hard, with beads of sweat on his forehead. He set his burden down and regained his wind a moment before calling, “Ahoy, *Hellespont*!”

“Who's there?” came the voice of old Baje Painter, ship's bos'n.

“It's the Captain. Stand to and lend a hand.”

The grizzled old salt appeared at the head of the gangplank, which had been relocated to its customary mid-ship position. His expression showed a moment of surprise as he saw the captain's companion, then turned to a barely concealed grin as he strode down the gangway.

“Who is aboard?”

“Myself, young Mr. Ralston, and the sail maker.”

“Tremont came back early?” Scott asked in amazement.

“Aye, Captain. I told him that not being able to hold one's liquor is a sign of age.”

“Summon them. “The lady's been hurt. We need to get her aboard.”

“They are sleeping, Captain. Mr. Ralston was worn out during the cargo haul. I told him I would wake him at change-of-watch. As for Tremont, sir, I wouldn't want to trust the lady's safety going up the gangplank, if you know what I mean.”

Thinking of how unsteady his own legs were, Ethan said, “I know what you mean, Bos'n. All right, we'll do it ourselves.”

"I can walk," Christa protested.

"Nonsense. Painter, get on the other side and make a seat for her."

"Gladly, Cap'n."

He and the bos'n grasped each other's forearms with one hand while doing the same to their own opposite forearms with the other. The result was a living chair into which Christa slid without a word. She then put her arms around both men's necks as they lifted and carried her up the steep gangway.

It took a bit of effort to get her into Scott's cabin, but they managed, only banging her injured foot once in the process. They deposited her on his bunk.

"Bos'n, draw some hot water from the galley," Scott ordered as he worked at lighting the lamp over his desk.

"Aye aye, sir."

With the cabin alight, Ethan turned to gaze at his guest. Despite the damage to her face, he could see that his impression out in the street had not been wrong. She was beautiful and young. He estimated her age at no more than twenty. Her hair was red and shoulder length, held in place by a golden pin. She wore a modest dress that had been torn in her struggle, making it considerably less so. Over the dress she wore an expensive evening cloak. Her figure filled the dress nicely, he noted. He raised his gaze to discover two intelligent green eyes staring back at him.

"We should take care of those wounds," he said brusquely, embarrassed by the close inspection he'd been giving her. "Also, we may be able to do something about the damage to your clothes."

"I'm already too much in your debt."

Scott strode to a cabinet and withdrew his first aid kit. At that moment, Painter returned with a large bucket from which a wisp of steam rose, The bos'n made a production of pouring hot water into the wash basin, then adding cold from the porcelain pitcher that sat on the shelf to the side of the table. He laid out soap, a washcloth, and towel.

When he'd finished, Ethan clapped the old man on the shoulder and said, "Let's give the lady some privacy. Miss Marin, if you will get out of that dress, I'll see what we can do to make repairs."

He and Painter stepped outside and closed the cabin door. "Roust the sail maker. He doesn't have to be able to stand to use his needle and thread. Ask if he will join me here in the passageway. Tell him to crawl if he must."

"Very good, sir."

With Painter gone, Scott listened to the quiet sounds of the woman moving about his cabin. There was a long period of silence before the door opened a crack and a bare arm appeared, holding the dress.

"I think it's ruined."

"Maybe not," he replied. "I've a man aboard who is as handy with a needle as any seamstress. You get cleaned up. When you're ready, I'll doctor you."

Her smile was barely visible through the thin crack before she closed the door.

A sudden light at the end of the dark passageway announced the arrival of the sail maker, who doubled as ship's carpenter. Painter was steadying him and carrying a lantern.

Scott handed the dress to Tremont. "See what you can do to clean this up and repair the rips, Master Sail Maker."

"Aye aye, Captain," came the bleary reply.

Scott noticed the look the two sailors gave one another. No doubt the story about the captain's late-night visitor would be all over the ship by breakfast.

"Anything else I can do, sir?" Painter asked.

"No. Back to your post, Bos'n. Thanks for the help."

"Glad to do it, Cap'n."

The two sailors left Scott alone. He waited, wondering what was going on inside the cabin. After an eternity that probably lasted five minutes or so, Christa's muffled call told him that it was all right to enter.

The scene that greeted Scott made his heart pound in his temples. Christa was seated on his bunk, her body wrapped in a sheet tucked over her breasts and under her arms, leaving her shoulders bare. Her bare legs and feet dangled over the edge of the bunk. She had scrubbed her body and no longer had traces of alley muck on her. A galaxy of freckles spilled off her freshly scrubbed face, onto her shoulders, and faded out just above the tightly wrapped sheet.

Ethan walked across the cabin, ducked unconsciously to clear a low deck beam. He opened the first aid kit, fished inside for a bottle of alcohol, and then moved to stand in front of the beautiful woman on his bunk.

"This is going to sting a little," he said as he dabbed at the cut on her lip. She winced, and then held still as he finished the job. Her bruised eye showed signs of blackening. He gently prodded at it, producing a small whimper. Then he carefully felt her arms and legs, asking her to tell him if she felt any sharp pains.

"I'm just sore all over, Captain." she replied as both of them tried to ignore the physical contact.

"Call me Ethan."

"Very well, Ethan. I am Christa to my friends."

"How is that ankle?" he asked, taking her right foot gently into hand and applying pressure around the joint.

"It hurts."

"It doesn't feel broken. I think you may have sprained it."

She nodded. "I twisted it when I fell."

"Mind telling me what you were doing on the waterfront after dark?"

She grimaced. "I really didn't intend to be out this late. I came down to talk to a ship broker on university business. I'm afraid negotiations ran longer than I expected. It was dark when we finished. I asked the broker to call me a cab. His assistant came back and said that it would be an hour before one would be available. The broker invited me to dine with him in his rooms. I accepted. When an hour had gone by with no sign of the cab, I asked what could be wrong. He'd been drinking heavily and just laughed. That was when he started making... suggestions."

"I can imagine," Scott said.

"Anyway, I got my cloak and decided to find a cab on my own. I felt that I would be safer on the street than in that house. Apparently, I was mistaken. Two men came up behind me and dragged me into that alley. If you hadn't come along..." She broke into sobs and Ethan busied himself with repacking the first aid kit until she calmed down.

"Well, you're safe now. As soon as Tremont finishes with your dress, I'll whistle up transport and accompany you back to the university."

"You've been too kind to me already."

"Nonsense. The ancient code of chivalry requires nothing less."

While they sat together and waited for the sail maker's return, Ethan tried to keep his thoughts out of channels where they did not belong. It was difficult. Christa Marin's beauty seemed to grow with each passing moment.

* * *

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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.