

souls in the great machine
by
Sean McMullan

GREAT MACHINE

In Sean McMullen's glittering, dynamic, and exotic world two millennia from now, there is no more electricity, wind engines are leading-edge technology, librarians fight duels to settle disputes, steam power is banned by every major religion, and a mysterious siren "Call" lures people to their death. Nevertheless, the brilliant and ruthless Zarvora intends to start a war in space against inconceivably ancient nuclear battle stations.

Unbeknownst to Zarvora, however, the greatest threat to humanity is neither a machine nor a force but her demented and implacable enemy Lemorel, who has resurrected an obscene and evil concept from the distant past: Total War. Souls in the Great Machine is the first volume of Sean McMullen's brilliant future history of the world of Greatwinter.

SOULS

IN THE

GREAT

MACHINE

TOR BOOKS BY SEAN MCMULLEN

The Centurion's Empire Souls in the Great Machine This is a work of fiction. All the characters and events portrayed in this novel are either fictitious or are used fictitiously.

SOULS IN THE GREAT MACHINE

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Jack Dann, who has made so many things possible in Australia

PROLOGUE

The girl moved with the calm confidence of a thief who knew that she would not be disturbed. The crew of the three-hundred-foot tower had deserted the beam flash gallery at its summit, and the great eye of their receptor telescope stared blankly at a tower on the eastern horizon. Although mounted to look perpetually east for signals from the Numurkah tower, the communications telescope could be moved through a few degrees for adjustment and servicing. Unclamping the control wheels of the telescope, she spun them, slowly turning the glass to where the moon was rising. A reciprocating clock on the wall tinkled as it reached 9:45. The calendar wheels beside it declared that it was the 26th day of September in the Year of Greatwinter's Waning 1684.

The lunar surface was the familiar jumble of craters and mountains, along with a faint tracery of ancient strip mines. A few deft twists detached the standard eyepiece, but her own array of lenses and caliper screws took longer to install and adjust. The clock rang out the tenth hour past noon. The moon was 5 degrees above the horizon when she finished.

The increased magnification gave a washed-out image that danced in the air currents. Because the moon was a little past full there were shadows near the edge, exactly where she needed them. She adjusted movable crosshairs within her eyepiece, glanced at the clock, then measured the length of a shadow cast by the cut of a strip mine. She gasped, then fought down her excitement.

She repeated the measurement, then made it again with her other eye. The readings were identical. The clock announced 10:15. She scrawled down the figures selected another shadow, and took more measurements. By 10:30 the elevation was nearly 10 degrees. Time seemed to accelerate as she measured a third strip's shadow--and suddenly one of the wheels raising the telescope reached its maximum elevation and jammed. The vista of lunar strip mines slid out of the field of the eyepiece.

She was aching to look back to her measurements as she lowered the telescope, reinstalled the standard eyepiece, and focused on the beam flash gallery at the summit of the Numurkah tower. Some rough calculations verified what she had already worked out in her head: the first of the three strips that she had measured was significantly deeper than it had been a year ago.

With a final glance around the beam flash gallery, she left for the stairwell and began the long descent. All the way down, her mind was

racing with the implications of a 5 percent deepening in a scratch on the lunar surface. Walking into the deserted streets of the river port, she paused to look up at the moon. It was such a momentous discovery, yet she could tell no one. Her entire life was becoming a catalogue of secrets she could not share.

"Fantastic, even after two thousand years their machines still work," Zarvora Cybeline said aloud; then she turned to the jumble of moonlit buildings that was the Echuca Unitech's library. "Time to build my own machine."

CHAMPIONS

Fergen had not noticed a suspicious pattern in the pieces on the board by the seventh move. Champions was his best game and he had even its most exotic strategies and scenarios memorized. The Highliber advanced a pawn to threaten his archer. The move was pure impudence, a lame ploy to tempt him to waste the archer's shot. He moved the archer to one side, so that his knight's flank was covered.

The Highliber sat back and tapped at the silent keys of an old harpsichord that had been cut in half and bolted to the wall of her office. Fergen rubbed plaster dust from his fingers. All the pieces were covered in dust, as were the board, the furniture, and the floor. The place was a shambles. Wires hung from holes in the ceiling, partly completed systems of rods, pulleys, levers, pawls, gears, and shafts were visible through gaps in the paneling, and other brass and steel mechanisms protruded from holes in the floor. Occasionally a mechanism would move.

Fergen gave the game his full attention, but Highliber Zarvora tapped idly at the harpsichord keys and seldom glanced at the board. A rack of several dozen marked gearwheels rearranged their alignment with a soft rattle. The mechanisms were part of a signal system, the Highliber had explained. Libris, the mayor ai library, had grown so big that it was no longer possible to administer it using clerks and messengers alone.

The Highliber leaned over and picked up a knight. With its base she tipped over one of her own pawns, then another. Fergen had never realized that she had such small, pale hands. Her knight toppled yet another of her pawns, then turned as it finally claimed an enemy piece. Such a tall, commanding woman, yet such small hands, thought Fergen, mesmerized. The knight knocked another of its own pawns aside; then his king fell.

For some moments he stared at the carnage on the board, the shock of his defeat taking time to register. Anger, astonishment, suspicion, incomprehension, and fear tore at him in turn. At last he looked up at the Highliber.

"I must apologize for the surroundings again," she said in the remote yet casual manner that she used even with the Mayor. "Did the mayhem in here disturb your concentration?"

"Not at all," replied Fergen, rubbing his eye. Behind it the early symptoms of a migraine headache were building. "I could play in a cow shed and still beat anyone in the known world in less than fifty moves. Do you know when I was last beaten at champions?"

The question had been rhetorical, but the Highliber knew the answer.

"1671 GW."

She tapped again at the silent keyboard. The little gears marked with white dots clicked and rattled in their polished wooden frame.

"And now it's 1696," he said ruefully. "I've played you before, but you never, never made moves like these."

"I have been practicing," she volunteered.

"You take a long time between moves, but oh, what moves. I have learned more from this game than my previous hundred. You could take my title from me, Highliber Zarvora, I know mastery when I see it."

The Highliber continued to tap the silent keys and glance at the row of gears. The same slim, confident fingers that had harvested his king so easily now flickered over the softly clacking keys in patterns that were meaningless to Fergen.

"I am already the Highliber, the Mayor's Librarian," she said without turning to him. "My library is Libris, the biggest in the world and the hub of a network of libraries stretching over many may orates My staff is more than half that of the mayoral palace. Why should your position interest me?"

"But, but a Master of the Mayor ranks above a mere librarian," spluttered Fergen.

"Only in heraldic convention, Fras Gamesmaster. I enjoy a game of champions, but my library means more to me. I shall tell nobody about your defeat."

Fergen's face was burning hot. She could take his position, but she did not want it! Was an insult intended? Were there grounds for a duel? The Highliber was known to be a deadly shot with a flintlock, and had killed several of her own staff in duels over her modernizations in the huge library.

"Would you like another game?" asked the Highliber, facing him but still striking at the keys.

"My head.." feels like it's been used as an anvil, Frelle Highliber."
"Well then return later," she said, typing her own symbols for /
CHAMPIONS: ELAPSED TIME? / then pressing a lever with her foot.
Fergen heard the hum of tensed wires, and the clatter of levers and gears from within the wall. "I could teach you nothing," he said in despair.

"You are the finest opponent that I have," replied the Highliber. "I think it--"

She stopped in mid-sentence, staring at the row of gears.

"You will excuse me, please, there is something I must attend to," she said, her voice suddenly tense,

"The gears and their dots have a message?"

"Yes, yes, a simple code," she said, standing quickly and taking him by the arm. "Afternoon's compliments, Fras Gamesmaster, may your headache pass quickly."

Fergen rubbed his arm as the Highliber's lackey showed him out. The woman had all but lifted him from the ground! Amazing strength, but to Fergen no more amazing than her victory at the champions board.

Zarvora slammed a small wooden panel in the wall aside and pulled at one of the wires dangling from the roof. After a moment a metallic twittering and clatter arose from the brass plate set in the recess.

"System Control here, Highliber," declared a faint, hollow voice. "What is the Calculator's status?" she snapped. "Status HALT MODE replied the distant speaker. "What is in the request register at present?"

"MODE 'CHAMPIONS;COMMAND' ELAPSED TIME?"

"And the response register?" "46:30.4, Highliber."

"Forty-six hours for a twenty-minute game of champions, Fras Controller?" shouted Zarvora, her self-control slipping for a rare moment. "Explain."

There was a pause, punctuated by the rattle of gears. Zarvora drummed her fingers against the wall and stared at a slate where she had written 46:30.4.

"System Controller, Highliber. Both Dexter and Sinister Registers confirm the figure."

"How could both processors come up with the same ludicrous time?"

"Why... yes, it is odd, but it's the sort of error that even skilled clerks make sometimes."

"The Calculator is not a skilled clerk, Fras Lewrick. It is a hundred times more powerful at arithmetic, and with its built-in verifications it should be absolutely free of errors. I want it frozen exactly as it was during that last calculation."

"That's not possible, Highliber. Many of the components from the correlator were exhausted by the end of the game. They were relieved by components from the spares pool."

Too late, thought Zarvora. "We shall run a set of diagnostic calculations for the next hour," she said. "Do not change any tired components. If some fall over at their desks, mark them before they are replaced."

"Highliber, the Calculator is tired. It's not wise."

"The Calculator is made of people, Fras Lewrick. People get tired, but the Calculator merely slows down."

"I'm down inside it all the time. It has moods, it feels--"

"I designed the Calculator, Lewrick! I know its workings better than anyone." "As you will, Highliber."

Zarvora rubbed at her temples. She too had a headache now, but thanks to the long vibrating wire beneath the brass plate her discomfort remained unseen.

"You are trying to tell me something, Frasier Lewrick. What is it--and please be honest."

"The Calculator is like a river galley or an army, Frelle Highliber. There is a certain.. spirit or soul about it. I mean, ah, that just as a river galley is more than a pile of planks, oars, and sailors, so too is the Calculator more than just a mighty engine for arithmetic. When it is fired, perhaps it sometimes lets a bad calculation through rather than bothering to repeat it."

"It is not alive," she replied emphatically. "It is just a simple, powerful machine. The problem is human in origin."

"Very good, Highliber," Lewrick said stiffly. "Shall I have the correlator components flogged?"

"No! Do nothing out of the ordinary. Just check each of the function registers on both sides of the machine as you run the diagnostic calculations. We must make it repeat its error, then isolate the section at fault. Oh, and send a jar of tourney beer to each cell when the components are dismissed. The Calculator played well before that error."

"That would encourage the culprit, Highliber."

"Perhaps, but it is also important to reward hard work. The problem is a hole in my design, Fras Lewrick, not the component who causes problems through it. We could take all the components out into the courtyard and shoot them, but the hole would remain for some newly trained component to crawl through."

Libris was Rochester's mayoral library. Its stone beam flash communications tower was over 600 feet high and dominated the skyline of the city. Unofficially, the Highliber of Libris was second only to the Mayor in power, and she controlled a network of libraries and librarians scattered over dozens of may orates and thousands of miles. In many ways the Highliber was even more powerful than the Mayor. There was no dominant religion across the may orates of the Southeast, so the library system performed many functions of a powerful clergy. The education, communication, and transport of every may orate in the Southeast Alliance was under the discreet but firm coordination of the Highliber of Rochester.

Rochester itself was not a powerful state; in fact, the other may orates of the Southeast Alliance deliberately kept it as no more than a rallying point, a political convenience. Neighboring may orates such as Tandara, Deniliquin, and Wangaratta held the real power, and wielded it shamelessly in the Councilium Chambers at Rochester. Mayor Jefton of Rochester was the constitutional Overmayor of the Councilium, but in practice he was of little more consequence to his peers than the servants who scrubbed the floor, dusted the tapestries, and polished the broad red river gum table at which the meetings were held.

Libris was the very reason that Rochester was kept weak. A powerful may orate controlling the vast and influential library network would quickly become strong enough to rule the entire Alliance. The Councilium was wary of that. Zarvora had been appointed recently, replacing a man eighty years her senior. She had become a Dragon

Silver at twenty-four, and after two years had jumped the Dragon Gold level to be appointed Dragon Black--the Highliber's rank. There had been some luck involved: Mayor Jefton also happened to be young and ambitious, and was weary of elderly men and women telling him what he could or could not do. Zarvora offered him the chance to make Rochester powerful, and outlined some radical but plausible ways of doing it. He proposed her name to the Councilium, giving her the chance to address the Mayors in person. She promised to make both Libris and the beam flash network pay for themselves within three years or resign. The Mayors were impressed and appointed her.

Zarvora became Highliber in 1696 GW and massive changes followed. The Tiger Dragons, Libris' internal guard, were tripled and a branch of them was turned into the Black Runners, a secret constabulary. Parts of Libris were rebuilt and extended, and staff and books were moved into other areas. In the workshops of the expanded library artisans toiled through twelve-hour shifts, day after day, month after month, making strange machinery and furniture. Carpenters, black smiths, and clock makers were recruited from far afield, and the educators at the University were contracted to solve odd problems in symbolic logic. Large areas of Libris were sealed from outside scrutiny.

Zarvora explained that Libris had become too big to govern manually, and that a vast signaling and coordinating division of clerks, lackeys, and librarians had been set up to manage its books and coordinate its activities. Indeed the efficiency of Libris' activities improved dramatically in only a few months, and by the end of 1696 GW the Mayor could see real savings set against the Highliber's expenses.

There were also drastic changes in the staffing of Libris. Examinations for Dragon Red and Green were changed to favor candidates with mathematical and mechanical backgrounds, rather than just knowledge of library theory and the classics. No recruit was older than thirty-five, and several accepted options to study further at Rochester's University. The changes did not go uncriticized, but the Highliber was dedicated and ruthless. She lobbied, fought duels, had officials assassinated.. and even had the more numerate of her opponents abducted for a new and novel form of forced labor. When those obstructing her had been outside Libris, it had been necessary to arrange other means to push them aside. In the case of Fertokli Fergen, Master of Mayoral Boardgames, she had used humiliation.

The Call moved across the land at a walking pace, visible only by the creatures that were swept along by its allure. It moved southeast, and within its six-mile depth were dogs, sheep, an occasional horse, and even a scattering of humans. Although it had begun far away in the Willandra Drylands, none of the animals it had first gathered were still walking within its influence, or even alive. Few creatures drawn away by the Call ever reached its source.

Ettenbar was a Southmoor shepherd, living a precarious existence near

the border river between his Emir's lands and the Rutherglen Mayorate. His sheep grazed placidly in a ragged circle, all tied to the central stake that he had knocked in that morning, while his emus walked free among the sheep with great mincing steps, all neck, legs, and shaggy feathers. Striped chicks ran about at their feet.

A movement in the distance caught Ettenbar's attention: a stray ram wandering without a tether. Untethered sheep carded rewards, and unbranded strays were the property of those who caught them. Releasing himself from the tether stake he began stalking the spiral-horned merino.

It was wary. It trotted away to a comfortable distance as Ettenbar approached. He circled off to one side, untying his bolas and shaking them loose. The stray still kept its distance. Ettenbar crept closer, driving it to where there were clumps of bushes to cover his approach. The ploy worked. Within fifty yards he began whirling the bolas, he cast--and tangled the stray by the hind legs. As he strode forward to collect his struggling, bleating prize, the Call rolled over him.

For the most fleeting of moments Ettenbar had a choice, yet it was a choice with only one possible outcome. He betrayed himself, he accepted his weakness and wallowed in it, all within a single thought. His discipline and control col lapsed, his steps slowed, and he turned to walk southeast. The stray ram also struggled to follow the beckoning, but could not move as fast as the Call with its hind legs entangled in the bolas. Ettenbar's sheep were also drawn by the Call, but got only as far as the length of their tethers. His emus studied them quizzically, cocking their heads with avian curiosity. In spite of being so much larger than a sheep, they were birds and so were immune to the Call. All mammals larger than a big cat were drawn away, but never birds or reptiles.

Only dimly perceiving obstacles, Ettenbar walked on. He waded streams, tumbled down steep hillsides, climbed walls, and stumbled through ploughed fields. He passed a farmer who was straining to walk southeast with the Call. The man was held by a body anchor that had been released by a rawhide timer ten minutes after the Call had caught him. The farmer would live, but Ettenbar was already lost to the world, dead because he was walking freely. Ahead was the broad, brown river that marked the border. Ettenbar waded in and began to swim. Not one-quarter of the creatures drawn along by the Call survived the crossing, but Ettenbar reached the south bank and staggered on.

Three miles into the Christian may orate of Rutherglen he crashed blindly into a dense thicket of blackberries. The heavy shepherd's leathers and boots that had nearly caused him to drown in the river now protected him from the worst that the thorns could do, but he could not maintain even the slow walking pace of the Call. It continued to beckon to him and he struggled to follow it as thorns tore at his face and hands. Finally his legs became so entangled in thorny branches that he could not move. After three hours the Call finally passed, releasing him. Ettenbar awoke. He was cold, wet, bleeding, and

exhausted. The sun was low, almost smothered behind gathering clouds. One moment he had been striding to collect the ram that he had snared, and now... The Call had spared him! With bleeding fingers he drew his knife and cut his legs free from the thorny branches. He stumbled back out of the grove of grasping thorns, prostrated himself, and gave thanks to Allah for the return of his life.

From the setting sun he took a bearing for northeast and began the journey home. He felt ashamed for being caught without his tether, but otherwise walked along proudly. The Call had released him, he was blessed in the eyes of Allah. It was only when he reached the river that he realized where he was.

"Hei, Callshewt!" shouted someone behind him. He hesitated, then bolted for the riverbank. A gunshot barked out and soil sprayed up in front of him. Ettenbar stopped and turned, his hands high.

Three bearded, gore-encrusted spectres approached. They were not border guards but river gleaners--scavengers looking for livestock drowned in the river while trying to follow the Call. Ettenbar saw that only one of them had a gun, and realized too late that he could have run on before the musket was reloaded. They wore stained oilcloths and swenskin breeches, and stank of mutton fat and blood. Three pairs of scabby, dirty knees showed through ragged holes. They had been dragging freshly drowned sheep from the water and butchering them for the Rutherglen markets when Ettenbar had appeared.

Prakdor reloaded his gun while Mikmis and Allendean examined their prize. Although their leader, Prakdor, let Mikmis do most of the talking. He had been in his mayor's army once, and knew the fate of the loud and vocal.

"Southmoor sheeps hagger Mikmis observed as they bound Ettenbar's wrists and hobbled his ankles.

"Hold 'im? Ransom?" Allendean asked.

"Ransom? A sheeps hagger We'd not get the price of the rope. Better march him to Wahgunyah and sell him to a barge master as a rower."

"Wahgunyah. Long trek," Allendean grumbled.

"He's strong. He'll fetch twenty-five silver nobles if he gets one."

While they argued Ettenbar looked across the river to the fields that were home. Until this day he had never traveled more than twenty miles from where he had been born, but now he was unlikely to ever see those fields again. "Jorah," he murmured.

"What say?" snapped Allendean.

"Jorah, it's Southmoor for the Call," said Prakdor. "It means Changer of Lives."

"Shewt, he got that right," chorkled Mikmis. "Kiss your sheep goodbye,

sheeps hagger The three river gleaners burst into hoarse, raucous laughter. "I--hey, can he count?" Mikmis suddenly exclaimed. "Southmoor sheeps hagger Give break!"

"Can you count? Er... Prakdor, do you know how they say--"

"Vu numerak, isk vu mathemator?" Prakdor asked in the dialect of the neighboring Southmoors.

Ettenbar nodded proudly. The local mosque had a fine school.

"So, he can count! I've heard the Warren pays one gold royal for Southmoors who can count--two if they speak Austaric."

"Sheepshagger nayn't," Allendean grumbled.

"Shewt pig head it's still four times what he'd fetch as a rower."

They turned to Prakdor who considered, then nodded. "We'll take him to the camp and clean him up. Mikmis, go to Wahgunyah, see the Warrenmaster."

Nothing symbolized the power and authority of Libris better than the tall beam flash towers that stood in every town. In Rutherglen the tower was within the grounds of the Unitech, but some distance from its library. Lemorel had been walking purposefully down the cobbled streets of the Unitech, yet something made her pause to gaze at the tower.

It was wooden and whitewashed, gleaming starkly against the clouds of the late-winter afternoon. White fumes poured from the outlets at the summit as magnesium flares powered the beam flash equipment in the absence of direct sun light. A signal was going west, to Numurkah, from where it would be relayed southwest to Rochester. The distance that a message could travel in moments might take Lemorel months, or even years but no matter. Today she would take another step on her journey to the capital.

She was saved from abduction by being a librarian. Five men in shabby oilcloths loitered near the gates of the Unitech, staring at a sheet of poor paper that might have been a map. They seemed to be itinerant farmworkers trying to find their way around an unfamiliar town.

"Lemorel Milderellen, Dragon Yellow Librarian," one of them muttered as Lemorel walked through the gates.

Another shook his head. "Let her go."

"She won the Unitech prize for mathematics," insisted the first.

"Abducting even a Dragon White Librarian is a good way to get us shot. Who is this next one?"

"Joakim Skinner. Assistant edutor in Accounting." "That's more like it. Mark him down." "Five. He makes five."

"Five is enough. Two gold royals for each of us."

"That Constable's Runner is staring at us again," their tall, gaunt lookout reported.

"Then let's find a coffeehouse and bide."

They had not noticed the color of the arm band that the librarian had

been wearing. Lemorel had been promoted to Dragon Orange rank only that afternoon. The rise in rank could not have come at a better time, as there was a Regional Inspector visiting the town. Libris recruited librarians from outside Rochester at the level of Dragon Red and above. She had a minimum of two years more before she became eligible for the exams, yet there were now ways of hastening promotions with Highliber Zarvora in charge.

Rutherglen had been the vineyard heartland since the earliest records began, and the rhythm of life was closely tied to the grape harvest and its cycles. This was late winter, a time for repairs and barrel building, for hunting wild emus in the open woodlands to the south, and for long philosophical discussions in the evenings over old vintages beside fires. Bright flags, ribbons, and bunches of evergreens hung from the lintels of most houses and shops in celebration of the Drinkfest. Out of sight on some roof a band was practicing. Lemorel noted that the cornet ton was slightly out of tune and the two smallhorn players were probably drunk. Smoke from cooking fires hung over the streets, mingling with genuine fog and hinting at stews and baking. Overloaded lever-pedal tricycles on unsprung wooden wheels creaked and rumbled along the Callside of the road.

There had not been a Call for over three weeks, Lemorel reminded herself as her clockwork Call timer clattered its warning of a minute's grace. She reached down to her waist, twisted the reset dial to a half hour, and wound the mainspring. A Call was due soon, and she hoped that it would not interrupt her interview. The houses on the north side of the street were all blank walls of abandon stone tar brick and red shingle: no street had two sides. If a Call came, those inside houses would walk to the blank wall at the back and wander there mindlessly, but in safety. No windows or doors ever faced in the direction of the Call. Just like the people themselves, open and welcoming on one side but blank and unassailable on the other, Lemorel mused. Those who recognized her quickly looked away and found something to be busy with. She fantasized about being the source of the Call itself, a godling that people protected themselves against with their blank sides. Even though it was an old and tired fancy, it was her only armor against the townsfolk who shunned her.

In the distance she could see the Wayfarer's Rest, a hostelry for the better class of traveler. The Regional Inspector was waiting there. Her appointment was for 4 P.M. The single arm of the clock on the Mayor's palace was touching the numeral but the chimes had not yet begun. She slowed her pace. Whether it was passing exams, arriving for appointments, or shooting in duels, timing was all important.

For Lemorel this was a chance to escape with dignity. Being a librarian with a reputation for shooting straight meant that she might bypass the lengthy rounds of protocol maze-running to get into Libris. The new Highliber was as refreshingly young as her predecessor had been

stultifyingly old. Traditions that dated back centuries were being uprooted and opportunities were being made for the young and competent.

Lemorel was with the Rutherglen Unitech library, and like all libraries in the Southeast Alliance it was affiliated to Libris. When Lemorel had been appointed as a Dragon White, the lowest librarian ranking, the Highliber of Libris had been in office forty-one years and was 106 years old. He had died within a year and was followed by Zarvora Cybeline.

Zarvora was dynamic and dedicated, had an edutorate in applied algebra from Rochester University ... and was twenty-six. She had killed the Deputy Highliber's champion in a duel a day after gaining office and within a month had sent three-quarters of the executive staff into exile. All at once Lemorel's temporary job within a hidebound profession became a marvelous opportunity to get ahead.

Lemorel glanced at the clock tower and shivered in the still, cold air. The ann was right over the numeral four. The trip rod on the hour gearwheel would be pressing against the release lever of the horioque barrel by now. Weights on a pulley would soon rotate the barrel, and studs on its surface would move another set of levers that would trip spring-loaded hammers to strike a tune on brass bells. Lemorel's father had maintained the mechanism for years, and some of her earliest memories were of the inside of the mayoral clock. Now there was a proscription on him working there and the mechanism was slowly going out of adjustment. There was a distant, muffled clack, and the chimes of the horlogue began. Heart racing, Lemorel entered the hostelry taproom and caught sight of a portly man in casual maroon robes wearing the silver badge of the Inspectorate Service. He was twirling the waxed beard spike on his chin and frowning. The last chime sounded as she crossed the room.

Vellum Drusas had a round of vineyard towns that he went to some trouble to visit in the winter. It was a good season, as people had time to spare and were glad of company from outside the may orate. There was, of course, the matter of the business that justified his travel in the first place, but while Drusas might have been indolent, he was not stupid enough to abuse his travel allowance. If he worked minimally to justify trips to his favorite vineyards, at least he worked.

The taproom was full of growers and artisans from outlying areas, gathered together for the Winter Drinkfest. This was also the reason that Drusas was in town. Smoke from the sunflower-oil lamps and numerous pipes hung on the warm air, and the talk was loud and strident. The speakers were not so much drunk as used to bellowing to each other across open fields. The farmers squirmed and scratched, unaccustomed to the feel of starched tunics and brushed cotton stove-trews. Some suspiciously eyed the reciprocating clock that had replaced the sun, moon, and stars to mark the passage of time. Drusas watched the clock too, shaking his head. If the librarian arrived late he would have no time to mix with the grape growers and wheedle an

invitation to the wine-tasting competition that night. "To 1681!" someone shouted, and most goblets were raised. That had been a fine year; in fact, Drusas had nine bottles of the famous Bafioch '81 Shiraleng in his cellar--the tenth had been uncorked the day that he became a Deputy Overliber. Their value had increased fifteen times since he bought them.

Outside, the horlogue began striking, and on the fourth stroke of the hour a girl seemed to materialize before Drusas. He saw large, dark, intense eyes in a pleasantly round face framed by severely pinned and braided black hair. Her tunic was the rather pale shade of violet prescribed by the Regional Overliber and her oilcloth rain cape had seen a lot of use. She bowed with a brisk, birdlike movement and presented her papers. Drusas accepted them, noting that she wore no jewelry aside from her hair clasps and that her gunbelt was severely functional. Typical new-blade career librarian, he decided. "Frelle Milderellen?" he asked. "Yes, Fras Inspector." "You know me by sight?"

"You conferred my Dragon Yellow rank last year in a ceremony at Wangaratta."

"Ah yes, but there were many presentations and only one presenter. Or perhaps I was especially memorable, eh?" He gave a wink and a coy leer. Lemorel did not react, not even to blush. Drusas hastily looked down at her papers. A diploma from the local Unitech, a weapons license... "Dragon Orange," he said, eagerly picking on an obvious mistake to show that he was alert. "Your petition of this morning stated that you were Dragon Yellow."

"I was regraded today, Fras Inspector."

"With no ceremony?"

"No, Fras Inspector. I petitioned for the grading tests against my Overliber's wishes. Because I passed I was entitled to regrading, but--"

"But because you were regraded by petition you automatically renounced the increase in salary and the right to have a conferral ceremony. Ah, congratulations anyway." He settled back and took a sip of frost wine from a blue crystal thimblet. He read further, and felt his stomach sink as he reached the magistrate's report. She was noted to have survived trial by combat. They had warned him that there was a strange one in Rutherglen, and this had to be her. Lemorel noticed the color drain from his face. She took a deep breath and clasped her shaking hands behind her back.

"Frelle Milderellen, you have an exceptional record," he said slowly. "Top marks in your year at the Unitech, small-arms champion at the regional fair--twice--and Dragon Orange at nineteen. Your petition is to transfer to Libris at your present rank, but to remain on the staff of the Unitech. That is not possible."

Even the raucous banter of the other drinkers could not fill the chilled silence of the moments that followed.

"The Unitech Ovefliber assured me that it can be done."

"Oh it can be done, but only if he permanently transfers your position as Dragon Orange to Libris as well as your person. Libris has been swallowing a lot of librarians from the regions lately. Your Overliber might be willing to let you, Lemorel Milderellen, go, but I doubt that he would give up the right to replace you."

"Does that mean that my petition is rejected?"

She was polite and deferential, but something about her rattled the rotund and comfortable Drusas. It was not so much the threat that she might shoot him from some dark alleyway so much as her remembering him in two decades when she was a Dragon Gold in Libris.

"Rejected? No, heavens no," he laughed. "We just need to discuss your case in more detail. There are many paths to follow, and you must take the right one. If you don't, I will be to blame as your adviser. Here, sit down. Frostwine? Honeycakes?" Lemorel sat down beside him, as wary and sinuous as a cat with a stranger who smelled of dog. She selected a honey cake "Now, what we need to do is to get down to basics, Frelle. Just why do you want to go to Libris? To follow a lover, to escape nagging parents, or perhaps even to genuinely further your career?"

"Does it really matter, Fras Inspector?"

"Yes indeed. Going all the way to Libris is a drastic step. What exactly are your circumstances?"

Lemorel took a moment to gather her words together, words that could not be softened unless she lied. She had already decided not to lie.

"I've shot nine men and one woman during the course of two duels and one vendetta. I was also mentioned in my lover's suicide note. I'm under the protection of the magistrate, but my family has been proscribed in five may orates by the families of the dead. My father's business is suffering, Fras Inspector, but if I go into exile and go sufficiently far, the proscription will be lifted."

Drusas shivered, then gulped down the remains of his frost wine. It suddenly seemed no stronger than sweetened water, so he called for a shot of black barrel brandy.

"These, ah, shootings... I presume that they were all done within the rules of the Disputes and Reconciliations Act of 1462 GW?"

"Yes, Fras Inspector."

The Disputes and Reconciliations Act was a legacy of the old Rivefina Empire, and had been meant to reduce the incidence of violence by channeling it and swathing it in rituals and regulations. The carrying of guns was not so much confined to the educated, administrative classes, it was required of them. Guns were the symbols of judgment and power, so that those who were expected to exercise power and judgment had to wear them and be proficient in their use. The ultimate

appeal against a judgment was trial by combat, where either the disputants or their nominated champions would engage in a legal duel. The death penalty was automatic for anyone going outside the system of mediated duels, and there was a ruinous system of follow-up fines for their families. It was not often that disputes got to the dueling stage, but it was known to happen.

"Ah, well now, why Libris?" Drusas ventured. "Why not some library in a closer may orate one that does not proscribe your family?"

"I'm well known in the nearby may orates Libris is big enough and sufficiently distant for me to lose myself."

That made a lot of sense to Drusas. "Dragon Orange," he said, then paused and stared intently at his brandy. "That makes a difference."

Lemorel leaned forward, eager, ravenous. She would be like this if she were dueling with me, thought Drusas, flinching back. In a way that was precisely what she was doing.

"I can't change the rules, but I can recommend candidates for the grading exams at Libris. You are a Dragon Orange, so you are in theory eligible to sit for Dragon Red at any time. Your Overliber would probably not approve, but if you get into Libris that hardly matters, does it?"

"The minimum wait is two years, according to the regulations."

"No, the recommended minimum is two years. There was a case in, ah, 1623 where a candidate had been unfairly kept as Dragon Yellow for forty-seven years. When the case was finally brought to the attention of the Regional Inspector, he was promoted to Dragon Red after only a few minutes as Dragon Orange. Your case is different, of course, but it would be possible for you to depart for a Dragon Red test at Libris as soon as you could pack your bags. Pass that test, and you would be promoted. Your former Overliber would still have your Dragon Yellow position to fill again, so everyone would be happy."

He sat back and smiled magnanimously. Lemorel took an instant to comprehend that he was going to help her.

"Fras Inspector, thank you--"

"No thanks yet, please. I have to be convinced that you have at least a ghost of a chance of passing the tests. Now, how is your weapon craft--ah no, that could hardly be in question. Your subjects at the Unitech include mathematics, good, the Highliber likes that. Just a credit in Library History, and only a pass in Heraldry... but that may not matter. Lackey!"

A gangling youth in his mid-twenties with thick, wire-frame spectacles clinging to his nose hurried up from behind Lemorel carrying a writing kit. He snapped the legs down, uncorked the ink jar, and presented Drusas with a selection of newly trimmed goose quills. The inspector chose one with a great deal of show and flourish, then began writing.

"Do you have valid border papers?" he asked.

"Yes, Fras Inspector, I can leave tonight."

"Tonight? Well, so be it." He scribbled out notes as his lackey lit a

tater in the fire and melted some wax for his seal. "Lackey, take this to the beam flash tower at the Unitech and have it transmitted tonight. Lemorel, this is for you."

Only nine minutes after leaving the hostelry tavern Lemorel was packing in an upstairs room of Milderellen Fine Lenses and Clockwork. Petari Milderellen hovered anxiously at the door.

"But the train leaves at five, Lem. You'll never have time to buy a ticket." "I met Jemli on the way home and sent her to the rail side to pay for a cell." "All this haste, you're sure to have forgotten something." "The next train leaves in a week, Dada, and I can't wait."

She buckled the pack's straps and hefted it. Suddenly Petari caught her excitement

"Well hurry then, run for the rail side I'll come after you in a minute." Lemorel clattered down the stairs with her heavy pack, barked her fingers on the doorframe, then jogged awkwardly down the street while struggling to get her arms through the pack straps. Petari rummaged in his shop, then bolted the door and ran after his daughter.

"Lem, this is for you," he called as he caught up with her.

It was a Morelac twin long-barrel 34 bore. Lemorel stopped, eyes wide with surprise.

"Keep going, move," he panted, unconsciously holding the gun in front of her like a carrot before a donkey. "From the style of the filigree on the grip I'd say it dated from the late fifteen hundreds. It's a gift.." gunsmith owed me a favor.." made that tournament scope for the Mayor of Tocumwai. The bar rels ... finely wrought. He's replaced the original ram lock strikers with modern flintlocks."

The gun was old yet stylish, and had a good name with librarians and administrators It was much heavier than the 25-bore pistol that she had shot her way to infamy with, and while not as expensive as the guns of the elite, it would suggest that she had gone to some trouble to find and refurbish a rare pistol with a name for accuracy.

"Thank you for everything, Dada," Lemorel gasped. "You've really been good to me. I brought you just.." trouble and pain. Will you please--"

"Flowers for the graves of your mother and Jimkree... I'll do it," he wheezed, his breath beginning to fail. "If the Highliber... has any contract work in lenses and clockwork.." mention my name. Oi, they're starting to pedal. Hurry now, goodbye Lem."

The galley train was about the height of an average man and built of wax cloth over a wooden frame. It was shaped like a streamlined, articulated worm on wheels, and had a walkway with a light railing along the roof. Being human powered it accelerated slowly. Lemorel

scrambled over the stone wall of the platform with Petari pushing at both her and the pack. She turned to give him a brief spasm of a hug, then turned and ran beside the accelerating train to where Jemli was waiting. Jemli gave her the boarding ticket and a small cloth pouch, and the sisters said goodbye as Lemorel stepped onto the train's roof. Jemli ran along beside the train, wishing her good luck until the platform came to an end. Lemorel dropped to one knee, gasping for breath and waving back. As the train rolled out among the houses of Rutherglen, the conductor showed her to a cell and she entered through the hatch in the roof. She settled into the seat and he zeroed the counter beside her pedals with a key.

"Know the rules?" he asked through the hatch.

"Two hours pushing and an hour to rest, for as long as the train is moving."

"And any extra will be credited. Likewise you will be debited if you decide not to pedal. First stop in five hours."

The train rumbled on through the town and Lemorel looked through her cell's shutter for her father's shop and the buildings of the Unitech. Easily visible was the lifeline of her hopes and ambitions, the beam flash tower.

"Failed again," muttered Lemorel as she sat perspiring. "Didn't say goodbye to Dada, didn't kiss Jemli."

They passed through the outer wall and into the countryside, roiling through vineyards and fields of tethered sheep and free-range emus. She knew the country well, but not from the angle of the parallel track. For some moments she stared at a large whitewashed barn with a bark and shingle roof. Such a large building, surely all the buildings in Rochester would be at least as big, she thought, even while a faint alarm began to clang at the back of her mind.

Why was the barn familiar? Off to one side was a much smaller shed, where a farmer was pitch forking hay into a loft from his cart. It was close enough so Lemorel could see that his horse was tethered to a fence while the farmer had his own timer and anchor. That was foolish. If a Call came he would step straight off the cart, risking damage to his timer. If that happened, only a broken leg would save him. The shed was familiar too--she had seen it before, at night, by distant torchlight!

With a sudden shudder of revulsion Lemorel slammed the shutter closed and gritted her teeth as she fought back a wave of nausea. She doubled over. Horror seemed to crawl over her with myriad spiders' feet as the galley train swayed and clacked along the parallel. Click, click, click, click, the counter unit between her legs reminded her that she was not pedaling. How long had she been like that, she wondered amid the flood of unwanted images. The more she pedaled, the faster the train moved, she told herself as she lay back in her seat and pushed hard against the pedals. Gears whined somewhere beneath her.

"It must be Libris. It must be Libris. It must be Libris," she chanted softly to the clacking of wheels on rails.

It was dark inside her cabin with the shutters closed, as dark as it had been that night in--"No! Think of something else, anything!" She felt for the little cloth pouch that Jemli had given her. Inside was a silver star with eight points on a fine, clamp-link chain, the sort of slightly tasteless jewelry that an unsophisticated teenage sister might be expected to give. Lemorel fingered the little star with a rash of nostalgia and regret. She was indeed trying to escape from two very bad years and regain lost innocence. She leaned forward for a moment and clipped the chain around her neck. As she settled back to pedal, the star sat cool and fresh against her skin.

The Call that had torn Ettenbar, the Southmoor shepherd, out of his life and flung him into a new destiny bore down on Rutherglen about ten minutes after the pedal train had left.

Vellum Drusas had been staring after Lemorel in the hostelry taproom when the Archbishop of Numurkah joined him.

"Combining pleasure with business, Vellum?" said the Archbishop stridently as he laid a hand on his shoulder.

Drusas gave a start, but did not spill his drink.

"Ah James, the day's fortune to you," he said, half rising and kissing the ring on his finger. "It's been.." two years!"

"Eighteen months. The harvest blessing at Shepparton."

"How could I forget? Redsker decked his barn with gum mistletoe and dressed his field hands as vine sprites."

The Archbishop took the seat beside him after dusting it with the tassels of his sash trail. If dressed identically they might have been mistaken for twins.

"So who was the Dragon girl?"

"Oh just Lemorel, the local problem child. I've certified her for Dragon Red exams at Libris."

"Lemorel? Lemorel Milderellen?"

Drusas nodded.

"My dear Vellum, she was the one who sent most of the Voyander household to meet the good Lord well before their allotted span ended."

"It was a legal vendetta."

"Oh but still, such an old and noble family and they made such wonderful honey wine--was it wise to send her to Libris?"

"It might be the wisest course of all, dear Archbishop. She will soon get shot by someone's champion. Strange girl, very like the Highliber herself. Perhaps she might shoot the Highliber. I live in hope."

"Come now, Vellum, that's hardly the Christian attitude," laughed the Arch bishop, wagging his finger.

"Good Fras, you have no idea what that woman has done to the library service. Libris itself is being tom apart. The most worthy and noble senior Colors have been shot, exiled, or demoted."

"Has anybody noticed their passing?"

"James! How could you? The foundation stones of your cathedral do no more than sit quietly in their places, yet where would the rest of the building be without them?"

"Oh I agree, but there's more to a building than foundations. Good Fras, you are still in your old position, so virtue must still have rewards." He sprawled back along the bench and regarded Dmsas through bushy eyebrows. "What are your plans for tonight? Not business, I hope?"

"Well, there is the wine-tasting competition. Were you invited?"

"Oh yes, a matter of course.." but I'm working. Such a creel life, dear Vellum. I have to ride out to the Broadbank estate to do some private buying for the Episcopal Consensus."

Drusas' eyes widened and his heart pounded with anticipation. "Your dedication leaves me breathless," he said guardedly, aware that he was playing a large tish with a thin line.

"I had hoped to enlist you as a taster, Fras Vellum, but seeing that you have a trophy to win--"

"Fras James, what is a trophy beside friendship? I should be delighted to assist." ' "

"We leave within the hour."

"Splendid. Do you fancy a frost wine to keep the palate charged?"

"Such temptation, you might be the Call itself. Get behind me, Homed One!"

"Since when has the Call been from the Fiend?"

The Archbishop frowned. "Fraenko's heresy has surfaced again. There's to be a Council of Overbishops to pronounce upon it. Of course I am merely an archbishop, but I can tell you that nothing will change."

"So the Call is still meant to come from God?"

"Yes and no. 'Thou shalt not take pleasure from the allure of the Call' and 'Thou shalt not despair at succumbing to the Call' will remain in the catechism. The Call is seen to be like the allure of a bottle of excellent wine: your own bad intentions maketh the sin, yet the bottle and the wine are blameless."

"And what measure of sin is it?"

"From me, oh, five silver nobles in the alms box and reciting the Miserabilia twice a day for a week. Confess to one of the New Fraenkites and you might have to donate two gold royals to their campaign funds and spend a month in a hair shirt."

"That's about the difference between masturbation and adultery."

"So, you've had occasion to atone for both? Shame on you, and congratulations-"

The Call rolled over the taproom. The Archbishop surrendered in a private, well practiced blaze of forbidden pleasure. Drusas was able to assure himself that he could do nothing about what he was feeling before plunging into the same reverie. They slowly stood and mindlessly walked southeast across the taproom. Farmer, Archbishop, librarian, serving wench, cook, and vintner: all crowded against the wall, unable to think to cross the room to the door in the northwest wall, so blind and unreasoning was their desire to walk southeast.

Two blocks away the five strangers who had earlier considered Lemorel as potential quarry were safe in a coffeehouse. Being still during business hours, most people were indoors or safely tethered. A lamplighter was caught in the open, and he mindlessly turned southeast, walking through the streets and lanes, then out through the city gate. Moments after he passed, a Call timer tripped a release and the gate rumbled shut by itself. He walked across open fields, beside a dog that had trotted beside a certain Southmoor shepherd only hours earlier. Blood from the blackberry thorns was congealed in its fur.

Even though he had joined the procession of death, the lamplighter was safe. At his waist a clockwork timer ticked steadily, already forty minutes into its one hour cycle. He was walking through a vineyard when the time expired and the timer released a grapple on a strap. It snared a training post and he stopped, straining against his tether to walk southeast. The Call lasted three hours. It was after sunset when it finally passed, and the lamplighter shook his head, cursed, then reset his timer and began the trek back to town. In a way he had been lucky. The Call always stopped for part of the night, still holding its victims. He might well have remained in the cold, open fields until it moved on in the morning if it had not passed him by then.

Thickening cloud blotted out the stars, adding to the gloom of evening, and there were no lamps lit to cast even a feeble glow at the street corners. A chill, misty drizzle discouraged people from venturing out of doors, and many retired to bed early. The strangers left the coffeehouse, winding their timers as they went.

"Perfect timing for a Call," chuckled one as he untied their hired pony dray. "Aye, and such a surprising number of people will have been careless with their tethers," said the tall man.

Jaas was a stores clerk from the rail side warehouse. He was unmarried, middle-aged, and lived alone, and had just reached home when the Call had rolled over him. He awoke in his house, cold, hungry, and in darkness. He spent ten minutes finding the tinderbox he had dropped three hours earlier, then lit a pottery thumb lamp. By the smoky olive-oil flame he took a mutton and port sausage from the pantry, dragged his favorite chair to the table, and sat with his feet up. The

shadows of his feet made the caricature of a head on the wall as he carved off a slice of sausage. The shadow head had been his silent and faithful companion for years.

"Why be a free man if ye can't dine casual?" he asked the shadow, and it nodded gravely as he rocked his feet. There was a knock at the door.

"Call census!"

"I'm here," he called.

"Call census!" insisted the voice.

"Fagh dummart," Jaas muttered, lowering his feet from the table and walking to the door. "Here I be, th' art satisfied--"

As he flung the door open and stood outlined by his own lamp a fist slammed into his plexus, dropping him quietly and neatly. Within a minute he was gagged, bound, and tied in sack. Mabak left a broken tether strap clipped to an outside rail beside the firewood pile as the others loaded Jaas onto their dray. When the real census clerk came past he would conclude that Jaas was the victim of a faulty tether.

Jemli's edutor was working late in his office to make up time lost to the Call. Expecting only his students, he called "Enter" at the knock on his door, and did not even turn to face his visitors. A tax collector's clerk on the abductors' list went the same way. For the last two there was no stealth. The dray was tied up outside the Constable's Watchhouse and three of the abductors entered. Their papers had the seal of Libris, a book closed over a dagger. The Constable himself was on duty, and his hands shook as he broke the seal and read the order. Two writhing bodies were carried out in sacks as the Constable wrote out "Escaped just prior to a Call without wearing tethers" against both of their names in the Watchhouse register.

As the lamplighter began his rounds the pony dray had already left on the five-mile trek down the flat, fog-shrouded road to the river wharves at Wahgunyah. The real census clerks were busy on their rounds too, checking for missing citizens. They reported a terrible tragedy, five souls lost to the Call, and the Mayor of Rutherglen issued a proclamation about the proper use and maintenance of Call tethers and body anchors. This was shouted about for a half hour by the criers in the foggy streets. Christian, Islamic, and Genthic services were held in memory of the five, and prayers were said that they might be forced out of the Call by some fence, thicket, or mercy wall.

An oar barge was being held ready at the Wahgunyah wharves, and a bribe had insured that no questions were being asked. When the pony dray arrived, five sacks were unloaded and stored under cover. The abductors pushed the barge away from the wharf and began rowing into the gloom. The tall man wiped condensation from the bow lamp concave, then turned up the wick. A dim but focused beam swept the river ahead

for shoal buoys and snags. Once the barge was out of sight of the wharves, the sacks were opened and the prisoners were made to help with the oars.

"I'm not built for a life of rowing," said Jaas sullenly. "There's not a barge master on the river as would pay good silver for me." "Rowin's not the value on you," said the tall man. "What then?"

"You all can count. The Warren pays gold royals for those as can count."

"The Warren!" exclaimed the tax clerk. "Since when has the Warren been across more than stolen dry goods

"The price is two gold royals for souls as can count and speak Austadc. We've done well baggin' Southmoor teachers from mosques near the border. Got seventeen over the past five months, an' nine of them spoke Austaric. That's twenty-four gold royals--"

"Mabak!" barked the leader. "Hold your talk or wear a gag."

The tall man snorted and spat into the river, but obeyed.

One hundred miles to the west, in Rochester, the machine that would soon swallow them was being shut down for the night. Having given the Highliber her victory at champions it was dissolving into its exhausted components.

As the door of the cell thudded shut behind them the four men collapsed, two onto the lower bunks and two onto the straw that covered the flagstones.

"Told you this would be a bad day," said ADDER 17. "Whenever the whole nine dozen of us are assembled in the late afternoon, you can be sure that the correlator components will be worked like a harlot's door knocker

MULTIPLIER 8 lay on the floor with his eyes closed and his fingers twitching "We need more multipliers," he said. "When the load is on it all comes to us for verification and we can't keep that sort of pace up for long."

They lay there in silence for some minutes, then ADDER 17 sat up on the edge of his bunk. He reeled slightly from the movement, then shook his head and stood up.

"Anyone interested in a meal?" he asked, but received only groans and mutters by way of reply. He shuffled through the straw and pulled the slatted pantry door open.

"A pot of hot stew!" he said in surprise. "With fresh bread and a jar of beer."

"Mayoral Standard?" asked PORT 3A.

"No, just tourney beer."

"It's always tourney beer. Why can't we have something strong?"

"For the same reason that kavelars in a tournament have to drink it,"

said FUNCTION 9. "We need to be refreshed, not drunk. Could you pass me a bowl of stew, ADD?"

As the lowest-ranking component in the cell, ADDER 17 was servant and housekeeper to the rest. He began to ladle out the meal.

"Clean straw, clean blankets, and sulphur's been burned to kill the vermin," he remarked. "They're rewarding us."

"I expected a beating," said MULTIPLIER 8, rubbing his hands together to steady them. "The way they questioned us in the training hall after leaving the Calculor had me thinking the machine had failed."

"Nay, I remember an orderly HALT MODE coming up on my frame," said PORT 3A. "They use FREEZE if something's wrong."

They ate in silence for a while, and a Dragon Red Librarian looked in briefly for the evening inspection. She told them that some repositioning was to be done in the Calculor room before the next working session, and that there would be a training run to accustom them to the new arrangement.

ADDER 17 mopped out his bowl with a crust, then poured a measure of beer into it. The others were still eating, as their hands were too swollen and painful to handle spoons easily.

"I keep wondering what it's all for," he said after his first sip. MULTIPLIER 8 gave a groan of derision and held out his hand for the jar of beer. "To torture us, what else? A new punishment for felons," he said as he mixed beer with his stew.

"I disagree," said FUNCTION 9. "I was an edutor in Oldenberg University, and I'd never stolen so much as a copper--or made a political statement. There I was, walking in the cloisters after dinner when clout! When the blindfold came off I was here."

"Some rival may have wanted your job."

"There was not that sort of rivalry for the chair of Arithmetic Fundamentals. No, I think I was kidnapped especially to work here. Seven of the ten FUNCTIONS were kidnapped from provincial colleges, and all prisoners who work here used arithmetic in their work. Then again, most of the people here are those with backgrounds that.." well, nobody would miss them greatly. Felons, the lonely, the friendless, those whose loved ones are too poor to have proper inquiries made, and those wastrels whose loved ones are rich enough to bribe officials not to have proper inquiries made. Anyone who can be easily trained to work the beads, frames, and levers of the Calculor has a welcome. For many it's the best home they ever had."

"Surely someone with your background would be missed," said MULTIPLIER 8.

"Not so. My wife had a lover, a romantic dandy with no money. With me gone they got the house, my library, and an estate worth thirty-five gold royals--as well as each other. No, I would not have been missed. Someone did their homework well on me."

PORT 3A was asleep, his beer untouched, as ADDER 17 began to collect the bowls. He lifted the exhausted man's legs onto the bunk, covered him with a blanket, then drained his beer. The gong rang for a half hour to lights out.

"Anyone have time for a game of champions?" ADDER 17 asked as he stacked the bowls in the pantry.

"Got plenty," said MULTIPLIER 8. "The magistrate gave me nine years." "And for manipulating shipping registers, as I recall," added FUNCTION 9. "It was a very clever scheme, as you explained it. The rectifier who caught you out must have been a skilled mathematician."

"Never met the bastard," he said as ADDER 17 set up the board and pieces. "Right out of the blue the Constable's Runners turned up with a couple of dozen sheets of poor paper showing how I'd managed to pocket one gold royal for every thousand I handled. The churls I worked with stole from the shipments too, but none of them are here. It's damn unfair!"

"They were of no interest to the Calculator's master. You stole using arithmetic, they just pilfered from the cargoes. You are here because you showed skill with numbers in your crime."

MULTIPLIER 8 turned to the board and drew a straw from a pair in ADDER 17's fist. It was the longer, and he sighed with satisfaction as he shifted a pawn for his opening move.

"At last something went right for me today," he said.

FUNCTION 9 climbed up to his bunk and began leafing through a slim training book.

"Did it ever cross your mind, MULT, that the rectifier who caught you out was actually the Calculator?" he asked casually.

It had not. MULTIPLIER 8 gave such a start that he upset the champions board.

"I--yes, yes, that makes sense," he said in wonder at FUNCTION 9's powers of deduction. "It would not take long for the Calculator to unravel it. But why pick on me?"

"It probably examined the figures from every shipping register from every river port for a couple of months, looking for anomalies. Your scheme was invisible to human checking, because nobody would have the time to look at the registers in such detail. The Calculator, however, has greater patience and power than the mortals who comprise it--us."

"The devil you say!"

"There's more likely to be one very clever edutor or noble behind the Calculator than the devil. Just think of it. If the Mayor can plug the many thousands of holes through which his taxes and shipping levees are diminished, why he could double his income."

"So that's what the Calculator's for," MULTIPLIER 8 said in awe, turning

back to help ADDER 17 set up the board again. "You know, it makes me feel proud in a way. It's like serving the Mayor as a soldier."

"Except that you gets shot at in the army," said ADDER 17, extending his forearm to display a well-healed but ugly scar.

"Hah, try to escape and see who gets shot at. You start this time, ADD. It was I who tipped the board."

In seven moves MULTIPLIER 8 moved a knight to crush two pawns and tilt his opponent's bishop. This exposed his own bishop to an opposition archer, who had a "ready" weighting. ADDER 17 rotated the archer through half a circle, then removed the bishop.

"Damnhell, but I always forget what archers can do," MULTIPLIER 8

grumbled. "What I need is the Calculator to work out the choices for me." "But then it wouldn't be you playing," said ADDER 17.

"Nonetheless, the idea is sound," said FUNCTION 9, looking up from his book. "In playing champions you are always dealing with patterns and values. Anything that can be reduced to numbers can be handled by the Calculator."

MULTIPLIER 8 checked the status of his own archers but found that none of them had a worthy target. In peevish frustration he reversed one and shot down a pawn.

"I bet the Calculator could give the Mayor's Gamesmaster a run for his money," he muttered.

"It will probably never happen," said FUNCTION 9. "If it can snare felons it can be used to do far more important things than playing champions." "Such as?"

"I'm trying to work that out at this very moment. Just what can one use a huge capacity for arithmetic to do? One of the few surviving fragments from before Greatwinter mentions that calculating machines were used for everything from guiding ships to toasting bread. Most edutors would tell you that the writer was constructing some sort of allegory, but after spending a year in here I'm not so sure anymore."

FUNCTION 9 lapsed into thought. MULTIPLIER 8's knights took an enemy keep, but he forgot about an archer that ADDER 17 had used two moves to give a three-quarter wind--so that it could shoot diagonally. It shot his king across six spaces. MULTIPLIER 8 damned all archers, and the duty Dragon Red arrived to quench the lamp that illuminated their cell through a heavy glass block.

"I have a prediction," said FUNCTION 9, and a questioning grunt floated up from the darkness below. "Before long the Calculator will be made at least three times bigger. What is more, it will run for twenty-four hours every day, in shifts."

"What use is thatT" muttered MULTIPLIER 8 sleepily.

"What use is a Mayor who never sleeps?"

CAPITAL

Lemorel caught sight of the Libris beam flash tower an hour before she could see the walls of Rochester. She was gazing at the forest through the slot beside her headrest as the galley train rounded a long curve, and suddenly there it was, like a mighty pointed spearhead above the trees. After savoring the sight of the white tower for a moment she pushed harder against the pedal bars, adding slightly more impetus to that of the other passengers on the train. Its speed was not great. This train's passengers had a higher than usual proportion of the old, unfit, or indolent, and those who were either willing or able to pedal were being worked particularly hard.

Some minutes later they reached the border of the Mayorate of Rochester. The city of Rochester itself might have been the capital of the Southeast Alliance, but the mayorate was a tiny scrap of territory. The forward and rear gunners screwed down the brakes and the train shuddered to a halt as the clamps pressed against the wheels. Lemorel slumped in her seat, her tunic cold with perspiration. She was unsteady on her feet when she finally stood and stretched. The rail side accountant came striding out of his office, a thin, angular man who reminded Lemorel of the wading birds that lived by the irrigation canals of Rutherglen. He took the logbook from the rear gunner and looked over the figures, then inspected the stroke counters of the leading passengers. He came to Lemorel last. As he stooped to read her stroke counter his head lunged forward while his shoulders remained still, as if he were pecking the figures off.

"Excellent, excellent, excellent," he said as he straightened. "Strong, strong girl, eh?"

Lemorel nodded in reply.

"The train's log says.." says you should finish the trip with a credit--a credit, at least five silver nobles. Now, now, you rank third on the train, but first among the female passengers. So you may go first. Go first! Go, go."

She shambled off to the rail side privy. Hard work was rewarded with more than just journey credit. Priority use of facilities at each rail side was a further incentive to pedal harder to drive the train. She unclipped her hair before the mirror beneath the skylight. This would be the last chance to touch up her appearance before she reached the terminus at Rochester. She peered at herself carefully. No lines on her face as yet.." but a gray hair. And another! She plucked another five before rebinding and fastening her hair. She reeked of

perspiration and her clothes were damp, but at least she would not look disheveled. By the time she had brought water and pine seed cakes at the kiosk the Inspector of Customs was checking her roll pack. If the rail side accountant was a stork, this man was a ferret: small, agile, and sharp-eyed.

"You can afford a Morelac twin-barrel, yet you travel in the galley train?" he said, turning the worn but polished weapon over with nimble, dancing fingers.

"A gift from my family, Frasier Inspector," she replied, carefully casting her eyes down to the platform rather than locking stares with him.

"Hah! Rich family, then, but that's none of my business." The inspector opened her border pass. "Dragon Orange, and you're only nineteen. Impressive." The clockwork timer of Lemorel's body anchor clattered a warning, and she reached down to reset and rewind it. The inspector laughed. "No need for that now, Dragon Orange Milderellen, you're in the Rochester Null Zone. The Call never comes to this little may orate

"No Call, Frasier Inspector?" she asked, for no better reason than to practice small talk with a stranger.

"No Call, Frelle, but plenty of danger. The scum of the southeast gather in Rochester. Those who come here because they are too lax to wind a Call timer are too lax to mind their morals either. Rochester suits them. I spend time in neighboring may orates every year, so that the Call can put strength back into my heart. Everyone should do it, especially a young innocent like you. Are you to work in Libris?"

"Yes," she whispered, almost beside herself with pride at being called innocent.

"Then take my advice and live in the Libris hostelry. Stay out of the city. Perdition, so much perdition in Rochester." He handed back the flintlock. "If some town rake accosts you in an alleyway and makes lewd suggestions, just shoot him with your fine gun. Don't even bother to talk. You're a Dragon Librarian, the magistrates always believe the word of a Dragon Librarian. Can you shoot?" "Why of course, I--I passed the test for Dragon Orange."

"Ah yes, but always keep practicing. Never be afraid to shoot in your own defense, especially in Rochester."

"It's a comfort to know that not all Rochestrians are bad, Frasier Inspector," she replied.

He blushed. His lackey wrote out a customs ticket at his portable desk and the inspector peered over his shoulder as he worked, calling out items and values from memory.

"I marked down the value of your Morelac," he said as he handed the ticket to her. "The modern flintlock mechanism obviously reduces its value as an antique. He winked at her. "You are only a poor country girl whose family probably saved a long time for that gun."

"Thank you, Fris Inspector, thank you so much. I shall be very careful in Rochester."

As she strapped herself back into her seat Lemorel tried to come to terms with what had just happened. Someone had read her name without asking if she was the Lemorel Milderellen. Could she shoot, he had asked. Wonderful! Perhaps she really had come far enough to escape her past. She fingered the little eight point star at her throat. The inspector had probably been a Gentheist. They believed that the Call was sent by their gods to strengthen the character of the human race.

"At the ready!" the rear gunner cried, and Lemorel strained against the pedals. The front and rear gunners unscrewed the brakes and the five-carriage train began to ease forward. "Under way!" cried the rear gunner as the brake pads came clear of the wheels. The train began to gather speed.

So they were in the Null Zone. To Lemorel, life without the Call was unimaginable. How could she live with the idea of never having to be vigilant against wandering off into oblivion? Could she afford to lose her survival habits while staying in Rochester? How long would she stay? Did she really need to leave Rochester every so often?

Rochester stood on an immense plain of low eucalypt forest, but the area close to the city was cleared for fanning. The plain abruptly emerged from the forest into ploughed fields and vineyards, with a scattering of fortified manors. So, they must have freebooter raids even here, Lemorel thought to herself as she surveyed the walls and gun slits. A small beam flash tower stood in the grounds of each manor.

The walls of the city were streaky gray abandoned stone capped with slitted battlements. The city proper was on an island at the center of a shallow lake, with a wooden road bridge and two parallel lines on trestles crossing it. Lemorel looked to her travel book as she pushed at the pedals and the train rumbled smoothly through the fields. The walled inner city was roughly elliptical, and five miles by eight. Surplus population had spilled into a band of suburbs halfway around the shores of the lake.

At the outer wall a switcher joined the train, and guided it through a maze of points and signals in the shunting yards. Great wind-train engines towered over them, with spiral painted rotor towers spinning lazily in the slight breeze. The burly crews of navvy engines looked across contemptuously from their stocky, powerful shunters. Suddenly the jangling confusion gave way to the trestle bridge across the lake, and the ride was smooth again. The city entrance was an archway in the wall, and the train was at dead slow as it passed through. The Rochester terminus was a long roofed rail side sheltering the platforms and a maze of gates, fences, and small offices.

Lemorel unbuckled herself from the seat and stiffly paced beside the

train while she waited for her meter to be read by a rail side accountant. After the gate tax and weapons levee she had made three silver nobles on the trip. Walking slowly, her legs like lead weights, she made her way past inspectors at the plat form gate, customs gate, tax gate, City Constable's gate, and finally the rail side gate. Amid the gaggle of signs with names that people in the crowd were holding up was one that read MILDER ELLEN--DRAGON ORANGE. Lemorel walked across to the woman holding it. She was five or six years older than Lemorel, with braided brown hair. Her gray librarian's uniform had a Dragon Blue band on the right arm.

"Evening's fortune to you, I'm Lemorel Milderellen," she said, summoning the enthusiasm to smile and putting her roll down.

The other smiled back but did not reply. Instead she held out a card.

MAY

THE PROMISE AND FORTUNE OF THE MORNING/AFTERNOON/EVENING BE WITH YOU.

I AM DA RIEN VIS BABESSA, DRAGON BLUE. I HAVE NO VOICE, FRELLE,

PLEASE

BEAR WITH ME. I AM TO TAKE YOU TO LIBRIS. IT IS TWO MILES AWAY.

"Two miles," echoed Lemorel, who was having trouble even standing up. What would a genuine country girl do? Break down and cry or suffer in silence? She decided to suffer. With a deep breath she shouldered her roll. Darien gestured to the road and began walking. Once they were clear of the terminus she showed Lemorel another card.

TAKE THE NEXT TURN ON THE left. ENTER A COFFEEHOUSE NAMED THE

RAIL SIDE WELCOME.

"I'm right to keep walking," Lemorel replied, but the words were forced.

I MUST BRIEF YOU AOUT LIBRIS BEFORZ YOU AoaVE was on the back of the same card.

Lemorel needed no more persuasion. The shop was of scrubbed redbrick with abandon stone slabs on the floor, and Northmoor tapestries glittering with gold thread on the walls. Incense, coffee, and half a dozen varieties of smoke weed smothered her senses as she entered. Her eyes were streaming as a waiter in a jezalakan saw them to a table by the window. It was not until she had half finished her mug of Rockhampton Ebony that she remembered her mute escort.

Darien was sitting patiently, fingering a fan of cards and watching the traffic passing outside the window.

"Do you know the Portington sign language?" Lemorel asked.

Darien's head snapped around, her formerly placid eyes bulging with surprise. "Yes, yes," she gestured back at once. "How do you know it? It is taught only to the mute and deaf."

"The parents of a friend of mine were both deaf-mutes. I picked up enough to hold a conversation."

Darien sat rocking back and forth in her seat, her hands moving in

little circles as she searched for words. "I have been in Libris for nine years," she signed, too overcome to think of anything else.

"I've been a librarian for two years," Lemorel replied.

"In all of Libris there is none fluent in sign language but you and me." There was something approaching hunger in Darien's face. "I hope we can be friends, Frelle Lemorel. I would love to put these damn cards away sometimes." A friend. The prospect appealed to Lemorel more than she dared admit.

"I'm not on the Libris staff yet, Frelle. I came here to take the Dragon Red test. Where can I find a hostelry?"

"There is a spare pallet in my rooms in the Libris hostelry," Darien signed so quickly that Lemorel barely caught the meaning.

"I couldn't impose--"

"No, no, I insist. Please, agree to stay."

"Well... it would be a relief not to worry about finding lodgings before the examination. When will it be, do you know?"

"Tomorrow afternoon." '

Lemorel gripped the edge of the table as she felt herself sway backward. "As soon as that?"

"There are problems with the internal workings of Libris, Frelle Lemorel. We need new staff urgently. The Highliber has a... a secret machine that most people know about but which none but the most trusted have seen. This machine is said to handle beam flash signaling with unheard-of efficiency, but it has been making errors recently."

"If they gave me a few days to rest and study I might have a better chance of passing the examination and joining the staff to help with the machine."

"Maybe so, Frelle, but the examiner is available only tomorrow. He has to work on the machine as well. Come now, I shall take you to my rooms, then show you the bathing chambers and the refectory, when you are washed, fed, and rested you may feel happier about the examination."

"No bath can replace study," said Lemorel as she stood up. Darien signed a paper bearing the Libris crest that the waiter brought, and then she picked up

,

Lemorel's pack roll. She staggered a little under the unexpected weight as she swung it across her back; then they set off down the cobbled streets to Libris.

Outside the coffeehouse the shadows were lengthening as evening approached. Nobody wore Call anchors, Lemorel noted, but then if a Call swept over the city the walls would prevent people from going very far. Still, it was like being the single clothed person amid a gathering of nudists--and even in the notorious nudist estate at Hansonville the

patrons were reputed to still wear their body anchors. Here there were no body anchors, no tether rails, no mercy walls, nothing! The very thought was somehow wanton. Perhaps that was why people's morals seemed looser in Rochester.

An ebony Kooree carrying a nine-foot spear and wearing no more than a loincloth walked past talking animatedly with two merchants and a man wearing the uniform of a par aline guard. Robed, veiled Southmoor women strolled in groups; pack runners trotted past with impossibly balanced loads on their heads. Pushtricycles towed buggies laden with the gentry of the city, while armed escort runners warily surveyed the crowds for ambush. Lemorel noticed that she was not being jostled. She had expected to have to fight her way through the evening rush, yet the two librarians were given a clear path wherever they walked.

A Gentheist preacher wearing a ragged jezalakan shouted in a hoarse yet strident voice to a small crowd of idlers.

"... and woe unto ye who would shun the touch of the Call and let thy souls grow so soft that..."

His voice was quickly lost in the background din of the cries of the vendors of fine cotton, fine silk, fine wool carpets, fine tomatoes, fine blood-beans, fine sandals, and fine gunpowder. Ahead through the crowd was another preacher, a backwoods Christian Foundationist by the look of his black gamberloid and buckle shield hat.

"God in his wisdom allows this place of perdition to exist so that honest folk might see what life can be like without the Call to guide them along His path. Now ye have seen, friends, so I say unto ye, leave this place of Satan's comfort, turn thy backs on..."

"Fine pastries, macaroons, pine seed cakes, roast macadamia nuts."
"Strikers, new flint strikers."

Darien nudged Lemorel for attention, then gestured. "It is a wild part of the city, but it is the shortest way."

Gangs of nav vies from the rail yards roamed in groups. Their legs were distorted with muscle from pedaling the shunting engines, and bulged against the trews of their blue uniforms. Harlots lounged at the upper windows, each flagged with a guild sign while pimps carrying the corresponding guild sign flags ran among the passing crowds. Hellfire preachers shouted doom and brimstone at the women, who responded with flashes of breast or backside. Someone tugged at Lemorel's ann.

"Southrnoor girl, handsome Fras, the escaped concubine of a Wimmeran and skilled in--" The pimp stopped with something between a gasp and a cough as Lemorel turned and he realized his mistake. He bowed, ducked, and backed away babbling, "Pardon Frelle. Mercy Frelle. Evening's Fortune unto you Frelle." Darien was laughing soundlessly.

"I can't look as bad as that," said Lemorel. Darien shook her head.

"It is the Rutherglen uniform. In the half-light it resembles that of a shunting engine navy."

In the center of the road five nav vies cheered some unseen companion in an upper-floor bedroom. Booming laughter and outraged squeals about dirty hands echoed down. From a neighboring window a buxom girl bared a pair of jiggling breasts painted like bull's-eyes at the nav vies then at Lemorel.

"Must buy a new uniform," muttered Lemorel, but Darien had sharp hearing and she caught the words.

"I'll lend you one of mine," Darien's fingers replied.

The offer of something as intensely personal as a uniform sent a curious, thrilling sensation shivering through Lemorel's exhausted body. A group of enormous Central Confederation nav vies approached them in a line, then suddenly split to let them pass, bowing exaggeratedly and calling, "Breil, breil Frelle hufchen," to Lemorel,

"They're calling you a pretty girl," signed Darien, trying to be helpful, but Lemorel knew enough of their language to realize that they had taken her for a female shunter.

Above the rooftops the huge beam flash tower of Libris beckoned, and before long they reached the wall of the library complex. Darien signed them both in and they went straight to her rooms. While Lemorel bathed, her new friend took measurements from her uniform. By the time the refectory bell rang Darien had tack-sewn a Libris uniform of her own to Lemorel's size. Feeling nervous and vulnerable in a borrowed bathrobe Lemorel took the gray clothing and dressed behind a paper frame screen painted with stylized Warialda flowers. Darien clapped as she emerged.

"I'm not on the staff yet," she said doubtfully. "Tomorrow some examiner will be trying hard to make me change back into my old uniform."

Darien held her fingers up to the lamp and began gesturing. "I know your examiner, Lem. Do not be afraid of him. He is a bit abrupt but very fair. Just remember, it is in our best interests to recruit you."

"I may not be good enough. I'm weak on heraldry."

"So hire a herald. I have three working for me. Heraldry can be waived if you are outstanding at mathematics."

"Really? It can?"

"It can. The Highliber is desperate for Dragon Librarians with skill at mathematics."

"But that will surely cause imbalances in the running of Libris."

"It already has, Frelle Lemorel. Shall we go to the refectory instead of cooking here?"

"Just one more question. You said that you have three heralds working for you?"

"Yes."

"How many more staff do you supervise?"

"Twenty-five."

"Yet you came to meet me, a base recruit at the par aline terminus? A senior Dragon Color like you?"

"A newcomer's first impressions are the impressions that last most strongly. The Highliber's faction could not afford to let some inexperienced junior babble nonsense to you, any more than we could allow a minion from the Libris restorationists to pour lies into your ears. We value you, we want you to know that."

Highliber Zarvora had taken charge of Libris two years after the death of Mayor Jefton's father. She had gone to great trouble to gain the boy's attention and trust, amazing him by predicting lunar eclipses and delighting him by breaking the secret codes of the nobility. When she began to promise great wealth and real power, he was ready to listen. The Highliber was officially one of the monarch's private tutors, so nobody wondered at the long tutorial sessions in her office.

"We need a glorious war to restore the throne's dignity," he declared as Zarvora tried to explain a new scheme to snare tax evaders. "I grant you that it is comforting to see the treasury filling for a change, but that inspires no respect."

Look at this decoded dispatch: they call me Mayor Miser the Mouse!" "That was from Tandara's mayor. Very rude of him." "I want to be treated with respect."

"He is a dangerous man. Better to have him treat you with contempt and ignore you, than treat you with respect and send assassins."

Jefton caught his breath. Zarvora continued to tap at her keyboard. Her attitude was beginning to annoy Jefton.

"I am considering a campaign against the Southmoors," he announced in a loud but forced voice.

"You have insufficient troops and kavelars," Zarvora patiently explained without showing any trace of surprise. "The Rochestrian nobles and kavelars would come to your aid if the Southmoors seemed likely to win, but if you had caused the fighting in the first place you would find yourself kneeling before a headsman's block while your own nobles and the Southmoor envoys watched to make sure the job was done properly."

Jefton flicked the wing of a mechanical owl in frustration. The row of dotted gearwheels rattled into a new pattern in response.

"Please do not fool about with the Calculator, Mayor, it is easily disturbed. One day it will provide you with an army that nobody can stop."

He petulantly flicked the wing again, but Zarvora had already typed a HALT MODE command into the keyboard, so nothing happened. It was symbolic of his reign: whatever he did would be countered.

"I apologize, Highliber," he said, walking to the window and staring

out over the slate roofs to hide his shame. "I dream out loud when I talk of war. Dreams are the only place where I can break loose from my peers. Even if I had the money for a bigger army I could not raise one, for they would rip up the decree ordering its recruitment before the ink was dry."

"You may not need a bigger army," said Zarvora as she tapped out a new set of instructions. She let the words hang. After a moment Jefton turned.

"Is this an idle promise?" he demanded.

"Have I ever made an idle promise?" she asked, still typing. "I could give you a demonstration, if you care to sit down before the champions board. The Calculator is a skilled player, and I shall demonstrate--"

Suddenly she stiffened, staring at the rack of marked gears.

"Champions?" exclaimed Jefton with amazement. "It can predict eclipses, catch felons, break secret codes, and now you have taught it to play champions too? It's like having a tame god at my command."

"There seems to be a problem," muttered Zarvora, scowling at the rack of gears. "The god may be tame, but it is not entirely well just now."

Jefton thought for a moment. "You mean it's made an error? Perhaps it was distracted by all the book-organizing work that it does for Libris."

"The Calculator has no background tasks just now, Mayor. It is dedicated to the tasks that I have invoked from this office."

Zarvora continued to type test calculations. From the way that her eyes widened and her fists clenched it was obvious that the Calculator made several more errors.

"Its reliability seems to be in question," ventured Jefton. "If it cannot perform simple calculations how can I trust it with questions of the defense of the realm?"

"It has already brought you more extra income by snaring dishonest clerks than a one-third tax increase would have," Zarvora explained with strained patience. "What is more, it has brought popularity too. Your people have not been out of pocket, yet they have seen the unjust punished. It also lets you spy on your nobles by the very secret codes that they use to conceal matters from you."

"Perhaps the Calculator gets careless when it is tired. Rest it more often. That could solve the problem. My advisers often fall asleep when meetings drag on."

"You do not understand, Mayor. The Calculator does not get tired like we do, and cannot make a mistake. If the felons who perform the operations inside it grow tired it will work slower, but its accuracy should not change."

"Should not?"

"Will not, once I find the problem. When it is fully functional it

will be made up of three teams of components who will be swapped every eight hours. The Calculator will then be an adviser to you which will never sleep or die. Even better, it will have no personal opinions or interests to color its advice."

Although young, and born to his position, Jefton was as astute as many far more experienced rulers. He always thought through the consequences of ad vice offered to him with great care, but acted decisively once he was convinced. The advantages of the expanded Calculor had not taken long to win his confidence.

"I must have the services of the Calculor available by the end of the month,"

he announced after a few moments of thought.

"But Mayor, the source of the errors--"

"The errors do not concern me. If they tend to appear when the components are tired, the problem will disappear when the components are rotated before they actually become tired."

"But the weakness will still be in the system."

"I know you, Highliber Zarvora. You are a perfectionist, and such people do more than is needed to accomplish a task. So the Calculor can play champions, eh? I have noticed that Fergen has been in a very bad mood lately, and my lackeys tell me that he has been visiting this office. I suspect that champions has been played in secret, and that the Calculor has thrashed him soundly."

"I had meant to tell you once the error had been--"

"Excellent, excellent! If it can play champions so well than it can unravel political intrigues too. Remember, the end of the month, Highliber. If you cannot get it working I shall send in a committee of edutors from the University."

Zarvora was lost for words. A committee of edutors! The idea of anyone discovering what the Calculor could really do made her shiver.

"I must return to the palace now, Highliber. What should I do about that insulting dispatch?"

"Take heart from it, Mayor. It means that they acknowledge that you can manage your treasury and will not be running to them for loans. As long as you seem harmless and thrifty you will be left free to govern Rochester as you will."

Zarvora signaled for the Calculor hall to be cleared as soon as Jefton left; then she hurried down the seven flights of stairs from her office to inspect the place in person. System Controller Lewrick was waiting when she arrived.

"Everything must be checked," she announced. "Every gear, wire cable, register, transmission line, and decoding chart. Every bead on every abacus and every cog in every translator."

"Another error, Frelle Highliber?"

"Five errors, and while I was demonstrating it to the Mayor."

"Ah, I see. Is he losing faith in our machine?"

"On the contrary. He was so impressed that he wants it fully

operational by the end of the month. In his opinion, the errors will cease if the shifts are changed before the components tire."

"A good idea, the Mayor is a bright lad."

Furious, Zarvora seized the little man by the tunic and lifted him until their faces were level.

"I have been keeping very accurate records of the failures, Fras Lewrick, figures timed by the reciprocating clock in my office. The errors are turning up progressively earlier in the shifts. Do I make myself clear?"

He smiled nervously and nodded. She put him down.

"Well, well, the little monster seems to be growing lazy," he said as he straightened his clothing.

"It is not alive! There is a defect, and it is getting worse. If the Calculor becomes operational before we find it, Jefton will get some very stupid advice-which he will follow blindly because he trusts the Calculor too well."

"Serves him right for meddling with our work," said Lewrick with a shrug. "After the first big mistake he will leave us alone."

"After the first big mistake he'll send in a committee of edutors from the University," said Zarvora, smiling grimly in anticipation.

"Edutors? In here?" cried Lewrick in disbelief that became horror as he realized what the full consequences would be.

"Edutors, in here, Fras Lewrick."

"Godslove, no! They wouldn't understand. They would try to prove that it couldn't work. The secret would be out, damn nobles and relatives would try to liberate some of our best components."

"It will only happen if the errors are not stopped. Come, we shall begin by checking the abacus frames on each desk."

They started at the back row of desks on the right-hand processor of the Calculor and gradually moved forward. After an hour they had found no more than a hidden bag of walnuts and some obscene graffiti.

"The mechanisms are in excellent condition, Fras Lewrick," said Zarvora as they reached the partition that separated the FUNCTION section from the common components. "You are to be congratulated for maintaining the machine so well."

"I love the Calculor, good Frelle," he confessed as he checked the gears in a translator. "When I think of some rabble of edutors violating this hall, babbling their ignorant opinions, poking their grubby fingers into her gearwheels.." it makes me shake with rage. I think I'll clean my gun and spend some time in the gymnasium tonight."

"Admirable loyalty, Fras Lewrick, but your time would be better spent finding the defect. We know that the same incorrect answers come from both Dexter and Sinister processors, yet these are separated by two cloth partitions ten feet high--and the corridor between is patrolled by Dragon Colors. Still, components on the two sides must be communicating with each other."

"Would you fight a duel rather than let the Calculor be violated, Frelle Highliber?"

"I already have. Now, if two components had a tiny mirror each they could flash coded signals on the ceiling of the hall. Have the components stripped naked and given new uniforms as they enter. Nothing reflective must be smuggled in."

"Yes, Highliber."

"Coughs, or the humming of tunes, could be code as well. Have all components gagged for the next shift. I would like to put the two processors into separate halls, but that would take months of rebuilding, and would slow the processing time. Have the components well rested, Fras Lewrick. There will be a ten-hour series of tests tomorrow."

The Assessor of Examinations was barely ten years older than Lemorel, and did not conform to her image of Dragon Silver Librarians. He was graying, haggard, and unshaven. His robes were disheveled, and looked as if he had been sleeping in them. There were ink and coffee stains on his sleeves.

"Dragon Orange Milderellen?" he asked, glancing up from a nest of forms and other paperwork as she entered.

"Yes, Fras Assessor."

"Please sit down," he said, opening her file. "Good marks in mathematics, in fact honors. You topped your year three times, I see." Suddenly he frowned. "Won the regional shooting championship twice and shot the magistrate's champion in a duel: that's a worry."

Lemorel felt a surge of horror, and suddenly wondered if she would be given a test at all. Without another word he closed the file and fished out two lists of questions from the mess on his desk.

"Please complete these tests when I tell you to start," he said as he handed them to Lemorel with a slate for rough work. "Married?"

"No, Fras--"

"Just as well. I was married, but my wife left me. Thought I had another woman in Libris, because of the long hours I work. Hah! I should be so luckry. Lackey I"

A short girl with large eyes and long black hair came mincing in from another office. She smiled at Lemorel. Her tunic bore the twin bars of the library-assistant grades.

"Rosa, this candidate is to be examined before two witnesses for a Dragon Red upgrade. Bring your work in here and give the Frelle anything that she needs--coffee, headache powders, all that."

Rosa took Lemorel over to a desk where an hourglass with a calibration seal stood at one corner.

"Pay him no mind," she whispered. "He works too hard and doesn't get enough sleep. Now, you have exactly one hour to finish, from when I turn the hourglass. Ready?" Lemorel nodded. "Start... now!"

There were ten questions of moderate difficulty on the first sheet, and five really hard questions on the second. Fighting down waves of panic, Lemorel scanned for the easiest questions, marked them in order of difficulty, then started.

The first four she did mentally, juggling figures and scrawling down answers without bothering to verify anything. The sand drifted down into a pile that grew ominously. Group theory, integral calculus, and division of matrices: some of the methods she could only guess at, others she had studied. She rounded off results for convenience, wrote in numbers remembered from tables and made approximations from roughly chalked graphs. In the background the Dragon Silver muttered to Rosa.

"Working us like slaves, how can she expect me to fill these quotas? Does she think Dragon Greens grow on trees? For every ten components we need one Dragon Green equivalent in the support staff, yet she wants the machine up to a thousand components in ten months."

Lemorel was desperate by now, and as the sands ran out the final question was still unanswered. The Dragon Silver continued to mutter about workloads and not having time to spend his apparently generous salary.

"Time's up!" Rosa announced, reaching across to take the papers and slate back from Lemorel. She handed them to the Assessor. He sat up, stretched, and began to mark the answers.

She would be sent back to Rutherglen now, to Lemorel there was nothing more certain. She forced herself into a cold, calm state to keep the tears back.

"Now... first paper, ninety-six percent, that's good. Second, fifty-two per cent. A bare pass but good enough," he concluded with a flourish of his pen, then looked up with a smile. "Congratulations, that was short notice, but informality is in vogue here."

"Have I passed, Fras Assessor?" "Of course, welcome to Libris." "But that was only mathematics."

"Frelle, we have to work under pressure to keep the Highliber's needs satisfied. Look at my desk: a staff of nine used to do all this, but now there's just me and a couple of assistants."

He scribbled on a form, then signed it and handed it to Lemorel. "Fras Dragon Silver--" "Dargetty, Tarrin Dargetty."

"Fras Tarrin, this means so much to me, I just have to tell you. Working in Libris has been my dream for years."

"I'm glad to hear that, Frelle Lemorel, because you won't do anything else but work in Libris--except for sleeping and eating, if you're lucky. Now, lovely to meet you, but you'll have to hurry if you are to catch the Registrar's lackey before he closes up for the afternoon."

"Fras Examiner Dargetty, don't you even know Libris office hours?" Rosa cut in. "It's not even four as yet, she has over an hour."

Tarrin sat perfectly still for a moment, then slowly looked up at the reciprocating clock. He turned to Rosa.

"Did you just make Frelle Milderellen do two exams in one hour?" he asked slowly.

Lemorel blinked, too numb to comprehend. Rosa gasped.

"Oh--shewt! Er, well--well you didn't tell me!"

"You're paid to think as well as follow orders," said Tarrin, putting his head in his hands. "A red header on one paper, a green header on the other."

"I don't follow," said Lemorel anxiously. "Am I a Dragon Red?"

"Only for as long as it took me to mark the second paper. You're Dragon Green now. Ah shewt, where are the regulations? "When a candidate faints, suffers a heart attack, gives birth or is otherwise unable to complete a paper for any justifiable reason the mark may--at the discretion of the examining officer--be increased by a percentage of the mark obtained equal to the percentage of the time remaining." That's one hundred four percent in your case.." no, that will never do. Anyway I'm not sure if that clause covers shoddy supervision." "Giving birth seems unlikely."

"Not at all, the stress of the exams seems to trigger it. Apparently happens every couple of decades--on average."

"Why not add the two marks together and take an average?" Rosa suggested. "That way she gets two credits instead of a distinction and a pass."

Tarrin looked up and clasped his hands together. "I know, she could do another paper for Dragon Green. Frelle Milderellen, what do you think of---Rosa, catch her!"

They helped Lemorel back onto her seat. Rosa sat with her while Tarrin went outside to find a lackey to bring coffee. In a few minutes she was feeling better.

"Met the Registrar in the corridor and told him what happened," Tarrin announced as he placed a steaming mug of black coffee in front of the new Dragon Green. "He said he'd sanction a distinction for Dragon Red and a credit for Dragon Green, with an option of sitting the exam again if you wish."

"A credit's quite enough, Fras Tarrin. Are you sure there are no other tests?" He rubbed his face with one hand and sat on the edge of the desk.

"You just passed the test for Dragon Green, Frelle, and there's an end

of it." "But what about heraldry and advanced cataloguing?"

"Mathematics has become everything in Libris, at least for the work that you will be doing. You've passed mathematics at Dragon Green, so you are a Dragon Green Librarian. I know there are rituals and ceremonies that ought to go with this honor, but there's no time for all that. Ah yes, I'm sorry. I remember my own Dragon Green ceremony, with a thousand Dragon Librarians, edutors, and library assistants presided over by the previous Highliber in the old Investiture Hall, but now the Hall has been given over to--well, you will see soon enough. Now Rosa, try to make up for what you did to Frelle Milderellen by taking her papers over to the Registrar's lackey."

"What I did to her? You were the one who--"

"Just take the papers over and come back with her green arm band Please?" "Just one question," Lemorel asked when Rosa had gone. "When you read about my dueling record you seemed to have doubts about me. Will, ah, my past count against me here?"

"No, quite the opposite. If you had come in as a Dragon Red with that sort of shooting record Vardel Griss would have claimed you for her Tiger Dragons just as fast as she could petition the Registrar. She's under pressure to meet recruitment quotas too. Now, however, you're too senior to be a Tiger Dragon recruit so I can send you to Systems Design."

Lemorel was too drained to reply, and just stared at the cooling mug of coffee. Tarrin flinched nervously several times, then gritted his teeth, stood up, and came around the desk. He put a hand on her shoulder. His touch was light and trembling, and he smelled of stale clothing and coffee. Here's someone with even worse graces than me, Lemorel told herself. He coughed and cleared his throat.

"Frelle Lemorel, trust me, this is a better path for you. Five years in Systems Design and you'll be a Dragon Silver, I guarantee it. By the way, I want you to enroll at the University for some postgraduate work."

"I--ah, yes. How long is the course?"

"Three years, normally, but I'll arrange for the exams to be earlier. I need eleven new Dragon Blues to act as senior regulators in the, ah, Highliber's special calculation section, and you need to have at least partly completed a degree to be made a Dragon Blue."

Rosa returned and announced that Lemorel could not be awarded her green arm band by proxy. Utterly exhausted, she shambled to the Registrar's office, where a Dragon Blue tried to comply with a fragment of the old ceremony by reading some lines of the formal presentation and giving her the green arm band on a faded red cushion that had been on his chair a moment earlier. Tarrin, Rosa, and the librarians waiting in the queue for their pay envelopes clapped.

"Where are you staying?" Tarrin asked as they walked out into the bluestone corridor.

"In the hostelry," replied Lemorel, her words slurring. "Darien vis Babessa... letting me stay with her."

"The Dragon Blue, linguistics expert. Ah yes. No real talent with figures. Rosa, escort Frelle Milderellen to her rooms, she looks terrible. Sleep late to morrow, Frelle, don't turn up for work until seven A.M. I'll introduce you to your superiors and have you sign the Capital Secrets Act."

"As in Rochester the capital?"

"The word 'capital' refers to capital punishment, Frelle."

Closter and Lermai pushed their overloaded book trolley down the long passage way that led from the backlog store to the Cataloguing Chambers. Normally they would have made one such trip every two months, but for several weeks past the rate had climbed to nine trips per day. The two elderly attendants were grimy with dust and sweat.

"Soon there'll be no backlog at all," said Lermai as Closter complained about their workload. "Then things will ease."

"No backlog? No backlog?" retorted Closter. "What's a Cataloguing Department without a backlog? The new Highliber has no respect for tradition. She's just too.. new."

"Not so new, Closter. She's been here three years."

"Three years? Hah! Her predecessor was here ninety-five years. He came here as a mere boy and worked his way up. Forty-one years as Highliber! Tradition meant something under him."

They trudged on in silence for some yards; then Lermai sneezed into his sleeve. A cloud of dust billowed out, causing Closter to sneeze in turn.

"It's all because of that signaling machine," grumbled Closter as he waved at the dust. "All books have to be in the main catalogue because the machine can only find books that are catalogued. Men and women slavin' for a machine!"

Hah! The whole of Libris is turning into a machine. And what are we?"
"Library Attendants, Class Orange, Subdivision Five--"

"No, no, dummart, we're machines, I'm meaning. Even though we're breathing, talking, sneezing people, the Highliber's turning us into machines."

As they opened the door to the Cataloguing Chambers they instantly knew that something was wrong. Along the rows of overcrowded desks not a single cataloguer was moving. A heated argument could be heard in the Chief Cataloguer office.

"The Highliber's here," whispered a Dragon Yellow, holding a finger up to her lips.

"I do not request, I order!" shouted Zarvora from behind the office door.

"My department! I'll not run it to please your daf-shewt machine," the

Chief Cataloguer shouted back in a high, reedy voice.

"My library! You will do what my system demands."

"I challenge your system, I challenge you!" shrieked the Chief Cataloguer.

At the word "challenge" the cataloguers cringed, and Closter and Lermai took refuge behind the trolley. The door to the office was flung open.

"Meet me in the dueling cloisters at dawn or report for exile to the par aline chain gangs," called Zarvora as she strode out.

She passed Closter and Lermai without a glance and slammed the door behind her. The Chief Cataloguer emerged from his office holding some tom, grimy pages. His face was red with fury and his gray hair disheveled.

"Tore up my copy of the cataloguing rules!" he shouted at a burly young Dragon Blue. "Horak, you must stand in the dueling chambers as my champion."

"Against Highliber Zarvora?" replied Horak without standing up. "Sorry,

good Fras. I'll duel for you, but suicide is another matter entirely."

The Chief Cataloguer's blue eyes bulged so alarmingly that Horak recoiled. "Traitorous wretch! I appointed you to your Color, and I can break you down to Dragon White."

Horak marshaled a grim smile. "Better a live Dragon White than a dead Dragon Blue."

The Chief Cataloguer flung the tattered pages in his face. "Get out! Now!"

he cried, pointing at the door. Horak left his desk and walked across to the main door.

"Enjoy your new appointment to the par aline gangs," he called as he pulled the door closed behind him. The Chief Cataloguer snatched up a thesaurus and flung it after him. It fell short, striking a pile of books on the trolley and spilling them across the floor.

"The Highliber's angry about something," whispered Closter as they picked up the books, "and it's not the cataloguing backlog either. They say something's wrong with her signaling machine. They say a bad spirit has possessed it."

Lermai opened his mouth wide in astonishment. The Great Machine was only a signaling system as far as the librarians and attendants knew, but it was so complex and large that they had begun treating it as a living--and senior-member of the staff.

"Why not call in a priest to perform an exorcism, asked Lermai.

"why? Why? Because there's not been a machine like it since before Greatwinter," replied Closter, feigning exasperation. "The art of exorcising machines has been lost for so long that we have not a single

book of prayers and ceremonies concerning it."

Observing the drama from a corner of the cataloguing room were Tarrin and Lemorel, trapped during the new Dragon Green's tour of the Libris departments. As Closter and Lermai picked up the fallen books Tarrin took his recruit by the arm and hastened her through a side door and down a service corridor.

"We see a lot of that," Tarrin said with a shrug once they were out of earshot. "The Highliber is introducing reforms that certain factions in Libris dislike. People have to work to schedules and deadlines now, people who have never worked to a schedule or met a deadline in their lives. As you have just seen, our complaint system is a little dangerous. A complaint against the Highliber must be addressed to the Highliber herself before it can be addressed to the Mayor. The Highliber can choose to challenge--and that means a duel. Now, you could name a champion, but if the Highliber kills your champion, then she has the right to demand a retraction. If you refuse, you have to fight her in person." "That's the same as everywhere in the Southeast Alliance."

"Yes indeed, but in Libris there's been a lot more of it lately. The Highliber's killed nineteen champions and two Dragon Golds who chose to duel in person. She's a deadly shot and has a bad temper. On the other hand, us younger Dragon Colors love her. She makes everything move, she gets things done."

They came to a newly renovated area with whitewashed walls and skylights. Tarrin had to sign them in with the guards at three separate doors, and they finally entered an office with the title System Controller stenciled roughly on the door. Tarrin introduced Lewrick, who smiled and kissed Lemorel's hand, then called for his lackey to bring coffee. He had a faint smell of bath salts, and impressed Lemorel as the sort of person that one could not help but like.

"Milderellen, yes, that paper on the directional distribution of the Call," Lewrick said as he carried a cane chair over for her. "Excellent work. Did you work out the mathematics yourself?."

"Yes, Fras Lewrick. It took five months."

"Months? It would have taken me decades--by myself, that is. Of course I could do the work in days using the Highliber's, yes, ah, what you are about to see." He rummaged about among the papers on his desk, then brought over a form on a clipboard. It was headed Capital Secrets Act.

"You are about to learn of a secret machine, and the secret is a close one," Tarrin explained. "Please read this form and sign where indicated."

Lemorel read. It was an act endorsed by the Mayor, but was internal to Libris. Something known as the Calculor was mentioned in nearly every clause, and most of the penalties for breaches of the rules were death. Those that were not involved a life sentence in the very same Calculor, but the text gave no clue to the Calculor's nature. Taking the goose quill that Lewrick held out, Lemorel dipped it in a porcelain ink jar held in a silver dragon's jaws. A drop splattered the poor paper form.

"Don't worry, Frelle, you can be shot whether you sign the form or not,"

said Tarrin, reaching for a jar of powder.

Lemorel signed.

"Welcome to our family," declared Lewrick as Tarrin dusted powder on

the "Who eats Dragon Colors faster than I can recruit them," interjected Tarrin. "I've seen it all before, I'll stay here." He sat behind Lewrick's desk and tugged at a cord hanging from the ceiling, then picked up a reel of perforated paper tape and began to read the code directly from the patterns of holes.

Lewrick unlocked a thick ironwood door and took Lemorel down an unlit corridor lined with limestone slabs. It opened into another chamber. Two Tiger Dragons saluted as they emerged, alert and hard-muscled youths who were armed with two double-barreled flintlocks each. Lemorel could see that they were not for show.

"The Highliber's machine is called the Calculor, and is a calculation engine of really prodigious power and versatility," Lewrick explained as he gestured to a small door hung with thick felt curtains. "It can process tasks in days that any lone clerk might labor over for years."

He held the curtain aside and Lemorel walked out onto an observation gallery. It was set high in one wall of the Calculor hall, right above the double partitions that separated Dexter and Sinister processors. Wildly differing impressions swept over Lemorel. A hall full of students doing exams, the weaving championships at the regional fair, a vineyard crowded with pickers at harvest time.. but there could be no real comparison with anything else. The Calculor was an echo of something all but incomprehensible from the distant past. It was an engine like a river galley or galley train, yet so much more. This was not just a device to move cargo, it multiplied the skills of whoever used it.

"So, Frelle Lemorel, what do you think of our Great Machine?" Lewrick asked eagerly, like a proud parent presenting a gifted child.

"It--a device to enhance the mind, just as a telescope enhances the eye," she said slowly, mesmerized by what she saw.

"Very good, a good analogy!" Lewrick exclaimed. "I'll note that one. Come now, let's return to the office."

He began explaining some elements of the design as they walked, but they were back with Tarrin before he had even covered the logistics of shift work for the Calculor's components.

"As a Dragon Green you will be working in Systems Design--ah, that is when you are at work. When you are not at work you will be studying at the University, I hope?"

"She has been enrolled already," Tarrin assured him.

"Splendid, our expansion activities require more Dragon Blue librarians in a year than Libris used to promote in a century."

"Which brings me to my interesting news," said Tarrin.

"Could I sit at my own desk as you tell me?" asked Lewrick hopefully, rubbing his hands together and bowing a little.

"Oh, my apologies," replied Tarrin, mopping up a coffee ring with his sleeve as he stood up. "You are about to get the services of the Chief Cataloguer."

Lewrick frowned suspiciously. "As a Dragon or a component?"

"A component."

"Splendid, splendid!" exclaimed Lewrick, slapping his hands on the leather facing of his desk. "Whatever his faults he does have a head for figures. He can be a trainee function in Sinister--"

He was interrupted by a sharp knock on the door, and before Lewrick could speak the door was flung open. Highliber Zarvora strode in.

"Fras Tarfin, the guards said that you were here--who is this?"

"Dragon Green Lemorel Milderellen," Tarrin said as Lemorel stood up and bowed smartly.

"Milderellen... Demographic Analysis of the Call Vectors in the Southeast, yes a good paper." She turned to Tardn. "But I remember seeing her name on the Dragon Orange promotions listing only last month."

"I tested her the day she arrived and double-promoted her," Tan-in explained. "Gave you quite a shock, didn't I, Frelle? Quite an ordeal, she fainted in my office."

"Put this on and try not to faint," said Zarvora, throwing a band of gold cloth to Tarrin. "The Chief Cataloguer challenged, but was unable to name a champion. You are now Chief Cataloguer."

Tarrin opened his mouth and his jaw worked, but no words formed. Zarvora turned to Lemorel.

"It is a shock when you get an unexpected promotion, yes?"

"Yes, Frelle Highliber."

"But my work as Examiner, there's nobody qualified to take over," Tan'in protested.

"Then you will have to carry both positions. Make your clerk a Dragon White. She knows your basic office procedures. Send her to the local Unitech to study administration, raise her salary, anything, just keep both offices working." "Couldn't I make her Chief Cataloguer?"
"No."

Lewrick laughed. "Chief Cataloguer, may I be the first to congratulate you?" "Highliber this is impossible--"

"Fras Tan-in, it is very easy. Just get the cataloguers working. Break up the entrenched groups and send any troublemakers to the Calculator." "Oh yes," said Lewrick, "they'd be most welcome." "It's not as easy as that, Frelle Highliber!"

"Fras Tarrin, listen. Cataloguing must be made an extension of the data storage register of the Calculator by the end of the year. My lackey has some papers for you to sign and a charter for your office wall." "There will be challenges." "So? Do what I do: shoot them." "I'm a terrible shot."

"Engage a champion."

The Highliber left. Nobody spoke for a full minute.

"A wonderful lady, the Highliber," said Lewrick. "Were I thirty years younger I might propose a liaison."

"You're either mad or senile, or both," said Tarrin, rubbing his temples. "Frelle Lemorel, I'm afraid that I cannot complete your tour of Libris, but I did manage to get you as far as your Department Head, Dragon Gold Lewfick MacKention."

"See you on the Executive Committee," Lewrick called as Tarrin left. The newly appointed Chief Cataloguer slammed the door behind him.

"This is all a strain, my dear Frelle," Lewrick said kindly as he sat back at his desk. "The Highliber needs calculating power for both the Mayor's projects and her own researches. Expanding the Calculor is proving disruptive enough, yet there is something worse. The Calculor has become unreliable and we don't know why. Frelle Zarvora's temper is strung tight enough to play a tune upon and we, her staff, are being run ragged."

I've met the Highliber herself, thought Lemorel, barely following his words. And the Highliber had actually seen--and remembered---her paper on Call vectors.

"How long has the Calculor been operational?" she asked, abruptly pulling herself out of the reverie.

"It isn't. We have been running tests for many months and have even done some important projects for the Mayor, but it's not operational. There were plans for a commissioning ceremony, but they have been held over. It has begun to make strange errors--but more of that later. Come now, let us find a desk for you. People need their own desk, just as they need their own bed. Desks are intensely personal things, don't you think so?"

The sun had been down two hours when Lemorel finally returned to Darien's rooms, flopped onto the spare bunk, and blanked out. After another hour Darien entered, looked at the limp figure sprawled on the bunk, and shook her head. Lemorel did not wake as her boots were pulled off and a blanket was draped over her.

COURTSHIP

FUNCTION 9 recognized the sequence of numbers as they appeared on the wheels of his reception register. The Calculator had been through the same sequence a dozen times already, but now there was a slight rounding error. A lot of testing was being conducted, the Calculator's masters were very agitated about something, and other components had been flogged for both oversights and initiatives. FUNCTION 9 was too skilled for oversights, and he preferred his initiatives to be invisible.

He performed his operations on the numbers, then sent the results to the Dragon Green who was in charge of the correlator components by setting a register of levers to represent us answer and pressing the transmission pedal below the desk. The Calculator was designed so that the independent Dexter and Sinister sides checked each other's work. Their correlation subsections passed results to the Central Verification Unit, and if the results differed that particular calculation would be repeated. FUNCTION 9 had a good memory and he knew that some of the tests being performed on the machine were invalid because of rounding errors and such, yet they did not come back for reprocessing. He knew it was odd, but he did nothing about the errors. He did not want a flogging.

The correlator sat behind a screen several feet away from FUNCTION 9's desk, and the component could hear the clacking as he fed the data into his register for transmission to the Verification Unit--then there was a faint thump and hum of tensed wires. A moment later he heard a thump from the correlator on the other side, but the accompanying chord was not quite the same. Another thump, and this time the chord matched that of his own side. FUNCTION 9 smiled as much as his gag would allow.

From the Verification Unit the results went to the System Control Room, where Lewrick and a team of Dragon Greens and Blues analyzed them. The librarians in the Calculator were carefully isolated from those who were checking the output, and of course none of them knew why the tests were being performed.

Lemorel's initial work in Libris was part of this massive check of the system. Tables of figures were fed in and processed, with both Dexter and Sinister processors alternately disabled. The results came out roughly as expected: the two processors made randomly different mistakes. Teams of Dragon Librarians were used as components, and they could find no way to break the system after getting an insider's view.

The Calculator was returned to normal operation, but after a week the errors began to reappear. The backlog of important work continued to pile up.

Even in the atmosphere of impossible workloads, flayed tempers, and impenetrable secrecy, Lemorel was happy. She was new to the place and relatively junior, so she was assigned nothing more than analysis of the Calculator's output. While others exchanged insults and argued about the demarcation of duties, Lemorel did her calculations quickly, accurately, and anonymously. At last her past had lost her; she could merge with the Highliber's machine.

She decided to accept Darien's offer to permanently share the twin-room apart let in the Libris hostelry. It was a long climb to the top floor, but they had a good view of the mayoral gardens, the lake, and the farms and forests beyond. Lemorel and Darien got along very well, in part because they had the bond of sign language, but also because both knew what it was like to be an outcast.

The Rochester market lay between the par aline terminus and the University, and helped to divide the city between the affluent classes of the eastern side and everyone else. Through the market one could travel the known world, and even go a little farther. Southmoor carpets woven from dyed wool and emu down hung from terraced frames to form a gaudy little city of facades. Finely tailored clothing from Griffith insured a permanent crowd at the Central Confederation's stalls, while the clockwork and gunsmiths' stalls of the Wangaratta, Shepparton, and Rutherglen may orates attracted more foreigners than locals. There were flesh vegetables from local farms a mile or two distant, beside Northmoor coffee from the Northernmost regions of the known world.

Darien and Lemorel visited the market on their scheduled free days. After buying food they went to the vagary stalls at the University end. Darien always came away with books in obscure languages or classics in older variants of Anglaic, while Lemorel searched for books on mathematics and natural philosophy. The dealers put some of the more interesting volumes aside for them.

Lemorel now wore her hair down, retiring behind the dark, wavy cascades that nobody in Rutherglen had ever seen unbound. A change in image could not go without a change in appearance, after all. Darien persuaded her to buy a brightly patterned Cargelligo scarf, and to have the Libris uniform run up in Cowra silks by a master tailor who was the endorsed tailor to members of the Libris Executive. As the weeks passed the newest Dragon Green began to think about new weapons.

"A pair of duelers' throwing knives, or a long-bore matchlock that has seen better days," Lemorel said as she stood before Tantyrak, former Powdermonger to the Emir of Cowra. "I can throw a knife, and they seem elegant."

Darien held up her hands. "Would you ever enter a duel with a knife?"
"Oh no!"

"Then don't buy them."

"Then it must be the musket."

"What good is a musket to a librarian?"

"It has Inglewood filigree work along the barrel, and greenstone inlay on the stock. It might get me into ceremonial guard squads."

"More likely you will be put into firing squads for important felons."

Lemorel lifted the musket down from the rack. Tanyrak smiled, bowed, and rubbed his hands together.

"It once had a ram lock mechanism, you can see by the holes here and here. The mechanism was removed and replaced by a matchlock fuse for use by a musketeer from Deniliquin. See the poker work Deniliquin crest on the stock that someone has tried to file away?"

"It was probably looted from a body on some battlefield. Why would he have the ram lock removed?"

"Reliability and ease of reloading. A smoldering fuse means a shot every time. A weak shower of sparks from a ram lock or flintlock means click when your life depends on boom. On the other hand, a well-maintained ram lock under a rain sleeve can allow you to shoot even when all other guns are washed out. Fras Tanyrak, how much?"

"Ah, very fine gun, Frelle, special rebuilding of mechanism as matchlock. Forty-nine silver nobles."

"Terrible gun, I hate matchlocks. Smelly fuse smoke, always going out. Do you have the original ram lock

"Alas Frelle, the faithless pestilent who owned it previously had no regard for the elegant and virtuous principle of ram lock sparking."

"Fifteen nobles."

"Fifteen nobles? Frelle, the greenstone in the stock is worth more than fifteen nobles." ' "

Ten minutes of haggling secured the musket for thirty-seven silver nobles, and Lemorel insisted that she had been robbed even when out of earshot of the merchant.

"It should take me three months to rebuild the ram lock

"You?"

"Why not? I have a toolkit of files, demi-saws and such. I'm a clock maker daughter, after all."

"Why not have the Libris workshops do it for you?"

"Darren, I use my head all day. I need to do something with my hands to relax."

They stopped at a metal foundry, and Lemorel ordered blank plates and

springs to be made for her ram lock As the metalsmith took
measurements and made drawings Darien looked around the shop. There

was a tiny forge fired by anthracite, as prescribed by law and holy scripture. Chain links for pedal tricycles hung on pegs, and the shelves were piled with gears, sprockets, cams, and axles. Several larger, heavier chains hung waiting for repairs, chains that could only be from galley trains. So, there was more work than the par aline workshops on the northern edge of the lake could handle. That usually meant fighting somewhere, or fighting soon to be. Wind trains ran for practically nothing, but they were slow and depended on the weather. Galley trains were expensive but fast, and speed often won wars.

A troop of armed runners marched past outside, escorting the Market Rectifier and his accountant. Tall orange plumes marked them above the undulating sea of heads, and their butt-leather armor creaked as they marched, brass-tipped swagger sticks rapping the cobbles in unison at every second step. The Rectifier carried his standard of office, while the accountant walked behind him with the leather and gilt work Register of Merchants beneath his arm. Several lackeys followed carrying record boxes, and behind them were more runners and a sullen prisoner. Darien did not recognize him, but noted that he was wearing a barge cap of the river-merchant service. An agent of the Warren, quite probably. Catcalls and hisses sniped at him from the onlookers.

The Rectifier had been unraveling fraudulent dealings at an astonishing rate in recent months, so much so that two underground cartels had been forced to disband and even the mighty Warren was reduced to no more than a few legal fronts. The crushing of organized crime in the Rochester market had lowered both prices and overheads, so that honest traders were better off.

"Could you take this back to Libris, Dar?" Darien turned from the door and Lemorel thrust her musket and a wicker bag into her arms. "I have to go on to the University now."

With her hands full Darien could not reply.

The University was a mile or so from the walls of Libris, and was nearly as old as the library itself. Its beautiful gardens were famous, and both mayors and highlibers had been educated there for over a thousand years. Lemorel was comforted by its size. Nobody knew her there, and she could just sit quietly and listen to the edutors expound theorems and proofs as if she were the respectable young daughter of rich parents from the southeast quadrant of the city. She was indeed being given a second chance at life.

In Libris she was set dozens of incomprehensible tasks in symbolic logic and set theory each day, and was even trained as a component in the Calculor. Tarrin looked increasingly haggard, and Lewrick snapped at anyone who spoke the word "edutor" in his presence. Once Lemorel had even seen the Mayor himself coming out of the Highliber's rooms. Months passed, but whatever the problem was, it moved no closer to resolution. Her ram lock mechanism slowly took shape over dozens of nights by the fireside, and by December she was testing the fully restored musket in the practice range of the Libris dueling chambers.

"The Calculator really is alive," insisted Lewrick as Zarvora paced the floor in front of him.

"I designed it, right down to the last bead on the lowest component 'saba cus," she replied listlessly. "It cannot be alive."

One hundred and thirty yards away a marksman squinted down the tunnel sight of a flintlock musket as he crouched beside a gargoyle on the Libris roof. His target was pacing constantly, so he could not aim well enough to be sure of a kill.

"Highliber, you used fragments of the old science, and we know that before Greatwinter some machines really were alive. Perhaps the patterns of the machines were alive, rather than the beads and wires. By using the old patterns you may have accidentally re-created some sort of life. Perhaps the data that you play into the Calculator's keyboard is educating it. Some of it is astrological, remember."

"No, no, no!" insisted Zarvora, sitting down before the champions table and pounding the edge. "Only astronomical data has been fed into the Calculator: positions of the planets relative to each other, motions of the moon, motions of lesser bodies. The equations to describe their movements are modern Southmooric, and are based on all orbits being elliptical. It is exact, measurable science."

"Astrological influences may--"

"No! This is astronomy, not witchcraft."

The marksman aimed slightly above the seated Zarvora's head and waited for a slight puff of wind to disperse. Counting slowly, he squeezed the trigger. There was a sharp click as the flint hit the fizzle but the flash pan cover did not lift and the gun did not discharge. Zarvora stood up and began pacing again. With a soft but eloquent curse the marksman took a small screwdriver from a ring on his belt and loosened the bolt in the pan cover bearing.

"I have a theory about Greatwinter, that its return can be predicted from planetary motions," Zarvora explained as she resumed her pacing. "Using the Calculator I worked out when a second Greatwinter will come."

Lewrick stared at her, aghast. "But it can't!" he exclaimed. "It was caused by ancient weapons, bombs that caused 'nuclear' winters around their victims. The bombs were used too often, so that the whole world froze for decades."

"Wrong, Fras Lewrick. It can and will happen again, and soon. We are very lucky."

"Lucky! How can annihilation be lucky?"

"Being forewarned about a great disaster is worth more than wagon loads of gold, and brings more power than the mightiest army. I need a more exact date for Greatwinter's return, but even the Calculator will take years to provide it. For such long and complex calculations, even one

error oer month i. intcdo.rahl The Calculor's administrative work slows my research even further, but it pays for its own running." '

"Perhaps if you talk to the Calculor, Highliber, request that it be more careful

"If I thought that it was alive I would threaten it, not plead. Still, it is just a glorified abacus."

"Highliber, how can I convince you? You sit up here and play in your instructions, yet down in the Calculor hall one can see rhythms in the patterns of beads on the large abacus frames above the rows of desks. The whispering of the moving beads often seems to form real words, yet I cannot quite catch their meaning. There are harmonious chords in the wires when the two processors of the Calculor are in agreement, yet discords when they arrive at different answers and have to repeat everything. One can hear life pulsing all around the hall."

"Chords, Fras Lewrick?" cried Zarvora, whirling to face him so abruptly that he sat back with a start. The distant marksman took aim at Zarvora's chest, because a crossbeam obscured her head. "Come down now, and show me where I might hear--"

The bullet smashed through a pane of lead light glass and struck the back of Lewrick's skull just as he stood up. A moment later the assassin saw the window explode outward through the cloud of smoke from his shot. He gasped with surprise, unable to guess what had happened. Instead of scurrying down his escape rope he stood up beside the gargoyle for a better view. What he saw was the Highliber kneeling on the roof amid shattered glass and lead strip, and the flash from the muzzle of her flintlock.

Six hours later Zarvora was still shaking as she stood between the two processors in the Calculor hall. Lewrick's killer had not been a member of the Libris staff, and nobody could identify the corpse. There was, however, not the slightest doubt that the System Controller had stopped a bullet meant for her. The forces of tradition in Libris were going beyond petitions, resolutions, and even duels to halt her modernizations.

Behind the screens on either side of her the components of the two processors worked hard at a diagnostic problem. As Lewrick had said, the Calculor made a whirring, bustling mixture of sounds when working at full capacity, and there was nothing else in the world that was even remotely like it. The hiss and click of tens of thousands of abacus beads underlaid the soft rattle and clatter of gears and register levers, while the many banks of transfer wires hummed in weird chords that were sometimes strung into unsettling melodies.

Zarvora stood absolutely still, breathing shallowly. A deep chord sounded close by as the output wires from Dexter processor strained against the gate of the Verification Unit. A gear whirred for a moment; then a rack of levers was released for the wires to pull them into "yes" or "no" positions. While the levers were clacking into

place, an identical chord sounded from the output wires of Sinister. Both processors had arrived at the same answer to some part of the diagnostic calculation.

Those in charge of the output registers were Dragon Green Librarians, not prisoners. Zarvora had earlier decided that this work was too important to entrust to components, but perhaps she had been mistaken. Dragon Colors were free to conspire in secret--over dinner, in taverns, in bed. Dragon Colors did not live in the same fear of punishment as the components. They could get lazy.

Again the chord sounded from Dexter processor's bank of output wires, but this time there was a slight mismatch in the sound from Sinister! Zarvora's lips parted slightly in anticipation. Before the gear on Sinister had released its bank of levers the left's wires slackened again, and from behind the left screen there was the clicking of a register being reset. Again the wires from Sinister were tensed, but this time the chord from it matched that from Dexter. The Dragon Green on Sinister was matching his output to that from Dexter by tuning the sound of the transfer wires while they were under tension.

Lemorel noticed unusual activity on the Libris upper floors and roofs as she was escorted from the Library complex by a grim-faced pair of Tiger Dragons. Nothing unusual had happened within the Calculor, in fact it was still in operation as far as she knew. The Highliber had walked past her desk moments before the Tiger Dragons had arrived, but there was nothing unusual about that. Just beyond the main doors was a group of thirty or so librarians milling about uncertainly, and she recognized Hirolec Var from Systems Design. When the Tiger Dragons released her the others crowded around.

"Hirolec, what's happened?" she asked.

"We thought you might know," he said, clearly disappointed.

"Overliber Jandrel's lackey said she heard two shots and the sound of breaking glass," said one of the Dragon Reds from Reference.

"Some say the Highliber's been killed," said Hirolec.

"But I saw her not five minutes ago, she walked past my desk," Lemorel countered.

There was a collective exclamation, many different words superimposed. Lemorel did have news after all: the Highliber was alive. They waited in the plaza before the main doors. Another twenty Dragon Greens and Blues were ejected, singly and in groups. From these they learned that the Highliber had survived an assassination attempt. Gargoyles leered down at them in the lateafternoon light and Tiger Dragons patrolling the roof cast them an occasional glance. Extra guards were brought in from the mayoral palace, and they marched across the mosaic starburst of the plaza with their ceremonial halberds, wearing yellow slash work uniforms that flashed strips of red as they swung their arms.

Lemorel left after an hour. She was clearly not wanted on dntv until

further notice and the sun was low in the sky, so she returned to the hostelry. Darien was already there, but knew nothing more about the afternoon's events.

"Two shots, and some broken glass near the rooftop offices," Lemorel said as she chopped a parsnip for the soup. "The Highliber's still alive, in fact all the senior Dragons from that level have been seen alive since the shots were fired."

"Perhaps the Tiger Dragons shot an intruder," Darien signed with flour caked fingers.

"Possibly. The Highliber would be badly rattled if any intruder managed to get as close to her chambers as that. She likes total control."

"Any progress on the Calculor's fault?"

"Not as yet. It's very discouraging but we can't give up."

Lemorel poured part of a jar of Rutherglen Broadbank '91 into the soup and Darien put her honey cakes into the oven box to bake. Other librarians knocked on the door from time to time, asking for news or sharing rumors.

After dinner Lemorel stripped down her ram lock mechanism to file the lever slot wider. Darien tried to read, but could not concentrate. Instead she unpacked her body-anchor belt and Call timer, and dismantled it for a service. The mechanism was in good condition, so the work did not take long.

Lemorel reassembled the ram lock and when she drew back the ram stud and pulled the trigger the ram snapped forward to spray a shower of sparks into the flash pan. The musket that she had bought months ago was now unrecognizable. Its barrel had been polished until it gleamed like a weapon of the palace guard, and she had carved a new stock, one tailored to fit her arms and shoulder.

"I often wonder about the Call," Darien signed with languid, oil-stained fingers. "I just feel a quick plunging away, then I wake up. It seems unrelated to anything else in my experience, yet there's still a thrilling feel to it."

Being relaxed and feeling pleased with her work on the ram lock Lemorel replied without thinking.

"There's something in my past akin to the Call. Whenever it sweeps over me, I'm taken back to that very moment. I..." She suddenly caught herself. "I

wish that I could scour the feeling away with sand soap

Darien sat up. "Tell me, Lem. Was it a lover?"

"Not just one lover, I--Do we really have to talk about it?" She cocked the ram lock again and fired a shower of sparks at the stars beyond the open window. "I wish that I could point a gun at my memories and blast them away."

Darien crossed the room and put a hand against Lemorel's cheek, gently

turning her head away from the window.

"There was a bully boy who lived in my street when I was young," she signed, her fingers very close to Lemorel's face. "He would chase me and do cruel things because he knew I could not cry out. Fear of him gave me nightmares, and I became frightened to go outside. I spent

more and more time indoors, reading. I became so good at schoolwork that I won scholarships. Five years ago I saw him again, on a visit to my family. He was a brushwood carter, fond of the drink and with a long history of time in the stocks. I was a Dragon Blue." "What are you trying to tell me?"

"You need to look back at old problems every so often, even if it hurts. They always diminish with time."

"My own past is worse than a nightmare, Dar. There's a blood-spattered demon--"

"He cannot have hurt you too badly, you have no scars."

"The demon is me."

Darien stepped back, wringing her hands together. Cradling the musket as if it were her only friend in the world, Lemorel closed her eyes and leaned against the wickerwork back of the chair.

"I'd rather not add you to the people who fear me," she said, even as a hand began to stroke her hair. The touch was curiously soft, the soothing caress of a nurse rather than the tingling play of a lover. With her eyes closed, Lemorel felt herself speaking into nothingness. I'll tell you what reminds me of the Call," she finally decided.

"During my last year of median school I had a boyfriend named Semidor. He was.." a bit precious: a poet, an artist. If you could imagine someone who was not a great scholar, but loved the idea of being a scholar, then you would have him. At that time I was a studious girl with a gift for mathematics and tightly bound hair. My mother had died when I was eight, and my father raised me and my sister like apprentices. I became quite a good shot from testing gun mechanisms, I knew about clockwork and the mathematics of lenses, and I suppose I neglected my appearance a little.

"So, I was an ideal match for an eccentric scholar like Semidor, and we held hands and kept company with each other for about two years. To me it was just a comfortable friendship, but to him it was quite a lot more. I was, unfortunately, too young to understand that. Gradually I outgrew him. While he dreamed of being some sort of mendicant songwriter and hard, I dreamed of entering the service of the Dragon Librarians. For a country girl with a brain it's either the convent or the library, nothing else. Still, we stayed together, perhaps by habit. We passed our median-school exams and I was recruited to the Rutherglen Unitech library as a Dragon White. I studied for my first letters in my spare time. Semidor's parents paid for him to study there too, perhaps to distract him from becoming a wandering songwriter.

"After a time I began to make friends among the Dragon Librarians. They encouraged me to be a little more sociable, and even to go to the regional fairs and dances. Semidor refused to go. According to him, serious scholars did not do that sort of thing. On the final day of

the harvest festival there was a small arms shooting match, and I won. At the revel that night I became a little drunk, and a youth named Brunthorp began paying me court.

"He knew his business, as I realized later. He gave me all of his attention, flattered me in seemingly unconscious ways, and listened to everything that I said and built upon it. After being an audience of one to Semidor's scholarly discourses and poetry for years, I found this a pleasant change. Soon we had our arms around each other, we kissed, and he steered me outside the barn and into a nearby field. There was a hayloft in a small shed, and he made a show of being surprised at finding it. We lay down and began to fondle each other very ardently. I thought of Semidor. I wanted to be loyal to him, but in a strange moment of surrender I made myself angry with him, convinced myself that he deserved me to be unfaithful. That's what reminds me of the Call, that little moment of surrender, that decision to do something reproachful. The Call is knowing that I shall always surrender, and I hate it." Lemorel opened her eyes and looked up at Darien. "So now you know."

"You hate the Call but still you study it?" she signed.

"I study it to break its grip."

"Was it so very bad in the hayloft?"

Lemorel looked out through the window to the night sky again.

"I said "Yes." He ran his hand up my leg and rolled on top of me. I was very tense and tight, in fact it was quite painful. He asked if it was my first time. I admitted that it was and said that I hadn't thought it would hurt so much. He said that I felt wonderful to him, but his words did not really cheer me at all. That was it, I suppose. Pain, mess, and a lot of guilt over betraying Semidor as soon as it was over.

"In the days that followed I was torn apart with fear and remorse, and I decided that if I had become pregnant, it should seem to be by Semidor. That was not as easy as it might sound. He had some odd notions about the purity of romantic love. It took several nights of awkward urging but I finally seduced him. Through sheer luck I did not become pregnant to either my seducer or my seducee. Semidor soon decided that passion had a place in pure romantic love after all--but not babies. We began to use sheep gut armor for all our dalliances. Every thing seemed to settle down."

Lemorel opened her eyes and turned to Darien. Her fingers whirled briefly. "Semidor must have found out."

"Semidor certainly did, and things went badly wrong. I threw myself into my Unitech studies and my Dragon Yellow regrading. Luck was with me. I had a natural talent for mathematics, and just then Highliber Zarvora was scouring the known world for librarian-mathematicians."

Away in the distance they could hear boots on a stairway, marching in step. "Enough of my past," Lemorel concluded. "How were you first seduced?"

Darien blinked in shock and hid her hands behind her back. The boots were louder now, in their wing of the hostelry.

"Let me guess, was it one of the Libris Dragons?" Lemorel speculated with a knowing leer.

Darien's hands reappeared. "I was quite in control for the whole time. I rendered him staggering drunk first, and to this day he does not know what he did."

"Ah Darien, what a wise little girl you were."

"Little girl? It was last January!"

Lemorel burst out laughing and Darien clapped her hands. The marching boots were at the landing of their floor now, and the two women suddenly sat up in alarm as the marchers tramped down the corridor and stopped at their door. The knock was an insistent pounding, the blow of a fist rather than a polite rapping of knuckles. Lemorel handed the unloaded musket to Darien and walked to the door. Three Tiger Dragons were outside, all male, all armed. They were clearly tense, but not about being at that particular door. "Lemorel Milderellen?" asked the squad leader. "Yes, that's me."

"You're registered as a reserve magistrate's champion in the Mayorate of

Rutherglen as a result of ordeal by dueling."

"Correct."

"Change into full Dragon Color uniform, Frelle Milderellen."

"I--can you tell me why?"

"Highliber's orders. By law, civil firing squads must be captained by a magistrate's champion."

They escorted Lemorel to Libris. In one of the small assembly rooms close to the Calculor hall she was put in charge of a squad of twenty-three Dragon Blue Librarians. The Libris Marshal entered, unlocked a gun rack and handed a Tolleni matchlock to each of them. After they had checked and loaded their guns the Marshal took them back, added a musket that he had been holding, and removed another. The lackey distributed the guns again.

"One may not be loaded," the Marshal explained as a Dragon Red walked along lighting the match fuses with a taper. It was not necessary to elaborate further. Lemorel eyed her gun suspiciously.

Tarrin entered, carrying a blue arm band. He walked across to Lemorel and asked her to hold out her arm.

"This is an acting promotion," he declared as he pinned the cloth over her green arm band. "According to our records you're a registered magistrate's champion and executioner. According to Libris internal regulations, only a Dragon Blue can act as captain. The Highliber wants a firing squad in a hurry and nobody else with the right

qualifications can be found at such short notice." He raised his voice. "Before these witnesses I hereby elevate you, Lemorel Milderellen, to the temporary rank of Dragon Blue, until such time as the Highliber of Libris shall review your standing."

The Marshal, the fuse lighter, and the rest of the firing squad gave three cheers amid swirls of fuse smoke. With each promotion the ceremony becomes less formal and more bizarre, Lemorel decided.

The components were assembled into cell groups at the back of the Calculor hall. The area occupied by the desks of the Calculor was no more than the first quarter of the other end. They were in two separate groups, to the left and right of the center. The Highliber paced impatiently between the two rows.

"Bet it's a talk on some damn new configuration," muttered MULTIPLIER 8, and PORT 3A nodded wearily.

Suddenly a side door opened, and two dozen Dragon Blues filed in carrying matchlock muskets. The fuses in the strikers were already alight and smoking. Even as the components were exchanging puzzled glances the four Dragon Green Librarians who took turns to operate the output registers were marched in. Their hands were bound and they were gagged. They showed signs of recent torture. "They be Dragon Colors," hissed ADDER 17.

"They're senior Dragon Colors," observed MULTIPLIER 8. "They're tying them to the retaining rail," gasped PORT 3A. "They're going to shoot them," whispered FUNCTION 9.

The Highliber gave another order, and the musketeer Dragon Colors formed into two rows of twelve, the front row kneeling.

"Attend the Highliber!" shouted the System Herald.

"System Officers, Dragon Colors, processing components, all souls who comprise the Calculor," Zarvora began, her words echoing from the stone walls. "You have been gathered to witness punishment on four Dragon Colors. These librarians, all trained and skilled, did conspire to degrade the performance of the Calculor. Their motives were based in neither greed, nor treason, but in pure sloth. When errors appeared at the end of long processing sessions, they contrived to falsely verify mismatched results, so that calculations would not have to be repeated.

"You!" she barked, pointing straight at MULTIPLIER 8. "If you were a soldier and were found asleep on sentry duty what would the sentence be?"

MULTIPLIER 8 glanced hopefully around, but there was nobody behind him. "I, ah, very severe," he spluttered.

"Service in the Mayor's Calculor is no different from service in the Mayor's Army," continued Zarvora. "The sentence for dereliction of duty is the same, too." She turned to the musketeers. "Form to! Present arms!"

The two lines of musketeers held their weapons out for the Highliber to

inspect. "Release guards!" The terrified prisoners struggled against their bonds as two dozen trigger bars clicked free.

"Take aim!" shouted Zarvora, and the matchlocks came up in a silent swirl of blue fuse smoke.

Although two of the matchlocks misfired in the volley that followed, four bodies hung from the retaining rail by their bindings as the smoke cleared. A Dragon Blue cut the ropes that held them; then two elderly, terrified attendants loaded them onto a book trolley and trundled them out through the side door. Zarvora addressed the gathering again.

"I can tolerate a great deal from both Dragon Colors and components-amorous dalliances, the black market in luxuries, all that is officially forbidden in prisons but tacitly allowed. You are worked hard here, and I am not above rewarding good work. What I shall never tolerate, however, is meddling with the Calculor."

She paced between the two groups with her hands clasped beneath her cloak. But for a slight swishing of cloth, there was silence.

"Those Dragon Colors tampered with the system to make their work, and yours, easier," she said, pointing to the pockmarked wall and smears of blood. "For some months they made my own life a lot harder, however, and they have paid for it. Do not follow their example. You are dismissed, return to your cells."

The components streamed out of the hall while Zarvora conferred with Lew tick's successor. FUNCTION 9 felt a nudge in his back.

"Yes, MULT, what is it?"

"The name's Dolorian," murmured a pretty Dragon Yellow. "Would you care for some voluntary duties with me, Fras FUNCTION? The Highliber tolerates it, you know."

There was a separate assembly of Dragon Greens and Blues once the components had been herded out of the Calculor hall. Lemorel stayed with the Dragon Blues as they waited for the Highliber in the anteroom. Many were clearly distressed, as it was the first time that they had fired a shot in anger--or killed. When Zarvora returned she was much calmer.

"As you may have gathered, we have just made an important breakthrough with the Calculor's reliability," Zarvora explained. "The Calculor is the most secure secret in all of the may orate Even courtiers who could tell you how many times the Mayor mounted his mistress last night could not give you more than a vague account of the nature and purpose of the Calculor. The Calculor is a strategic engine of immense power, it can multiply the wealth and power of Rochester a hundredfold and for that reason it must be kept the closest of secrets.

"My machine is destined to become indispensable to the prosperity and security of Rochester. In a few days, after more testing, it will be

declared operational and will be run continuously with three shifts of eight hours each. This will require both components and Dragon Colors to supervise them. All of you will be expected to work in shifts, but duty on the unpopular shifts will be rotated.

"All of you are vital to the reliable working of the Calculator. That is why you have jumped decades of seniority in a few years. You have mathematical ability, and the Calculator will boost that ability in the same way that a bombard can allow one artillery crew to smash down a castle wall. You will have more to do with running the may orate than the Mayor himself, but breathe so much as an afterthought about it to any but your colleagues here and you will find yourself looking down twenty-four barrels instead of squinting down the sights."

"Five days without a single error," said Zarvora as she presented Mayor Jeflon with a large silver key on a cushion. "We can trust the Calculator now, and put our faith in its results."

The modifications to her office were complete, with all the mechanisms and controls installed and polished, and the dust cleaned up. The window had been repaired, and there was a strong smell of oil and wood polish on the air. Jeflon picked up the heavy key and looked at it doubtfully. Shelves of little silver animal caricatures stood ready to signal their messages, and colored velvet pulley cords hung down from the ceiling.

"It goes into the slot here, Mayor," Zarvora explained, "then you give it a half turn clockwise."

"I feel that I should give a speech," said Jeflon. "This thing is so important and ingenious. Its commissioning should be before the whole court, not with you as the only witness. Still, secrecy is our only shield at present. For the greater glory of Rochester, I accept the service of this machine."

Jeflon turned the key. A rack of gears moved, then moved again.

"That's all there is to it?" asked Jeflon, who had been expecting a more diverting display. "Can't you make it move those mechanical animals, or ring the little bells?"

"It's already busy with important work," explained Zarvora, holding out a tray with his goblet of wine. "I configured it to begin designing your new army as soon as you turned the key."

They raised their goblets of wine and water, toasting the Calculator.

"There will be no more errors, I trust?" said Jeflon.

"Felt dampers have been put on the transmission wires, and four FUNCTION components have replaced the dead Dragon Green operators. Willful souls make up the Calculator, but it has no will of its own."

"A tame god, and ours to command!" exclaimed Jeflon. "What is the name for those who rule the gods, Highliber?"

"I cannot say, Mayor," replied Zarvora, staring at the coded patterns

that the gearwheels displayed every few seconds--that only she could read. Jefton stared too, but his eyes were glazing.

"Are you sure it can do all you promised?" he asked, nervous at his own incomprehension.

"Very easily," she replied with a reassuring smile. Jefton continued to gaze blankly at the rack of gears, not yet aware that Rochester had a new ruler, and that he was now just another soul for the Great Machine to command.

"I have the business of my may orate to attend now," Jefton declared, closing his eyes and shaking his head. "You will of course represent me at Lewrick's funeral and present the Shield of Honor."

"It will be my pleasure," Zarvora replied, picking up a silver medallion rimmed with star points from the side of the keyboard.

As Jefton was turning the key Lewrick's body lay at the back of the Calculor hall, guarded by six Tiger Dragons. The green and gold wattle pennon of Rochester and the black and white striped pennon of Libris lay across his coffin, which was at the end of the curtained corridor that ran down the center of the Calculor hall, visible only to the guards in the corridor and the controllers in the two observation galleries. Although he had not lived to see the Calculor become operational he had been there on the day.

When a person engaged in the most secret of projects is killed in the line of duty it is not easy to provide a funeral with full state honors. The Calculor's work continued as always, but a regular and distinct rhythm began to build up between Dexter and Sinister processors: Zarvora had programmed the machine to play a halt-step drumroll. Zarvora, Tarrin, and Griss stood in the rear gallery as a procession of Dragon Silver Librarians emerged from the far door, halt stepping along the corridor between the curtains, unseen by the components in either of the processors. These were followed by the ranks of Blue, then Green, then Red, all marching in single file past the coffin, with those who were particular friends of the dead System Controller placing a red flower on the lid as they passed, but without breaking step.

Tarrin could see tears gleaming on many faces, and he dared not turn to look at Zarvora as she broke ranks with the other mourners and laid a sash with the Shield of Honor pinned to it along the length of the coffin. He looked down at the medal, which was like a small star on the lid. Lewrick was the first Dragon Gold to be given Rochester's highest civilian award for the whole of the century. Poor Lewrick, he'd never have guessed it, Tarrin thought. Not even the Highliber had the Shield of Honor. In Dexter and Sinister processors the first of the Dragon Blue marchers were replacing the Dragon Red regulators who were on duty among the components, and these now marched down the corridor. Finally, with a Tiger Dragon escorting each of them, came

five components who had been particularly close to Lewrick. All five were wearing blindfolds. When the last of the marchers had passed, the six Tiger Dragons returned their long-barrel Morelacs to their holsters and lifted the coffin, then marched out to the half-step rhythm of the Calculor. Tarrin heard the door below him thud shut, and the half-step rhythm vanished from the background sounds of the Calculor moments later.

The Libris chapel was not large, and Lewrick's brief service was restricted to his immediate friends and relatives. After a short Christian service those who had not signed the Capital Secrets Act were escorted out. Five blindfolded components were escorted in as Zarvora walked to the lectern.

"System Controller Lewrick died in the service of the Mayor, Libris, and the Calculor," she began in a steady voice that emphasized her odd, precise accent. "He died in the Calculor's defense, and as he died he gave me the clue that I needed to correct the last of the flaws in the machine's design. Lewrick was a good friend and colleague, and the first System Controller of the first Calculor. Not one aspect of its design or operation does not have his mark upon it. Goodbye, my friend. Sleep well."

As a blindfolded Southmoor was escorted to the lectern a single thought was being shared by nearly everyone in the chapel. It was the first time that any of them had heard Zarvora refer to anyone as a friend.

Ettenbar, a Southmoor component from Dexter processor, was able to speak passable Austaric by now, but for the service he had rehearsed some grammatically perfect lines.

"I speak for the components of the great machine that is known as the Calculor. Although we are prisoners, the Calculor has enriched our lives. Not long ago I was a shepherd tending sheep and emus. Now I have risen to be a trainee FUNCTION. I have rank, authority, and important work. I live in com fort, I have many friends, and my Islamic faith is tolerated. Lewrick gave us our comforts. Lewrick wrote the prayer times of Islam into the Calculor's schedules. Lewrick made life for a component in the Calculor tolerable. If the guards were ever removed, many of us would not flee. Thank you, master, and goodbye."

When I die what will they say of me, wondered Tardn as he and Vardel Griss walked to the coffin and placed two yellow roses amid the red flowers that covered the lid. Zarvora was last, with a black rose whose genes carried alterations dating back to the early twenty-first century.

The service was the end of the funeral. The six Tiger Dragons carded the coffin down several floors and into the maze of passages under the mayoral gar dens that were the burial chambers for senior Dragon Librarians killed in the service of Libris. Tarrin and Griss still escorted the coffin, with Zarvora following. Behind her were a dozen more guards. The stone-lined corridors seemed to go on forever; the

gilt lettering of hundreds of plaques gleamed in the lamplight as they passed. At last a lamp came into view ahead of them, glinting highlights off the silver buckets and trowels of the burial masons.

The niche for Lewrick's coffin had already been cut into the rock. He was pushed in feet first and then the stone plaque was mortared into place by the masons. Tarrin seemed to come awake, suddenly realizing that his colleague was already behind the stone. He read the gold lettering, noting that Lewrick had been only forty-nine years old. He had seemed older. Now he was gone. Tarrin could not remember consciously touching the coffin. He lit a wax taper from a lamp's flame, inverted it, and let wax run down the plaque and pool at the projecting ledge. Zarvora raised her ring seal and pressed it into the soft wax. "Rest now, Fras Lewrick," said the Dragon Black softly; then she turned and strode back down the corridor.

Those who made up the Calculor soon rediscovered a fact that had been well known nearly two thousand years earlier: while a computer center with a malfunctioning machine is the very embodiment of bedlam, a well-behaved computer is utterly boring. Figures and records arrived in oilcloth bundles sealed with impressed wax, and results were neatly written onto reed pulp cards by the output lackeys. Nobody understood the figures.

News of neither the assassination attempt on Zarvora nor the execution of the Dragon Greens had been made known generally, and the rumors that did circulate were gilded by the factions to their own advantage. Conditions improved for the Cataloguing Department. Tarrin paid little attention to his duties in Cataloguing because the Calculor was now reliable enough to expand. The aim was two registers with a thousand components each, and a separate, experimental machine was to be set up to test new designs.

Work commenced on improved coding tables for the parts of the beam flash network under Rochester's control. Those tables soon enabled the transmission rates to be tripled while lowering the error rates. The value of the tables quickly became apparent to other alliances, such as the Central Confederation and the Woomera Confederation. There were tests, then negotiations between the beam flash administrators of Griffith, Woomera, and Rochester. The tables exchanged hands for a sum reported to be over a hundred thousand gold royals, yet the administrators went home happy. The tables would quickly pay for themselves.

In Cataloguing, it was as if Libris had returned to the rule of the previous Highliber. The backlog began to build up again, arguments about fine points of classification, categorization, and book numbering dominated staff meetings, and the practice of reading entire books to gain a good feel for the contents crept back.

Bernard Wissant had become Deputy Ovediber to Tarrin when he had been appointed, but Peribridge, the previous Deputy, held the real power.

They soon realized that Tarrin intended to rule them on the basis of their own reports, so those reports were falsified. Books incorrectly catalogued and returned for more work were counted twice or more, parts of multiple volumes were counted as separate titles, and the Backlog shelves were renamed "Updating."

"She's frightened," Peribridge declared to Wissant as they drew up the monthly report for June. "These figures are a full restoration of our rights and autonomy."

"Do you really think the Highliber has backed down?" Wissant asked, his voice quavering in spite of the smile on his face.

Peribridge lay back in the enfolding leather armchair and drew her Toufel flintlock. It had a reliable mechanism, but was badly balanced. This did not matter to those who did little shooting. No more than a reliable discharge was needed for ceremonial volleys.

"This had never been used in a duel, Fras Bernard, and I have no champion,

yet I always get my way. The Highliber can do what she likes in the dueling chambers, but there are other places to die. Lewrick died on the floor of her inner sanctum."

"And now the roof swarms with Tiger Dragons."

"So? There are yet other ways. Libris runs by tradition, and that tradition cannot be swept away with a decree or two. It was established during Greatwinter itself, Bernard. It is older than our dating system."

Certainly the office reflected that. The abandon stone floor was so worn that embedded steel bars showed through in places, yet frail, vulnerable books of the same age lined the shelves intact. The names of more than two hundred Chief Cataloguers were carved into slabs of blackstone on the south wall, each picked out in gilt. At the year 1192 GW there was an elaborate flourish. This was when Cataloguing had become a separate department.

The Deputy read at random, noting that the names of the Overlibers reflected the way the language had changed. Wilson dij Soulfarer had been what was then called Sayer of Types from 97 GW to 105 GW. The year of his death was that of the Genthic Crusade. Rochester had fallen to the Gentheists, but had the Sayer of Types died in the fighting or been executed? Perhaps he had died in bed. Wissant doubted it.

"We must always defend our department," he said with a rush of pride,

"even though the methods of fighting change."

Peribridge slid her flintlock back into its holster. "Highlibers come and go,

but Libris will always be here. Highlibers are meant to make Libris more secure, not change it beyond recognition. The Highliber is damaging Libris, she's failing in her duty. Libris should cut her off like a diseased toe, and we are Libris I"

Several times a year Zarvora reviewed the strategic implications of what she was doing. By the winter solstice holiday in June the Calculator was settling down after its fifth major expansion, so it was time to refine other facets of Libris. A large, green register with CATALOGUING stamped in gold lettering on the spine lay beside her keyboard as she typed in data. A warning flag dropped beside her paper tape punch and she reached over to wind the spring with a polished brass lever. The mechanical hens began to peck furiously. After examining the pattern of holes in the output tape she crossed the room to where a row of colored silk ropes hung from the ceiling. She tugged at the second from the left.

Tarrin was at the door several minutes later.

"Now, about your cataloguers," Zarvora began, handing the tape to him. "Here I have a sample of forty-five books catalogued recently. Six are on the shelves. The rest have been withdrawn for 'special updating.'"

"Updating is for books catalogued under archaic cataloguing rules," Tarrin said suspiciously.

"I know. Such books have usually been in Libris for over two hundred years. That either means you have introduced major changes to the cataloguing rules since last April or cataloguing output is about a seventh of what it seems."

"So, they're back to their old ways," he sighed. "Well Highliber, if you have one Dragon Gold carrying two positions this sort of thing is bound to happen. There are others who could run Cataloguing."

"There is nobody else that I trust but you."

"Well, you'll have to learn to, Frelle Highliber. After all, did you trust me before Lewrick was killed?"

"I miss him, Fras Tarrin," Zarvora said wistfully as she stared at the harpsichord keys. "In all the world nobody understood my design so well. Funny little man, he actually loved the Calculator like a doting father. To me it is just an engine."

Tarrin did not know what to say. "I'm dedicated to the work," he said uncertainly. "Is that good enough?"

"Good enough? Fras Tarrin, that is actually better. Lewrick was emotional, but you are more like me. Yes, I know that many of Lewrick's solutions were truly inspired, but you actually think more as I do. That is an advantage of a different kind."

"Does that mean that I'll not be taken off the Calculator?"

Zarvora looked up and nodded. "You will be relieved of your duties as Chief Cataloguer, if that is what you mean. You are to be the new, permanent System Controller."

"Thank you, Frelle Highliber," he said brightly, not making any attempt to hide his relief.

"You seem to be standing straighter already."

"The weight is gone from my shoulders, or some of it at least. Who will take charge of Cataloguing?"

"Oh I could not possibly decide that," she said impishly. "I am far too paranoid, you said so yourself. You decide. You have a month from today."

Tarrin thought for a moment.

"A difficult choice, Fras System Controller?" Zarvora asked.

"I'm trying to think of someone I dislike sufficiently, Frelle Highliber." Music echoed in from the distant city streets, where the solstice celebrations were reaching a climax. Zarvora glanced at her clock, then went over to the Southmoor lead light door, unlocked it, and stepped out onto the roof. She beckoned for Tarrin to come with her. They followed a narrow walkway past two guards and emerged onto a flat area of sandstone beside the Libris observatory. The tip of the shadow from a wedge of rock was approaching the solstice point of an inlaid brass analemma at their feet. Not far away a noon sundial's shadow on the observatory wall was near the low summer mark. Zarvora stood with her hands on her hips.

"There we are, summer begins," she said. As if on her cue, bells, cheers,

and gunshots sounded in the distance. "I have work to do on the Calculor, Fras, and you need not return to my office. Use the light well stairs. Is there anything else that I should know about?"

"Highliber, I could serve you better if I knew what the Calculor is meant to do--besides the schemes to uncover felons, decode secret messages, and administer Libris and the beamfiash traffic."

"It keeps track of the Cataloguing statistics."

"Highliber!"

"Well then, to predict the return of Greatwinter and unravel the secret of the

Call for the amusement of the Mayor and the greater glory of Rochester."

Tarrin scratched so violently at his tousled hair that several strands came away in his fingers. He brushed his hands together and shrugged with resignation.

"If you wish to keep your secrets, Highliber, that's your business. All that

I ask is that you treat me exactly as you would Lewrick. I need to be well informed to do my work properly."

Zarvora looked out over the city.

"It is no joke, Tarrin," she said quietly. Tarrin turned to face her. "I have done studies in some of the oldest of our archives, and I discovered clues of grand projects before Greatwinter. I cannot say more than that for now." Tarrin was silent for a moment. "Who else

knows?" "Only you."

"Not even the Mayor?"

"No. He thinks that I designed the Calculator to control the beam flash network,

but that I discovered some interesting extra uses that profit him as

well. The truth is that the Calculator was built to forecast Greatwinter's return, or at least to forecast it to a thousand times the accuracy that I could manage myself. As I once explained to Lewrick, knowing the date of Greatwinter's return can bring great advantage."

To Tarrin it sounded like the ravings of a street-corner prophet, and he could hardly believe that it was the brilliant, rational Highliber speaking. He preserved an expression of polite attention and said nothing.

"Greatwinter was the end of the world for billions of people and its return could be the end of our world too," she continued, regarding him with the intense gaze of a bird of prey tutoring a chick. "Just think of it: if there is great cold then crops will fail and stock animals will die. Imagine crystals of frost as high as your knees that last all day to grow higher by the next morning. Animals could not graze, and the ground would be too hard to plough. What would happen if rain only fell as hail? Fruit would be pulverized on the trees before it could ripen, crops would be flattened instead of being watered. Wind patterns will be different, too: will the winds be too violent for the wind trains to run without being totally rebuilt? So many questions, and only one Calculator to assist me."

"Highliber, we might all die," replied Tarrin, now genuinely uneasy.

She stepped across the shadow cast by the stone sundial, as if taking charge of cosmic motions and matters.

"I have begun to take measures. Stores are being put aside: Rochester is stockpiling grain, dried fruit, nuts, oils, and seeds for all manner of plants. Cloth and pelts, too."

"So... you think Greatwinter is as close as that? Will it be next year? Will it start with ice falling from the sky?"

"Actually I am being dishonest with you, Frasnard. My figures indicate around five years, but the cooling will be over another five again. The stores are to help hold the nation together in the times of anarchy when the sign of the second Greatwinter appears in the sky, to help us through the transition as we learn farming methods for colder weather. Deputy Overliber Kenlee and two assistants have been sent to study farming in the Talangatta Mayorate in the border highlands. The weather is colder there, yet they still grow crops and raise animals."

Tarrin again ran his fingers through his untidy hair. He looked at Zarvora in silence as he tried to assemble his feelings into words of at least token diplomacy. He was not able to do it.

"Highliber, what you're doing is monstrous!" he forced himself to say in a voice that came out loud and flat

"People have been calling me a monster ever since I can remember."

"But, but Highliber--"

"There you have it Frasnard Tarrin: Highliber. I am Highliber. Go out

into the streets and you will find a dozen hairy, hysterical nobodies foretelling Greatwinter's return before you have even reached Buttermilk Terrace. What is the difference between me and them?"

"I... well, your great power--and scholarship."

"No, Frasin, just power. Some of the prophets of doom are also very well read and educated. When I realized that Greatwinter was returning I was fourteen. I joined the Libris Dragon Colors because apart from convents and advantageous marriages, it is the only place where women can advance themselves in our society. I worked my way up to where I am today and all the while I gave people great profit in return for letting me do things my way. Look at me now. I have Rochester and several other may orates partway prepared for Greatwinter without them knowing it. If I were to declare my true motives I would be branded a loonbrain by every one of my rivals and enemies, and within weeks I would be just another powerless street-corner prophet. People in power cheerfully prey on visionaries to gain more power, Frasin Tarrin. I do not intend to be preyed upon."

Tarrin could not deny any of what she had said. He had spent too much time in the offices and corridors of power himself.

"So the deaths of millions are inevitable?" he said as he began to pace, clenching and unclenching his hands behind his back.

"Perhaps I have been unfair to you, Frasin. You are an administrator, not a mere ruler. You really care about the systems that you serve. Look at it this way. If Greatwinter returns and civilization collapses, millions will die. Should some may orates manage to maintain their farms, para lines abandon mines artisan guilds, and armies, millions fewer will die. One small life raft can hold two dozen above the surface of a river if they just hold on to the edge. I care about civilization too, Frasin, but in a broader way than you."

Tarrin ceased his pacing and leaned against a sandstone wall. His legs wobbled like the mechanism of a reciprocation governor, yet he remained standing. Zarvora stood with her arms folded, as if she were a sergeant assessing the spirit of a musketeer recruit after a forced march. "Propped up by Libris, like everything else," he said, fingering the ears of a weatherworn gargoyle cut into the stone. "So what can I do to help? Conquer the Southmoors at the head of an Alliance army? Girdle the continent with beam flash towers? Devise a way to defy the Call itself?"

"Any or all of those things would help, Tarrin, but in all the world nothing is so important as keeping the Calculator in operation and expanding it with all possible speed. Nothing! Not the Mayor, not the Overbishop, not Rochester, not Libris, and especially not the cataloguers. Frasin System Controller, with the aid of the Calculator I intend to fling thunderbolts into the sky and smash the ancient Greatwinter engine!"

Even as she spoke Zarvora realized that she had said too much. Without

another word she returned to her study. Tarrin stood dazed by her astounding outburst of sheer hubris. Brilliant she might be, but sound of mind she was not.

Inevitably, Tarrin's choice of an outsider to succeed him as Chief Cataloguer was not popular with the senior Cataloguing staff. Taking his lead from the Highliber, he decreed that dissension would be ignored, then set about preparing to hand over his office. A petition was circulated and an indignation meeting was called, to be attended by everyone in Cataloguing. Tarrin decided to attend as well. It would be a good place to bid the department farewell.

John Glasken was not alarmed to hear a surprised shout and cry of pain some where in the darkness ahead of him. Just drunks fighting, he thought, but he still shifted his grip on his swagger stick as he walked confidently down the alleyway. A gunshot shattered his complacency, and even as he stood frozen in midstride he was confronted by the outline of a jump slash. The alley was narrow and Glasken saw the glint of a knife held for stabbing. His reflexes took over. He parried the blade up, using his swagger stick like a quarterstaff, then drove the stick's butt hard into the man's forehead. Even before the Southmoor had hit the cobblestones another figure dashed into the alley.

"Hold!" There was a flintlock backing up the command. Glasken let his swagger stick fall and raised his hands. Even in the darkened alley the cut of the figure's clothing showed her to be a Dragon Librarian.

"He attacked me, Frelle, I acted in defense."

She glanced at the figure on the ground, then back at Glasken. "Your pardon, Fras," she said, then lowered her gun. "Will you be good enough to drag him out into the street?"

Around the corner another Southmoor lay dead in the slops gutter that ran down the center of the street. Over near a pile of empty barrels were two more Dragon Librarians. One lay unconscious on the cobblestones, the gold band on his torn sleeve distinct in the lamplight. Amid the background reek of wine slops, piss, and pony dung was the scent of blood.

"My name is Lemorel Mil--ah, I'm a Dragon Green, from Libris," the girl said as she examined the jump slash.

"Glasken, Johnny Glasken, final-year student of chemistric at the University of Rochester, at your service."

She seemed to ignore him as she examined his victim. "Another Southmoor, they're both Southmoors." Lemorel turned to her colleague. "How is Tarrin, Dar?"

Darien gestured in the dim streetlight with bloodstained fingers, then tore a strip of cloth from her cape to bandage Tarrin's arm.

"Can I have that jar of wine at your belt, Fras Glasken?"

Glasken gave her the jar and she sprinkled a little on the Dragon Gold's face.

"Can you hear me, Frasn Tarrin? You're safe, it's Lemorel and Darien." Tarrin groaned, but remained insensible. "He may have hit his head as he fell, I saw the live one trip him."

"Your shot will bring the Runners," warned Glasken, who was anxious to leave.

Lemorel looked across to the bodies of the Southmoors and stood up with his jar of wine.

"Then let's learn what we can before the due processes of the law get in the way," she said as she emptied the wine over the surviving Southmoor's face. He groaned, and as he opened his eyes she pressed the twin barrels of her Morelac hard against his nostrils. "Who paid you?" she demanded.

"Poor man, poor man," he babbled. "Have to steal, feed family. Three wives, nine little ones--"

Lemorel pulled one trigger. There was a click and a shower of sparks but no blast. The Southmoor screamed.

"Mercy! Pretty Frelle, merciful Frelle."

"The other barrel is loaded," she warned.

"The Warren, Frelle. They beat me, threaten my family. Evil men, evil women. Told me kill Dragon Gold."

"Who spoke to you?"

"Woman in purdah, evil woman. No see face, no see face."

A Constable's Runner arrived, attracted by the gunshot. He blew his whistle and another four soon appeared. The surviving Southmoor was taken off to the Watchhouse and his comrade was loaded onto the coroner's cart. Glasken carried the wounded Dragon Gold to the nearby University Infirmary, where the gashes on his arm were cleaned and stitched. The medic ian told them that he should rest there until morning.

Lemorel was still keyed up and alert as she stood on the Infirmary steps with Darien and Glasken. She regarded the student obliquely while searching for words. Most shadow boys and bullies who carded swagger sticks stood with them across their shoulders and their arms draped over the ends. Glasken stood with the stick held out to one side and the tip resting on his boot. It was the stance of a gentleman, a student from a good family. Lemorel wanted words, but none came. Glasken twisted his foot on its heel, as if about to go.

"This is Frelle Darien, she has no voice," Lemorel almost shouted as she grasped at the omitted introduction. Glasken smiled and bowed to the Dragon Blue.

"I am honored, Frelle, and charmed besides. I should invite you to my room at Villiers College for coffee, but it is not in a state for such senior Dragon Librarians to see."

"Oh no, Frasn Glasken, it is we who are in your debt. Where is there a

coffee house near here, Dar?" Darien gestured with her fingers and Lemorel beamed with pleasure. "The Golden Casket, just the place."

Glasken blinked in surprise, for the Golden Casket was beyond the means of the general run of students. Words came more easily to Lemorel as they began to walk.

"That was fine stick work against the Southmoor, Fras Glasken. Have you done town-fencing at an academy?"

"Johnny to my friends, Frelle Lemorel, and no." "Ah, but you know.."
ah, good stick work "Thank you."

Again the words petered out. They walked a few steps in silence before Glasken came to her rescue again.

"And are you a graduate, Frelle Lemorel?"

"Only of Rutherglen Unitech, Fras, ah, Johnny. But I'm studying for an edutorate in Rochester. Mathematics, vector modeling."

"Vector modeling? Ah, a lot of wearisome calculations, you must be a very patient person."

"Oh I have, ah, a lot of help, Fras Johnny."

Darien tugged at Lemorel's sleeve, then flashed a series of gestures at her in the dim light. "He knows what a vector model is. Impressive."
"So you understand sign language too?" asked Glasken. "Ah, yes.
Darien asked if you are, er, studying full time."

"Alas, no, I study as I can, Frelle. I'm paying my own way, you see. I work in the taverns of the city, earning silver nobles by keeping order."

"Hence your skill with a swagger stick," Lemorel added, as if satisfying herself about something.

In the Golden Casket they bought Glasken a dinner of roast emu cuts in orange sauce, and potatoes stuffed with cream cheese and crushed nuts on a bed of savory brown rice. Lemorel replaced his jar of wine with another worth some what more than the original. After that they sat drinking coffee and eating candied locusts and honey nut pastries until the University clock tower chimed 9 'M. By now a winter rainstorm had set in and was lashing the deserted street outside.

"Frelle Darien cut up her cape for a bandage," Glasken said as he reached up to pin his cloak into place. "Please, take mine, good Frelles."

"But Fras Glasken, what about you?" replied Lemorel.

"Libris is nearly two miles away, and my college is only a few hundred yards."

"No, wait, we'll go with you, then return under your cloak to Libris."
"Dragon Librarians visiting the room of a common student? There would be talk about town, and we must protect your reputations from that." He dashed out into the rain and took several loping strides into the

storm before turning back i for a moment. "Return the cloak to Villiers College when you will, Frelle Le morel," he called, then he was gone. Darien laughed soundlessly. "What's so funny?"

"You like him, but deny it," her fingers fluttered.

"Like him? Absurd. Why he's ..."

She could not think of any reasons. Darien's fingers moved again.

"He's big, handsome, well educated, and gentlemanly. If he is poor, then so what?"

Lemorel touched a carefully mended saber cut in Glasken's cloak. "This has seen action," she said.

Darien held her fingers high, where Lemorel could not miss what they were saying.

"He combines the best of Semidon and Brunthorp, does he not? Big and handsome, yet a scholar. He seems a true gentleman as well, braving discomfort for our welfare."

Lemorel looked into the lamplit rain, but sighed through clenched teeth. "He was brave enough to confront an armed Southmoor and skilled enough to drop him. That's all." She turned back to Darien.

"The nightmares are a long way behind you, Lem. There will be reasons to see him again. Return his cloak yourself."

"Why do you have such an interest?" asked Lemorel impatiently as she held up the cloak and spread it to cover Darien and herself.

"I can see the way you reacted to him. I am only telling you what you will not admit to yourself."

By the morning of the indignation meeting Tarrin was well enough to attend, but his arm was still in a sling and his head was bandaged. He walked with a limp from twisting his ankle when he fell, and his Dragon Gold arm band was still smeared with dirt from the cobblestones.

The cataloguers gathered in the Millennium Auditorium, which had been used for Dragon Color presentations and other Libris ceremonies since the Calculor had been installed in the only larger hall. The clock behind the lectern clacked as the arms of its reciprocator swung back and forth. 9 A.M. came and went, yet numbers were slow to build. By 9:30 Peribridge checked the rows of faces and frowned. The senior cataloguers were still not there, and many of the others who had pledged their support were absent. The clock clacked with relentless regularity. Finally at 9:40 Tarrin entered, with Lemorel behind him wearing his champion's colors. He stood at the door without calling for attention, but by now the cataloguers were so uneasy that the buzzing conversation quickly died away. He shambled to the lectern, his hair tousled and dark circles under his eyes.

"Now, who is in charge of this meeting?" he asked in a soft, hoarse voice, seeming a little puzzled.

Peribridge stood up as if jerked by invisible puppeteer strings. "Deputy Overliber Wissant, Senior Classifications Cataloguer Cobbaray, and Senior Liaison Cataloguer Nugen-Katr were to be the meeting coordinators, Fras Overliber."

"Fras Wissant, Frelle Cobbaray, and Fras NugenoKatr will not be available to address any more meetings henceforth."

Tarrin seemed almost apologetic with the news. Peribridge sat down. Tarrin cleared his throat before continuing.

"I'm pleased that you are all together here, as I have an announcement from the Highliber. Due to pressures on the staff of Libris caused by her special project, certain cataloguing staff have been, well, redirected to other work." He allowed a lengthy pause before adding "Any questions?"

Feet shuffled. A Dragon Yellow raised her hand.

"Please, Fras Controller, but how many cataloguers have been redirected?" "One hundred and twenty-six."

There was complete, breathless silence. Tarrin waited. By now even the least perceptive in his audience had realized that his facade of weariness and defeat concealed a very dangerous loss of patience. At last someone at the far corner of the auditorium stood up.

"Ah yes, you have a question?" Tarrin asked gently, as one might encourage a nervous candidate in an exam.

"Please, Fras Controller, but I was just leaving to attend some urgent work," the Dragon Orange replied. At this another dozen stood up, and more joined them as they made for the doors. The doors were locked.

Tarrin held his hand up for silence.

"Regrettably I must concede that Frelle Costerliber, Deputy Ovefliber of Accessions, has been declared not acceptable in a petition signed by two hundred and ninety-seven of the Cataloguing Department. That's very impressive: everyone from Fras Wissant the Deputy Chief, to Fras O'Donlan the assistant cleaner. In view of such opposition, and seeing there is nobody else suitable to run Cataloguing, I have secured the Highliber's approval to abolish Cataloguing as a department. Cataloguing is to be made a section of Acquisitions--as of this morning."

There was a collective gasp of shock. "But Cataloguing's been a separate unit since 1192," someone called.

"Five hundred and five years without a reorganization is far too long. Are there any more questions? No questions?" There was silence. "Very good, very good. Now, Frelle Vardel Griss, Chief of the Tiger Dragons, wants to have a few words with you as well."

Lemorel tapped the door in a prearranged code. There was a loud clack

from 82

SEAN McMULLEN

outside as a bolt was drawn back, then Griss swaggered in a few paces and faced the audience with her hands clasped behind her back. She had the alert yet relaxed stance of an experienced dueler, and just the faintest hint of a frown on her face.

A squad of twelve Tiger Dragons filed in and lined up behind her, muskets shouldered and matchlock fuses smoking. Lemorel drew her Morelac and stood beside Tarrin.

"Stand to Alert!" snapped Griss, and the Tiger Dragons brought their weapons to point just a little above the heads of the cataloguers.

"I shall be quite clear about it," said Griss in a tone as hard as gunbarrel steel. "Cataloguing as a department has ceased to exist. What is more, you have no rights! None! Understand? Work well and you will not be harmed. Try to resign, run away, or shoot at the senior staff and you will be redirected instantly. I am not above punishing ten innocent cataloguers to catch one who is guilty. If you hear anyone plotting, remember that your own freedom is at stake if you remain silent. Report every suspicious word to my Tiger Dragons at once."

She went across to where Tarrin was leaning against the lectern. "Any more names for me?" she asked quietly, but not inaudibly.

Tarrin unbuckled the lid of a hide pouch at his belt and took out a list. "Twenty-five more for indolence," he said as he handed the folded square of poor paper to Griss. "Oh, and add Peribridge as a special. She was showing a suspicious degree of leadership earlier."

Peribridge was well skilled at listening in to conversations at a distance. She sat calm and serene as Griss ordered the cataloguers to file out one by one past her guards at the door. Lemorel stood with Tarrin beside the lectern.

"This will mean open warfare," she whispered amid the echoing clatter of feet on the ash gum floorboards.

"So? I stopped the first blow," he said, rubbing his bandaged arm with his ' free hand. "In time the worst of those remaining can be weeded out."

Peribridge comprehended what was happening all too well. Even the facade of the rules had been abolished. The battle had been fought before she realized it had begun, and now prisoners were being taken. She was among those marked down to vanish into the out-of-bounds area of Libris, the black pit from which nobody returned. She let her hand rest against the butt of her Toufel flintlock. Tarrin was five rows of seats plus fifteen paces away. Too far. It had been three years since she had been to the target gallery, and that had done no more than prove that her stubby Toufel was badly aligned and woefully inaccurate over more than a few yards. Lemorel was beside Tarrin, her gun in her hand, as wary and deadly as a bush cat. Peribridge knew that she would have to shoot at the scrawny Dragon Gold without even taking a bead on him. That was hopeless. Lemorel would kill her and get the credit, and Tarrin would live. Do nothing and the Highliber has me as slave

labor, Peribridge grimly reasoned. Nobody will profit by my fall.

She reached down and scratched her leg. As she brought her hand up again she cocked the striker of her Toufel.

"You shouldn't be too strict," said Lemorel, scanning the auditorium but expecting no trouble. "Who will do the cataloguing?"

"A mere fifth of those left could catalogue all the books that come into

Libris, provided they work diligently."

"So the rest go to the Calculator?"

"If any are truly untrainable they can be sent to lay par aline rails on the new Loxton bypass."

"They say war is--"

Peribridge stood up to leave, drawing her gun in the same movement. Lemorel raised her Morelac and shouldered Tarrin off-balance with the sinuous grace of a Genthic temple dancer just as Peribridge raised her Toufel flintlock and pressed it against the side of her own head. The cataloguer's gun blew the top of her head off just as Lemorel's shot hit her squarely in the throat. Peribridge crashed to the floor amid overturned chairs and fellow cataloguers diving for cover. Slowly the smoke cleared to reveal Lemorel, Griss, and the Tiger Dragons at the door with their guns aimed into the auditorium.

"The rest of you raise your hands and continue to file out," Griss ordered. "Walk slowly, no sudden movements."

Tarrin got to his feet, clutching his bandage. Blood was seeping through his fingers. "Anyone else attempting suicide will also be shot," he muttered to him self.

The stiches in Tarrin's gash had been tom open by his fall, but he stood beside the others with blood dripping from his arm while the last of the cataloguers left the auditorium. Many were splattered with brains and blood, and all were wide-eyed and ashen-faced. Tarrin collapsed into a chair as the last of them left. Griss left to find a medic ian as Lemorel used her gunbarrel and Tarrin's sling as a tourniquet for his arm.

"What were you saying about war?" Tarrin asked, glancing across at the remains of Peribridge.

Lemorel had to stop and think for a moment. "Lameroo and Billiatt are threatening war over the Loxton par aline bypass."

"War at Loxton, ah yes. For a moment I thought you meant here."

CAPTIVE

Being a linguist, Darien found her career in Libris continually nudged toward the Inspectorate. With war threatening in the westernmost may orate of the Alliance she finally accepted a commission as a trainee Inspector. Her first assignment was to the assist with the opening ceremony of the bypass par aline between the towns of Morkalla and Maggea. The laying of this new track meant that the par aline west was now on the territory of the Southeast Alliance until it reached the Woomera border. The independent castellanies to the south were thus faced with a big loss of customs revenue, so there was large military buildup where the new par aline skirted the border.

Darien's only warning that fighting had begun was a heavy lurch as the wind train that she was traveling in toppled from its tracks. The lightly built engine and carriages crashed down and split open beside the par aline. Darien sat up on what had been the wall of her carriage, dazed and in pain. Her first thought was to crawl out of the wreckage, but Morkundar, one of her small escort squad of Tiger Dragons, barred her way. Bright red blood was oozing from above his hairline and trickling down the black skin of his face.

"Stay down, Frelle Darien, this is no accident," he said urgently as he wiped blood from his eyes. "The train's been attacked."

He led her to where the other Tiger Dragons were assembling and as they arrived a patter of shots began. Survivors who were already outside screamed as they were hit, and bullets tore through the flimsy woodwork of the wrecked coach. The Tiger Dragons lay low and checked their guns.

"They'll charge at any moment," Morkundar's voice warned from some where beyond a pile of seats and luggage. "There's no cover east of the par aline so they must be all on the western side. All of. you line up along the breach in the roof."

Even as he was speaking nine dozen regulars from the Billiatt Castellany charged from their cover waving sabers and cheering. Morkundar watched through a split board.

"Steady, steady... Up, aim, fire! Second barrel.. fire!"

Like Darien, every one of the Tiger Dragons had a double-barrel flintlock,

so forty shots tore into the Billiattians as they reached the wreckage. Darien fired blindly the first time, but aimed for one of the officers

with her second shot. He reeled, the saber fell from his hand, and he collapsed. She dropped the gun and drew her dagger, then stood petrified. Someone dragged her down under cover and she came to her senses with the envoy from the Brookfield Castellany to Renmark slapping her face and shouting at her to reload.

The shock of sudden disciplined fire at the Billiattians was made worse by the loss of their five most senior officers among the seventeen killed. "A trick,

an ambush, fall back!" someone shouted, and they broke ranks and fled for cover. One minute had passed since the derailment.

"Synchronize Call anchors," Morkundar shouted as they began to reload. "A quarter hour drop, and reset on my command or timeout. Counting, three, two, one, reset!"

It took some time for Billiatt's troops to regroup and organize return fire. The three trained snipers in the Tiger Dragons had meantime unpacked their long barreled muskets and were picking off any Billiattians who tried to get a closer look. Darien reloaded her flintlock and lay ready for the next order. Two more surviving passengers now joined them, but they were both wounded.

Darien touched the envoy's arm. As he turned to her she shrugged and bowed.

"That's all right," he said. "First time under fire?" She nodded. He was a thickset, balding man of about fifty, a little like one of her uncles. "I'm afraid too," he said, turning back to peer through a hole in the smashed paneling of the carriage. His tone became mixed with anger. "They must have invaded across Brookfield territory, they couldn't have got here so fast otherwise--uh, here they come again."

The sharpshooters dropped two officers just as the charge began. Darien stood and fired, once, felt the tug of a ball passing through the shoulder pad of her tunic, then fired again and dropped back under cover. She had no idea what she had shot at or whether she had hit anyone. Her right breast felt clammy. Blood from a gash in her shoulder was soaking her uniform.

The volley from the train broke the wavering line before they had advanced more than a few yards, even though their own marksmen were laying down covering fire ahead of them. The enemy musketeers began to shoot blindly into the wreckage from cover. A Tiger Dragon was hit as he sat reloading his gun.

Morkundar gave Darien a cloth soaked in eucalyptus oil and told her to stuff it under her tunic and against the wound. She winced with the sting of it.

"The pain helps close your blood vessels and slows the bleeding," he said. "Stay low now, the train's too flimsy to give us cover."

"Seats," said the envoy. "Use luggage and seats as a barricade."

Fire from the Billiatt muskets continued to rake their overturned carriage. "Ready with anchors, three, two, one, reset!" Morkundar called.

"I don't understand it," said the envoy. "Why attack this train, why

violate Brookfield territory? Billiatt and Brookfield were at peace. My Castellan will be screaming for reparations when he hears of this."

"The beam flash link," Morkundar replied. "My guess is that the Castellan of Billiatt has laid siege to the Maggea rail side also with troops sent across the Brookfield borders. This force here has been sent north to cut the beam flash link. They may have bombards to smash a tower, or they may just light grass fires to cloud the beam. By breaking both the beam flash and par aline the Castellan will show that he has a stranglehold on whatever the Alliance wants to do. The more timid mayors will want to pay him his customs money again."

"But there's barely a hundred musketeers out there."

"The main force will be up ahead, and probably visible from the par aline

We were bombed to stop us overtaking them and raising an alarm."

Morkundar spilled a little gunpowder on a scrap of poor paper and drew back the striker of an unloaded barrel. The shower of sparks ignited the powder and set the poor paper alight. Darien looked on in alarm, silently shaking her head at him.

"Careful, this carriage will burn like kindling," warned the envoy. "That's why I'm setting it alight." "What? But it's our only shelter."

"The wind engine is lying close by, and is built more solidly. We must run for that and take shelter beneath it. The smoke from this carriage will alert look outs in the beam flash towers. Patrols will be sent to investigate and they will discover the main force of Billiatt raiders."

"That main force could turn back to help that lot over there put out the fire." "So we must attack instead of just surviving."

Darien wept with frustration. Her cards were gone and none of them knew sign language. There were probably flares somewhere in the wind engine, but-but Morkundar was a good leader and she had no voice.

"If we just stay here those musketeers will leave to join the main force,"

the envoy pleaded. "We can't attack. There's five of them for every one of us." "Then we'll die defending a burning carriage."

Die. Darien felt herself convulse at the thought. The envoy turned to her. "Frelle, you're the most senior Dragon Librarian here, and the Fras Tiger Dragon must have your approval. What is your word?"

Her word? Darien put a hand over her eyes and laughed her silent laugh, close to hysteria, nearly in tears. The envoy's balding head suddenly went crimson and he tried to splutter an apology. Morkundar's face remained grim.

"Well, Frelle Darien?" he asked.

She pointed to Morkundar and nodded.

Lemorel had hired a good lawyer when she heard that Glasken was in trouble. It paid off. There had been a drunken brawl in the street

outside a tavern, and when the Constable's Runners had arrived Glasken was one of those lying unconscious on the cobblestones. The city prosecutor cited Glasken's poor record, but the defense cited Glasken's role in saving Tarrin's life as proof of his good character. After his release Glasken returned to his college at the University with Lemorel beside him. His head was bandaged, and there was a red stain where the blood had seeped through.

"I used to think that justice in my own yoick-town may orate was backward, but not anymore," fumed Lemorel. "That magistrate went out of his way to weight the evidence against you."

"Justice is like having big muscles," Glasken said without rancor. "Some people just have more than others and it can't be helped. I work as a swag german so I get into a lot of fights. Because I get into a lot of fights, I see a lot of the magistrate."

"But soon you will have a degree, Johnny, and will be working in safer places," Lemorel said hopefully.

"I majored in explosives, Lem. Does that sound safer than rioting drunkards?"

"Well, whatever you do, I'll do what I can to make your life easier."

By now they had reached Villiers College in the University grounds. It was an old, solid, and comforting building of ochre wash abandon stone. The main doorway was shrouded with vines, and their footsteps echoed on the boards of the hallway as those of students had for centuries.

Glasken had a room upstairs. Lemorel glanced around approvingly as she entered. The place was orderly and well swept, with the books in a straight row on the shelf and the bunk made neatly.

"Not very inviting, I'm afraid," he apologized.

"It's wonderful," she responded. "I expected you to have the squalid habits of most young men living away from home."

"So, you have had occasion to see their bedrooms?" he asked at once, although playfully.

"Only late at night."

"Oh so, pray continue."

"And only after the Tiger Dragons had broken down their doors and taken them away for questioning."

Glasken gave a slight choking sound before realizing that it was probably a joke.

"There are better ways to get questions answered," he suggested, sitting on the edge of his bunk.

"Those being?"

"Tap lightly on the door, then enter the room with the top button or two of your tunic undone. You should also be sure to have a jar of plumb brandy with

YOU."

"Why plum brandy?"

"Because it is upon you before you know it," he said, raising his hands like claws. "It slips the knots on lacings just as surely as it loosens tongues."

Lemorel turned away, a little unnerved at the wordplay. She examined the books on his shelf, then noticed a small lemon wood box with a deacon's pledge stamp bearing the date 14th April 1696. She lifted it with two fingers. There was a tracery of hearts and arrows all around it in poker work

"And what is in here that has been sealed away for a year and a half?." she asked, frowning slightly. "Love letters, perhaps?" Inwardly she prayed that it was not so. "The armor of lovers," Glasken replied.

Lemorel dropped the box with a gasp. The seal broke as it hit the floorboards.

"Fras Glasken, I didn't think you--that is, I thought you too much of a gentleman..."

"And so I am, lovely Frelle. Take note of the date."

"But--"

"Lemorel, sweet Frelle, just think of what would happen should I find myself with some lovely young girl and both of our passions running amok. The deed would soon be done, yet what is in that box could make the difference between a harmless frolic and a pregnancy that would be anything but harmless."

He reached down and picked up the box.

"Hmm, the seal pledged before the deacon is broken," he observed.

Lemorel considered this, then flicked the top button of her tunic. It popped undone.

"How many buttons did you mention earlier, Fras Glasken?" she asked.

He stretched out on the bunk, like a big, languid cat. "To win my heart, Frelle, none at all. To win my body.." as many as feels comfortable."

Glasken lived up to his promise as a lover, in spite of the narrowness of the bunk and the fact that he had been clouted over the head the night before. This is the way that virginity really should be lost, Lemorel thought as a clock tower nearby clanged the hour past noon. Down below on the lawns she could hear students chattering as they went from their lectures and tutorials to the college refectories. Lemorel had missed a lecture on applied calculus to be where she was, but was feeling smugly superior about it.

Her new lover was lying with his head on her shoulder and a leg sprawled across her thighs. She caressed the hair above his bandage, suddenly troubled by something about him. He was good-looking, considerate, intelligent, strong, and sensible.." but slightly dull. It seemed a terrible thing to admit, yet the man did everything right: nothing was colored by foolishness or mistakes. How tolerant would he

be? Lemorel shivered to think of dead lovers, cold in their graves.
How would John Glasken react to her past, were it ever revealed to him?

She could be open to blackmail unless their liaison remained a secret. Now she realized why such a prize as he was unpartnered when you are too good to be true, very few others can come up to your standards. She gently shook him awake. "Johnny, I must go now," "Umm? So soon?"

"I have work to do in Libris. There's always too much work in Libris."

He admired her from the bed as she pulled on her trousers then sat lacing her boots on his guest chair.

"Fras Johnny, it's not that I don't feel proud of you..." she began, but the rest of her words did not line up properly in her mind. She looked down at the floor, pressing her lips together.

"A Dragon Green Librarian should not be seen to be liaising with a student,"

Glasken said in a kind, level voice.

"No, it's not like that--"

"Ah, but it is, Frelle. Think of your reputation, it's quite reasonable." "You don't mind?"

"If Libris knew, Libris would send people to spy upon every move that I make. Those in the taverns where I keep order would soon think that the spies were really working with me. I would not live long."

Lemorel was still sensitive on the subject of dead lovers. Still naked from the waist up, she flung herself over him, imploring Glasken to give up his work in the taverns, even offering to pay his expenses herself.

"Generous Frelle, I cannot accept money for nothing," he said as he held her against him, "but I am quite safe if our love remains a secret. It's in both our interests to be discreet."

"So you understand that I'm not ashamed of you?"

"Of course. Now off with you, to Libris and the service of the Mayor." Lemorel got up and buckled on her gunbelt and dagger. Glasken clapped in appreciation as she struck poses with her breasts thrust out; then he got out of bed and shouldered his swagger stick like a musket.

"Were you to dress like that for duels, men would challenge you just for a dying glance at such breasts," he said as he dropped his swagger stick and fell to his knees, clutching his heart.

"Come on now, Johnny, back into bed--no, stop that."

But Glasken did not stop, and Lemorel did not emerge from his bed again until five in the evening. This time she put the tunic on before buckling on her gunbelt.

"What will you tell them at Libris?" asked Glasken as he stifled a yawn. "That I fell asleep while studying at the University." "That will be enough?"

"I have a good record, they owe me a few lapses."

"And ex-lovers in high places?"

Lemorel shook her head. "I've had only one affair since joining Libris, and it was nothing special. I prefer affection, so I stay out of the political dalliances on offer there. And what of your ex-lovers? Don't try to tell me that this afternoon was your first time."

Glasken lay back in the bunk and clasped his hands over his chest. "Lovers, yes I've had several. Silly, frilly wenches who saw only a body of passable allure. Lust without affection is like taste without food: you feel good while gradually starving. One of them hurt me deliberately, just before an important exam. That's when I saw the deacon and sealed that box."

"Lucky me," said Lemorel as she kissed him goodbye.

Rochester was suddenly wonderful as Lemorel returned to Libris through lamplit streets crowded with evening traffic. Perhaps Glasken was still a little more staid than she would have liked, but she would quickly bring him out of himself. The criers were going about, some with their tools and wares, others with dash papers

"Auction of fine horses. Auction of fine horses." "Flour, fine ground flour by the bag." "Clayware, buy a fine mug or lamp."

She stopped and glanced at the stall. The symbolism of her buying a lamp to light up Glasken's hard life appealed to her.

"War with Billiatt. Fighting on Loxton par aline

Lemorel crashed down out of her reverie and ran over to the young crier girl. The dash paper that she bought told of actions that had taken place that afternoon and been reported by beam flash. It was a series of headline phrases, no more. "Beamflash link saved from attack due to bravery of Dragon Green Justin Morkundar." He had been the Tiger Dragon in charge of Darien's escort, one of several koorees working for Libris. So what of her friend? While she had been in Glasken's arms Darien might have been dying on a battlefield. "Whatever I do, there's always guilt to dog me," she muttered as she scanned the rest of the dash paper. "Brookfield enters war on Alliance side. Brookfield envoy saved during wind train ambush by Dragon Blue Darien vis Babessa."

Lemorel gave a cry of delight, then seized the girl selling the dash papers and whirled her around, sending papers fluttering in all directions. She gave the star fled girl three silver nobles and kissed her, then ran all the way back to Libris.

After some days of savage fighting, the war over the bypass developed into a standoff that dragged over weeks. As was usual in wars, the Call wreaked a heavy toll on the confusion of the battlefield, claiming more victims than disease or fighting. Billiatt was too small to right

an extended war and because its first attack failed, the Alliance mayors had time to decide on a united response and fall in behind Renmark and Rochester. The par aline west was reopened within a fort night, and after his army suffered five thousand casualties in two battles attempting to sever it again, the Castellán of Billiatt sued for peace. The terms of the peace treaty were humiliating, but he signed nevertheless. Were his army to be further weakened, his own throne would not be long in falling. Buffer strips of territory were ceded to Renmark and Brookfield to insure the safety of the par aline bypass.

For Rochester it was a narrow but important victory. The initial attack had been beaten back more by luck and bravery than sheer strength, so the other Alliance mayors still did not see Mayor Jefton as a serious new rival. Rochester was the keeper of Alliance accounts and that was that.

Throughout the Southeast Alliance general prosperity followed the war. The citizens of Rochester were too busy making money to notice the minor changes to the may orate central library, and even within Libris itself a stability of sorts developed as the Calculor established itself as a strange but useful member of the staff. Only an elite few realized that its influence extended far beyond Rochester and over much of the known world.

The Calculor's impact on the Central Confederation was subtle but profound. Gradually it worked its way into the running of the par aline network, coordinating rail traffic and optimizing carrying capacity with new timetables that were almost miraculous in efficiency. It also made itself indispensable to the beam flash net work, generating codes and translation tables faster and more reliably than the Griffith Beamflash Academy had ever managed, and optimizing beam flash traffic in parts of the network under Rochester's direct control.

By the time the political implications of Rochester controlling such vital resources became clear to the other mayors it was economically impossible to return to the old ways. Everyone was making more money than before and the services were far more reliable. If it came to the worst and Mayor Jefton tried to hold the par aline and beam flash services to ransom, his may orate could easily be crushed by a combined army of the other may orates

All librarians working on the Calculor were subject to random surveillance by the Black Runners, and once it became operational they were required to sleep in the Libris hostelry and nowhere else. This suited Lemorel very well. Libris protected her from outside inquiry, and her only contact with her past was the letters she exchanged with her father. His news was all good: business was booming and Jemli had married and left home. Lemorel spent long hours in the Calculor rooms, studied diligently at the University, and kept Glasken a secret.

They saw each other so infrequently that the Black Runners had no mention of Glasken on Lemorel's personal file. Both worked for a living, Lemorel with the Calculor during the day and Glasken in the

taverns at night. When they did meet it was between lectures. At the end of 1697 Glasken failed a subject and was faced with another year of study. Lemorel was relieved. The arrangement of their liaison suited her well. Having Darien away suited her too. She knew that it would be difficult to be quite such a close friend to her as before now that John Glasken had entered her life.

As Libris took over more and more of the par aline scheduling, the Dragon Librarians became deeply involved with far-flung lines and nations. Although she had no voice, Darien was an accomplished linguist and as long as there was someone who could read her cards she could communicate in many languages.

Two months after the defeat of Billiatt, Darien was brought back to Rochester and made a Deputy Overliber, and she and Morkundar were decorated by Mayor Jefton for bravery in his service. Being both a war hero and a Kooree, Morkundar was made Rochester's ambassador to the Woomera may orates where there happened to be a Kooree over mayor in office. Darien had dragged the Brookfield envoy to safety when he had been shot in the dash to the cover of the wind engine, and the Highliber was anxious to give the heroes on her staff as much public exposure as possible. Darien spent only weeks in Rochester before being sent west again as a fully commissioned Inspector. This time it was to work on an even bigger project to link the beam flash terminus at Peterborough to Woomera's beam flash network. Three immense stone-and-timber repeater towers were to be built, and her task was to reconcile the transmission protocols and linguistic differences between the beam flash networks of the two systems. At the opening of the link on the summer solstice of 1699, Darien stood beside the Highliber in the beam flash gallery of the Rochester tower while Mayor Jefton exchanged pleasantries with the Mayor of Woomera. The link between them was eleven repeater towers and 660 miles in length. Rochester was becoming the center of the world in a very real sense.

Darien was only given a month to write her report on the project before she was assigned to something even more remote and ambitious: the linking of the rail side towers on the immense Nullarbor par aline to forge a beam flash link to the may orates of the distant west. Long sections of the line were already linked, but the number of towers had to be reduced to make high-speed traffic economically viable. A prime site for a massively upgraded tower was the Maralinga Railside, over 300 miles west of Woomera.

The Call was intense at Maralinga Railside, and came as often as once in five days. Maralinga was the biggest, most remote and most beautiful of the outposts on the Nullarbor par aline. It was a magnificent sight from the approaching wind trains, standing tall and bright, like a gleaming cluster of pinkish salt crystals on the flat, scrubby Nullarbor Plain. It was built from sawn limestone blocks, with one tower twice as high as the others to monitor the approach of distant wind trains.

When Darien arrived it was by wind train. A legacy of Greatwinter was that the wind was almost continuous on the Nullarbor Plain, and the rotor engines hardly ever had to be augmented by expensive navy power. The slatted rotors would turn no matter what direction the wind came from, and although the trains were sometimes slow, they were never becalmed. Balance booms extended to either side, and eight staggered rotors spun in the steady southwest wind.

The driver's cabin was set back from the buffers, and he glanced over the readings on his dials as the approach stones passed on his right. He called readings to the engineer, who in turn shouted orders to the gear jacks at each of the rotors. The train lurched and shuddered as gears bathed in sunflower oil clanked into lower ratios and the speed diminished. A pinpoint of light flickered at the summit of the highest tower, and on top of the cabin the train's watchman began a heliostat exchange.

/ POINTS SWITCHED FOR DOCKING OF WESTWARD HI09 / the tower announced.

/ ACKNOWLEDGED--SWITCHING TO LOWER RATIOS FOR APPROACH / the watchman replied.

/ ARRIVAL OF DEPUTY OVER LIBER DA RIEN VIS BABESSA EXPECTED / the tower inquired.

/ CONFIRMED / the watchman assured the Maralinga signalers.

Deputy Overliber Darien was the lowest-ranking, most recently appointed Overliber in the known world, yet a woman of quite some importance nonetheless.

None of the rail sides on the Nullarbor par aline were heavily fortified, despite evidence of a distant but warlike civilization beyond the northern desert. The Call reached as far as that, yet the desert robbed it of most of its victims and hardly a week passed without the watchman in the Maralinga tower sighting new corpses. There were dead camels with harnesses of woven green silk and gold thread, bearing dead riders buckled into saddles encrusted with lustrous black opal plates. Some dead warriors clutched saberines made of steel that even the advanced technology of Rochester's artisans could not duplicate, and their camels' sand anchors contained very fine clockwork. In the saddlebags were brass telescopes, silk veils woven with the images of fortified towns cut into cliffs of red rock, and books. A powerful, alien civilization, but too remote to be a threat, or to trade with.

The train rattled over the points as it turned off into the Maralinga siding; then the gear jacks spun their crank handles to screw down the brake blocks against the wheels. The train came to a screeching but smooth stop with the buffers of the wind engine within inches of the emergency retainer. The rotors continued to free-spin in the steady wind, waiting for the gears to be engaged again. The guard blew his whistle, signaling that the doors could be opened in safety.

Darien stepped onto the platform first, sweating in her inner

imf,I'm of black tunic and britches. The silver arm band of her Dragon Silver rank gleamed in the sun, and she carried her Overliber's commission to present to the Station master. She was greeted by six controllers, half of the Maralinga staff. They were honored to have such an important guest; in fact they were honored to have a guest at all. Because she had no voice they chattered nervously.

"Here comes the shunting engine," the Railside Master said, and he pointed to a short red wind engine with two white rotor towers that was approaching from the staging yard. "It will take your personal coach from the back of the train and pull it to a siding."

The shunting engine clanged into the coach's couplings, and the crew unhitched it from the train. With a crash the gearings beneath both wind rotors were switched to reverse and her coach was drawn off. She was committed to stay now, and her welcome was the heat, the flies, the fine gritty dust on the relentless wind, the stench of rancid lubricating oil, and the chatter of six nervous strangers. Other passengers began to disembark for a brief walk on solid ground before the train pulled out again. The porter opened the shutters of a little kiosk filled with souvenirs, candied fruit, and jars of cistern water. A crowd quickly collected.

"You can take off your body anchor, Frelle Overliber," the Watermonger said as they began to walk from the platform to the buildings of the rail side "There's a mercy wall to the south, and a Call is unlikely for several days."

She turned. A great circular wall encircled the rail side with interlocked wings to allow wind trains to pass through. At the southernmost point was a filed shelter. The Call always came from the south here. If it had come at that very moment, they would have all blindly walked south until reaching the mercy wall and been directed to the shelter. She unbuckled her body anchor and the Watermonger proudly carried the ticking mechanism for her.

The rail side was amazingly cool within. Gleaming limestone walls reflected the worst of the sun's heat away, and convective ventilation ducts were built into every building. They climbed two floors to the observation terrace, where the Provindor had laid out the coffee setting at a table overlooking the shunting yard. As the Railmaster went through the formalities of the coffee ceremony Darien watched the wind train preparing to depart. The shunting engine was returning and a few passengers were being herded back aboard. The little engine crashed into the rear carriage's couplings with an echoing boom, the guard blew his whistle, and the rapidly spinning rotors on the express engine suddenly slowed as the gears were engaged. Slowly the line of green-and-yellow-striped carriages began to back out of the buffers, and the train rumbled back onto the main line, rattling over the points and stopping with a shudder of brakes. The shunting engine was uncoupled, the yard inspector blew his whistle twice, and the train moved off, resuming its journey west. The shunting engine pushed for a few yards, then dropped behind to return to the staging yard.

"... Which brings us to your business, Frelle Overliber. What can we do to assist with your visit?"

Darien had a folder full of cards already prepared. She selected the appropriate card and handed it to him.

I APOLOGIZE FOR HAVING NO VOICE. THANK YOU FOR YOUR TROUBLE. I SHALL NEED ONLY SOME SPACE IN YOUR LIBRARY AND ACCESS TO THE ENTIRE RAIL SIDE I HAVE A SURVEY TO DO. THE MAYORS OF ROCHESTER AND WOO MERA REQUIRE THIS RAILSIDE TO BE EXTENDED.

He handed the card onto the Watermonger, and it was passed among the others as he continued the conversation.

"Frelle Deputy Overliber, I am gratified that my requests for extensions to the yards, cisterns, and warehouses have been recognized by His Highness the Mayor and your own monarch. I shall prepare a memo of thanks at once for you to take back to court."

Darien had not been briefed about his request, so now she had to correct a misunderstanding. She began writing on a blank card with a char black stylus. The monitors waited eagerly, yet she would not let herself be forced into undignified scribble. At last she handed the note across.

THE EXTENSIONS ARE NOTHING TO DO WITH YOUR REQUEST, ALTHOUGH WHAT YOU PROPOSE IS ENCOMPASSED BY THEM.

While he puzzled over the words she selected another card.

THE MAIN SIGNAL TOWER IS TO BE TRIPLED IN HEIGHT. THE STAFF WILL BE INCREASED TOO. OTHER FACILITIES WILL BE EXPANDED ACCORDINGLY.

"But that's wonderful!" exclaimed the Railmaster. Before he could say anything more she handed him yet another prepared card.

MARALINGA RAIL SIDE WILL BE RECLASSIFIED AS A FIRST-CLASS OUTPOST. IF

ANY CURRENT MEMBERS OF THE STAFF WISH TO RETAIN THEIR RELATIVE RANK

THEY WILL HAVE TO SIT FOR EXAMINATIONS.

The mood changed abruptly as the card made its rounds, almost as if the controllers had allowed themselves to be struck dumb in honor of their mute,

distinguished guest.

Darien based herself in the library for the next four days, as she made a detailed inspection of the main tower against the original plans. Her

findings confirmed what the planning consentium in Libris already suspected. The foundations were inadequate to support a new structure, and much of the existing stonework was built to interlock on the existing height-to-weight ratio. It would be quicker and easier to dig new foundations and build a new stone tower. On the other hand a timber extension could be added without straining the foundations. It could also be completed in a tenth of the time that a new stone tower would take.

The bearers of bad news are never popular with those who suffer the con

sequences. Apart from meals and formal coffee Darien was shunned by the sulking controllers, and she spent the evenings going through the library's collection of books found with the bodies in the desert. The enigmatic books were in what she knew as a dialect of the Northmoors, Ghan nomadic. They painted an exotic but severe picture of the distant society. Honor, service, loyalty, and ruthless discipline among warriors held the various nations together in a harsh and arid land. Women and children were cloistered and protected past the point of imprisonment. Much of the romantic poetry was about yearning and longing, of love unfulfilled, of secret notes smuggled past watchful elders. Women could only travel by cart or sedan chair if they ventured beyond the compound of a building. It was fascinating yet repelling for Darien. She was, after all, a powerful woman, holding the careers of a dozen men in her hands as she wrote out her recommendations and reports.

On the morning of the fourth day she had just dressed and was preparing for the day's work when the Call swept over the rail side. There was a sweet and familiar feeling of falling away into surrender, followed by waking to bruises and torn fingernails. It had caught her in a corridor, but she had been attached to a shackle rail by her waist tether. Buildings were dangerous. Without a tether one might walk to the southernmost window and fall several floors during a Call. Darien awoke on the thick carpet of the library, bound hand and foot!

It was impossible. Nobody could have walked about freely while the Call swept over the rail side. The others were awake and calling out now. The Railmaster, the Watermonger, the mechanics, all were shouting that they had been bound during the Call. Then she heard slow, shambling footsteps in the cloisters outside. A thing out of a nightmare stopped at the doorway and peered in at her through mirrors set a hand span apart on its face, its eyes gleaming in the depths of the reflections.

"So, one woman among twelve men," it said in a deep, muffled voice. It was a language borrowing heavily from the North Mulgarian tongue in accent, but was pure Ghan nomadic in structure.

"Your people's language makes no sense to me," the thing went on, yet she could have done nothing but stare in reply, even if she had had a voice. A man completely enmeshed in living vines, vines that were trained, grown and woven to cover him like a suit, a man wearing a jacket of olive-green leaves and thick, cumbersome knee-boots which smelled of wet soil and mulch. His arms tapered into mittens of finely woven tendrils.

The Call beckoned to all living things larger than a cat, so that a man walking about freely during a Call was no less amazing to Darien than levitation. The black Kooree nomads of the northern deserts were known to go into a trance when the Call seized them, collapsing to the ground for two hours. Thus they escaped the Call, but they did not resist it.

Darien stared in amazement. The man wore a living robe: did that make him immune to the Call's allure? She had been bound during the Call, what else could explain it? The consequences screamed within her mind: his suit was a weapon that nothing could stand against.

Very soon other Ghans swarmed into the rail side. They were dressed in robes like those of the bodies in the desert, and they reeked of perspiration and camel. Darien was carried into the cloisters with the rail side staff. None of the Ghans could speak their tongue, and none of the staff could understand the Ghans. This was established after an hour of beatings, kicks, and shouting. They also realized that Darien was mute, but not that she understood everything they said.

"So this is the source of the Call," declared Kharec, their captain. "It comes from the strips of iron in the desert."

"Not so, Captain," said the man clothed in vines. There was a sudden hiss of many breaths sharply drawn, and Kharec turned on him.

"You question my word, vine man he snapped.

"I would never question your informed word, Captain. It is just that I know what you do not. I saw a feral goat in the grip of the Call cross those metal rails and continue south. You could not have seen that, being in the Call's grip your self."

Kharec turned away from the man of vines and mirrored eyes, and the tension dissipated. He had saved face and was satisfied. Kharec was powerful and dangerous yet the other had the confidence of one who knows that he is indispensable.

"Frelle Overliber, can you understand them?" whispered the Railmaster, who was lying beside Darien. She shook her head as Kharec strode up and kicked him in the face.

"So you can't speak the Alspring tongue!" he shouted at them. "Well that's sign language for no whispering."

Darien was taken away to the Railmaster's quarters, where she was chained to the eyebolt beside the bed. Kharec strode about the room, puzzling over the equipment, books, and maps; then he stood staring at her.

"A woman with no voice, a woman who cannot answer back. Such a luxury." He said this to another who never left his side, a small, relaxed, but observant man who seemed more of a spy than a bodyguard. Darien had expected to be ravished then and there, but they left without another word.

The Ghans hastily fortified the rail side posting lookouts and barricading outer windows and doors. There were forty of them, including the vine man. Darien was forced to cook and wait upon them, and thus she heard most of their discussions. They argued about the nature of the para lines about the source of the dried meat and fruit in the stores, even about the limestone blocks that the rail side was built from. The vine man stayed outside in the sun while the others gorged themselves on the stores and water. They had taken three months

to reach the rail side and had come due south across an immense expanse of sand, stunted scrub, and salt pans. There had been very little water along the way, and almost no game. Some of the Kooree nomad tribes had attacked the Ghans and had killed at least a dozen.

After the evening meal on the first day Kharec held a council with his officers. Darien served water from the deepest, coldest cistern.. and coffee. They knew coffee, but it appeared to have the value of gold in their society. She learned that Kharec was looking for new lands to conquer. The Ghan kingdoms had been at peace for eighteen years, and their rulers wished to retain that peace. Thus ambitious nobles could not better themselves by conquest, and because Kharec was the youngest son of a noble family he could expect little from inheritance either. If he could find unaligned cities to attack, however, he could have conquests without violating any truce. Oddly enough, the Ghans were officially on a scientific expedition, and were funded by a woman whom they called the Ab bess. Both the man who shadowed Kharec and the vine man were her personal agents, but Kharec was the commander.

They could make little sense of the rail side or par aline. The wind engines, wagons, and carriages were made to roll along the rails, but there were no camels to pull them!

"The place is built as solidly as a fort, yet the gates and doors are wide and undefended," Kharec declared, scowling. "If their towns are as badly guarded, we could make quick strikes and carry off enough gold to raise a force of five hundred lancers. Then we could return and conquer these mice and make a new kingdom. It seems too easy. Why haven't others done it already?"

"But where are the cities?" asked Calderen, the oldest officer. "There are no roads, only that pair of iron bars laid from horizon to horizon."

"I have found maps. There are marks and lines that cannot be anything else but cities and roads."

"But we cannot read them, and none of these people here speak Alspring.

We don't even know which dot on a map is this place."

"There is a way. Yuragii has made a discovery."

Kharec let the words hang. The officers looked from one to the other, then back to Kharec. Before the short, thin officer could explain, Kharec clapped twice for Darien's attention, then pointed to a tray of food and gestured to the observation terrace where the vine man sat basking in the horizontal rays of the sunset.

She walked out of the hall, changed her tether to the outside shackle rail, then climbed the stone stairs to the terrace.

"Ah, someone remembered me," the vine man said as she stood before him with the tray. He did something with the vines and tendrils over his mouth, then lifted a flap to reveal his lips.

"A good and simple system," he said, taking a goblet of water from the

tray. "If a Call comes while I hold the flap open, I will drop it even as I respond to the Call, and so will be protected by this suit again. Hmm, such a serious little face. You do not understand a word that I say, do you?"

Something in his manner was reassuring, and Darien smiled at him.

"A smile for me. How pleasant. Not many people smile at me when I wear my vines. The last to smile for me was a lady in Glenellen, a very important lady. She is the abbess of a great convent, one of our centers of learning. Ah yes, she smiled at me, but then she is very strange herself. She eats grilled mice on toast and washes her hair in oils of nightshade. Such hair, it hangs in black curls and reaches past her waist."

A woman who could rise to such a position of power in his society would be truly remarkable, Darien thought. He began to eat, taking dates and roasted nuts from the tray and crunching them beneath his mask of woven vines. The sun struck crimson highlights from the mirrors and tubes that led down to his eyes, then winked beneath the horizon. In the gathering shadows his human outline was even less distinct, and he became an animate plant preying on the dates and nuts with deliberate, rustling movements.

"Has Kharec raped you? I should think not, Makkigi watches him like a hawk. Our patroness is the Abbess of Scalattera Convent in Glenellen, and she paid for this expedition. She said that an expedition with a woman as its patron must not result in any other woman being raped. Makkigi was sent along to make sure that Kharec complies. I am watching him too."

Darien lit an olive-oil thumb lamp with her striker and held it up for him to eat by. He leaned closer, and his mirrors peered at her face. For an instant she saw two eyes, gleaming at the bottom of the dark tubes by the smoky flame; then he straightened again. There was cursing and rowdy singing echoing down the corridors.

"Isn't that a funny story? A pity that you cannot understand me, it would reassure you a little. Ah, you are perhaps thirty-three, I can see that: your face is beautiful with experience, rather than innocence. Do you hate me? Yes, you must, but I am not like the rest. I am a scholar, would you have thought it? My teacher is the great Abbess Theresla of Glenellen herself."

The one-sided conversation continued until he handed the tray back to her and gave a rustling bow. Then, as she picked up her thumb lamp he took her by the wrist and raised her little lamp to one of his mirrors. All at once light glowed from beneath the woven vines that covered his face, reflected by the mirrors just below his eyes. His eyes and the upper part of his face were visible, as if through a veil lit from behind. His grip was gentle; he wanted to reassure her that a human lived beneath the woven vines.

"I am blinded by the flame," he said as he lowered the lamp and released her. "How ironic. I must be dazzled so that you may see my face."

The vine man turned out to be right about Kharec. For all of the time that the Ghan lancers were at Maralinga Railside he did no more than slap Darien about and force her to do menial tasks. A Deputy Overliber under the protection of an abbess hundreds of miles away: the irony was not lost on her. Only the night before the Call had come she had shuddered at the strictures on women in the distant Ghan society as she read their books.

The screaming started on the morning after the rail side had been invaded. It was the Provindor's voice at first, then it was joined by that of the Railmaster, and soon all the staff were screaming in agony. As the hours passed the voices grew less and less recognizable. The cries were pleading yet hopeless, the cries of those tortured pointlessly. Darien did not realize that they were being tortured to reveal just who had been translating passages of Ghan books in the library.

At the end of the second day Kharec called a meeting of the Ghan officers to discuss what they had learned--which was nothing. Two of the Railside staff were already dead and three more would not last another day, yet still nobody would answer them in their own language. Darien served, cowered, and was ignored. The days passed, and although her reward for feigning slow wits and incomprehension was kicks and slaps, she alone was not tortured. When not cooking or serving she was kept in a hostelry room overlooking the observation terrace where the vine man sat sunning himself.

At mealtimes she always took food to the vine man as he sat in the sun, reading books from his saddlebags and writing notes on reed-pith paper with a char black stylus. He always had a few words for her. On the evening of the third day his patience with Kharec ran out.

"It is as well that you understand none of this," he said as Darien gave him his tray of dried fruits and water. His voice was so low that it was almost inaudible beneath his mask of woven vines. "Kharec is torturing your people because he knows someone here can speak our language. A copy of one of our holy books was found in the library with a partial translation into your language beside it. Your people are brave, none will admit to it."

Horror crawled over her with tiny, icy feet. So she had been the cause of all that the controllers were going through. She could stop it at once by merely writing a note and showing it to Kharec, yet she knew what he wanted, too. He wanted maps translated and interpreted so that he could find settlements to attack. Let the torture continue or betray her own people: she struggled between the ghastly alternatives for a moment before the vine man came to her rescue.

"I killed them, just now," he went on, looking south. "I gave each of them water laced with enough bane gold crystals dissolved in it to kill a camel. Your people were staked out in the sun with their fingernails and toenails torn out, and ants feeding on the wounds. I ended their agony."

Now he turned to Darien and saw the tears on her cheeks.

"You are crying," he said gently. "Do you think I'm a monster? But you cannot know what I am saying, so... why? Are you afraid of this man of rustling vines and leaves? A monster!" She sat very still. "Monster. Do you know monsters?"

He gestured to himself, then to her head, then reared over her with his arms up. HIM--I THINK--MONSTER, Darien guessed, then managed a smile and shook her head.

"You don't think I'm a monster?" he exclaimed.

She pointed to where his mouth was, then to her ears, then stroked one of her hands with the other.

"Ah, you think I've got a kind voice. Well, thank you." He bowed with a great rustling of leaves and tendrils. "How deceptive voices can be. I confess to murder, yet I do it in a kind voice and a strange language, so you think me not a monster. If you knew that I'd poisoned your people you would feel differently. They did nothing but scream and plead in your language no matter what the torturer did to them.." so I killed them through kindness. How I wish that the truth went no further than that, but there were greater issues guiding my fingers to the poison jar.

"Had your unknown linguist broken, it would have endangered the expedition. Kharec would have learned where your towns are and would have turned aside to plunder them. I could not allow that, so I had to kill. The Abbess Theresla wants us to find out where the Call comes from, so we must continue south. I am the right hand of the Abbess, I can reach across the harshest deserts and over the edge of hell for her. To be the instrument of her will, ah, it makes me become alive. When she looks out over the edge of the world into the very lips of the Call, it will be through my eyes. How lucky for me that she was born female, and that I must see, hear, fight, thirst, starve, and kill for her."

He shook a mass of verdure that might have been a fist, and his mirrors turned to the south as if he were defying the source of the Call. Darien could see the strength and pride within him, but she could also see a woman of immense power and charisma behind him. He turned back to her.

"Do you want to know how I killed them? Ah, I was very clever. I told Kharec that your people would not live long enough to have their wills broken, what with the way they were being treated. I offered them water from my own waters king but Kharec had me seized, unlaced the vines masking my lips, and forced me to drink half of my own water. All morning he had me watched, yet I did not drink any phial of antidote, and I did not die. At noon he called me the turd of a diseased camel and left to bathe in the cool waters of one of your cisterns. The guards let your people drink from my waters king then gave it back to me. Here it is, here."

He raised the nearly empty waters king and drank what was left.

"Only a few drops, yet enough to kill you two or three times over, my pretty flatterer. Hah, but I have been adding a little bane gold to my water for years, so to me it has become just an exotic flavor. How long have we been here now? Three days? Soon Kharec will lose patience and decide to move on. You will be slain before we leave, he has already ordered that. Now there is irony for you: under the charter of the Abbess you can be killed, but not raped."

Darien's heart seemed to plunge through the flagstones as he spoke. She was going to be killed, yet his voice was level and calm. Decades of life, study, struggle, love, and achievement were going to become nothing with the slash of a blade, yet he did not care! He stood up and loomed over her. Seeing fear in her face, he chose to interpret her terror as fear of him.

"You fear me, pretty, nameless scullion," he said gently, then backed off a pace. "Very silly of you. Not only will I not hurt you, but I shall make sure that nobody else does. I am not a man, you see, I am the hands of the great Abbess and she would always protect you."

He was being casual about her death because he was going to save her! The swirling vortex of emotions within her suddenly broke Darien's self-control. Tears left shining tracks down her cheeks in the light of her little lamp. She hung her head and began to sob. The vine man stepped forward again and the leaves rustled loudly as he patted her shoulder. She looked up.

"You must help yourself, though. I shall make sure that Kharec is the first out of this strange fortress. When you get free you must run and hide. Under stand?"

He made a cutting motion over her tether, then did a lumbering run on the spot. She nodded that she understood.

"It is good to be within stone walls again," he said, looking out over the desert. "At Glenellen we have a fine city, all cut out of red stone. Deep red sandstone walls, as red as the blood from an enemy's artery and reflected in the cobalt waters of the gorge. You could not imagine how pretty it is. The black Kooree nomads call it Jupla, they say that it is where the first humans emerged from the earth. The road to the governor's palace is lined with macro zamia cycads to signify long life to our rulers, and the courtyards and terraces of the convent are shaded by livistona palms and drooping ironwood trees. Covered stone irrigation canals water orchards of date palms, while grapevines grow in terraced gardens right up the side of the gorge. The suit that I wear is descended from a grapevine. It was fashioned by the Abbess Theresla.

"I am her hands, her legs, her ears and eyes. By our sacred laws she can go nowhere and I can go everywhere. I am devout, my pretty one, I read our sacred scriptures every day and I follow them to the very word. Yet... I also like being a protector, I do not do it just to obey the holy word. You are helpless, so I shall keep you safe. I am the right hand of the Abbess, reaching out to protect you."

The deaths of the controllers bought Darien extra time. Kharec had the two lancers who had been guarding them seized and tortured. They quickly confessed to the killings, yet could not say where they obtained the bane gold poison. Their torture continued through the night and into the next day.

The vine man was also under suspicion, yet his value was too great for him to be harmed. Kharec ranted and fumed and threatened, and finally had him confined. A Call tether was threaded among the large stem vines at his back, and padlocked to an eyebolt in the courtyard where he passed the hours sunning himself. Darien watched them arguing from the window of her hostelry room, listening carefully to the distant voices.

"I don't like you being free during Calls," Kharec said as he impotently paced the gleaming white flagstones.

"But during a Call only I can move freely. Who will now creep into enemy fortresses and lay them open for you? Who will rescue your men if their camels' sand anchors fail during a Call?"

"You place too much faith in your value, vine man. These people are as timid as rabbits, and easily conquered. As for rescues during Calls, I think the men have come to depend too heavily on you. Having you confined will give them reason to maintain their sand anchors and timers better." His voice was raised: his words were meant as much for the unseen ears of his lancers as for the vine man.

The vine man could now only move beyond the courtyard by tearing the vines of his suit, or by unlacing the front and getting out of it. If he did either during a Call he would be as vulnerable as any other mortal. Darien left the window and lay on her bed, but the voices still reached her clearly above the light bluster of the desert wind.

"If I have no more value, why bother to keep me?" the muffled voice of the vine man asked calmly.

"Kill you when you may be innocent? I am deeply hurt, vine man. You may be under suspicion, but no more than that. I am a fair and just leader."

"Besides, using me you can open up any fortress without losing a single man, or risking your own--"

"Don't press my patience, vine man. You will not be tortured, but your bag gage will be searched. If bane gold poison is found among your bundles of books, instruments, and fertilizer then--"

A Call swept over Maralinga Railside. Darien tumbled away from the horrors of her captivity into oblivion, then awoke with her waist chaffed from struggling against her locked tether. Outside the lancers stirred and cursed. This Call had been the first since the Ghan raid on the rail side.

"Captain Kharec!" someone suddenly cried. There were other cries of "Gone!" and "His tether must have snapped."

The vine man muffled voice shouted for their attention.

"Listen to me, listen well! The Captain's tether was carelessly fastened. I saw it come apart, I saw him go south with the Call."

"But you should have stopped him!" someone bellowed.

"He had me fastened here by the very vines that make me immune to the Call. What could I do?"

Now Calderen cried out. "Go down to the mercy wall at the south, he will have been stopped under the shelter at the junction." Three lancers hurried off to fetch Kharec. They returned in great distress.

"One of the camels broke free from the stable and was guided into the apex shelter by the mercy wall," one of them wailed. "Captain Kharec must have climbed onto its back, then reached the roof of the shelter. The tiles were broken where he got through and over the wall."

Calderan took command, yet the vine man was the real leader. He ordered his tether cut, then had the two tortured guards released. Calderan was a loyal and dedicated officer, and was adamant on one matter: Kharec had to be rescued. Oddly enough, the vine man seemed eager to help.

"The sweep of the Call is six miles deep, and once you enter it you will be trapped in the Call yourself. I am the only one who can save him."

"You must leave now, take a squad of ten and ride hard--"

"No! This is totally unknown country, so we must remain at full strength when we leave. Tonight the Call will stop, and become a malaise zone. We will keep moving in the darkness, until we reach the edge of the malaise, then I will go on alone."

"But you might not find him in the dark, over all that area."

"Precisely, that is why we must leave together. The search may take many days and nights, and could be dangerous. We may not even be able to return this way."

"What about that mute woman?"

"What about her?"

"She could write an account of what happened here for her own people. Send someone to kill her."

His words stabbed through Darien like a knife through her breast, as sharp as the blade that would follow in a few minutes. She sat up, thinking only of staying alive. Soon someone would come and she had to escape, hide, or fight. She could jam the bed against the door, gain a few moments. She would die fighting! She turned to the bed--and there was a key and a double-barreled flint lock lying beside it!

Even as Darien snatched up the gun the outer latch rattled and the officer Yuragii entered. He was leering, already gathering up the front of his robes. She held the gun behind her, fumbling to draw the strikers back to be fully cocked.

"Now don't be afraid, you don't know how lucky you are," he crooned in a genuinely pleasant voice.

I'm only afraid of the recoil, she replied to herself. The gun had half-inch bore barrels, far larger than any she had been trained to use during her Overliber accreditation. Suddenly his gaze turned to the bed, where the key to her tether still lay. At that moment she brought the gun around, gripped it in both hands, and fired.

Only one barrel went off, but Yuragii slowly doubled over amid clouds of gunsmoke. The others were slow in coming, thinking that the shot had been his. As Yuragii hit the floor Darien snatched up the key and was soon safely hidden in the maze that was the rail side

She watched the Ghan lancers leave from a hidden vantage. Calderen was in the lead, terrified of actually being in charge after a lifetime of orders from others. Makkigi seemed lost, now that he did not have Kharec to spy upon. She counted the riders: thirty-seven, with three camels being led. A telescope revealed that two lancers rode unsteadily, obviously the guards who had been tortured.. " and sure enough, one lancer was a straw mockup wearing robes. Somewhere in the rail side there was a lancer, hidden and aware that she was dangerous. He would be an experienced, ruthless warrior, and he would shoot to kill if he caught sight of her.

Darien began to write on a sheet of parchment, choosing her words carefully. The first lines were for whoever found the note:

"On the authority of Deputy Overliber Darien vis Barbessa of Libris in Roch ester, this note is to be sent by beam flash to Rochester with the highest priority."

Some coded blocks of routing information followed, along with a valid beam flash authority number. After that was a thousand words of neatly written code which would be intelligible to anyone using the Calculor.

That night Darien crept out to the wind-engine shed. The shunting engine's brakes were screwed down tight and its rotors collapsed down into the primary drums and locked against the wind that blew through the double-ended shed. Working in total darkness she slowly cranked the tubular rotors up to their full height and unlocked them. The wind spun them up to a good operating speed. She tied a thin cord to a buffer to hold the engine steady on the rails and rigged the timer from her body anchor to the gear lever of one of the rotors. She set it for just after dawn, then unscrewed the brakes. Before she stepped off the engine Darien tied her parchment note to the master gear lever with bright red ribbon. The next person to enter the cabin could not miss it.

She settled down to wait in the kiosk on the rail side platform. Somewhere in the rail side a lancer was hiding, waiting for her to emerge. All the food had been cleared away, probably to the kitchens. She would have to eat eventually, and he would be hiding somewhere with a good view, waiting. The sky brightened She had the platform bell and two long sniper muskets on the floor beside her. Sunlight streamed over the horizon. It would shine in the eyes of anyone running after the shunting engine.

There was a dull clang as the timer released the gear lever, which engaged the forward rotor. The wind engine snapped its cord as the tubular rotor powered the wheels and it moved forward with a deep rumble. Darien began to ring the rail side bell, but stopped as the shunter rattled over the points and east along the main line. In the distance she saw the Ghan lancer scramble out of the rail side entrance and run across the staging yard, robes flapping and musket held high as he stumbled over the rails.

It was all so simple for the Ghan. The engine was moving, so she was obviously escaping on it. Luckily it was slow enough for a running man to catch. Women were such easy opponents, he panted to himself with satisfaction; they knew nothing of tactics or feints. He was thirty feet away when Darien squeezed the trigger. The wind scoured the smoke away to reveal his body sprawled in the pinkish sand. She aimed the second musket and took a bead on his head, shivering with revulsion at the idea of shooting a dead man, yet.. click-boom!

Darien emerged from the kiosk holding the vine man double-barrel red flint lock and approached the body. The right side of his head was a bloody mess; he was definitely dead. She turned the body over. There was no other wound, the first shot had missed! Great, gasping sobs burst through Darien's self-control, and she collapsed to her hands and knees. Her tears left dark craters in a drift of powdery, pink limestone sand.

The wind engine rumbled off into the distance and Darien made no attempt to stop it. With a particularly good wind and no coaches at all it rapidly gathered speed and rolled past Irmana within three hours. The duty switchman only realized that there was nobody on the engine when it was too late, and nothing could be done to stop it. The switchman at Jumel was caught by surprise as well, but this time there was a beam flash link to the next rail side. At Warrion they were ready when the runaway arrived.

The switchman set an iron lever in a slot beside the track and nearly half a mile farther on a driver was waiting. The engine hurtled out of the west, and the track block brake's release arm clanged into the iron lever beside the track. Hard wood blocks swung down to jam under the rear wheels, yet the engine was traveling so fast that the blocks belched smoke and burst into flame with the friction. In half a mile the engine had slowed to a walking pace, its rotors straining to drive it forward while smoke streamed from its wheels. A driver ran beside the track and easily swung himself aboard. When he disengaged the gears to the wind rotors he noticed the note tied with red ribbon, and as he took the engine into the rail side siding he read Darien's instructions.

Because Warrion was within the newly expanded beam flash network it took only a few minutes for the first phrases of Darien's message to be routed to the clearing center at Woomera. Soon it was passing through the galleries of the towers that Darien had helped to establish; then its header crossed the border of the Rcnthont Allinnt- nt lonrnrl nnd

flnh.d o.nt nero tho o'nlmnd and eucalypt forests to the tower at Rochester. Here one of Darien's codes routed the message straight down to the Calculator's receptor. It was decoded, and soon an astonished operator sent an alarm to the Highliber's study.

As Zarvora was reading the first decoded words, the eastbound express train was approaching Maralinga and Darien was waiting to flag it down. There were ten reserve musketeers among the passengers, and they stayed to guard the rail side with her while the express continued east for help.

Three days later help arrived in the form of a wind train from Woomera carrying twelve dozen more musketeers and twenty lancers. More important, there were also six demi-terriers that were too small to be affected by the Call. The dogs were trained to attack anything not mindlessly straining to wander along with a Call, such as rats that had learned when humans were helpless. The vine man would no longer have the world to himself during Calls, and if only one of the small dogs was able to tear a hole in his suit that would be the end. The demi-terriers were taken to sniff at the place where the vine man had sat sunning himself, and they learned his scent quickly.

CODING

As Darien's message was traveling east, another message began its beam flash journey southwest at the market town of Canowindra in the Central Confederation. Initially it was just a table of figures, a record of network traffic at the Canowindra terminal tower. A clerk used a code book to encrypt the figures, then handed the slate to the transmission supervisor, who took it to the beam flash gallery at the tower's summit. Here he checked the encryption, broke it into ten packets of data, calculated a checksum for each packet, then gave the slate to the relay.

The relay looked through a large telescope pointing east to the Wirdnya repeater tower, sixty miles away. He pressed a key, two long flashes, two short. A concave mirror on the roof focused sunlight through a series of lenses to the shutters attached to the key. The flashing beam of light traveled over the town's markets, the fortified walls, a scatter of vegetable gardens, then rolling hills covered in dusky, olive-green eucalypt forests to the 540-foot Wirdnya tower.

Wirrinya's receptor noted the POLL signal from Canowindra and told the eastward relay to flash the READY code. Canowindra's relay noted the faint, sharp flashing in the blue haze on the horizon, and only now began to key the encrypted table of figures into flashes of light.

Hundreds of miles to the south Lemorel Milderellen sat in the cloisters of Rochester University with John Glasken. Her face was pale, and she was anxiously holding his strong, broad hands.

If Lemorel had lived two thousand years earlier she would have been a doctoral student in computer science, but in the year of Greatwinter's Waning 1699 her thesis was in observational philosophy. Its subject was the shape and movement of the bands of alluring nothingness known as Sweeps of the Call. The movements were those timed and reported by the network of beam flash towers.

"The beam flash traffic table is due to be sent about now," she said in a soft, apologetic voice. "If the figures deviate from the mean, then I must see the Dragon Lady herself."

"So why are you afraid?" Glasken said without concern. "The Highliber's lackey and her cleaner see her every day."

"But not for the reasons that may bring me to petition her. I'm just a scholar doing research, yet my research is taking me into international politics. I hate it! I wish that I had your drive and confidence, Johnny. It's you who should be seeing her."

"Lem, you need to go through trials like I have or you'll never develop confidence. Come, let me start you on your way."

It seemed to Lemorel that he always said the wise and right thing, and she felt stronger just being with him. They stood up, and he began to walk her through the cloisters. Glasken cut an impressive figure, tall, strong, and dressed in the height of fashion with blue tunic, possum-fur codpiece, and black academic cloak. He was a desirable accessory for any girl, and she could hardly believe her luck to have him.

"I'll miss your graduation revel," she said sadly. "I'm sorry. I must begin waiting at ten o'clock, and Highliber Zarvora may keep me waiting until evening. Where will you go?"

"Alas, Lem, my friends are taking me to some secret place. I can say nothing for I know nothing."

"I'm glad to have at least attended your graduation ceremony. So you have been John Glasken, Bachelor of Chemistric, for an hour. How does it feel?"

"Not nearly as good as it does to be with you."

They kissed long and gently; then she strode off through the University gardens, past lattices entangled with flowering honeysuckle and jasmine, a small figure in the new black uniform of Libris. A blue band on her upper sleeve showed her acting promotion confirmed.

From the Wirfinya repeater the message was sent fifty-two miles southeast to the Tallimba repeater. Below the signal's path the rolling hills flattened into plains, and the trees of the eucalypt

forests became more sparse as the country turned into dry, scrubby grassland. Another fifty-three-mile stretch took the twinkling flashes across increasingly settled and irrigated land to the great beam flash center at Griffith.

The network of communication towers was vital to the prosperity of the Central Confederation. Its thirty-five nations were scattered over an immense, parched area of the continent, so that anything which reduced the need to travel was a blessing. Why move cattle, gold, dried fruit, or rice between distant centers when debit and credit could be juggled on beams of light? Further, driving herds of cattle was made very difficult by the Call. Its enigmatic beckoning swept across the land at semiregular intervals, luring both herded and herders away. Better to move goods and livestock only when it was unavoidable.

The beam flash towers also helped predict the Call. When a relay stopped sending a regular polling flash, the neighboring tower's receptor knew that a Call was approaching. A bell was tolled, and all within earshot would fasten their Call shackles.

Eight major beam flash lines converged at the gallery of the Griffith tower. There was a duty supervisor for each line, and the Canowindra line's supervisor studied the encrypted message on the receptor's slate as he copied it down.

"The checksums match the message packets for a change," he remarked with mock surprise.

"Be fair, they get most of 'em right," the receptor replied.

"The error rate on the Canowindra line is still four times the average for Confederation towers. There should be an investigation. Backsides should be kicked."

"So? Will it happen?"

"Wait for my annual report. There'll be a big shakeout."

He noted the message in his logbook, then passed the slate to the Rochester line's relay. From Griffith the signal went almost due south, over the yellow tiled roofs of the prosperous city, over flat pasture and tethered flocks tended by tethered shepherds to the river that marked the border with a Southmoor emirate. It crossed grassy plains dotted with the tents, sheep, donkeys, and camels of Southmoor nomads until reaching a tiny, isolated Rochestrian enclave.

The Darlington repeater was fifty-one miles from Griffith, on a plot of land about a mile square. The Southmoors were an Islamic sect that proscribed--among other things--the use of beam flash equipment. A beam flash signal could cross the Sweep of a Call without being affected, and because the Call was suspected to come from God, that was possibly blasphemy. The Emir of Cowra nonetheless leased a little plot of his territory to Rochester for a beam flash repeater tower at Darlington, preferring the Mayor's gold to a clear conscience.

At Darlington the receptor wrote down the message on his slate--but decoded it in his head as he worked. Smiling, he noted the correct

checksums, then unrolled a table of his own and checked the figures. He shook his head. Definitely not for the eyes of Rochester, he decided. His modifications did not take long, and soon the altered message was being flashed over another fifty-six miles of dry, flat Southmoor grasslands to the border tower at Deniliquin.

In the time that it took for the signal to be flashed from Wirrinya to Deniliquin, Lemorel walked the uneven cobblestone streets of Rochester from the University to Libris. Deniliquin was on the border of the Mayorate of Rochester, and a last hop of fifty-eight miles took the signal over a great plain of eucalyptus forest to Rochester City's beam flash tower.

In the Rochester tower's gallery a transceiver keyed pulses of reflected sunlight down a system of mirrors in the core of the tower itself and into the beam flash clearing room. Here a clerk copied the encrypted message onto slates, noted the routing instructions, and passed the slates to a Dragon Red Librarian. This Dragon Red typed the message with a soft pattering of coach wood keys on felt buffers, and beyond the keyboard, the Calculor decoded and stored the table of figures that had begun its journey of nearly 330 miles less than an hour before.

A few minutes more passed; then an array of mechanical hens began pecking holes in several feet of paper tape being drawn beneath their beaks. Lemorel stood beside them, reading the figures in the rows of patterned holes. As she suspected, the data was impossible. She would have to confront the Highliber.

"The beam flash traffic data has been tampered with," Lemorel insisted, timid but brave, saying to herself that this is what John Glasken would have done. She offered a sheaf of papers to Highliber Zarvora. "I need to travel to Griffith to check their beam flash traffic registers. I could also check the Darlington tower on the same trip."

"I'll not sanction a trip to Darlington," the Highliber replied. "Our position there is precarious already. As for Griffith, what you propose is almost as bad. We have spent years convincing their Guild of Relays that the Rochester network can be run by Dragon Librarians alone. If you go across there now and imply that they do not know how to run a beam flash network, they are likely to respond by closing the Griffith-Rochester link."

It had been a long shot. The Highliber would not risk religious riots or diplomatic incidents by allowing a student researcher to blunder about in sensitive areas.

The interview was being held in the study where Zarvora had her personal terminal to the Calculor. Dozens of little metal faces seemed to smirk at Lemorel from the shelves as she sat pleading her case.

"Highliber, someone out there is modifying beam flash-traffic data, data that I need for my thesis on the Call. How can I convince you?"

"You do not need to convince me, Frelle Lemorel, I agree," she said, smiling for the first time that Lemorel had ever seen. "When your written petition reached me I did some research of my own using the Calculator. I found anomalies too." "With the Calculator?"

"Yes. I confirmed in a morning what took you months to--just a moment." A rabbit had raised a red flag while the fox beside it struck a bell. The Highliber began to tap at her keyboard. Lemorel had never been given unlimited access to the mighty calculating machine itself. So much power! Lemorel thought hungrily. If she had the Highliber's access she could solve her network data mysteries without leaving Rochester.

Abruptly the Calculator dumped several lines of decoded message onto the binary wheels mounted above the keyboard. Lemorel missed part of the message, but not the important part:

```
/ MARALINGA RAIL SIDE SEIZED DURING--REPEAT DURING-CALL. RAIL SIDE  
RETAKEN. REQUEST INSTRUCTIONS. /
```

The Highliber gasped, then hit the RESET lever for the display wheels. "I have a journey to make, I must leave now," she said as she tapped the TERMINATE switch and turned to Lemorel. "Write out the rest of your submission on the beam flash problem, then let yourself out. I shall tell the guards to give you as long as you want."

Then she was gone in a swirl of black cloth, slamming the door behind her and shouting down the corridor for her lackey. Lemorel could not get the short message on the display wheels out of her mind. A rail side outpost seized during a Call, impossible.. " yet if not impossible, fantastic. People who were able to move about freely during a Call could conquer the world. No wonder the Highliber had rushed off to investigate for herself.

Lemorel stood up and took a step toward the desk before stopping in midstride. The mechanical bear above the TERMINATE switch was still holding his flag up: the Highliber had not pressed the switch hard enough and her connection to the Calculator was still active.

Lemorel felt her mouth salivating. Here was a pot of cold ale being held before a thirsty drunkard, here was a thief confronted with an unattended pile of gold royals. By using the Calculator the Highliber had duplicated Lemorel's months of work in hours. It was not fair. She walked slowly across to the keyboard and ran her fingers along the inlaid and inscribed keys.

Tampering with the Calculator carried the death penalty, nobody knew that better than Lemorel. A spasm of fear and elation wriggled through her body as she stood staring at the little mechanical bear holding a flag marked ACTIVE aloft. The Highliber would not be back for days, at least.

It was like the time she had been seduced by Brunthorp: an overwhelming temptation with dire consequences if anyone else found out, yet one

little step 112 \$EAN McMULLEN

led to another until the deed was done. The Highliber's connection was still active and the Highliber's priority on the Calculator was absolute. Lemorel sat down on the console chair, shivering with the thrill of twisting the dragon's tail. It was her duty to deactivate the Highliber's connection, but... She typed--with one finger at first.

/ COMPOSITION REGISTER /

The console display wheels rattled into a request for a destination.

/ DENILIQVIN/ TEXT REQUEST CHECKSUM ERROR LOG FOR PAST

WEEK /

Her finger hovered over the COMMAND key; then she depressed it with a soft clack. The Calculator began assembling her command into encrypted code, then routed it up to the beam flash tower. Moments later the receptor at the Deniliquin tower was reaching for his code book.

This is already enough to get me shot, Lemorel thought grimly, yet what more could they do than shoot her? She studied a map of the beam flash network until the reply from Deniliquin arrived with a rattle of wheels on the binary register. She checked the figures against her notes. Identical.

By now her nerve was beginning to fray. She was risking her life to conduct tests that she could do more slowly through official channels. What was the point? If my Johnny was to risk his life, he would do it for a sensible reason, she told herself. She fought down a rush of panic as she typed in a plain text request to the node at Griffith. Again she was presented with statistics that she already had. One more test and she would give up. She repeated her previous request to Griffith, but this time used an obscure code and requested that the reply be similarly encoded. The Calculator decoded the reply, but this time the figures pecked out on paper tape were different.

Lemorel stared at the checksum error rates, then checked them against her projections. They matched: the anomaly had vanished. She looked back at the map. Only the Darlington repeater stood between Griffith and the secure parts of the network. Somebody there was altering the statistics. What else was he altering He. They were all male at the Darlington tower: the Southmoor treaty saw to that. Even as she scratched her head the tape machine rattled into life again. It was an amendment to what she had just received, informing her that there had been an error in transmission, and offering the old, anomalous figures by way of correction.

"Nice try," she whispered between clenched teeth, then gasped. They had no code book at Darlington, it was only a repeater! The encoded message had to have been broken then recoded in four or five minutes. No human could have done that, only the Calculator... no, only a calculator could do that. Another calculator, and in a place where inspections could be done only twice a year!

She had been working for barely an hour, yet what a discovery. One

hundred fourteen miles to the north there was another calculator, and it was being used to filter messages being passed to Rochester. Why? She looked over the figures for the seven lines going into Griffith and saw the anomaly at once. There was a massive checksum error rate on the eastern line.

The operator at Darlington was aware of her now, and she would not get another message past him. Not in the same way, at least. Lemorel composed a request with every third letter missing, had the Calculator encrypt it into decoy text, then sent an amendment after it with a higher priority. The request was for a dump out of the message log at the Canowindra terminus. She also requested that it be headed as dried fish subsidies.

This time the wait was much longer. She could not disconnect because she did not know the Highliber's password. Half an hour became an hour. Lemorel read through the Highliber's manuals on operating the Calculator. At ninety minutes she helped herself to shortbread and cold coffee from the study's little pantry, then put the Calculator through some exercises in data encryption. By two hours Lemorel was becoming restive, and she checked the log of the afternoon's traffic. Everything looked normal.

The operator of the Darlington calculator would be using it to break the code of Lemorel's amendment message without realizing that it was just a useless bundle of corrections. The public clock built into the beam flash tower changed four-thirty. The evening beam flash traffic would be reaching a peak as users tried to beat the sunset. She composed another split message, this time to Griffith, and launched it into the afternoon datastream. The message would be matched with its amendment at Griffith--and be revealed as an amendment to send to Canowindra. With the deluge of traffic, her opponent at Darlington might not bother to check everything in great detail.

The reply appeared after forty minutes. The figures meant nothing in their raw form, but a few keystrokes had the Calculator comparing them with its own records. It made interesting reading: every message that had been concerned with troop movements and the transport of strategic supplies for the past five weeks had been returned to Canowindra for verification. Not only that, but there had been instructions that all amendments should be sent in decoy code. Naturally enough, the re-sends had not been reported to Rochester.

Lemorel scanned her notes as she munched a piece of shortbread. All reports of military movements had been amended. She examined the Highliber's list of Calculator commands, then worked her way through the options marked MILITARY. Several programs estimated troop movements by correlating other factors, such as stores requisitions, travel restrictions, and missing market figures from specific places. She ran three such programs, but no warnings or alerts were flagged.

The conclusion was clear. Southmoor troop movements were being

disguised by someone at Darlington. Why? Perhaps the Emir of Cowra was moving an army south for a surprise attack on Alliance border forts. Perhaps Southmoor armies were already massed along the border, poised to overwhelm the Alliance forces while the Highliber was away. Had the Highliber been tricked into leaving?

Lemorel could only warn of impending war by revealing how she had learned of the threat--and that would get her shot. Still, the issues seemed more serious than a single life's value, she thought as she drank cold coffee straight from the Highliber's demi jar War. Her lover would be taken away to fight. What would Johnny do if he was in my position? she wondered. She recalled his advice to her: never let a problem beat you, even if you have to work at it all night. Well, what was good enough for him was good enough for her.

Records were being changed at Darlington. Darlington was also requesting double-encoded repeats of records from Canowindra. This did not follow. Why request correct information if you were changing it? Lemorel studied the map again. The eastern line was short and simple: the node at Griffith went through the Tallimba and Wirrinya repeater towers to the terminus tower at Canowindra. Canowindra's tower was known to contain a monitoring corps in the pay of the Mayor, a corps that returned data on Southmoor military movements. The operator of the Darlington calculator was taking care to get correct data past those two repeaters. Why?

The lead light windows glowed red with sunset. That meant the end of heliostat transmissions through the beam flash units. Expensive flares would be needed from now on, and flare requisitions would show up on network accounts. There could be no more work, yet she was so close. If the moon was near full, though, the beam flash could still be used without being powered by flares, although at a slower data rate. She checked the almanac. The moon was a day off full! Lemorel retired to the Highliber's private toilet, taking the almanac with her. The moon would be sufficiently high for transmissions in another half hour.

The room was dark enough for her to need lamplight as she returned to the console. Today had been John Glasken's graduation. His friends were taking him on a secret revel to celebrate. Lemorel felt a pang of loneliness, she wanted to be with him so very much. This was the very day that she should have been with him! She stared at the white and black keys.." keys of power! Keys to order the Libris Black Runners to find a student named John Glasken. With a shivery thrill of excitement she invoked the RUNNERS function.

/ LOCATION' JOHN GLASKEN/STUDENT OF CHEMISTRIC/UNIVERSITY

OF ROCHESTER REPORT STATUS ONLY /

They would probably find him within the hour; then she would have them deliver a sealed envelope with a little note of greetings. She wriggled with delight to imagine his surprise.

She continued to examine the Highliber's private library by lamplight

while she waited. There were records of everything that happened on both the Alliance and Confederation networks, right down to details of rosters for each tower. The rosters for the eastern-line towers, the Griffith and the Darlington towers showed nothing out of the ordinary over the past month. She went back two months and suddenly the Wirrinya tower stood out. Eight of the eighteen communicators there had arrived over a two-week period. The roster also showed that six of the new arrivals monopolized the day shift, while both the dusk and dark shift always had one of the new communicators on duty!

Infiltration! Nobody had ever dreamed that a tower might be systematically infiltrated by qualified relays and receptors. A tower could never secretly fall to direct attack; there was a set of alarm codes that every relay had memorized, and these took only seconds to transmit. Within a day a relief squad of cavalry would be on its way from the nearest fortified town.

The Guild of Relays was huge. Each of the dozens of major towers and hundreds of minor ones had an average of ten relays, and for every active relay there was another involved in teaching, research, or administration. Relays did more than transmit messages at the tops of towers; they were also librarians, teachers, medicians, and merchants, they were pillars of local communities and the point of contact with the outside world. In other societies their role might have been filled by priests.

All shifts at Wirrinya were covered by the new communicators, and they had total control of day shift. Day shift carded most traffic, and relays liked to avoid it if possible. It was ideal for a group that wanted to take over and exclude all others. There were also observers on the other two shifts, just in case something important came through--but how could they read the codes? Repeater towers did not have code books. A calculator could break codes. Did Wirrinya have a calculator too?

Someone at the Darlington tower was carefully checking all data that was being sent from Canowindra, and was smuggling encoded corrections back past Wirdnya, then on to Rochester. Was he an ally? If so, why did he not denounce Wirrinya outfight instead of just correcting their data? Wirrinya was in the Forbes prefectory, an independent, unaligned state. Any alert to arrest the conspirators in the tower would have to come over the beam flash line, and at least one of them was always on duty. They would have time to escape.. " but surely exposing the plot was more important than catching the plotters.

The reciprocating clock's weighted beams rotated back and forth with a clack-click, clack-click. In fifteen minutes transmission by lunar light would be possible. Lemorel opened the Highliber's drinks cabinet and poured out a shot of apple brandy. Zarvora never drank alcohol; the jars were only for her guests.

What was there to do? Telling the Highliber anything that she had learned would also involve telling her how she had learned it. That

alone would have Lemorel chained to a wall and stating down the barrels of two dozen muskets in less time than it took a beam flash message to reach Canowindra. The proper channels would take months.. " but she could also do nothing. Perhaps that was best. She was only a small cog in a vast machine, and a cog in the wrong place, too. She sipped at the sharp, sweet brandy and pondered the moonlight on the roofs of Libris. Finally she made up her mind to wait for the message from the Black Runners about the location of her beloved Johnny, then run to his side and forget the mess.

Almost on cue, a mechanical bellbird raised a wing and whistled, then the battery of silver hens began pecking at the paper tape. It was a plain text message from the Libris Black Runners. Lemorel jumped from her chair, her heart pounding with joy:

/ SUBJECT: JOHN GLASKEN, UNIVERSITY STUDENT

LOCATION: A BACK ROOM IN THE TOAD AND TANKARD, ALEHOUSE.

COMPANIONS): SERVING WENCH NAMED JOAN JIGLESSAR, ALSO KNOWN

AS JIGGLE.

ACTIVITY: FORNICATION--SPECIFICALLY, HE HAD HER BENT OVER A TABLE AND HAD MOUNTED HER IN A POSITION REFERRED TO IN THE

EROTIC AREN COMPENDIUM AS THE BULL AND COW.

UNUSUAL OR SUSPICIOUS ACTIONS: WHILE FORNICATING, GLASKEN WAS

SEEN TO DRINK FROM A JAR OF BLACK ALE, AND HEARD TO BELLOW

LIKE A BULL.

By now Lemorel's hands were shaking so much that she could not hold the tape steady. She rushed to the window and stared out at the lights of Rochester, eyes blazing with rage and mortification. So that was what he was doing for his innocent revel--it probably explained a lot of his late-night study too! She would have the Black Runners kill him that very night--but no, that would undoubtedly lead back to her.

She closed her eyes and leaned against the window frame, burning with shame. While she had been longing to just hold his hand, that toad had been grasping handfuls of breast and buttock. A minute passed, and Lemorel grew curiously numb. It was as if everything soft had been burned away inside her. She returned to the tape machine, picked up the tape and read on.

ACTIVITIES SUBSEQUENT TO BEING LOCATED: AFTER COMPLETING THE

ACT OF FORNICATION BUT WITHOUT RE-BUCKLING HIS CODPIECE HE

RETURNED TO THE TAPROOM AND PISSED INTO THE FIRE. THIS

CAUSED COMPLAINTS FROM OTHER PATRONS. WHEN INSTRUCTED TO

"PISS OFF" BY THE VINTNER, GLASKEN AND TWO FRIENDS SET UPON

HIM WITH THEIR SWAGGER STICKS. THE CONSTABLE'S RUNNERS WERE CALLED, AND GLASKEN AND HIS FRIENDS TRIED TO LEAVE THROUGH THE BACK DOOR. THIS DOOR WAS FOUND TO BE BOLTED-BY JOAN JIGLESSAR, WHO WAS STILL GETTING DRESSED. ALL THREE STUDENTS WERE ARRESTED.

CURRENT LOCATION: GLASKEN IS ASLEEP IN CELL 15, CONSTABLE'S WATCH HOUSE CHARGED WITH RIOTOUS BEHAVIOR, ASSAULT, THEFT OF A JAR OF BRANDY, INDECENT EXPOSURE, AND URINATING IN A PLACE LICENSED FOR THE SALE AND CONSUMPTION OF FOOD AND DRINK

CONTINUE SURVEILLANCE? /

Lemorel pondered for a moment, then typed DISCONTINUE. Someone must have enjoyed compiling that report, she thought. She pondered Glasken's earlier court appearances. Doubtless the other times that he had asked her for bail and character references had not been due to mistaken identity while he rescued innocent citizens from shadow boys. Blind rage welled up within Lemorel again.

"Filthy, fornicating, drunken sot," she muttered to the shelves of mechanical animals as her carefully cultivated facade of gentle and well-spoken sweetness crumbled. "Lies! I'll give him lies!"

A stooge. She was the perfect character witness to get him out of the sort of trouble that he was in now. She stamped about the study, seething with impotent rage. She could repay Glasken by leaving him to the mercy of the magistrate this time, but that was not good enough. She wanted to hit someone now! Her eyes fixed on the pages of tables for the Wirrinya repeater.

"A tower full of Glaskens," she said slowly. "I'll get them! I'll make them squeal like pigs."

Eight relays conspiring together, living a lie for five weeks and trusting their lives to each other: violate that trust, or even call it into question, and one might touch off a heated argument at the very least. Relay towers were not especially private places, and a fight would quickly be noticed by the tower marshal.

Lemorel jabbed at the Calculator's keyboard, doing a search of bank tally registers held in Rochester. None of the Wirrinya relays held one. She shrugged, composed a fictitious tally number, credited seven hundred gold royals against it, then sent it to the output buffer with the name of the Wirrinya day-shift supervisor appended. After checking the Highliber's record of the Wirrinya roster again, Lemorel encoded the names of the dusk- and dark-shift relay conspirators and appended TERMINATE. The word TERMINATE had no function attached to it in the Highliber's manual of commands, but it carried alarming implications.

What else would foster fear, suspicion, and doubt at Wirrinya? The

truth was probably no more their ally than it was Glasken's, so she

would give them a dose

SEAN McMULLEN

of it. She accessed a random sample of Southmoor military-movement records from the Canowindra terminus, records that had been corrected then smuggled past Wirdnya by whoever was running the Darlington calculator. She instructed the Calculator to encode them in a standard encryption, then transmit them to

" "Canowindra. That was enough for the eyes at Wirrinya--but there was still the matter of getting it all past Darlington.

Thirty minutes passed, thirty minutes of fuming about a drunken chemistric graduate in the Constable's Watchhouse. In the morning he would send her a message that he had been unjustly arrested by the Constable's Runners while defending a little old lady against a pack of shadow boys but Lemorel would ignore him. The magistrate would throw the book at him after all his earlier escapes from justice, and he would spend at least a week sampling rotten fruit, eggs, and fish in the public stocks.

Then it would be her turn. What to do with him, to him, about him? How to make him pay? She would be waiting when he was released from the public stocks, she would give him such a beating that he would never again dare to make a Dragon Librarian his stooge.

Lemorel forced her thoughts away from Glasken. Eyes at the Darlington tower would be reading her message by now. Was it causing a fuss, she wondered Appended to some dummy data had been a note for the calculator operator there:

/ TO THE GENIUS IN DARLINGTON REPEATER, GREETINGS. NO
THANKS TO YOU I NOW KNOW ABOUT THE SECURITY VIOLATION
AT WIRRINYA. YOU WILL ALSO KNOW THAT THEIR MASTERS MUST
BE GETTING THEIR ORDERS TO THEM VIA SOME SECURE CODE.
WHAT IS THAT CODE? GEL DIVA /

Over one hundred miles down the beam flash line, Nikalan Vittasner smiled and shook his head.

"Geldiva, Goddess of the Brewarrina Pantheists," he said to himself.
"Geldiva, Weaver of Illusions. Clever girl."

Quickly but carefully he composed a reply.

/ WHY SHOULD I TELL YOU? SIVA, DESTROYER OF ILLUSIONS
AND GOD OF THE ANCIENT HINDUS

Within half an hour he had his answer.

/ SIVA, I DEDUCE THAT YOU DO NOT HAVE A MASTER CODE
BOOK IN YOUR RELAY TOWER. IF YOU HAD THAT CODE BOOK THEN

YOU WOULD KNOW WHICH CODE THEY ARE USING TO COMMUNICATE WITH THEIR MASTER. IF YOU HAD THAT CODE THEN YOU WOULD HAVE SENT THE FOLLOWING MESSAGE TO WIRRINYA BY NOW. GEL DIVA /

Nikalan nearly burst out laughing at the message, a combination of unaltered military data that should have been altered, with a tally for a fortune in gold royals against the name of the infiltrator who was day-shift supervisor. The tally was for a Rochester bank.

He composed another reply.

```
/ MESSAGE UNDERSTOOD AND ACCEPTED, GEL DIVA I DO NOT  
HAVE THE CODE, BUT I HAVE A SAMPLE MESSAGE THAT HAS BEEN  
ENCRYPTED IN IT. THE SAMPLE FOLLOWS, ALONG WITH MY ATTEMPTS  
SO FAR AT BREAK/NG THE ENCRYPTION. GOOD LUCK. IF  
YOU CAN BREAK IT, THEN WHEN YOU SEND THE MESSAGE TO THE  
TERMINUS, FLAG IT GEL DIVA AND I SHALL PASS IT ON WITHOUT  
DELAY. IN THANKS, SIVA. /
```

Rochester had a register of all master codes, but this code was not among them. It would take months for an individual to break, not the Calculor. Lemorel consulted the manual and found a command named CODE BREAKER She typed in the sample, along with the work that Siva's calculor had done. His had perhaps a tenth of the power of the Highliber's machine, that was obvious. The task would take only a few hours, as Siva had given her a head start.

What to do about Glasken, she wondered as she sent the message off to be decoded. Beating was a crude, common vengeance, in fact it would be a public humiliation for her as well. She had been his dupe, and she did not want the world to know it. As she looked down at the keyboard she thought of the Libris Black Runners. Fear? Lemorel had the power of the Highliber now. Apart from having to spend the night in the watch house Glasken had not a care in the world, the world was his for the taking.." but that could be changed.

Another message, this time to have a search made of Glasken's room at the residential college. They would probably find little more than filthy sketches and stolen brandy jars, yet he would see that a search had been made. There was one sign of Libris that everyone in Rochester knew, the red stamp of a book closed over a long dagger. That stamp meant that you had offended, and that you had been given an unspecified number of days to make amends. Lemorel looked through the manual and found the command to use the stamp. It could be used as a genuine option to warn of impending assassination, or merely to frighten. She typed, then sent off the command. The Calculor was slow to respond, due to the load of the decoding task.

While the Black Runners were ransacking Glasken's room and putting the red stamp of fear on his pillow, Lemorel was reclining in the Highliber's reading chair and drinking apple brandy. Her thoughts returned to the Wirrynya problem, and of her own precarious position. Records would have been kept of her work on the Calculor, and there was no other master user other than the Highliber-but there was! The one who called himself Siva at the Darlington tower. Some of Lemorel's own

early work had proved that the Libris Calculator could be operated over the beam flash network, and the Highliber had since used that very facility when touring the provinces. It might be possible to make it look as if Siva had somehow taken control of the Libris machine.

It was four in the morning before the Calculator had the code broken, and Lemorel was jolted awake by a mechanical owl striking a bell. Using the Wirrinya conspirators' code she assembled a message that read like a mistake by their own masters, words meant for their leader's eyes only but sent when a minion was on duty. Finally she typed the encrypted message into the output buffer, with GEL DIVA PLEASE REMOVE THIS' appended in plain text. She struck the SEND key firmly.

Lemorel stretched and looked up. Stars were visible through the windows. This was the message that would shatter the conspiracy at the Wirrinya relay tower, but she was not the Highliber. As much as the Highliber might approve of Lemorel averting a costly war, her gratitude would probably not extend to forgiving a blatantly illegal use of her Calculator. Even if she escaped the firing squad, she would have her career in Libris brought to an untimely end.

For the next hour Lemorel worked her way through the internal records of the Calculator, changing housekeeping entries so that tasks originating in the Highliber's study seemed to match messages sent from Darlington. Finally she cleaned up the crumbs and washed the glass she had used, covering her tracks so well that the Highliber's lackey would not suspect a thing. As she finished, the mechanical hens began to peck out a brief message from the Black Runners:

/ TASK: SEARCH OF COLLEGE ROOM OF JOHN GLASKEN, WITH STAMP OF

FEAR TO BE LEFT ON HIS PILLOW AS A WARNING

CONTENTS

OF NOTE: ONE FLINTLOCK PISTOL, REPORTED IN THE CONSTABLE'S

REGISTER OF FIREARMS AS HAVING BEEN STOLEN FROM THE

MASTER OF THE ROARING BOAR (ALEHOUSE) DURING EQUINOX FESTIVAL

* 2 GOLD ROYALS 19 SILVER ROYALS ONE DEACON'S PLEDGE

STAMP SET AT 14 APRIL 1696 GW* ONE BAR OF SEALING WAX 11

PROPHYLACTIC DEVICES, NEWLY WASHED, OILED AND LAID OUT TO

DRY A SKETCH OF LIBRARIAN CLASS DRAGON BLUE LEMOREL MILDER ELLEN
(NUDE)

SIGNED WITH HIS NAME F/VE MARKED CARD

DECKS ONE PAIR OF LOADED DICE 87 SHEETS OF DOGGEREL VERSE

LOVE POEMS DEDICATED TO 37 DIFFERENT GIRLS 327 LOVE LETTERS

FROM 52 GIRLS /

Lemorel fought down a wave of nausea, then ripped the tape off the mechanism. Her whole wonderful romance had been a shabby trick. He

had a stamp to reseal that ac curse box of condoms every time that he wanted to impress a prospective conquest with his virtue and common

sense. How many had preceded---and followed--her along that path to his bed? She returned to the keyboard and composed a message.

/ INSTRUCTIONS RELATING TO JOHN GLASKEN, STUDENT

CONFISCATE HIS PISTOL, MONEY, CLOTHING, DEGREE, THE DEACON'S

STAMP AND EVERYTHING ELSE NOT OF IMMEDIATE USE TO HIM AS

A STUDENT

BURN ALL SKETCHES, POETRY, AND LETTERS, AND BURN THE LIST OF

WHAT WAS FOUND IN HIS ROOM

CUT THE TIP OFF EACH OF PROPI-ILACTIC DEVICES I

Lemorel disengaged the Highliber's keyboard as the sky brightened outside, then left the study and sat on a bench in the corridor outside. She tried to doze, but thoughts of Glasken intruded. Was Joan Jiglessar a new sweetheart or some casual dalliance? What did she have that Lemorel did not? There might have almost have been two Glaskens: one wise, sensible, and honest, the other with a taste for drink, brawling, and the most gross and tasteless amorous frolics imaginable. Presently the sheer exhaustion of the night claimed her. She fell asleep sitting upright, her head slumped to one side and her hands folded in her lap. "Superlative actor," she muttered in her sleep, "and all love is acting." When the Highliber's lackey arrived for the day's work he found Lemorel waiting patiently outside his door. He assumed that some mixup by the guards had allowed her through, and quickly explained that the Highliber was away.

In Wirrinya the conspirators began knifing each other just after the 7 A.M. changeover to day shift. As Lemorel sat gathering her thoughts in the honeysuckle-and jasmine-scented gardens of the University, a vertical shootout developed between the conspirators and the Wirrinya tower marshal and his guards--who had come to investigate the commotion. Two conspirators survived, and after moderate torture confessed to being in the pay of members of a Southmoor religious faction that objected to the Darlington beam flash link traveling over Southmoor territory.

The modified data had been meant to make Deniliquin's mayor think that the Emir of Cowra was massing troops for a secret attack. Had it not been for the efforts of Siva at Darlington, the Mayor would have reacted with a preemptive strike, provoking a war that would have seen the Darlington tower razed as one of the first actions. Diplomatic messages flew thickly, and the Emir's executioner spent several busy days at the public block. Meantime, far away to the south, John Glasken was sentenced to a fortnight's humiliation in the public stocks.

Highliber Zarvora had to interrupt her journey west and return to Rochester. Lemorel was called in by the Hightliber to determine if the

Calculator could be operated over the beam flash network by someone using the master password, and she assured the Dragon Black that it was indeed possible. Zarvora muttered some thing obscene about ducks in ancient Anglaic. A day later Lemorel was promoted to Dragon Silver and put in charge of a project to tighten Calculator security. She was the youngest librarian to hold the rank of Dragon Silver for the entire century.

Newly released from the stocks, Glasken was subdued as he returned to his col lege. Even though he had washed his face and hair in a public fountain, he still reeked so badly that people raised handkerchiefs to their noses as he passed them in the street. Upon reaching Villiers College he went straight to the laundaric annex.

"Linen to wash, Fras Glasken?" inquired the ancient clerk at the desk. "A bath, if you please," he replied quietly. "But ye've had one this month."

"So, I'm having another!" Glasken snapped.

The clerk suddenly wrinkled his nose and peered over his spectacles at the abrasions on Glasken's neck. He smiled toothlessly.

"Ah, there's nothing so bad as a spell in the stocks, eh Fras? Locked into the wooden frame and a target for rotten fruit and slops by day, then chained up and not able to scrape off the muck by night. Did a spell in 'em me self back in '47 for, ah..."

"Is there hot water?"

"Aye, ye can have five buckets of hot and nine of cold... That's it! I'd dressed up in the Rectifier's clothing, such as he'd left at my laundaric."

"I have no coin to hand, charge it to my college expenses."

"Treated me self to ale and cakes at nine taverns before the real Rectifier chanced upon me."

"Bath salts and a towel, if you please."

"Why'd they lock yer own neck in the stocks, young Fras?"

Glasken straightened and thrust his chest out. "I confessed to a crime to save a lady's honor," he replied wistfully.

The clerk scratched his head. "Ach, doesn't sound like your sort of lady, Fras Glasken."

Forty minutes of soaking and scrubbing cheered Glasken considerably, and he resolved to bathe at least once a fortnight henceforth. Wrapping himself in a threadbare college towel he left his clothing with the clerk for washing and padded upstairs to his room, carrying his boots. The key was oddly stiff in the lock, and as soon as he pushed the door open he sensed that something was wrong. Things had been rearranged in subtle ways. However dissolute Glasken might have been, he was neat and orderly in his domestic routines.

Dropping his boots he pulled a drawer open. His money, border pass,

loaded dice, and marked cards were gone! He jerked the cupboard door wide: no riding gear, swagger stick, flintlock, saber and clothes, nothing. The pictures were missing from the mantelpiece, even his newly awarded degree had been taken. As he looked around in dismay, he was uneasy as well as angry. Ordinary thieves would have left the place in a shambles, and would have taken only what could have been sold in the night market. This was methodical, malicious, even vindictive. His sheep gut condoms were still neatly laid out along the windowsill, but their tips had been cut off. That gave him a fearful pang.

He sat on the edge of the bed and resolved to lie down and think through what had happened. If he reported this to the magistrate, the thief might be caught. How then would Glasken explain marked cards, loaded dice, and a pistol that he was not licensed to own and that had been stolen in the first place? What to do? It required calm thought. He pulled back the covers and was about to let his head fall to the pillow for a much-needed rest when he caught sight of something like a smear of fresh blood.

At the center of his pillow was the Mark of Libris! Glasken's world stopped, his entire consciousness focused on the red stamp of a book closed over a dagger. The Mark was well known but rarely used, it was the stuff of cheap adventure novels.. "yet there it was, the legendary warning of impending doom. They were going to kill him unless he heeded the warning and made amends for--what? He had stolen wine, brawled, and fornicated, but neither he nor his crimes were important enough to deserve the Mark. A mistake, perhaps, surely that was it. He had been mistaken for someone else. What he needed was a senior Dragon Librarian to speak on his behalf.

Suddenly a chasm opened up inside him. He felt light and hollow, as if a breeze could blow him away. Lemorel! She had dealings with the Highliber. He tried to think back to their last words with each other. She had been about to tell the Highliber about some problem with the beam flash towers. What had the Highliber told her in turn?

That had to be it. Lemorel had normally testified in his favor whenever he had been hauled before the magistrate, but she had ignored his notes this time. Glasken shuddered. That was the trouble with having a powerful mistress. Her patronage had been wonderful, yet her revenge was this thunderbolt.

"Who did she hear about?" he asked the row of decapitated condoms on the windowsill. "Was it Joan Jiglessar, Carole Mhoreg, that wench from the refectory, or perhaps even some girl from last week?"

Glasken reached under his bed, fumbled for a moment, and drew out a short length of stiff wire. "Hah, they missed my greatest treasure of all," he chuckled, kissing the wire with a flourish.

Still wearing only the towel, he methodically checked his room for anything else of value. Everything that might help him to travel was

gone; someone clearly meant him to stay in Rochester. They would expect him to be in a helpless panic--or perhaps a towering rage. He stamped out of his room and returned to the laundaric.

"I say there, Palfors, my room's been burgled," he declared loudly as he entered.

"The devil ye say!" exclaimed the clerk. "Lose much?"

"Clothes, money, and papers. Some petty vandalism, red ink splattered over my bed, that sort of thing."

"Sounds more like students than shadow boys from outside. Ye'd best see the Rector."

"Not in a towel I can't. How long before you can have my clothes clean and dry?"

"They're soakin' just now, Fras, but I could put 'em through the pedal agitator then dry 'em in front of the furnace. Two hours, at most."

"Two hours, then. I'll wait in my room. Did you happen to see anyone unusual lurking about the college over the past fortnight, Fras Palfors?" "Ah... only some Dragon Red Librarians." "Late at night?" "Aye."

"Well, we all know what may be done with stolen laundry, don't we then?" The man nodded, eyes suddenly wide and mouth open; then he shuffled away to work on Glasken's clothing. Glasken leaned over the counter and read the tags on several bundles.

"Matheran, Chan-ye, MacLal, Orondago, Lorgi---ah yes, Fras Lorgi, a man of just my excellent stature."

Glasken walked from the laundafic in Lorgi's clothing, his face muffled against the un seasonally cold October evening by a knitted scarf. He had decided on instant flight, a dash into oblivion so fast that even Libris with all its resources could not begin to trace him until he was long gone. He felt a lot more confident now that he was clothed again, but money was the key to everything else--and money was there for the bold to take. Snapwire in hand, he made his way down to the College Purser's office. The dinner bell was ringing as he knocked smartly to make sure that nobody was within. It took Glasken only moments to get past the simple two-tumbler lock. Leaving the door slightly ajar behind him, he crept across the darkened room to the strongbox.

Its lock was more difficult, but presently the tumblers yielded and he lifted a bag from the box and hefted it. About fifty coins, more than enough to get him.. where? With this sort of money he could hire an unwitting decoy to journey south while he took a wind train west into lands beyond the reach of Libris. Suddenly the door was pushed open and light flooded into the room.

"I say, Stoneford, are you there? Hey, who--?" behind him he dashed out into the corridor and crashed blindly into the evening procession of cloaked edutors bound for the refectory high table. The bag slipped from his hand, sending gold and silver coins spilling before him in a jingling cascade.

By the tenth hour Glasken was sitting in a cell in the Constable's Watchhouse. The edutors of Villiers College had turned him over to the University Warden, accusing him of breaking into the Purser's office, stealing fifty-one silver nobles and six gold royals, and striking the Rector unconscious. He was then handed over to the Constable's Runners, who took him before a magistrate and had him charged formally. Due to his obvious skill with locks he was shackled to a ball and chain by a heavy rivet after being stripped naked and clothed in striped trows and a blanket.

Some days later he awoke to the door being unlocked, and he looked up to see Lemorel being shown in. He stood up at once and began to put out his arms to her. She was not smiling. That was bad sign. He turned the offer of an embrace into an imploring gesture.

"Ah, Lem, dearest, I have been unjustly--"

"They say that virtue is its own reward," she interjected. "I see that the rewards of vice are more appropriate." Contempt dripped from her words like poisoned honey.

"What do you mean?" Glasken asked nervously.

"I have been promoted to Dragon Silver Librarian, Glasken, and I don't want rumors of our liaison hanging over my career. I am not without influence and there is much that I can do to make your life unpleasant. I can even arrange that the last four seconds of it are spent falling down the center of a beam flash tower. The idea of having been your dupe revolts me, the thought that a sketch of my nude body was pinned above your bed while you were in it with Joan Jiglessar makes me want to retch."

Glasken contemplated this. He had bedded Joan in many places, and many other girls in his college bed, but never that particular girl in that bed. Whatever Lemorel's source of information, it was fallible, he concluded with some relief.

"Lem, please, I need your good testimony just once more. I'm charged with violence to a gentleman. Do you know what the magistrate will say to that? Death, either by hanging or musket fire, according to his mood. If it's been a bad week for assaults, I might also get a spell of public torture first."

This time Glasken was quite sincere. He could practically feel the straps on his wrists and hear the ratchets clicking. Lemorel's eyes narrowed and she smiled.

"Tell anyone that we were ever more than vague acquaintances and I'll kill you myself. Keep silent, and I'll see that you're not killed or tortured--for these offenses, at least."

"That's all?"

"That' san."

Glasken gave an indiscreetly loud sigh of relief and agreed.

The following morning Glasken was tried, found guilty, and sentenced to death. The magistrate let the words hang, and Glasken stood trembling in the dock, sweat trickling from his armpits and running down his ribs. The magistrate cleared his throat and adjusted his wig.

"John Glasken, when I sentenced you to the stocks not three weeks ago I felt I was the happiest man in all of Rochester," he said as he looked out over the courtroom. "It was small satisfaction after the way you soiled the honor of my granddaughter--"

"That's not true, Your Honor," interjected Glasken. "She was nineteen years old, and I'd met her in the Toad and Tankard--"

"Order!" Glasken was silent at once. "So, as I was saying, imagine my delight at being able to prescribe death for yet another of your crimes so very soon. Unfortunately, however, you will not get a chance to sow dead man's seed below the gallows. Clemency has been granted to you by reason of the Mayor's birthday."

Glasken drew breath for a mighty cheer, then thought the better of it. The Constable and his two attendant runners grinned, but then they were not facing the magistrate. The clerk of the court stopped with his goose quill poised to scribble out the new sentence.

"Fras John Glasken, by the power invested in me by the Mayor of Rochester I hereby commute your sentence of death to one year in the blazing deserts of the west..." Glasken was incredulous, he barely stopped himself cheering. "... for every coin in the bag with which you struck the Rector." Glasken reeled, and would have collapsed had he not seized the railing of the dock. The magistrate grinned openly as he continued. "It should come to fifty-seven years. Am I correct?"

"Yes, Your Honor," the clerk of the court replied.

"Have you anything to say, Fras Glasken?"

"I'd like to wish Mayor Jefton a happy birthday and thank him for his present," Glasken said in a tone colored more with sarcasm than defiance. The magistrate's face went dark red with fury, but Glasken was quite familiar with courtroom procedures. Sentence had been passed, and now could not be varied. Congratulating the Mayor on his birthday was not contempt of court, even if it had been done specifically to antagonize the magistrate.

"May you live another fifty-seven years, Glasken," the magistrate said as he handed his silver mace to the Constable to dismiss the court.

Glasken was marched from the courthouse by two runners and chained inside an armored wagon. The trip to the par aline terminus took

nearly an hour, and Inspector of Customs. The official signed for him, and Glasken was held under guard until he was to be handed over to the train's warden.

He sat in silence, limp and apprehensive. Although he had narrowly avoided death, life was about to become decidedly unpleasant. A man that he took to be from the train entered, a scroll in his hand. He sent the guards out of the office, and two armed, uniformed men replaced them.

"Prisoner Glasken, I have a few details to check," he said genially. "You have a degree, I see here."

"I'll be the best-educated prisoner on the chain gang," Glasken sighed.

"Perhaps not. You have a technical degree, including articles in arithmetic with a good pass."

"Yes, but chemistric is--"

"Splendid," he said, smiling more broadly and rolling the scroll up. He turned to the guards. "Gag and bind him, then back the wagon up to the door."

Even as she was gloating over the freshly signed order to induct Glasken as a component in the Calculor, a summons arrived for Lemorel to sit on a special panel of experts. The matter was so urgent that two armed Dragon Reds had been sent to fetch her. A youth of about Lemorel's age was sitting in shackles in one of the seminar rooms, and the subject of the inquiry was so sensitive that no guards were present. His gaze was intense and penetrating, yet it was more an expression of ravening curiosity than aggression. Zarvora paced restlessly as she addressed her four advisers and the prisoner.

"A few days ago this relay, Nikalan Vittasner, slipped away from the Darlington relay tower in disguise and rode to the border at Deniliquin. Using false papers he crossed the border and took a pedal train south to Rochester. This morning he demanded an audience with me."

With her face blank, Lemorel frantically grappled with her surprise and terror. "He claims to have helped expose the Wirrinya conspirators, and has provided me with documents to show what he did. He also claims to have had help from someone in Libris named Geldiva, who processed a difficult encryption for him."

The Highliber paused. She wanted an opinion.

"Recent investigations show that he could have used the Libris Calculor," Lemorel ventured in a flat voice. "Evidence exists that there is a separate, smaller calculor in Darlington, so he would have had the experience to learn your Calculor's command structure."

Zarvora nodded. "The evidence supported that idea until a few hours ago, but not now. My tests show that Nikalan here has the most extraordinary powers of mental calculation that I have ever encountered. They are a significant fraction of the Libris Calculor itself. He denies all knowledge of any Calculor."

"If you please!" Nikalan interrupted.

He stood up. He was as tall as Glasken, yet very lean and fit, with no comfortable bulges from ale and indolence ... and very, very bright. He's like Glasken with all the warts removed, Lemorel decided approvingly in spite of herself.

"You seem confused about me, Highliber. With your permission, could we talk openly?"

Zarvora nodded. Lemorel shivered.

"Two years ago a tower outpost called Ballerie Vale was attacked and burned by Northmoor freebooters. It was less than a node but more than a relay, just important enough to have a master code book. The relays and tower staff were slaughtered."

"I read the report," said Zarvora. "The relays got off a number of messages about being under attack before smoke bolts were fired into the tower gallery from crossbows. The response was quick, and the Marshal of Walgett arrived with two hundred lancers while the fires were still burning but the freebooters were gone. It was a cruel, pointless raid."

Nikalan shuddered, then pressed his lips together and frowned. When he regained control his tone was softer, more neutral.

"Not so. I searched and searched for one particular body, a body with an inscribed copper bangle on the left wrist. The bodies of those killed in the open were dead only a few hours, Highliber, but the charred bodies inside the burnt-out buildings had been dead at least a week. I sewed Mikki's remains into the shroud myself. Her flesh was full of charred maggots, she had been dead many days. Two dozen more were just like her."

He paused to let the implications register. The tower had been in operation for about a week under the control of the raiders. People with relay experience had captured a tower, stolen the master code book, and practiced on the bearnflash line for a week. Then they had left, killing those who had not died in the initial attack and burning the evidence.

"The Marshal chose to ignore the maggots. Perhaps he had been bribed." Suddenly his composure shattered. "My beautiful Mikki was killed by them!" he shouted.

There was stunned silence. The last person to shout at the Highliber had been the Chief of Cataloguing, and he was now a multiplier.

"Please go on," said Highliber Zarvora quietly.

"My brilliant Mikki," moaned Nikalan without apologizing. "If you think that I'm a skilled calculator, O Highliber, my abilities are nothing beside hers. I knew that they would strike again, and that this time they would try to keep control of a tower for months, or even years. To do that they would probably pose as genuine relay recruits and infiltrate the staff at some isolated repeater."

"With the stolen code book they could wield the power of Mayors by tampering with supposedly secure messages. They could make fortunes for people, ruin careers, start wars..." but they did not know I was

stalking them. I had been working in Walgett tower during the week that Ballerie Vale was in their hands, and I remembered some of the odd quirks in the data traffic from when those murderers had been in control. I arranged a transfer to Darlington, a relay tower with a lot of traffic."

"Why not the great node at Griffith?" asked Lemorel.

"No, Darlington was an unpopular and isolated tower where I could quickly become a supervisor. I needed to be a supervisor so that I could falsify entries in the data-traffic logs. Since then I have watched and waited."

Lemorel was staggered by his bravery and dedication. Nikalan's quest to avenge his sweetheart had led to him gaining as much power to manipulate the network as the Wirrinya conspirators, yet he had remained true to his purpose: avenging the death of his lover. He could have made himself a Castellan and amassed a fortune, yet he was faithful to his dead Mikki. Why couldn't any of her own lovers be so faithful, Lemorel wondered with a pang that almost made her convulse.

"Opinions?" asked the Highliber. Lemorel took two deep breaths to steady her voice.

"It's possible," she agreed. "Tracts copied from a master code book were found at Wirrinya. I suggest that Griffith be advised. The master code book of the Central Confederation must be replaced."

"That will be done," said Zarvora, "but there is something important that puzzles me, Nikalan. Why did you merely clean up the Wirdnya messages? Why did you not alert the Marshal at Griffith and have a squad of cavalry sent to capture them?"

"Me trust a Marshal, Highliber? Spies would have alerted the conspirators before the Marshal's squad had left the city gates. The bastards would have been into the Weddin Mountains and across the Southmoor border in no time. I wanted revenge, and I was only a week from breaking their masters' code when someone here beat me to it and set them killing each other."

"Beat you to it?" said Lemorel. "But you were the one who ordered her--I mean it--to break the code."

"No, no ... she helped me to... avenge Mikki."

He sat down and rubbed his face in his hands. After years of stalking the conspirators the daemon that had driven him was finally gone, leaving him exhausted and directionless. All that he could think of now was the fantastic possibility that there was another like Mikki. Only Lemorel knew that his ally was a chimaera of herself and a fantastic machine.

"If you are telling the truth..." Zarvora began, then she paused. "I don't know what to think."

"Highliber, please let me meet her. I never dreamed that there could be another like Mikki, yet there she was at the other end of the beam flash line."

"But you issued the commands--"

"No! She came to my aid. Highliber, I could have fled to the Confederation. Instead I've given up everything to meet this lady. Please, let me meet Geldiva, the Weaver of Illusions."

"Meet her? Impossible!"

"You owe it to me!"

It was clear that he was close to a nervous breakdown, and that threats would have no effect on him. Lemorel withdrew her hands into her sleeves so that nobody could see that they were shaking. Tarrin cleared his throat.

"I suggest that we, ah, introduce them, Highliber. That should bring him to his senses."

"Yes, yes, take me to her now!"

"Meet the Calculator?" exclaimed Zarvora, shaking her head in exasperation. "You are sounding like Lewrick."

"No, no, let's just take him to the duty controller's gallery and let him see for himself."

Zarvora looked to her other advisers, but only Lemorel shook her head. "Highliber, one look at the Calculator, and--well, it's obvious what will happen in his present condition. Let him rest for a few days."

"No! Don't listen, Highliber. Let me meet her now."

Zarvora thought for a moment, then shrugged and beckoned for them to follow her. They walked the short distance slowly, to the rhythmic jingle of Nikalan's shackles. Two armed guards unlocked and unbolted an ironbound red gum door, and as it opened the distant cacophony of whirrs, clicks, and humming wires that was the Calculator's heartbeat spilled out. Almost frantic with apprehension and guilt, Lemorel seized Nikalan's arm as the others entered.

"I tried to warn you," she whispered, but he scowled and pulled away. They entered the gallery and looked down over the railing.

"There is Geldiva," said Zarvora. "A thousand people chained to desks and split into two cross-verifying arithmetic processors. Eight hundred abacus units, two hundred higher functions, and several thousand yards of communication wires on pulleys to carry the data--are you all right?"

Nikalan was slowly sinking to the floor of the gallery. His mouth was open, his eyes were bulging, and tears were on his cheeks. Zarvora knelt beside him.

"This is what you call Geldiva. One machine made of a thousand souls. Many of them are convicted felons. Could this be the wonderful lady who helped you?"

"No," Nikalan said very softly.

"Now, how did you learn the command structure of my machine? Was it by monitoring my remote sessions during my visit to Griffith last year?"

"No, no, no! Mikki--Geldiva! Where are you? Geldiva!"

The sanity was already gone from Nikalan's voice as his mind leaped

into its own abyss to escape from this second terrible loss. His screams turned every head in the hall. For a moment the entire Calculator interrupted its work to stare up at the gallery. The guards dragged him away, but he would not stop screaming.

Lemorel took a deep breath.

"Highliber--"

"Yes, you were right, that was horrible--but precisely what has been going on? Walk with me."

Nikalan's screams stayed within Lemorel's head as they slowly walked the corridors. Zarvora was disturbed and baffled.

"Mathematics, love, and revenge," she muttered with her head bent forward. "What an incredible romance."

Lemorel had walked the precipice and survived--but at Nikalan's expense. She had won prizes in mathematics and optics, yet her calculating skills were not in the same class as those of Nikalan or Mikki. She had gained his love while directing the greatest calculating machine in the world, but without it she could not be Geldiva. Glasken had betrayed her, and now she had betrayed Nikalan. She was down in the same pigsty as Glasken, and there was only one way to climb out: she had to become Geldiva.

"His devotion touched and disturbed me," Zarvora was saying.

"And me, Highliber."

"I did not think men like that existed. Why cannot I meet them?"

"You just did, Highliber."

"Have you ever had such a romance?"

"My liaisons have all been failures, Highliber."

"There must be others. Must one post a notice at the University?"

MAN

WANTED: MUST BE YOUNG, HANDSOME, BRAVE, HIGHLY ROMANTIC,

GOOD IN BED, AND A BRILLIANT MATHEMATICIAN SPECIALIZING

IN APPLIED NUMERICAL VECTORS AND LOGIC."

"You could look in the Calculator, Highliber."

"Very funny. You may return to your work. Try to write something coherent about the past hour and have it on my desk by this afternoon."

Alone in her study, Zarvora activated her Calculator console, rubbed her fingertips together, stared out the window, deactivated her console, then paced in circles around her mechanical orrery. Abruptly she flung off her cloak and tunic and stared at herself in a mirror, bare to the waist and with her hands on her hips. Her body tapered to a very

narrow waist from moderately sized but well-formed breasts. She leafed through an art book and held up several sketches of nude women for comparison, giving each a rating out of ten. She stared at herself again.

"Realistically speaking.." eight!" she concluded with relief.

After getting dressed she rang for her lackey.

CALL

"I want the personnel files of all FUNCTION components in the Calculator: all shifts plus the spares pool," she ordered.

"That's six hundred and twenty files," he gasped.

"Correct. I want them in my office in a quarter hour, then I want complete privacy for the rest of the day."

Maralinga had been transformed from a rail side to a garrison within a week of the Ghan raid. There were never fewer than four wind trains parked on the sidings at any time, magnificent with their high white rotor towers painted in red and gold spirals, and they had brought musketeers, engineers, new rail side staff, and the Assistant Commissioner of the Paraline Authority himself.

Maralinga was part of the Woomera Confederation. Although Woomera controlled more land than the Southeast Alliance, it had only a twentieth of its neighbor's population. Much of its defense strategy was based on isolation. It had used the desert as a shield for its Northern boundaries, but suddenly the shield had crumbled. If nations beyond the red desert were developing the ability to strike over immense distances, then Woomera would need allies.

Rochester was a convenient, if distant, ally. The Highliber sent a galley train with troops and beam flash staff to rig up an emergency link between the Tarcoola and Maralinga rail sides. Military observers in the other may orates of the Alliance were alarmed by the operation. How had Mayor Jefton managed to secretly develop the prefabricated wooden beam flash towers, and the new segmented, self propelled military galley trains that could carry materials and troops a thousand miles within days? Three weeks after the raid was reported, Maralinga was commissioned as a permanent part of the beam flash network.

The strategic implications of the feat caused sleepless nights for many mayors and their advisers. Zarvora had been reluctant to deploy the towers because the operation would display little Rochester's astonishing new strengths. The trains and towers had been kept ready as disassembled piles of stores and inventoried as parts of unrelated civilian equipment. The Calculator coordinated the assembly and packing of the trains at speeds beyond the comprehension of shipping clerks. Because the towers were made of interlocking parts that required no specialist artisans to assemble them, the work was done by military engineers using manuals that they had studied on the trip west.

Each of the galley trains was pulled by three galley engines, and each

of these was propelled by a hundred navvys. The machines had been derived from the smaller civilian trains and shunting galleys. They were independent of the wind, carded their own rail-repair equipment, and could move a small army to the most remote railhead in days. No sooner had these swift military machines rumbled across their territory than many mayors hastily passed laws limiting the movement of such trains in the future. At the same time they began programs to develop and construct their own galley engines.

The Marshal of Maralinga was from the Woomera Paraline Guard, but took his orders from Rochester. Eager to learn anything about the way that the Call had been defied by the raiders, Zarvora also rushed a team of edutors to Maralinga. Darien was put in charge of the investigation. The raid was an open secret among the may orates but the fact that it had taken place during a Call was known to only Zarvora and a few of her advisers.

The investigations at the rail side were thorough. Scraps of vine, dead leaves, and hairs were collected and sent to the Highliber under guard. Rubbish and broken equipment left by the raiders was examined and sketched, and the weapons and timer from the lancer that Darien had shot were sent to the Overmarshal of Woomera for evaluation. Trackers traced the trail of the Ghans back north until they reached where they had emerged from the sand dunes, confirming that they had been traveling directly south when they had seen the rail side. The trackers were sent along the par aline for two hundred miles to either side of Maralinga to confirm that the remaining lancers had not crossed it again on the way north. Observers in the portable beam flash tower monitored the southern part of the plain for the returning Ghan lancers, but saw nothing.

Sentry posts were established a mile out of Maralinga at each point of the compass. They were no more than wooden barricades under an awning, each manned by five Woomeran musketeers and a Rochestrian sergeant. Two terriers were assigned to each post, and the northern post doubled as a Call-warning station.

The western post was beside the par aline and the sentries were not surprised when a hermit came tramping along beside the rails from the west. There were several dozen hermits scattered along the length of the par aline all earning their supplies by doing occasional maintenance on the rails. This one set the demi terriers barking. It was the morning of the 15th of October 1699 GW, a month after the Ghan raid.

"Something about his scent," said the Rochestrian sergeant. "Dirbok, keep the dogs on a head-hand switch. Jaysec, train your musket between his eyes." "But Fras, he wears no vines," said Jaysec.

"He has a body anchor and robes like those from the lancer that the Deputy Overliber shot," said the sergeant.

The hermit stopped, nervously smiling and bowing.

"Fras, hermits scavenge from the bodies in the desert," said Jaysec. "There are some flea-ridden scavengers dressed as richly as mayors along this part of the par aline

The sergeant stroked his beard. He walked forward, leaving a clear line of fire for Jaysec's gun.

"A par aline hermit should know our languages. You! Speak Austaric?"

The hermit smiled and bowed again but said nothing. The dogs continued to bark.

"The dogs think he's the vine man Fras," Jaysec decided, coming over to the sergeant's opinion.

"Perhaps the dogs bark at what smells like a Ghan lancer," said Dirbok.

The sergeant held up a length of rope and put his wrists together. The hermit hesitated, then comprehended the gesture and held his hands out to be bound.

"Fagh! Smells of camel," said the sergeant. "But he's scabby like a hermit." Jaysec escorted the hermit back to Maralinga. The Marshal was informed, and after inspecting the enigmatic newcomer he decided to present him to the Deputy Overliber. The hermit was stripped naked and issued with trows and a tunic, then shackled to a bench in the library while Darien was sent for.

"His face and hands are burned and peeled, as if he's unused to the sun,"

the Marshal told Darien as they walked along the pink limestone cloisters to the library. "There was something odd about his behavior, too. He gaped and gawked in wonder at the wind trains when he was brought inside the walls. Paraline hermits know wind trains as well as their own fleas. Some are even members of the Peterborough Train Spotters Brotherhood."

Darien nodded, then bowed her thanks at the library door. As the Marshal unlocked the door she scribbled out a question with a char black stylus.

HAS HE BEEN GIVEN FOOD AND DRINK'?.

"Frelle, he's only a hermit. He smells like a camel's fart."

IN ROCHESTRIAN SOCIETY POLITE HOSTS, NO MATTER WHAT THEIR RANK,

ALWAYS GREET TRAVELERS WITH FOOD AND DRINK.

"As you will, Frelle."

The Marshal tramped off, muttering to himself. He returned with a pitcher of water and lime juice in a demi jar and a plate of seed cakes and dates on a tray.

Darien took the tray and the Marshal's keys after gesturing to him not to follow her.

"Frelle Deputy Overliber, he might be dangerous,"

Darien shrugged and faced the door. The Marshal opened it, glared at the shackled hermit as Darien entered, then pulled it closed.

In Ghan nations, only servants served the food. Being a Ghan, the hermit took Darien for a servant at once, in fact a servant that he

already knew. His peeling, gaunt but handsome face was not familiar to her and his voice was no longer muffled, yet she recognized him and smiled. His eyes were bright with apprehension until she put a finger to her lips, smiled again, and shook her head. She unlocked his shackles, and noted the way that the muscles of his jaw untensed and his shoulders sagged with relief.

"So, you are not going to denounce me," he said, taking the drink that she offered him. "Thank you. I'm glad you survived. Did you know that Kharec's officers actually argued over who had the right to kill you? You have no voice, and nobody would return to see your body. Ah yes, rape was promised to be who killed you, yet death was the real reward that lay in wait. How I smiled, beneath my mask of leaves. Now I am the prisoner of your people, and nobody can understand what I say. What will happen to me? How can I plead for mercy when I have no words, my pretty? You of all people should know.." yet you cannot understand my language."

He munched a seed cake and stared through a window at the wind trains in the sidings. One was being readied to return to Woomera, and the engine was slowly shunting carriages, driven by the gleaming rotor towers, which spun in the ceaseless wind. The crewmen were dwarfed by the great vehicle, and the carriages clanged together like distant bombards firing. On a siding beside it was a dark, sleek galley train. Light bombards protruded from low turrets on its roof. The vine man shook his head.

"All those huge machines that roll along the iron bars, and carry hundreds of warriors without camels. Kharec could never have known your people's real strength."

She stood behind him, watching him watch. He turned with a neat, sinuous motion and stared at her, then pointed to himself and shrugged his shoulders. She nodded and stepped forward.

"I look different without my vines, don't I?" he said, and Darien stroked his cheek with her fingertips. "Ah, so you think I have a kind face, too. Such a pity that you cannot understand my words. Kharec and his raiders are all dead, I wish that I could make you understand that. The hand of the Abbess Theresla struck them down."

She took the pitcher and poured him chilled water and lime juice. He raised his eyebrows at the taste.

"Ah, you know that limes can ward off the scurvy that comes from long journeys and poor food. How very civilized. And you give it to me, but hid it from Kharec. How very flattering. Where is your civilization, I wonder? At the end of those iron bars that cross the desert?" He sipped again from the stoneware cup. "Ah, but I wish that I had some of my bane gold poison to go with this. I miss its flavor."

A flea drinking his blood would probably die, Darien thought. Every

move that he made seemed to bring a smile to his face. That was understandable, for he was free of the vines at last.

"Do you wonder how I killed Kharec and the others? Hah, you don't even know that they are dead. Look here." He held up all ten fingers, four times over, then made motions as if he were riding a camel. Finally he drew a finger across his throat. Darien was careful to stare at him, wide-eyed with shock. "All dead."

She pointed at him, then stroked the back of her hand. "So you still think that I am kind, even without an explanation. Well then, I'll tell you everything. I need to tell someone, and the only other person in the world that I could trust is far away, in a Glenellen convent. You would not like her. She eats sparrows roasted on skewers, and sends letters to me by cartier bat. For all that she is a great scholar. Because of it, perhaps. It helps to repel suitors, for her hand in bethrothal would be a great prize. I have killed five of her suitors myself. I am her right hand."

He had just walked out of an unspeakable ordeal, the skin of his face and hands was blistered and scabby with exposure, yet he sparkled with vitality. If he was the right hand of the Abbess of Glenellen, what would the rest of her be like? Darien wondered.

"But you want to know how I killed Kharec and his elite warriors--or you would if you could understand me. The Sweep of the Call is as wide as a two hour march, and it stops each night for its victims to eat and rest. They remain in a trance, while plant eaters eat plants and meat eaters starve. I led the lancers to the boundary of the Call, then left them there while I walked on into its realm. There I found Kharec. He was chewing on the leaves of a bush, just like a camel. I bound his hands and led him back out of the Call, to where his men were waiting.

"He regained his senses at once, but instead of being grateful the wretch had me seized. He accused me of duplicity and mutiny, without a shred of evidence. Still, he was right. He had his men extract me from my suit of vines, and he had his own worthless body strapped and bound into it instead. It was his intention to come back here and wait for the camel train that supplies you. Camel trains, hah! One glance at your mighty travel-machines and he would have fled all the way back to Glenellen.

"Kharec forced me to walk as punishment, yet that slowed them as they rode north again. If you could understand my words, pretty one, you would know that as we started back for here, four days had passed and a Call was due. I was counting on that to save me.

"Events moved a little faster, however. Early in the next afternoon Kharec's men noticed that the suit of vines was dying. The leaves were wilting, the tendrils hung limp. His lieutenant, Calderan, mentioned it to him. I was dragged before Kharec's camel and commanded to speak--with a blade pressing against my throat.

"I explained that the suit could only be worn and kept alive by me. I have been taking a little of my bane gold for years, and can resist a goodly dose of it by now. My vines had been growing dependent on it by absorbing it from the sweat on my skin--not from the water at their roots. If Kharec drank enough poison to keep the vines alive, he would die. If he did not, the suit would die.

"At this stage I raised the stakes a little. I told them to check the timers on their body anchors and the camels' sand anchors: I had done more than release Kharec and leave you a key and pistol when the last Call had passed over this outpost. I had also taken the finely machined gold release pins from every sand anchor in the entire squad and hidden them. So, their sand anchors could no longer save them from the Call, and only I could wear the suit of vines and keep it alive.

"I had Kharec by the balls, my pretty. A repulsive thought, is it not? He could do no more than give me back the suit of vines because only I could save them from the next Call.

"Do you think his pride would allow that? Oh no. He tried to cut me down, but his men defended me for fear of losing the one person who could preserve their own lives from the Call. He killed five, because they could not slash at him for fear of damaging the vines that he wore. When he finally made a break and rode north, all the others streamed after him. Once they were out of sight I caught a camel that belonged to one of the dead lancers and rode south.

"Yes indeed, I rode south. No sand-anchor timer, no suit of vines, yet I rode south. I am the eyes of the Abbess Theresla, after all, and she wished to learn the source of the Call. It was after another day that I noticed the horizon begin to change. It became a jagged edge below a flat boundary between earth and sky. There was a trace of salty mist on the air, and a deep rumbling somewhere in the distance. I was about a hundred paces from the edge of the cliff when I realized what it was and tripped the manual release of my camel's sand anchor. In this place there was a weak Call that seemed never to stop, yet it was only a few hundred paces wide. I dismounted and crept forward on all fours."

Darien poured him another drink, struggling to maintain a bland but puzzled expression on her face. He had seen the source of the Call! It was miraculous, fantastic. It was known that if one followed the Call for a sufficient distance one came to a region where the allure never ceased, the Calldeath lands. Observers had been sent up on tethered hot-air balloons at the edges of these regions, and reported only forests, mountains, and ruins as far as their telescopes could reach. The par aline skirted one of the Calldeath lands at Peterborough and a balloon flight there only the previous year had shown that there was a vast lake in the distance.

There were references to immense bodies of waters called oceans in the earliest surviving books, but these oceans had been out of sight for so

long that theory was that because they lay in the direction of the Call, they must be associated with it. Many religions located hell in those legendary oceans, but now this man had walked into the very nightmare itself and calmly gazed upon... what? Darien was about to become the second person in all the world to know the Call's true source. She felt her legs trembling and knew that her excitement must be blazing out like a beacon. The vine man was sure to notice soon--but he turned to stare out through the window at another wind train noisily shunting as he continued with his tale.

"The flat plain fell away in a sheer drop to an enormous lake that stretched all the way to the horizon. Great waves broke against the base of the cliffs in showers of spray and seething foam. Can you imagine it? The waves on the waters of the Alspring gorges are never more than a hand span in height, yet these were huge beyond telling. The water was blue-green, and among the waves I could see streamlined bodies gliding and dorsal fins slicing the surface. Larger, darker things were herding them, keeping them in orderly rows that patrolled the edge of the cliff. Try to imagine a fish from a river or lake that has grown to the size of your travel-machines. Further out were more of the bigger creatures, splashing and spraying water high into the air. Is this the edge of the world, I whispered to myself, and is this the face of the Deity? In some places there were rocks at the base of the cliffs, and these were piled high with whitened bones.

"I took a little telescope from my robe and studied the sleek shapes in the water. Shepherds and sheep, no doubt of it. Were they also angels and souls? If hell was fire, was paradise water? I watched for a long time, and as I did, a full strength Call came, swamping the little guard Call that suffused the air around me. There was a sudden surge of tingling, yearning ache, a summons to be seduced yet I could resist it."

He turned back from the window now, his eyes closed and his smile beatific. The jaws of death had closed upon him, but he had nimbly stepped between the teeth. He was justly proud of what he had done--yet he had been wearing no vines! He immediately answered Darien's unspoken question so precisely that she almost gasped.

"Ah yes, I had no need for the suit of vines at all, it was nothing more than a ruse to disguise my real secret. Remember when I had been fastened by my vines at the outpost? When the Call came I slipped from the suit in moments and went about my work naked. Oh yes, I stood before you naked as I put the key and gun on your bed. Would you have liked my body?"

He was looking straight at Darien as he spoke, and she blushed as crimson as the sunrise. His smile broadened, yet it was a teasing smile, not at all evil.

"You blush. You know that I am saying something naughty but you do not know what it is. Do not worry, nameless lady. I am the hands of the Abbess Theresla, and she would never molest you. Ah but here I am

talking about my nakedness when I could be talking about what lies beyond the edge of the world. Which would you find more interesting? I wonder.

"After I had been watching for some time I heard the sound of camels behind me, and I turned to see four riderless beasts trotting straight for the edge of the cliff, a little to my right. As I watched they suddenly broke into a gallop, and all four of them hurtled over the edge, their legs still working in midair. They hit the water well beyond the rocks at the base of the cliff amid cascades of spray which turned to bloody foam as the huge fish tore them to pieces. Now a kanger came bounding to the edge, one that had grown just big enough to be snared by the Call. It too splashed to its doom, and was consumed within moments. The thirty surviving lancers soon appeared, and plunged into the jaws of the living mincers. Then came a pair of goats, a dingo, another kanger, and even an emaciated donkey. One last lancer approached the cliff, a rider clad in ragged greenery.

"Beast, warrior, elder, all are meat for those great sheep in the deep, green water. Kharec's camel broke out of its trot and into a full gallop. And of course it had to be a charge over the last few paces: the bodies must fly clear of the edge and hit the water, not fall to the rocks at the base of the cliffs where they would be out of reach. Harvest home, chaff for the sheep--or perhaps fishmeal for the pigs. As the fishing nets drift through the waters of the gorges in the red Alspring mountains, so too does the Call drift over the land.

"As the moving Call passed I watched as the torrent of flesh poured over the cliff and the shepherds moving their charges past in an orderly feeding pattern. When it ceased I noted that the group of larger shapes further out from shore disbanded first, then the ranks of feeders moved away. More sickening than the sight of the carnage was the thought of the waste: for every beast that reached the cliff at least a thousand must have perished in the desert.

"I crawled back to my camel, and once I had rested I made notes and sketches. Kharec had helped me. The fish that had bitten him in half was four times the length of his body, so that I had an idea of its size. I led my camel out of the guard Call and tethered it to graze. Just outside the guard Call I found a cave, a deep hole in the plain. Here I lived for two weeks, and I observed several more Calls reach the edge of the cliffs. Between Calls I climbed down the cliffs on a rope and took samples of the water. It is salt, at an undrinkable concentration. On the rocks at the base, among the bones of those animals that had not reached the water, I found tattered cloth and jewelry, and piles of human bones in shells of red rust that had once been armor. All along the cliffs it was the same.

"Slowly my cave became a treasure trove, and then I found the greatest prize of all. One skull wore a gold headband with eight claws holding a magnificent green emerald. The skull was so, so small, and even

though it was nothing but whitened bone I saw the beauty that had once clothed it. I knew it to be the body of the sad, legendary Ervelle, who had been banished into the Call many years ago for.. the saddest of crimes. The lovely girl would have died of thirst and rigor only a day or two into the Call, but her camel had followed it all the way across the red deserts to the cliffs and plunged over the edge. I gathered her bones, rings, and jewelry and buried them in my cave, beneath all the other jewelry that I had collected. At the mouth of the cave I carved ERVELLE deep into the limestone. Just think, my pretty, I rescued Ervelle herself from the Call, I showered her with riches, I built her a palace and I slept beside her. I actually became part of her sad legend." Tears glistened in the vine man eyes, and he dabbed at them with a napkin. "It is as well she will not find out," he added with a rueful grin.

"There were other wonders at the base of those cliffs, but why bore you with words that you cannot understand? After fifteen days I packed my gear, rolled my notes and sealed them in wax cloth then mounted my camel and rode north. It's tethered a long way from here: I could hardly play the mendicant hermit and own a camel, could I? And why have I returned?

"Yes, you would guess it if you could understand me. I returned to take you with me to Glenellen, to lock you away and protect you forever. Nameless one, I am devoted to the service of the Abbess, yet she is not one who could be petted and adored. You are so very vulnerable, and I yearn to give you my vows of protection so very much. Alas, I am not a warrior, and even if I returned during a Call that pack of little dogs with poisoned metal fangs strapped to their jaws would defeat me."

He was proposing marriage, or at least its equivalent in his society. For him the idea of protection bordered on an erotic fantasy, and Darien was not only female, she was also mute. He seemed genuinely distraught at being thwarted. After a few moments of wringing his hands he changed the subject.

"How did I resist the Call? That is very hard to explain. You have to be a certain way or else.." you cannot. I learned my techniques from the Abbess Theresla, who in turn built on the techniques of the Kooree nomads. They have a different sense of time to us, they can dream different types of time at will. That is part of the secret. And how did she move among them when she is not permitted to leave the Glenellen Convent? Ah-hah, I am her keen ears and sharp eyes. I lived with the Kooree nomads, learned their wisdom. It requires immense concentration and self-discipline, and years of training. The likes of Kharec would not accept that, they would torture me for the secret, yet the secret cannot be put into words. The Call is not material, you see, it seduces the mind.

"I am so proud of being the senses of the Abbess Theresla: if you work for the gods, you live like a god--or so the Diarec heathens say. So, having learned to resist the Call, she then wanted to know what caused

it. I am her hands, ears, and eyes, so I would have to go south, through the hot, red deserts. I needed a strong escort. The Kooree there would kill a lone rider exploring their lands, but a squad of lancers would keep me safe. That is why Kharec was hired, and why the deception of the suit of vines was invented. The suit was too clumsy and undignified for a warrior to bother with except in the most extreme circumstances. My lady is clever, isn't that so? Will I ever see her again? Now I shall have to cross Kooree lands alone, and without the cover of the Call as I travel north. It has never been done, but then I have already done much for the first time, so who knows?"

Now that he had finished his story the vine man lay back on the couch, the first furniture that his back had touched in months. Darien fed him dates and seed cakes with saltbush tiens. A cool breeze played through the window, and sand paintings misted themselves into fluid landscapes as their frames tumbled on brass bearings in the breeze. Away in the distance they could hear a dull, continuous rumble as the wind train finally pulled out to return to Woomera. Through the window Darien could see the rotating towers painted with spirals that rippled forever upward as they spun to drive the gears that turned the wheels. The vine man sat up and watched the train depart.

"Now I understand," he whispered. "Those travel-machines move along the road of steel bars without the need of control. If a Call sweeps over the machine, it travels along as before, while the people that it carries are safely tethered inside. You must have cities at either end of the iron bars. Big, wonderful cities."

She turned. He put his hands on her shoulders and slid them together to caress her face.

"You... are lovely. I wish to lock you away and protect you from the horrors of this world," he said gently. "Yet that cannot be. It is too dangerous to abduct you, and the journey back over the red desert past hostile Kooree nomads will be more dangerous still. You will never meet the abbess who eats grilled mice with bane gold chutney and washes her hair in oils of nightshade. She has killed many suitors by dipping her hair in their drinks.

"My name is Ilyire, beautiful lady. It means grape grower, man of the vine. My noble father once seduced the daughter of a poor farmer. Ah, and the settlement turned him into a rich farmer. Could you guess it, but I am the half-brother of the Abbess Theresla? That is well known, and it is why I may come and go at the convent with impunity.

"Now, take this to remember me by. This is the gold pin from the sand anchor of Kharec's camel. If I am released by your people I shall return to my camel and vanish forever from your life. In my pack is a sealed roll of notes and sketches that I must present to the Abbess Theresla."

Darien held the pin to the light, as if she did not understand what it was, then with a sudden inspiration pushed it into the braids of her

hair. Ilyire laughed and clapped. After a few minutes more of gestures and smiles there was a sharp, urgent rapping on the door.

"Frelle Deputy Overliber, are you all right?" called the Marshal. "If you're not out within another fifty heartbeats, I'm coming in."

She gestured to the shackles, and Ilyire let himself be restrained again. Before picking up the tray she dipped the edge of her scarf in the water, wiped the center of Ilyire's forehead, and kissed him. Ilyire cried out in astonishment.

"My lady, no!" he shouted. "To mock the strength of men is sinful, the scriptures teach--Haargh!"

The Marshal burst the door open with his shoulder in time to see Darien empty the pitcher over the prisoner's head, laughing soundlessly all the while. "Frelle, Frelle, what did he say, what--"

She held a finger to her lips and gestured that Ilyire was to be washed and fed. The Marshal smiled maliciously and saluted smartly.

"I'll get the five strongest engine-scrubbers in the rail side to fill a tub with chilled water," he said to the uncomprehending Ilyire before marching out.

The Ghan stared at Darien. "You seem to be more than a serving maid he whispered, his voice so soft that Darien scarcely caught the words. With a final kiss to his forehead she left him to his fate.

Ilyire's clothing and pack roll were held for examination in one of the hostelry rooms while he howled and cursed in his bath on the terrace. There was nothing out of the ordinary within the pack roll except for the roll of reed paper pages wrapped in protective wax cloth. It was an account of what he had discovered at the source of the Call, written with a char black stylus. The text paralleled what he had told her in the library, with certain notable omissions. Darien left instructions that the hermit was to be locked in a cell until the morning, then released with all his possessions and as much food and water as he wanted.

The climb to the gallery of the beam flash tower was all by ladders. The tower's prefabricated extension had no luxuries such as pulley lifts, and the sensitivity of Darien's message was such that she had to key it herself. The sky was cloudless, and it was almost noon. The beam flash heliostat would throw a strong signal east on its first leap toward Rochester.

What had crossed half a continent as twinkling pinpoints of light was pecked into a strip of paper tape by the Highliber's battery of silver hens. As the message reeled out into view, Zarvora had her back to the mechanism and was speaking to Vellum Drusas.

"The libraries of the Southeast have been squeezed dry, Highliber," Drusas said as he spread his open, empty hands.

"There are more Dragon Librarians in the may orates of the Alliance than there are in Libris," she replied unsympathetically. "I am talking about another hundred Blues and Greens out of more than a thousand."

"But Highliber, they have duties that must be performed. Beamflash towers to run, classes to teach, books to distribute and collect, even ceremonies to perform. The mayors are already complaining about you taking their best people. I have formal complaints from the mayors of Hopetoun, Warracknabeal, Litchfield, and Tandara. Libris is becoming unpopular."

Zarvora reached behind her and tore off the paper tape, but did not look at it.

"The Warren has contacts in the Central Confederation," she said as if she considered it a reasonable option. Drusas was aghast.

"You would have them abduct Dragon Librarians, Frelle Highliber?"
"Could it be done?"

Drusas took out a handkerchief and mopped at his face. She had listened patiently to his opinion on the recruitment problems, and the abduction alternative was clearly meant as a reasonable suggestion.

"Yes, perhaps, in a limited way ... yes," he replied reluctantly, aware that it would be dangerous to give her too many negatives. "It would have to seem like random kidnappings, and be over a vast area, otherwise we would be detected"

"How many would that gain us?"

"I could promise thirty or so of mixed ranks. No more."

"That is barely a third of what I require."

"Please Highliber! The Central Confederation is our ally and trading partner, and all prisoners would have to be brought across Southmoor territory. If the Emir found out that Confederation citizens were being abducted by us he would fall over himself to shout it to the whole Southeast. He has had to make many concessions over that business of the rogue beam flash tower, but this would help him save face."

Zarvora had begun to read the message as he was talking.

/ MARALINGA <> DA RIEN VIS BABESSA <> CODE CY900 <> VINE MAN

SURVIVED THE JOURNEY AND SAW THE SOURCE OF THE CALL. ALL OTHER

GHAN LANCERS ARE DEAD. THERE IS A CHANCE TO RECRUIT THE ABBESS

HERSELF. MAY I PROMISE HER A DRAGON RANK IN LIBRIS? /

She looked up. Drusas was opening a folder of letters bearing a bishop's crest.

"Highliber, abductions from the Central Confederation are so risky as to not be worth the trouble. Once again, I implore you to consider the monasteries. Monks are diligent, well educated, and disciplined, and the Archbishop is willing to offer us very generous terms."

"What about the ban on them living in Rochester?" she said dreamily, reading the holes in the paper tape over and over.

"For a reasonable fee per recruit, perhaps he could justify it to the College of Peers."

"Arrange a meeting with him." "He cannot come to Rochester." "I shall go to him."

Drusas sat back, puzzled. He had never seen her so agreeable. "Is there good news on your paper ribbon, Highliber?" "Yes, Fras Inspector. I took a great gamble and won."

While Drusas saw the Highliber's lackey about arranging a visit to the Bishop, Zarvora keyed a message for the beam flash address of Maralinga and coded it CY900. It read ACT AS I WOULD / and was directed to Darien vis Babessa.

Darien returned to the beam flash gallery in the late afternoon, when the Highliber's reply was due. As she expected, Zarvora had lost no time in replying. It was a short message, only four words, yet it gave her a free hand. Back in her room she began to write out her own account of the raid on Maralinga Railside. It was midnight before she was finished. As she wrapped the pages at the core of Ilyire's own roll of notes she paused to reread the final page, laughing silently at the words.

John Glasken had also been recruited into the Highliber's service, but under very different circumstances. Blindfolded, bound, and gagged he was bundled into a wagon and driven away from the par aline terminus and through the streets of Rochester. From the street cries, sounds of working artisans, and challenges from guards he could tell that he was being taken to the area of the palace and Libris, then inside. The air around him became cold as the doors rumbled shut behind the wagon, and he was lifted from the tray by someone of great strength and held upright. His shackle was struck off with a chisel; then he was carried for some distance, through doors and past the challenges of several guards. They ascended two flights of stairs before he was put down on a hard bench.

His hands and feet were untied, and his gag and blindfold came off last of all. Before him was a burly Dragon Red Librarian, armed only with a heavy truncheon. He was obviously what Glasken was meant to see first, an incentive to behave. The room was small, with a barred skylight in the ceiling. On one wall was a blackboard and box of chalk. A door on his right opened and a thin, middle-aged Dragon Red came in, a striped uniform over his ann.

"I am your instructor," he said, throwing the uniform on the bench, then standing back with his arms folded. "Put those on."

Glasken had only the watch house britches to remove. The new uniform

was clean and comfortable. "Prisoner John Glasken, you have been redirected from six decades on a chain gang because of your training in arithmetic," the librarian told him as he took a piece of chalk from the box. "You will be well fed and clothed, and there will be no heavy work. You will work hard, however. The Mayor needs calculation and arithmetic, and you will provide it."

He turned to the board and drew five small circles in a row, then another just above them.

"This top circle is myself," he said, pointing with the chalk. "These down here are people like you. Now, I have been given a long calculation, one that would take me ten days of tedious arithmetic. Instead I take half a day breaking the task into five parts then share them among my five assistants. They work for two days. I spend a half day putting the results together, and I have the task done more than three times faster. Do you follow?"

"Ah, yes, Fras Dragon Red."

"Good. Now, I can work no more than twelve hours a day, and neither can you. If I have ten people available, I could have another shift working while you sleep, and the solution would take only two days. What would you do to get the solution even faster?"

"Get twenty people?"

"Fool!" he spat, flinging his chalk in Glasken's face. "It still takes me time to split the task up. What I must do is have the task split up by another team of calculators, and then I can get better speed. If I get two people to split up the task into twenty parts, then I can increase the speed. What good would it be if I

had the task calculated in a few minutes if it takes me a day to prepare it?"

Something more agreeable than six decades in the desert was obviously on offer, and Glasken was anxious to please. "What sort of problems are calculated?" he asked, hoping to sound intelligent.

"Does a rower ask where a battle galley on the river is being steered? Would the knowledge help him row better? What we have here is indeed very like a river or a parallel galley, Fras Glasken. It is a machine of a thousand people,

with three shifts to spread the work. This machine has hundreds of times more calculating power than an individual. It never sleeps, gets sick, or dies."

"But what if someone makes a mistake in the middle of one of the big team calculations? How would you know the answer is wrong?"

"The machine is divided into two identical halves, and these run in parallel.

If the answers are different then they repeat the calculation until both halves agree.

I am now going to train you to be the most basic component of all, an

ADDER.

You will also cease to be John Glasken. You are ADDER 3084-T."

And so it went, seemingly for hours. Glasken was told the punishments for mistakes and misbehavior, taught the daily routines, taught the ranks of guards and Dragon Librarians, and had the tasks of his fellow prisoners outlined to him.

He was given trials at a desk with a large frame abacus and three rows

of levers, and taught to recognize a number from a row of metal flags in various combinations of up and down. He had to take the numbers specified by the top row and put them onto the abacus. He would then press a pedal and another number would appear on the row, and he would add this to the first on the abacus. When the list was complete all the levers on the flag row clicked to the top position, and he keyed his answer into the bottom row of levers and pressed a pedal. When the next list was due all the levers on the top row fell to the bottom position, and when he pressed the pedal, the first number appeared. He learned about the other levers later.

Although the skylights showed day and night, he began to lose track of time. He was told that the guards who patrolled the aisles were called regulators. They punished, kept order, and sorted out problems with equipment and components. During his training Glasken saw nobody except his instructor and some silent prisoners who brought meals. The meals were constipating and the drinks infrequent, except after training sessions had just finished. Privy breaks were not encouraged during the sessions, each of which were four hours long. At the end of each day he was locked in a small room with four bed cells and he would collapse into one of the low cells as exhausted as if he had been breaking stone.

One day, without warning, he was sent down a new corridor and into a vast, brightly lit hall. It was the Calculator itself, not a training rig. Glasken was awe struck. There were dozens of rows of desks and wires crisscrossed above them. Some wires carded little message cylinders from point to point, others hummed under tension. What really made him uneasy was that there was no conversation, in spite of there being so many people. The only sounds were a continuous swishing of beads on wires and a clacking of levers like a field of muted crickets in the evening. After puzzling over the partition curtain that ran down the center of the hall Glasken suddenly realized that he was seeing only one of the huge machine's processors.

He was shown to a seat at the rear of the Calculator, and was shackled to a bench by irons padded with leather. The chains were light and bound with felt to muffle the clinking. Every care had been taken to keep the components comfortable and free from distraction. Glasken's instructor stood behind him and pulled a lever from NEUTRAL to STAND

READY.

"You will have light work for the first two hours, while you adjust to the routine," he said quietly, his voice barely more than a whisper. "If you perform up to your training standard, you will be put on the full rate until the half-shift break. While you have your coffee we will assess your work, and after that you may be classed as an installed component."

"What happens if I don't perform well enough?" Glaskea asked, ever anxious about the consequences of failure.

"You will be given another week of training. If that does not do any good, you will be discarded."

"Does that mean I go to the deserts to lay par aline tracks?"

"I'm afraid not," he said gravely, shaking his head. Glasken shivered visibly. The instructor moved the lever to ACTIVE.

The sweat soaked Glasken's tunic as he began to work, but after a while he realized that the work was easier than what he had been doing at the training desk. When the rate went up he was able to cope with no trouble at all. At the half-session break three Dragon Reds came over, smiling and nodding, and unpinned the "T" on his badge. By the end of eight hours Glasken was weary, hungry, and desperate for a trip to the privy, but sure that he would not be discarded. His instructor congratulated him, then led him off to a different cell. He was to share this one with three other men, all from his shift.

Two of them were in their mid-thirties, and the other old enough to be quite grey. Meals were handed to them in tin bowls.

"So you're new, then?" asked MULTIPLIER 901.

"My first shift today," Glasken said between mouthfuls of stew. "Congratulations," said the old man, CONVERTER 15. "Some new components don't get through the tests the first time. A few never get through, apparently."

"Does being discarded mean what I think it does?" Glasken asked. CONVERTER nodded.

"Have you ever heard of the Calculor outside, ADD?" asked PORT 72. "Thought not. None of the newcomers ever have. That means that none leave here alive, or there would at least be rumors."

Glasken paused between mouthfuls and belched contentedly. "I suppose that means we're in here for life."

"Nay, in here until you cannot perform at least as a basic component," said CONVERTER. "But don't worry, lad. They give you reasonable repair time when you get sick, and there's a pool of spare components to relieve us on fortnightly rest days or when we're sick. Watch your health and you could live to a ripe old age and die in bed before your quota of repair days is used up."

Glasken was unsure whether or not to feel relieved. CONVERTER went to a corner and began to use the piss-jar.

"Has anyone tried to escape?" the Calculor's newest component asked MULTIPLIER.

"Aye. Every so often someone thumps a guard and runs down the corridor, but they get caught and clubbed down. Get past the clubs and there are guns. Ever hear of anyone getting to the guns, CON?"

"Last one was in '97, not long after the Calculor was set up," he said

over his shoulder. "Before my time, mind. I'd say, oh, twenty or more have been discarded for becoming doubles, though."

"Doubles?"

"Trying to escape twice, ADD. Any component doing that gets discarded automatically."

That was a pity, thought Glasken. One could not build up escape skills by trial and error.

"Just one more question," Glasken said as he scraped up the last of his stew. "Who are you all--you for example, PORT?"

"I used to be a money changer," said PORT. "Then I got caught for short changing. Been here four years. We're all petty felons, ADD, just like you. No body misses us."

Glasken pondered that for a long time. It hurt, but he had to admit that it was true.

Ilyire's journey north was far more arduous than when he had been going south with the squad of lancers. Being immune to the Call offered little protection when one was moving against the Call's direction. He detoured a long way east, to avoid the Kooree tribes that Kharec had fought with. The journey lasted a year, as his camel died in the parched wilderness and he was forced to walk. He hunted, hid, and fought when cornered. At last he reached Fostoria, which he had once considered to be on the edge of nothingness. Slowly he recovered, and while he looked for work as a driver on a caravan returning to Glenellen he noticed that there were at least two men in the oasis who spoke a language very like that of the people beyond the southern deserts. Ilyire speculated that perhaps there might be safer routes south than the one he had taken.

It was another two months before he stood before his half-sister and presented the sealed scroll that described the source of the Call. She had not changed at all, but Ilyire was scarred and tanned by the long and harrowing expedition. They embraced briefly and formally, as was prescribed in the scriptures, yet Ilyire trembled with his eagerness to tell of how he had carried out her orders so very well.

"I am pleased to see you alive, Ilyire," said Theresla, mocking the formal, prudish restraint of Alspring manners.

"I have survived to stand before you again, half-sister," he replied with a sinuous flourish of his hand, joining in the game.

"Had you died I would have lost my right arm."

"Your right arm is as strong as ever," he said proudly, sweeping back his sleeve and flexing his hard, stringy muscles.

Theresla sliced the wax cloth open and unrolled the pages. The distant chanting of her nuns was punctuated by birdsong as Ilyire sat back to

bathe in her praise. She read quickly, but it was a long account. Water tinkled in a small fountain somewhere out of sight, and a sun engine blew a gentle breeze through the garden of vines, cycads, and sandstone pillars. Ilyire knew the desert well and could survive there as well as anyone, yet he did not love it. The cool shade and greenery in the convent was far more to his taste. Spray from a nearby fountain drifted across his face and he closed his eyes. It was now Theresla who was out in the blazing deserts that he had endured for sixteen months, but she was safe from the heat and danger, and would return in the time that it took to read his words. Suddenly she began to read aloud.

" "Abbess Theresla, where are you reading this? It must be in the shady red sandstone cloisters at Glenellen." "

"I didn't write that!" Ilyire exclaimed, sitting bolt upright with a convulsion of alarm.

Theresla held a finger to her lips. She was reading from extra pages at the core of his roll.

" "Ilyire must have just returned, the sole survivor of the squad led by Kharec. He has presented a roll of papers sealed in wax cloth to you, but there are twelve extra pages enclosed, close written, with this at the start. Yes, I gave written orders for Ilyire to be held for the night while I wrote all this out. Abbess Theresla, greetings from Deputy Overliber Darien." "

By now Ilyire was sitting on the edge of the wicker bench, wringing his hands and writhing in mortification. Even though he had dreamed of nothing else but returning to the terraced gardens of Glenellen for over a year, he now wished that he could be anywhere else in the world. Theresla looked up from the page again. Her large, violet eyes held his gaze for a moment, just long enough to assert her authority.

It was a very, very complete account of all that Darien had seen of the lancers and the vine man from the raid on the rail side to Ilyire's enforced bath on the rail side terrace. Theresla read aloud, slowly and clearly, so that Ilyire would not miss a single word. She was standing beside a red sandstone table whose inlaid black opal grotesquery seemed to mock him. On the table lay a long, thin knife with a blood wood handle, holding down the wax cloth wrapper that it had sliced open half an hour earlier. He toyed with the idea of lunging for the knife and cutting his throat to end the humiliation.

The voluminous black robes that Theresla's hair cascaded over were meant to enhance her helplessness as a woman, yet she wore them as if they were shackles that barely restrained her. There were stories about her, stories that she prowled the roofs and parapets of the convent at night, naked, but smeared with lampblack and mutton fat. She was Ilyire's mad god, and it was exhilarating to serve her. She was also his bottle imp, but the cork that confined her was crumbling.

"This makes amazing reading," Theresla said as she finished the main part of the text. The smile on her intense, bone-white face did nothing to calm Ilyire, whose suntanned face was also more pale.

"She understood everything I said," he whispered, utterly desolate, his hands pressing against his cheeks. "A linguist without a voice!"

"I am proud of you, Ilyire. Your hands did as mine would have--more or less."

"I swear that I behaved with honor!"

"And I believe you. I have Darien's word on it, after all. Now shush, there is a little more to read."

"I must end with a warning, and my warning is the reason that I have written this long story. The Mayor's hold on his western states is weak, and the dispatches that I have seen suggest that he may resort to something terrible, now that Kharec's raid has shown the west to be vulnerable. He has a weapon, a terrible and ultimate weapon. The Mayor could have five hundred camels brought to Maralinga Railside and loaded with poisoned meat. When these camels follow the Call and feed those huge fish many of them will die, and their retribution will be swift and terrible. The Call will reach out to your inland kingdoms, and it will last for weeks, not hours. Your people will strive to answer it until they starve in their Call shelters or at the ends of their tethers. Do not credit us with too much power, however. We know only a little of the Call's origin from our his tories, just enough to manipulate it.

"I am committing treason by writing this to you, for I am giving warning to an enemy of the Mayor. Gather your loved ones together, train as many as you can to resist the Call. Organize those people to care for those in the grip of the Call but who are as yet untrained. With luck you may save perhaps a few dozen lives. I wish to help you out of gratitude, yet can do no more than give this warning for I am only a Deputy Overliber. One offset by a dozen.

"Yours in hope and shame, Deputy Ovefliber Darien vis Babessa."

They sat in silence for long minutes. Leaves and cycad fronds stirred slightly in the breeze from the sun engine. Theresla absently plaited strands of her deadly black hair as she puzzled over writing on the back of the page.

"That is all," she declared at last. "There is some writing in their language on the back of the last page, but I cannot read it. What do you think, Ilyire? Could those people beyond the red deserts destroy us by using the Call?"

"Yes, they could do it," replied Ilyire in a choked whisper. "They will strike before we have enough warriors who are trained to resist the Call. Imagine how they see us now: they think we are training an army that can fight through a Call. Such an army would be almost

invincible. They will hit us with the Call itself, and we'll be wiped out. They had a year to prepare while I was returning." He stood up and paced the red flagstones restlessly. "But why do it this way? She could have shown me these pages back at the Maralinga Railside."

"You told her many intimate things, Ilyire, thinking that she did not understand. She may have feared your anger."

"Feared my anger? I was the soul of kindness with her, I lavished such affection on her that--ah..."

Theresla raised her eyebrows and smiled. "Perhaps my hands have been up to more than either you or Darien have confessed."

"No! I swear--"

"I'm sure you do, but let us return to her warning. Something will have to be done."

Ilyire walked to the edge of the terrace and looked out over dark blue waters of the gorge, past the red sandstone cliffs and buildings, and to the south. Theresla came up beside him with a soft rustling of cloth and put an arm around him. "What is your plan, half-brother?"

"I could go south again. I could lie in wait at the cliffs and cut the poisoned loads from the camels. Five hundred camels.. yes, perhaps I could manage."

"And if they booby-trapped some of the loads with gunpowder? No, my dear brother, there is only one way to save the beautiful people and cities of Alspring. This Mayor must learn my secret of resisting the Call. Then he would not fear us enough to exterminate us."

"But you are the only teacher, Theresla."

"Very true, and once I leave this convent I shall be condemned as a renegade and a wanton by the Council of Elders. I shall go south and you will be my guide."

"Leave? You?" exclaimed Ilyire, horrified. "No! Absolutely not! You're an abbess, you're a noble's daughter--you're a woman!"

Theresla leaned on the stone railing and looked out across the blue waters of the gorge.

"Remember the last time that you said those three words to me, Ilyire?" she asked.

Ilyire shuddered. "You pushed me over the railing and held me by my robes for at least ten minutes."

"It was a few seconds."

"It seemed like ten minutes. All those neophytes on the terrace below looking up at my, ah--"

"Do not avoid the issue, half-brother. I held you with one hand, and pulled you back with one hand. I am very strong."

"After all those years of climbing about in the roofs, hunting

sparrows, I'm not surprised."

"I am strong and resourceful, and I shall go south," she stated. "You will be my guide."

"No! Scripture is quite specific. "Protect thy women from the beast in the soul of man. Cloister thy women and children from unjust harm. Adore thy women as the vessels of destiny. Protect--"

--thy women from their own follies." Yes, Ilyire, I know the scripture as well as you, if not better. The third dictate is the reason that I must go. This is a matter of destiny. Either I go with you to Maralinga or there will be total destruction."

"It would be a violation of scripture."

"The destruction of the Alspring people would be the greatest possible violation of scripture. You would be killing thousands of women and children, Ilyire. Could you stand before the Deity and explain why you allowed that to happen?"

He squeezed his eyes shut and shuddered.

"You taught me, I can teach others," he said in desperation.

Theresla smiled, then lashed at him teasingly with her black tresses. "Excellent I shall call a neophyte, and if you can teach her how to resist the Call within a week, I shall let you go alone."

Ilyire stood with his head bowed while Theresla waited for an answer. At last he shook his head. She patted him on the back. "Besides, I taught you nothing." "What?"

"Never mind. Hurry, we shall need two riding camels, four pack camels, and enough stores to last us three months.. ah yes, and robes to disguise me as a mercenary lancer. We shall leave tonight."

"It would be better to go during a Call."

"But Calls are cast as far inland as this only two or three times in a year,

and we cannot afford to wait. If the Deity is pleased with what we intend to do,

he may send a Call."

Ilyire went to buy camels and stores, while Theresla returned to her cell to pack. There would be a Call to cover their flight, there was no doubt of that. She had refined her knowledge of the Call in Ilyire's absence, and could now detect the approach of one within twelve hours. Soon she would tell him that, and more. Soon, but not yet.

By the light of a smoky olive-oil lamp Theresla unfolded the last page of Darien's letter. It was a coded message, which she had hastily unraveled in her head while in the garden. Now she wrote it out carefully, to be quite sure.

"One offset by twelve, Frelle Theresla, such a simple code, yet I doubt that Ilyire will break it. In the pages you have read you have seen that women of talent can

COUP

reach positions of great power in our nation, yet enjoy much freedom as well. That is half of my reason for telling this story. The other half is to frighten Ilyire into helping you come to us if you wish. Are you happy with such a cloistered and restricted life, even as an abbess? Do you wish to continue to live and explore through Ilyire? If not, I can offer you escape, Frelle Theresla.

"There is no ultimate weapon, I made up that scheme of poisoned meat and the Call. Before Ilyire gazed over that cliff we had no idea what lay behind the Call either. If you are happy with your lot as abbess, then decode this for Ilyire, laugh at my guiles, and go on with your lives. If you wish to exchange your rank of Abbess for that of Overliber Dragon Silver, then Highliber Cybeline herself has authorized me to bid you welcome. H" do I know this so soon, when Libris is many days away, even by wind train? Come to us and find out. Combine our command of physical machineries with your mastery of the mind, Theresla, and we may even break the curse of the Call itself. Think about it, then come to Maralinga Railside and ask for your friend and servant,

"Frelle Deputy Overliber Darien vis Babessa."

Theresla smiled at the words.

"In all the world there are now two women and one man who know the source of the Call," she told the reed paper page, then touched its edge to the flame of the olive-oil lamp. The material burned slowly, reluctantly, as if it disapproved of her decision.

To the older staff of Libris it seemed that the end of the century was bringing with it the end of their world as well. Under Highliber Zarvora books were no longer revered as the symbol of civilization's former greatness and ikons of unattainable power: they had become mere tools for answering questions. There were no long, leisurely committee meetings about the finer points of cataloguing, no ceremonies in the cloisters to celebrate important lost books being recovered, and no excursions of senior staff to examine Rutherglen's libraries during the annual Drinkfest. Life in the new Libris was full of production schedules, time tables, relocations, and messages on paper tape punched full of holes. The number of staff had doubled in just three years, yet everyone was doing more work. The fastest-working cataloguer had processed two hundred times the weekly average of five years earlier, yet even his record would probably last a mere month.

The matter of just what the extra staff were doing remained unclear. The library network now effectively ran both the beam flash and paraline networks, and provided a host of other services to the Mayor's administration. During a brief but savage border war with the Southmoors at Talangatta it was again clear that Libris played an important role in Rutherglen's small but well-equipped army. Astute observers realized that the little may orate real military potential might be hidden from sight. Again its military galley trains and portable beam flash towers had materialized out of uninteresting piles of spare parts in less than a day when the Southmoors had mounted what they thought was a surprise attack. What else lay waiting to be assembled in Rochester?

Spies from other may orates noted that far more food went into the Libris signaling annex than the staff listed as working there could eat, and rumors of a vast team of calculating lackeys had even spread as far as the common folk of the city. That team was known to be hungry for new recruits. Men and women in all walks of life professed ignorance of mathematics for fear of being recruited by a blow on the head during some moonless night. Enrollments for mathematical subjects in schools and universities across the Southeast Alliance fell to a tenth of what they had been a year before, and students had to be granted the status of Dragon White Librarian before they would set foot in a mathematics class or lecture. Many mathematics educators fled to the Central Confederation and even the Southmoors. They could not be persuaded to return until Mayor Jefton proclaimed them all to have the rank of Dragon Red and to be under mayoral protection.

The Calculator demanded ever more components, however. The Highliber's military galley trains had poured reinforcements into the battle zone at an unheard of rate to crush the Southmoors at Talangatta, generating a lot of goodwill toward Libris. Zarvora's inspectors had been allowed to comb the Islamic prisoners for those who were numerate. Seven hundred recruits were culled from five thousand prisoners, along with ninety bilingual translators. To accommodate the extra components almost a fifth of the books in Libris were moved into the mayoral palace for storage, together with a complement of Dragon Librarians and lackeys.

Lemorel learned from Tarrin that the Southmoor prisoners had been assembled into a little dual processor unit housed where the Classics and Epics book stacks had been. There were 150 components per processor running in two shifts, but the Highliber was negotiating for yet more numerate Southmoors from the sporadic fighting on the Deniliquin border. This Calculator, the Islamic Machine as the librarians called it, was particularly fast with control and decoding calculations, and freed up time on the main Calculator for the Highliber's work.

The nature of that work remained a mystery. Some of it involved the calculation of all lunar and solar eclipses for centuries past, and other processing work had Dragon Whites and lackeys searching card drawers and books for references to astronomical events. Then there was the work on orbital mechanics.

Calculations on the production of tiny orbiting blocks, and calculations on geometries of particles with strange vectors acting on them. Neither components nor librarians understood what was behind their calculations.

Lemorel's work on Call vectors, historical drifts, and changes in Call paths continued to have a low priority, although she had improved rights of access on the Islamic Calculator. She was a Dragon Silver, and her research work produced verifiable data. That carried weight. As Tarrin was always saying, the Highliber did not have much in the way of idle conversation, but she took note of results.

A very strange decree was delivered by the System Herald one day when Glasken was about to finish a shift. Henceforth all regulators, managers, and guards were to wear masks over their eyes while working with the Calculator's components, and were to be known by codes and numbers. Lemorel was MAN AGER 37, he noted as a list was read out for the first and only time.

Vellum Drusas was careful to keep in contact with everyone that he had ever helped, yet he also subscribed to the old saying that fish and visitors grew stale after three days. A large number of librarians throughout the Alliance saw him only occasionally and briefly, yet held him in high regard. Lemorel was a prime example of Drusas' friends; indeed, he considered his decision to send her to Libris to be one of the wisest moves of his career.

"Lemorel Milderellen, author of nine papers on the Call, and soon to be Lemorel Milderellen, EdR in Observational Philosophy," Drusas said as they sat together on the balcony of the Dragon Silver refectory. "Just three years ago who would have known it?"

She folded her arms and sat back, still a little nervous at his overfamiliar mannerisms.

"I had thought you suspected some talent in me when we met in Rutherglen, Fras Vellum. Why else would you have recommended me for the Dragon Red tests?"

"Genius is a fine balance, Frelle. It is easily upset, yet if given a chance it can soar above the clouds. That's what I love about my work as Inspector. I may be on the heavy side and as slow as a river barge, yet I can give others a chance to fly. When do you present your thesis?"

"June 1700 GW. My father will be traveling from Rutherglen for my graduation."

Drusas laughed affably and snapped his fingers for another drink.

"I'm glad of, it does my heart good. With the exception of Dragon Yellow all your librarian ship ranks have been presented in a rather makeshift fashion. That's bad for tradition. Libris has changed so much and so quickly. Why, every one of my own re gradings was carried out with full ceremony: processions, oaths, dinners, robes, everything."

"Tradition must give way to need sometimes."

"Perhaps, perhaps," he conceded, arching his eyebrows and stroking the multiple folds beneath his chin. "But surely when need is great and the work is so hard, one should work hardest at preserving a little tradition and ceremony. Think back on the three most precious moments of your life, Frelle--now, right away!"

He gave her a moment to think, looking away at the petals cascading from an ornamental apple tree in the light breeze.

"Now, at least one of those moments was your Dragon Yellow ceremony, am I not right?"

"Yes Fras, but--"

"Yet you have received more promotions than that. You remember Dragon Yellow because of the ceremony."

"Where is this leading, Fras Vellum?"

"Nowhere in particular. I just want you to remember that Highliber Zarvora will not be here in a century, but Libris will certainly endure. Spare a little time for tradition, pay a little heed for the old ways. I have worked in Libris during the full glory of the old traditions and it was indeed glorious."

REGULATOR 45 nudged REGULATOR 317 as five Black Runners sauntered along the aisles of Dexter processor on a security inspection.

"I know THETA and EPSILON, but who are the others?" she whispered.
"PI and OMEGA are visitor tags," he whispered back. "And BLACK ALPHA?"

"The word on her is don't even ask. Very, very senior."

With her inspection over Zarvora dismissed the four Black Runners and made for the components' cells. Behind her mask, makeup, indigo lipstick, and with her hair tightly braided and beaded she hoped that she looked anonymous, but she felt as if she were stark naked. Opening a folder, she read the personnel evaluations one more time.

FUNCTION 5: too old; FUNCTION 26: seldom washes; FUNCTIONS 214, 646, 614, 620: notorious bores; FUNCTION 587: has pimples; FUNCTIONS 79, 450, 333, 390, 471, 569, 598, 606: have the pox; FUNCTION 247: works well when cornered like a rat in a trap; FUNCTION 9: dangerous security risk; FUNCTION 490: should not be allowed to breed; FUNCTION 34: lock up your silver; FUNCTION 92: apart from arithmetic, out of his depth in a puddle of spilt beer.

Zarvora had been hoping for better from the twenty best male FUNCTIONS in the Calculor. All struck her as unpleasant or unsuitable, not the sorts of men that she would willingly share a romantic coffee with while they discussed numerical methodology and optimization theory. FUNCTION 9 was actually dangerous. Why had he not been shot? she wondered. She selected his brief. His latest exploit had been to reconfigure the register wires to play "Happy Birthday" ten days earlier. Why was October 17th so familiar... ?

"My birthday!" Zarvora gasped.

So, FUNCTION 9 was dangerously clever, but perhaps not dangerous as such. She decided to assess him first. She adjusted her robes, checked what could be seen of her face in a small mirror, swallowed, squeezed her eyes shut, and took a deep breath.

"I command eleven thousand staff and provide services to fourteen million souls," she whispered. "Why is this such a problem?"

FUNCTION 9 and his cellmates looked up as a guard unlocked their door; then BLACK ALPHA appeared. She silently pointed to FUNCTION 9 and beckoned. He followed her to the isolation cells. REGULATORS often took components there for discreet dalliance, but ALPHA was carrying a personnel file, not a jar of wine and chocolates.

"Your pranks have been brought to my attention," ALPHA began in an unusually high voice. "They caused disruption."

"I apologize," ventured FUNCTION 9, bracing himself for the worst.

"The Highliber was furious--" Zarvora caught herself. "But was flattered at the birthday greeting."

FUNCTION 9 sighed with relief. "How did you do it?" "Too easily."

Zarvora swallowed and fought for patience.

"Why did you do something so, so blatantly.." blatant?"

"To get the Highliber's attention. To show her holes in her security procedures big enough to drive a wind train through."

By now Zarvora had almost forgotten why she was there.

"But--but you are a prisoner!"

"That's no reason not to protect the Calculator. It's a wonderful machine." Suddenly it dawned on Zarvora like the light of a magnesium flare: this man was at least as exceptional as Nikalan, but in a very different way. Definitely a good prospect--but now what?

"Your loyalty and diligence are impressive, FUNCTION 9. I--we want you to be working with us more directly."

"Uh, thank you."

"I have been studying your file. You are one of REGULATOR 42's five lovers."

"What--five?" he exclaimed, then sat back frowning and shaking his head.

His reaction gratified Zarvora. She had at least known something that he had not.

"On my word your security rating could be regraded to that of a MANAGER and you could be given a pool password. You could be punished, but I, ah, take a personal interest in you and, ah, should you be--that

is--attracted to me--that is, my proposal I could, ah, give you those powers and more. That is, of what you want."

FUNCTION 9 could neither follow the thread of her argument, nor deduce her real intentions. He thought he was being interrogated about breaking pass words.

"The pool password is 999POOL, the System Controller's is XX99XX, but the Highliber's is proving harder. Do you want to know how I found out?"

Something inside Zarvora shattered. He knew the passwords. He knew the Calculator better than she did. I have nothing to offer him, she thought. How mortifying.

"Uh, yes. Please prepare a report, mark it for BLACK ALPHA." She stood up, her movements jerky and uncoordinated. "I should go. Thank you. You saved me from public humiliation. I am grateful. More than grateful, you must understand.." or perhaps not."

Only now did FUNCTION 9 realize what was being played out between them. She was a master of security, but he had made her look like a rank amateur. Now she was being gracious enough to acknowledge it rather than having him shot and trying to cover up the evidence. She was also, possibly, trying to seduce him out of gratitude. Well, I've had a short but interesting life, he thought as he stood up and reached out to take BLACK ALPHA's hand.

"BLACK ALPHA, thank you for shielding me from the Highliber," he declared looking into the eyes behind the mask. "Your tolerance is almost as attractive as your figure."

He had intended to kiss her hand and hope for the best, but she surged forward and wrapped her arms around him before he could move, clinging to him more out of relief than lust.

"You are a dear, dear man," she said after a long time. "I have been watching you. You are infuriating but.." cute."

Four hours later Zarvora was in her office, lying on the couch with her hair brushed out and a wet cloth over her eyes. Her lackey knocked. "It's Vorion, Highliber." "Enter."

"Highliber, are you not well?" he asked as he caught sight of her.

"I have just had the most harrowing afternoon since my interview with the mayors for the Highliber appointment," she mumbled.

"Surely not the cataloguers again?" replied the lackey.

"No. There is a man I hold in high esteem. I thought he might despise me, but he treated me with great kindness."

"May the Deity bless him, Highliber."

"So I seduced him."

"You what?" exclaimed Vorion, who had never thought of her as anything other than as neuter and dangerous as a lightning bolt.

"I seduced him, Frax Vorion. What do you say to that?"

"Congratulations?"

"Fetch me a blanket, then wake me in fourteen hours. Why did you knock, anyway?"

"It's October twenty-seventh. Mayor Jefton is here about the Tandara situation's briefing."

"Tell the Mayor to roll his briefing up very tightly and--"

"Highliber!"

"Then tell him to prepare for war. Now go away and stop bothering me."

The Mayoral Advisers Council was led by Gamesmaster Fergen. In this role he was ever watchful of the Mayor's moods, and in this meeting the Mayor's mood worried him. For most of his short reign Mayor Jefton had been talking vaguely about wars to establish credibility of one sort or another for the Mayorate of Rochester, so it was no surprise to find that topic on the agenda again. Rather than being jaded and in need of excitement, however, the young Mayor was now nervous, hesitant, even frightened.

"What are our chances in a war with Tandara?" Jefton asked.

A lackey standing beside a large wall tapestry map of the southeast pointed to the powerful Tandaran capital with a white cue.

"Tandara borders on Rochester," Fergen replied. "Whatever you do is of interest to its mayor. If you were to, say, side with Deniliquin against the Emir of Cowra in the Finley border dispute, then Tandara's Mayor Calgain might allow you to rail certain war goods through his territory in return for an impost against Cowran sanctions on the Balranald par aline

The lackey dutifully indicated each of the principalities, cities, and par lines in turn. Mayor Jefton did not answer immediately, and his hands twitched as he sat gazing up at the map.

"I meant Rochester against Tandara," he finally admitted.

Fergen spluttered, loudly and involuntarily. The other advisers sat up as if they were puppets jerked on strings.

"Suicide--with respect, Mayor. Tandara has twenty times our land area and thirty times our population."

Jefton continued to gaze at the map. "Tandara controls all our major trade, par aline and beam flash routes. Rochester is charged for the privilege of running the Alliance for the benefit of Tandara and the other thirty may orates of the southeast. That is hardly fair or just."

Archbishop James interjected for the first time. "Christian may orate fighting Christian may orate is repugnant to the eyes of God without there being good reason," he warned.

"Tandara has the biggest army," said Overhand Guire, yet his tone was

not entirely dismissive. "Mayor Calgain is very unpopular. There are

factions within the Tandaran council that are sympathetic to us. If his army were to be defeated, well, he would be in serious trouble. His army is his power base."

The Gamesmaster quickly stood up, snatching the cue from the lackey. "Mayor, look there at the map. Deniliquin and Wangaratta are very powerful, but have a long border in common with the Southmoors. It is in continuous dispute, and takes up most of their regular forces. Offer them help and they will greet you with open arms. Ask for help and you'd get silence. Nathalia and Kyabram are very small and run by cowards. Propose an alliance and they'd denounce you to Tandara just as soon as it takes a lackey to run to the local beam flash tower. Shepparton has no kind feelings for Tandara and they want the annexed Kyneton province back, but the mayor there is no fool: he wants to side with a clear winner. If it comes to that, Deniliquin would like to see Tandara put in its place before Mayor Calgain raises par aline customs duties again and seizes more border castellanies. The only problem is that they'd rather not help with the fighting."

"Then the Overhand's analysis is sound? Tandara does have weaknesses?" "No, no, Mayor you're missing the point. Look, in a general sense, yes, the Overhand is right. If the Emir of Cowra allied himself with Mayor Gregory of Deniliquin and crushed Tandara there would be few capitals that did not have dancing in the streets. With respect, however, you are neither the Emir nor Mayor Gregory."

"Indirectly, I control about the same area as the Emir."

"Granted, but at least some of his states are united behind him, Mayor. Rochester is no more than an administrative convenience. It's a neutral area where the business of the Southeast Alliance can be run from without disruption from the Call. We have the biggest library system in the world, and our librarians provide a lot of useful services, but that's all. The may orates of the southeast pay Rochester to provide services. Try to go beyond that and they would replace you as easily as sneezing."

"Our librarians provided those galley trains to rush troops to the Talangatta fighting," said Overhand Guire.

Fergen put the cue down and folded his arms, openly sneering at the Over hand. "How many mayors would put troops on those galley trains for a war against Tandara?"

Mayor Jefton flung down the transcript of his Advisers Council meeting in front of Zarvora and stood back with his hands on his hips. She in turn gazed at him steadily until he looked away, turning his attention to the window. It did not take her long to scan the transcript.

"There is nothing new in here," she observed. "We have already discussed all this."

SOULS IN THE GREAT MACHINE

"The facts are the same, but the opinion is different. A war would destroy Rochester."

"A defeat would destroy Rochester, Mayor. A war--"

"A war with Tandara and a defeat are one and the same."

"Tandara gives us an opportunity to assert our strength. We cannot bother with a lot of petty squabbles between little states. Defeat Tandara in the name of prosperity and stability, and the whole of the Alliance would rally behind you."

"No! Highliber, you have served the may orate well, but this is too much. Rochester would be crushed. Mayor Calgain would make this land a Tandar province and rule the Alliance."

"I could defeat Calgain with my Tiger Dragons alone."

"No! Not another word. Say anything more and I shall consider it a challenge."

Zarvora straightened in her seat, then slowly put both hands on the desk. The reciprocating clock behind her clacked seven times. Jefton stood trembling, his eyes staring wildly at the rows of mechanical animals that spoke for the Calculor. He was clearly terrified, yet he held firm. Zarvora nodded slowly to herself, surprised at his bravery.

"Mayor Jefton, you have no choice."

Jefton turned to face her, then held his gaze against hers. To him it had become a choice between fighting the Highliber and losing his may orate

"I accept your challenge," he said, his words forced, almost a wheeze.

"Will you be representing yourself or naming a champion?" Zarvora asked in a neutral tone.

Humiliation stung Jefton like the slash of a whip.

"The mayoral champion will do what he is paid to do," he said, feeling as if disembodied hands were squeezing his throat.

Like Libris, the mayoral palace had its own dueling chambers. Bluestone paving extended a hundred yards to either side of a thin white inlay of marble. To either side of the central line was an armored gallery equipped with plate-glass mirrors for the judges. Lackeys polished the mirrors while the judges positioned them selves and checked the field of view.

Stevel Coz limbered up beside the guurack as the moderator looked on. As the Mayor's champion, and the challenged party, he had the right of choice of weapons and he intended to weight that choice to the fullest advantage. The rows of dueling pistols gleamed in the light filtering between the grooved marble arches that framed the strip of level bluestone. Across the chambers, beside the other judges' gallery,

Zarvora and Vardel Griss stood waiting.

Zarvora had chosen the head of the Tiger dragons to be her second as much for her loyalty as her rank. Griss was not an exceptionally tall

woman, but was lean, severe, and sharply groomed. Her hair had been bowl-cut that morning, she was wearing her nine medals, and she smelled faintly of scrubbing soap. Years ago a musket ball had passed between her lips, smashed two teeth, and passed out through her right cheek. Zarvora noted that she had buffed up the ragged scar to make it stand out all the more. Without speaking, she spoke for the Highliber: This is my second, so be all the more fearful.

Somewhere out of sight a razzlehom fanfare blared, and heavy doors boomed open.

"His Eminent Supremacy, the Mayor!" called a herald, and the mayoral party entered to the strains of a band playing the Rochestrian anthem.

"Technical breach of protocol, it should be his personal anthem," whispered Griss. "You're challenging the Mayor, not the state. I'll note it down."

The judges assembled at the center line with the moderator. Archbishop James and Overhand Guire stood on one side, Gamesmaster Fergen and the City Marshal on the other. The moderator was the Chief Magistrate himself.

Zarvora and Coz stayed on their respective sides of the chamber as their seconds walked forward to the Chief Magistrate.

"I am obliged to beseech you in the name of God, the people of Rochester, and my own office of Chief Magistrate to consider further arbitration. I place my services at your disposal, here and now."

Jefton, standing beside his champion's second, barked "Never!" then coughed immediately. Griss replied, "Thank you, but no."

"As the challenged party's champion, Stevel Coz may choose the weapons," the moderator ritually informed Coz's second. A pair of matchlocks was selected from the gun rack and presented to the moderator on a tray. "Choose one pistol for the challenger," Griss was instructed. She inspected both weapons and chose one. "Return to your stations."

"Dussendal short-barrel matchlock," Griss whispered urgently as she reached Zarvora. "Heavy, big grip, rifled bore but no sights. You aim it by the weight and feel of the weapon."

If you were experienced with it, Griss neglected to say. Zarvora had small hands, and was known to favour medium-weight guns. Griss loaded the gun and lit the fuse, then handed it to Zarvora. The moderator called them to the center line as two handlers wheeled in a target pinned to a hay bale frame.

"Stevel Coz, fire at the target and may mercy guide your hand."

Coz raised the Dussendal above his shoulder, then swept it down and fired in a single movement. Booming echoes reverberated as the smoke cleared to reveal a dark hole precisely midway at the top of the outer ring. "Bad form," whispered Griss to herself. Coz was making a show of giving the Highliber every possible chance to fight.

"Zarvora Cybeline, unless you can better that shot you must forfeit the

duel and consider yourself the loser. Proceed."

Zarvora knelt, steadied the gun with both hands, closed each eye in turn, and squeezed the trigger. Her shot showed dark on the middle circle. The moderator conferred with the judges for a moment.

"I declare this duel legal by the laws of this may orate and the powers in vested in me," he announced. "Judges, proceed to your posts. Chamber marshals, clear the dueling range. Seconds, load the weapons again and stand clear."

Griss handed the reloaded gun to Zarvora, whispering, "Call short, turn fast, but shoot with both hands on the gun."

Zarvora hefted the Dussendal clumsily and the Coz had to pause in his breathing exercises to suppress a smile. She did not like the weight, and there was no sight. Unless she chose to save face by calling a distance beyond the range of the matchlocks she would be killed. A call of ninety paces would save face. Twenty paces meant she wanted a fight, but would be at a disadvantage because of his experience. Below twenty would be dangerous to them both, with the speed of the turn deciding the duel. Zarvora was fast, but the gun was heavy and would over swing in inexperienced hands.

Zarvora stood back to back with the Mayor's champion, the thin line of marble between their heels. The moderator wound his metronome.

"Attend me. At each strike of the metronome you will take one pace. The number of paces is to be decided by the challenging party, Highliber Cybeline, and at her word the count will begin. You will call a number at my words "Call the distance." Is that clear to both parties?"

"Yes," they replied in turn, their voices sounding a cadence that echoed like the "amen" of a hymn in the chambers.

"Ready Highliber Cybeline, call the distance!"

"One!" snapped Zarvora.

Coz hesitated with surprise as the moderator's metronome clacked out for the first time. Zarvora stepped a fraction earlier than Coz but precisely on the count. As her foot touched the ground she swiveled her body and slapped the barrel of the Dussendal into her free hand to steady it, firing as Coz was completing his famous sweep-turn. Zarvora's shot caught him high in the rib cage as he pulled the trigger. The ball from his gun tore a short furrow through her collar, but he was already dead as he hit the ground at her feet.

The moderator strode forward, calling for a medic ian and the seconds. Griss brushed at Zarvora's collar, where smoldering wadding from Coz's shot had lodged. The Mayor's champion was pronounced dead. The moderator collected the guns, gathered the judges together, and led them to his chambers beyond the white arches.

"Wonderful, masterful, that was superb," Griss babbled, shaking with relief as if she had been in the duel. "I know I advised you to call short, but only a single pace!"

Zarvora closed her eyes as Coz's body was lifted onto a stretcher.

"Such a waste, Frelle Vardel. Still, I am alive."

"And the winner, Frelle. You beat the Mayor's champion, you rule Rochester now. '

"Rule Rochester? No, there will be more fighting before that. Fortunately I

have a champion who owes me several duels."

"A champion, Frelle Highliber? You need a champion?"

"A champion, Frelle Tiger Dragon, a deadly champion."

The razzle horn announced the return of the moderator and judges. They walked with visible tension, strain showing in their faces. Jefton appeared between two arches, face white, and flanked by five of his personal bodyguard.

"As moderator in the duel between Mayor Jefton III of Rochester and High liber Zarvora Cybeline, I hereby declare the judges tied on a foul. Two of the judges maintained that because the moderator had instructed the Highliber to call the number of paces, she was obliged to call more than a single pace."

A foul declared by a majority of judges would have had Zarvora executed for murder that very afternoon. Instead the vote was evenly split, and would have to be referred to the next meeting of the mayors of the Southeast Alliance in-eleven months. They would decide if any of the judges had been unfit to preside at the duel. If all were declared fit and proper judges, then the mayors would declare a winner on the basis of further deliberations.

"Highliber Cybeline, you are to surrender yourself into the custody of the

Marshal of Rochester. Have you anything to say?"

"I hereby petition for an immediate meeting of the mayors of the Southeast Alliance," she said briskly.

"Only the Mayor can answer such a petition," replied the moderator, turning to Jefton.

"Denied," Jefton called confidently. "An extraordinary meeting of the mayors can only be called in times of great danger to the may orate This is no such time." '

"Who shall act as Highliber?" Griss whispered urgently.

"Who indeed?" answered Zarvora. "But tell Fras Tarrin TURING1 7ADA He will understand."

Zarvora was led away by the Constable's Runners and Griss hurried to Libris with the news. A meeting of the Dragon Gold Librarians was called for that evening to decide who should act as Dragon Black while Zarvora was in custody. Sternley, the Head of Reference, was chosen for his seniority, according to tradition. Tarrin was left in charge of the Calculator.

With Zarvora gone the pace suddenly changed dramatically for those working in and with the Calculator. There were no new schedule tables for the week to come, so work was suspended until the appropriate Dragon Librarians drew them up.

When they were assigned, a sizable number of staff found themselves with nothing to do. Some did nothing. Lemorel asked Tarrin for control of the Islamic Calculator and set it to work on her thesis. Months of her planned work suddenly evaporated, but the educators at the University were not to know. Another request to Tarrin for runners and lackeys to do reference work was welcomed with open arms--literally. The support staff at Libris had been suddenly starved of work with the Calculator taking so long to set up. A request for scribes to write up the results as they were processed also met with instant approval. Lemorel began to think in terms of submitting her thesis by the middle of January and writing "EdR" after her name by March.

The unaccustomed surfeit of leisure time confused the other middle-rank librarians. Some were reduced to working two hours or less per day, and spent their time reading books, chatting in taverns, or even programming the Calculator to play other games besides champions. The Black Runners recorded an extraordinary increase in amorous affairs among librarians, especially at levels Red, Green, and Blue, yet the acting Dragon Black was too busy to read their reports.

Lemorel experimented with the Islamic Calculator, pioneering methods to allow a single processor to check its own results by introducing calibrated process checks tied to checksum verifications. The Highliber would have been interested, but the Highliber was allowed no visits from the Dragon Librarians of Libris. Growing bolder, the bored Dragon Silver experimentally seized control of the beam flash node at Griffith one afternoon and changed some minor routing tables. Nobody noticed. She spent whole nights playing champions against the main Calculator itself when assigned to oversee the night shift. Somewhere within it was Nikalan, she knew that from the rosters, and the same rosters revealed that Glasken was currently asleep. She took great satisfaction from the knowledge that he slept alone.

Outside Libris the effects of the Calculator's subtle failures were dramatic and alarming. First the beam flash decoding became scrambled. Felons were set free at random by mayoral order and wind trains were scheduled at one-minute intervals investigations revealed that sections of beam flash traffic were being decoded into random characters. Hand-coding and decoding would take an order of magnitude longer, and the traffic volume had grown enormously owing to the capacity of the Calculator for encoding and decoding.

Within twenty-four hours Rochester was all but cut off from the rest of the southeast. Much of the life of the city was also guided by the wires and beads of the Calculator. The Constable could no longer check records of the felons in his custody and the jails soon filled with prisoners that the Calculator then set free at random. Tax records were found to be missing. The Calculator knew where they were, but to allow a human down that trail would take weeks of decoding and audits. Diplomatic messages were no longer being decoded, so that Jefton no

longer knew what was being said in his own court. Freebooters from the Heathcote Abandon raided a customs post, and there were other troop movements on his borders that he did not understand.

Thirty dray loads of sheep manure were delivered to the palace kitchen, while a herd of pigs was turned loose to ravage the palace gardens. The palace provisions for a week were delivered to the city stables, and Jefton had to send lackeys to a nearby tavern to buy his dinner. Jefton signed an appointment for the new Minister of Finance only to be told a day later that Atholart, his appointment, was a prizewinning stud goat. The news that the appointment had been officially commended by the Council of Envoys did little to comfort Jefton. He decided to visit Zarvora in her cell.

"Rochester is plunging into chaos," ranted Jefton, infuriated. "How are you doing it?"

"Rochester can no longer function without the Calculator, Mayor, and the tenance. Calcul r'But' 'requireSRochestermaintenanCe'will be mined. "I designed it so that only I can perform that main "Mayor, I have been walking a long and difficult tightrope for some time. I

am weary of idiots like you jiggling the ends for their amusement. ", idiots I Did you say--"

"Idiots, yes."

"I could--"

"Do what you like, but you will do it without the Calculator."

Jefton ordered the Libris staff to restore the Calculator to full functionality. It took six hours for the Dragon Gold Consentium to explain to him why this was impossible without the Highliber's cooperation, and even then he was not sure that he understood. A group of edutors from the University was called in to inspect the Calculator, but after getting over the shock of the machine itself they declared that it could not possibly work. This enraged the desperate young mayor even more. When Tarrin declared that the edutors could not be allowed to go free now that they had seen the Calculator, Jefton was not inclined to dispute his decision. The edutors were added to the Calculator's trainee intake.

Jefton was finally forced into action when Mayor Calgain of Tandara annexed the Hunter Triangle. This was a tiny slab of land at the south of Rochester, and Calgain declared that freebooters were using it as a base to raid his territory. It contained a registered customs post for a Tandaran par aline however, so this would no longer bring in revenue for Rochester. The breakdown of the service functions of the Calculator had by now caused sufficient chaos to justify calling an extraordinary

meeting of the Alliance's mayors. Even the mayors themselves wanted the services restored, but like all such high-level meetings it took time to convene.

A month after the Highliber's arrest Lemorel decided that Libris was sure to collapse back to half its current staff, and that those who had been promoted on the basis of mathematical skills alone might soon be looking for other work. Getting work as a magistrate's champion seemed a good option, and she decided to polish up her target try skills in the Libris dueling chambers. The gun-lackeys were well trained and brisk, loading and cleaning the guns with efficiency, resetting the targets quickly, and carefully recording the scores. In spite of the echoing blasts and reek of sulphur, the atmosphere was one of calm concentration.

One morning Lemorel arrived early and was surprised to find the Dragon Red Dolorian standing with a 20-bore matchlock. She glanced uneasily at Lemorel, who nodded affably and settled down to watch. When it was quite clear that she was not only to have an audience but one that outranked her, Dolorian turned to the target bale, standing square-on and squinting down the sights of her pistol with one eye. She pulled the trigger, then teetered back a few steps on her tower heels as the gun went off. The shot did not even strike the hay bale behind the target. A lackey emerged from his shelter, shaking his head and pointing to a fresh hole in the paneling behind the bale. The Dragon Red's eyes flickered to Lemorel again as she called for another gun. Brave enough to risk humiliation, concluded Lemorel approvingly.

Dolorian was a career librarian of the old school, and was still a Dragon Red in spite of being over thirty. Her mathematics was weak, but she had a chance to achieve Dragon Green rank if she showed up well over the full range of subjects. Targetry was one of them. Her figure was sinuous yet very well curved, and she dressed to show it to full effect. While she wears weapons as jewelry she will remain a Dragon Red, Lemorel decided as she watched. Again Dolorian aimed, fired, and staggered back. Lemorel dived for the floor with her hands over her head as the ricochet whined above her. The gun-lackey emerged from his shelter and pointed to a groove in a marble archway some yards from the target.

"Frelle Dolorian, that was atrocious," said Lemorel as she stood up and dusted her uniform. Dolorian gave her a cornered, desperate stare, then looked down at the flagstones. "Please take your boots off," Lemorel ordered.

One did not disobey a Dragon Silver. Dolorian started for a moment; then, with a self-conscious grin, she sat down on a bench. Her boots reached all the way up to her tunic, and her tunic of the day was very short. With seeming concentration she began to unlace the boots. Her legs were gleaming white and bare beneath them. Lemorel looked down at her feet, then kicked off her own shoes.

"Our feet are about the same size, Frelle Dolorian. Put these on. Lackey!

Reload the Frelle's gun--no, bring her a twenty-five-bore, with flintlock action."

The lackey jumped as if he had been whipped.

"Frelle Milderellen, my wrists are too thin for the recoil from such a big bore." ' "

Lemorel held out her own wrist. There was very little difference.

"Six weeks of pushups and floor-bars and you won't know yourself, Frelle. Firstly, stand side-on, feet apart by a shoulder's width and a half. Bend the back knee for balance against the recoil. Your grip should be with two hands, while you get confidence. Squeeze the trigger: jerking it is the commonest mistake in beginners."

The lackey brought a loaded pistol. Lemorel held Dolorian's hands and guided them down to a firing position. Her hands were warm and soft, while her breasts were as firm as rammed-cotton cushions. It was little wonder that she had an entourage of admirers.

"Now, do it by yourself, and shoot this time."

"But what about aiming?"

"The Dragon Green test is dueler's freeform, not target shooting. You must hit through reflex, not squinting down the sights. There's no time for that sort of thing in a real duel. And keep your eyes open. You always close them when you shoot."

Dolorian swept the gun down and fired. Through either genuine skill or chance the shot knicked the boundary between the inner circle and the bull. Her big green eyes bulged unblinking as she stared at the neat hole in the target through the dispersing powder smoke. It was her first shot to hit the target that morning. The lackey called "Bravo!" and clapped.

"That suggests that my advice has some value," said Lemorel, turning back to her pupil.

Standing with her legs bare and wearing flat, scuffed dueling slippers, Do lori an still seemed to have grown visibly in stature as she called for another gun.

This time she hit the median circle.

"I expected you to at least hit the target bale, but this is even more promising," said Lemorel as the smoke cleared. "You have to practice a lot more.

Fifty shots per day at least."

"But my hearing--"

"Wear wax plugs, as I do." The flagstones were cold beneath her feet, and she stepped back onto a mat. "Lackey, another gun."

Dolorian never bettered her first shot that morning, but she at least hit the bale or target paper every time. After seventy shots Lemoirel called an end to the lesson.

"But Frelle, did you not come here to practice?"

"Ah yes," said Lemorel, drawing her twin-barrel and firing one side. The shot hit the bull slightly high. "Yes, I need a little practice, but not today. Could I have my shoes back?"

They went out into the city together, to the markets at North Junction. Lemorel supervised while Dolorian bought two pairs of low-heeled goat-leather ankle boots and a pair of cloth dueling slippers. The selection of a proper pistol took somewhat longer. Dolorian traded her 18-bore ornamental matchlock for a 32-bore target flintlock. Lemorel insisted that 34-bore was the ideal caliber for her and that she would regret the choice as her wrists became stronger.

"A heavier gun means more weight to take the recoil," she explained as they went through a gate to the green between the wall of inner Rochester and the lake. An open-air tavern was serving boating parties from the lake, and the day was bright, cool, and windless. They sat at a table, watching the light pedal trains rattle across the trestles and into the inner city. Dolorian took the new gun out of her woven shoulder bag and turned it over doubtfully.

"This looks.." bulky and gross, if you'll pardon my saying so. To me it says "This person cares only about function and nothing about style."

"On the contrary, Frelle Dolorian, to me it says that the wearer knows guns, and is someone to reckon with. Polish the metalwork. Oil the wood, rub in scent if you like, and have hot poker tracery burned into it. That will all personalize the gun, but the style is already there."

Dolorian considered this, then decided that her new instructor was right. While she strapped the holster on and adjusted the straps Lemorel leafed through a book that had spilled from Dolorian's bag, The Highliber's Courtesan. She read the last few pages.

As history it was mostly fabrication. Highliber Charlton had been 106 years old and suffering from dotard's sickness when he died in his sleep. The book had him being stabbed by a beautiful Dragon White wielding a poisoned hairpin in mid coitus. The only points in common with the truth were his name and title, and the fact that he died in bed.

"It's a tasty little story," said Dolorian, by way of explanation rather than apology.

"I'm told that Charlton was a mousy classics scholar whose idea of a wild time was a midnight sherry party with the Dragon Golds. Do you read many of these, ah, romances?"

"Oh yes. There's nothing better than a mug of Northmoor coffee, an easy book, and a bed piled deep with cushions after a bad day in Libris--except for a man of talent in the bed, of course."

"You should have any number of offers, what with working in the Calculor as a regulator." "That I do, but I pick and choose very

carefully, Frelle. Once every so often I treat myself to a demi jar of frost wine and I treat myself to men in much the same way. The act of love should not be a chore, and I go to some pains to make it special each time."

"You have no one lover?"

"I swore not to have one special lover until I reached Dragon Green in rank.

With my looks and figure, Frelle, it's hard to get men to take me seriously. Were I a Dragon Green, men would be forced to admit that there was more to me than bottom, breasts, long hair, and a pretty face."

Lemorel pondered this while Dolorian strode about awkwardly in the low heeled boots and struck poses to show off her new flintlock. A shunting engine rumbled across the trestles and the navvys whistled to a boatload of girls. A serving man brought two mugs of coffee.

"Have you come across the comporicnt John Glasken?" Lemorel asked. "I only know them by their numbers, Frelle." "3084, and he's currently

MULTIPLIER."

"The one who has an embargo on him against dalliance?"

"That's him. What do you think?"

"He presents well, and plays the lutina passably. He's due for an upgrade to FUNCTION in two months. His body is impressive, but I've found that impressive bodies are too often guided by unimpressive brains."

"He has a degree in chemistric."

"Has he? Well, if the embargo comes off I shall keep him in mind."

Lemorel considered her words.

"One night long ago, Frelle Dolorian, I found myself in mortal danger. While

I was fighting for my life I learned that my supposedly faithful lover had a tavern wench bent over a table with her skirts around her ears."

"MULTIPLIER 3084?"

Lemorel nodded.

"Tasteless ... but rampantly lustful," said Dolorian, pouting. "As long as you know what to expect--"

"Ah, but I did not expect it. Glasken had played the virtuous and faithful romantic to me. I had him sent to the Calclor, and now I make sure that he draws his weapon for nothing more than passing water. Three months. It's probably the longest he's been without access to the nest of paradise since he learned the facts of life."

"But Frelle, all manner of men would do the same. I've been betrayed too,

but with more discretion."

"Glasken knows no guilt, that's his difference. I want him punished, but before she was imprisoned the Highliber was considering a limited release for him. He knows chemistric, and she needs graduates of that science to help develop a new type of beam flash flare. All the

magnesium in the known world comes from a single pre-Greatwinter warehouse in a Central Confederation abandon. The price is going up as stocks run low, yet beam flash traffic at night is increasing. I don't want Glasken free."

Dolorian squeezed her hand.

"How old are you, Frelle Lemorel?"

"Nearly twenty-two."

"Nine years my junior. Let the years pass and you will learn not to bite so hard."

"My friends call me Lem. I do have friends, believe it or not."

"Mine call me Loft, and I have fewer good friends than you'd think. Was 3084 your only betrayal?"

"In a manner of speaking. In my very distant past... I had a lover and it was I who did the betraying. Perhaps Glasken was the payback that fate owed to me. On the other hand, perhaps I was the payback that fate owed him in turn. He sampled women like warm, succulent pies: now he gets bread and water."

"So you too have been a betrayer, Lem. I can't imagine you doing anything beyond the rules."

"I've learned my lesson. A roll in the hay with the village stud is not a good reason to betray yourself or anyone else. For me it was calamitous."

"One infidelity? A few tears and sharp words are nothing."

"I've never talked about this.." but it hardly seems to matter these days, so why not? I had a lover in Rutherglen. Nothing was consummated, then one night

I let myself be seduced by somebody else. It was all so stupid."

"If nobody was hurt then why worry?"

"Somebody was hurt, Lori, believe me. Brunthorp, my seducer, had another girl, yet he could not abide the fact that a weedy little sod like my lover Semidor began bedding the girl that he had deflowered. He courted me again, urging me to leave Semidor. I refused. He told Semidor about what I had done with him. That very evening Semidor killed himself.

"It was an evil, hideous night. Before he learned that Semidor was dead Brunthorp came over and told me that he'd told my poet-lover who had taken my virginity--and under what circumstances. I ran to Semidor's parents' house at once, but found him dead. There was an inquiry, but Brunthorp was exonerated. That was not good enough for me. What would you have done, Frelle Loft?"

Dolorian was sitting and listening very quietly, knees together and hands clasped, hunched over a little as if pressed down by the weight of the story.

"Nobody has ever killed themselves over me. Once I discovered that a lover was playing me doubles and I poured rancid fish oil along the length of his bed on the evening that he had hoped to share it with another. That was when I was younger and less resigned to the ways of the heart. What was your revenge?"

"I killed a great number of people."

"Lemorel!"

"It shocks you?"

"It does indeed. Why bother? Was justice achieved? Was the world a better place for it?"

"Three questions.." to which I say I don't know, yes, and no. Will you hear the full story?"

"If you wish to tell it. This is like some lurid novel come to life."

"After Brunthorp was exonerated I registered a challenge with the magistrate. Brunthorp and I were called to the dueling chambers for a formal hearing. His father was a friend of the Mayor, and the decision went against me. I challenged the decision. The magistrate's champion entered, and I was shown the weapons of settlement. Still I did not withdraw. The champion selected a gun and aimed at a target. He hit it two points below the eye at forty paces. I took a gun and aimed--there would be no case if I could not better him--but I hit the bull squarely.

"Both the champion and Brunthorp were badly shaken. During my childhood my father let me test the guns whose mechanisms he had repaired as contract work for gunsmiths. I became a very good shot, I probably have a natural talent. I stood back to back with the champion, he called, oh, thirty paces. We walked, turned, and fired. I hit him squarely in the center of the chest. His ball raked my side and broke a rib. With blood trickling down my side and half crazed with pain, I challenged Brunthorp.

"It was like the night that he took my virginity. Pain, guilt, and blood on my skin. Perhaps the memory of it made me spurn the formal apology that Brunthorp delivered on his knees. I wanted to kill him, and I'd earned the right to a judgment duel. He was white with fear. In spite of his hale and manly image and the pistol that he wore in public, he was not a good shot. He called fifty paces, perhaps hoping that we would both miss. I did not miss. I hit him just above the right eye, and his head burst like the melons that I had been practicing with. I dropped to my knees and threw up. When I stood again I was dizzy from loss of blood.

"When we emerged from the dueling chambers the magistrate was bound to silence by law, but not me. I let people know why I had challenged, and how Brunthorp had pleaded for his life. By law I was the victor in a trial by combat, yet I was marked from then on. I was dangerous, I was a killer. The horrible thing is that I had not loved Semidor so very much. Oh, he was a sweet little sod, but he was also rigid, opinionated, and a terrible poet. If he'd showed any sort of initiative over the previous year he could have had what Brunthorp had appropriated. Instead, I dragged him closer to me, so close that he would be terribly hurt when Brunthorp exposed our sordid little romp. Perhaps Semidor would not have fallen so hopelessly in love with me had I not introduced him to the pleasure and closeness of sex, but who is to know?"

Dolorian shivered. The air was cold, and sitting very still while Lemorel talked was chilling her as surely as the tale itself. Lemorel took a sip of coffee and scratched at a heart carved in the tabletop.

"I wonder why I'm telling you this, Frelle Dolorian. I came to Libris to escape from that past, to make myself over. Now I'm telling a stranger who might gossip it all over Libris."

"You need an artisan of the heart. As you know guns, I know passions." "So what is your advice?"

"First, could you tell me what happened after the duel?"

"More deaths. Brunthorp's family were newly rich merchant nothings and were relieved that I didn't pursue them for damages. Not so his girl. She was an estatant's daughter, and she sent her brothers out on an illegal vendetta. My brother died by a bullet meant for me. I was granted a legal vendetta from the magistrate, and I went to the estate and killed four guards, the three brothers, and the girl herself. Her parents petitioned the magistrate for peace and gave half of their estate to the may orate in fines.

"Once more I had won, but at a terrible price. People shunned me henceforth. While other girls had their sweethearts, the boys--justifiably, I suppose--feared me. I had to leave Rutherglen, and the library system was my path. Now here I am, in Libris. The present magistrate's champion in Rutherglen is technically my deputy and I still have an executioner's practice, would you believe that?" Dolorian sat shivering and rubbing her arms. "What do you think of me now, Frelle Dolorian?"

"Lem, what can I say? You're hopeless. Listening to you is like watching me trying to shoot. People... people in my life have never taken dalliances as seriously as that. I'm truly sorry for you."

Lemorel smiled ruefully, then gave a soft, breathy laugh, the laugh of an exhausted soul.

"Glasken is getting off lightly compared to other men in my past." "We need to find you a wonderful lover." "Oh but I have met someone wonderful."

"Oh-ho, now the full truth comes out. Who is he, what does he do?" "He's a guest of the Mayor of Rochester, and he's doing life." "Oh Lem! You can't go on like this." "Then what should I do?"

"Keep company with me, learn to take men and the games that we play with them less seriously. Agreed?"

"Done--but look at the sun. It's time I was back in Libris. Now, what do we owe--no, put away your purse, rank pays today."

After Dolorian had left, Lemorel sat thinking for a while. Her friendships with women were so civilized, while her dealings with men turned into such disasters. Down near the shore of the lake a troupe

of itinerant players was rehearsing a street burlesque. Acting! That was it. With men she tended to play a role, with women she was Lemorel. Was acting to blame? Was she at fault for trying to be what she was not?

She took a breath, tried to whisper her thoughts but found she could not. She resolved not to breathe out until she had spoken.

"I'm proud of what I am."

The admission did not sound as foolish as she had feared, and came as a great relief. Many people liked her for what she was, and if others did not, it was their loss. The serving men had begun packing the tables and benches onto a cart as she paid for the coffee.

The walk back to Libris took Lemorel through a city very different from the one it was before the Highliber's arrest. The riot shutters were up on most buildings, and the street stalls that were still open were guarded by varying numbers of armed men. The Constable's Runners were in disarray, and were more interested in protecting their own homes from the increasing chaos than obeying the orders of a mayor who was clearly demented. They were good times for the preachers of doomsday, however, and religious orators of every kind were attracting anxious crowds and fueling their worst fears. Lemorel noted that the message of every orator she passed was the same: Rochester was a null zone, it was never swept by the Call. It was an evil place where the hand of heaven never culled the guilty.

Religious opinions differed about Rochester. The smaller fundamentalist groups wanted the entire area abandoned, but established faiths all had churches, temples, and shrines in the null zone. The inhabitants of the may orate needed. ministering to, after all, and senior church officials vied with each other for the right to suffer the torment of Rochester's pleasures. The library system had no need for such justifications. Having no Calls to interrupt work meant that the part of the beam flash network controlled by Libris handled more traffic and coding than even Griffith. Rochester did Call tracking and forecasting for the whole of the beam flash network now, even for areas where predicting the Call was seen as thwarting the will of God.

The guards saluted as Lemorel entered Libris, but behind the facade of security and order the situation was, in a subtle way, worse than outside. The systems that Zarvora had designed were falling apart. Tarrin was working frantically to keep the Calculor services going, but he was at best only a diligent administrator and was not equal to the task. Walking out onto the observation gallery Lemorel gazed down at Nikalan as he sat at his FUNCTION desk. She still felt guilty about him. He had been such an admirable person before his breakdown. Still, she was done with acting so there was no point pretending to be someone else to make up for what she had done to him. Lemorel thought of exercises that she had run against the Calculor using her own brain

and nothing more. She was good, but she could never compare to Nikalan--or Mikki. How could she win his admiration, and perhaps his love, as she was? By being clever in her own way, perhaps? By making the Calculator far more than the Highliber intended it to be? It was an interesting thought.

She sought Tarrin and told him that she had some ideas about restoring the Calculator to a more reliable state. He gave her the master password with something akin to relief. Now she sat in the Highliber's study without fear of arrest, playing at the keys of the silent harpsichord and reading the messages of the gearwheels and mechanical animals. Zarvora's lackey hovered about constantly. He had meals brought to Lemorel, had a bunk moved into the study, and cleaned the place only when she took her daily break to meet Dolorian in the shooting gallery. It was yet another revelation for Lemorel: elite people had elite servants.

Getting the Calculator functioning for specific tasks was not as hard as she had feared, and after a few days she had it restored for reasonably efficient standalone operation. Its relationship with the external world was the real problem. Lemorel decided to begin by going over the records of her illicit session on the Calculator. The bank-tally reference archives were held in Libris. They contained encoding checks, simple checksum digits which were meant to guard against errors, rather than tampering. Lemorel accessed the account that she had created in September with seven hundred gold royals. The seven hundred gold royals were still there.

Those seven hundred royals did not exist, of course. She had not altered the grand tally register to increase it by seven hundred, but that would never be checked unless someone tried to draw on the account. The owner of the account was dead, however, but it could not be reclaimed into the Mayor's Consolidated Revenue for another seven years, because he had been a foreigner. Some accountant would then throw up his hands in horror, but the trail would be cold. To guard against even that danger she would have had to alter the grand tally itself, and that was not an option. It was held in too many reports and documents, and too many accountants had the monthly grand tallies for the past ten years committed to memory. Lemorel had certainly remembered that tally for that month with no trouble. She tried to access the tally to check her memory, but accidentally set the Calculator adding the individual account registers to arrive at the figure. When it arrived it was seven hundred royals short!

She sat up straight in surprise, popping the joints in her spine. The message on the wheels of the output register was clear, but not possible. She remembered particularly that the last three digits should have been 777, the incorrect figure. Now they were 077, matching the real tally. Seven hundred gold royals sponged from somewhere. The actual amount was too much of a coincidence for it to be theft by some Dragon Librarian.

The grand tally did not have a checksum digit because it was known to

the public and verifiable. All the individual tallies did. A few strokes on the keys set the Calculator verifying checksums against tally amounts. The task estimate came in at three hours, not because of the processing involved, but due to the bottleneck of lackeys having to copy figures from tally cards.

Now she turned to the thornier problem of restoring the Calculator's contact with the outside world. The mail register was full of communications data and coded requests that Tarrin could not translate into instructions for the Calculator. Lemorel read through the index, hoping to pick out patterns that might group the requests into like types. The patterns were certainly there, although unraveling them would be no easy task. She stopped abruptly at the name of Deputy Overliber Darien vis Barbessa. Her message was a dozen pages long, and had come over the beam flash with a high-security code. Darien's letters to Lemorel had been bland and friendly, and emphasized that she was working very hard in a particularly boring rail side. Twelve pages of expensive beam flash time seemed unlikely if the far west was really as quiet as Darien made out. Lemorel typed ACCESS and waited for the file runner to arrive.

The file arrived in a sealed red folder, and Lemorel signed for it. Tarrin had given her a free hand, so why not? Maralinga Railside was a familiar name, but the account quickly expanded to Alspring, Glenellen, the Ghans, and the alarmingly strange Abbess Theresla. There was a man who could defy the Call by wearing a suit of living vines--a suit which he turned out not to need at all. Then came the description of the source of the Call. Had Darien lost her mind?

"This is too fanciful for words," Lemorel told a mechanical owl.

The last page revealed that a copy had been sent to Abbess Theresla. It was as much a report to the Abbess as to the Highliber. If true, it was beyond the wildest imaginings of the greatest philosophers in history.

There were other notes in the file. Zarvora had been doing research using .. the vast resources of Libris. There was the transcript of a sixth-century chronicler's account of a crude experiment with the Kooree nomads. A warrior philosopher from the cave stronghold at Naracoorte had led several dozen lancers to raid a Kooree tribe, and after a sharp, intense battle five of the nomads were taken prisoner. They were held in the Gambier Abandon, where tests with tripwires and tethers were done during seven Calls. There was no question of it, the Kooree were able to make themselves collapse as the Call passed over them.

Attempts were made to learn the Koorees' secret, and these attempts escalated into torture. The warrior philosopher sent a detailed letter back to his mayor, reporting that although some of the Kooree were trying to cooperate, their explanations involved concepts that were too alien to grasp. Nothing more was heard from him. When a squad of lancers arrived at the abandon later they found evidence of an attack by a larger group of Koorees, but no graves or bodies. There were, however, the smashed remains of sixty-two anchor timers.

A brutal and ruthless way to confirm a legend, thought Lemorel as the out put bell rang, and the hens pecked data into their paper tape. She tore off the tape and held it to the lemon glow of the oil lamp. Seven hundred gold royals had been debited from the bank tally of Archbishop James of Numurkah, but the checksum digit did not match. That was the only anomaly in the whole scan, but the recalculated grand tally was still seven hundred royals short of the original total. The credit on Lemorel's bogus account and the debit from the archbishop's account should have canceled to give the correct total. Someone had tried to implicate the archbishop in the Wirrinya-tower incident, and they had assumed that the seven hundred royals had already been included in the grand tally.

The monthly alldirectum revealed that Archbishop James of Numurkah had been appointed as adviser to the Council of Mayors at Rochester in 1698 GW. He lived in the grand manse at the east end of the mayoral palace.." and had the status of duel judge to the Magistrate of Rochester. He was one of those who had presided over the Highliber's challenge against the Mayor. There was, of course, no record of how he had voted.

An incompetent robbery by means of the Calculor, or an attempt to frame the Archbishop? The data was encoded, so that the human lackeys did not understand the figures that they read and wrote on the orders of the Calculor. Thus the changes could have only been made through the Calculor--but who would do such a thing?

Zarvora? Tarrin? Aside from them, there was only Lemorel herself. Tarrin was floundering badly in his attempts to program the Calculor properly, and Zarvora would not have neglected to change the checksum digit for the bank tally. A full inquiry by the Council of Mayors would result in the bank records being decoded and released to a team of clerks, and these would relate the bogus account to the Archbishop's. They would also discover the bungled changes and conclude fraud by persons unknown. Archbishop James would be declared an unfit judge, and the Highliber's case would be thrown open again.

Lemorel looked from the keyboard to the rows of mechanical animals, then at the silver hens poised to peck at the paper tape. She unlocked the door, nodded to the guards, and made her way to the observation gallery above the Calculor. The machine was oblivious to the problems it was causing across the may orates of the Alliance and beyond. If it was given rubbish to process, it returned results that were rubbish. She walked to the data-exchange chambers, where lackeys and runners retrieved and copied data from miles of handwritten cards for the Calculor, then on to the Reference exchange, where runners were sent to the book stacks of Libris itself to answer the Calculor's questions. Such a grand concept, such a mighty tool.

The main Reference Center in Libris was an immense domed cylinder, with

the walls lined with book stacks that extended back beyond view. It was night, so there were no external readers working there, just runners on the Calculor's business. She stopped and gazed around, aware that she was standing within the memory of a vast brain. It was hers to command; should the Highliber lose her case, Tarrin would gladly give it to her.." yet only Zarvora could develop it and make it grow. Lemorel understood its usage, but not its design. She watched the runners going about their business all the way from the ground to the ninth floor. Some of their work was on her own thesis, yet if the Highliber was released she would quickly learn what had happened from the shadow logbooks that were updated at noon each day.

The walk back to the Highliber's office seemed far longer than her tour of the entire Calculor.

The Archbishop was discovered to have an association with the Wirrinya conspiracy in the investigations leading up to the extraordinary meeting of the Council of Alliance Mayors. True, the evidence was slim, not enough to have him tried for treason, but still enough to discredit his credentials to serve in Rochester. All decisions that he had made on matters of law subsequent to the Wirrinya conspiracy were invalidated, and this included his judgment in the duel between the Highliber and the Mayor's champion. It was disclosed that he had voted against the Highliber, but with his vote removed the verdict favored her two votes to one. Zarvora was freed immediately, and the Council of Alliance Mayors met a week later to declare Jefton a constitutional monarch. Zarvora Cybeline was to run the may orate as Prime Councillor--for life

Lemorel received a summons to the Highliber's study in Libris not long after she had been freed.

"I have been examining logs of certain recent work on the Calculor," Zarvora began ominously. "Tarrin's knowledge of checksums is limited, yet a certain transaction that he made, ah, outside the usual procedures, turns out to have had the checksum corrected."

"Fras Tarrin is lucky to have loyal and competent staff, Frelle Highliber," Lemorel replied.

"So am I. You cleaned up after Tan'in while acting as System Administrator."

Lemorel swallowed. "Yes."

"Why?"

Lemorel swallowed again. "To strengthen your case with the Council."

"Why?"

"Curiosity, Highliber."

"Explain."

"The Calculor can do extraordinary things, yet I know nothing of its

real purpose. If the tool is so very wonderful, the reason that you built it must be quite fantastic. I defended you to discover that reason. It is not to schedule trains and decode messages."

Zarvora considered this while looking through Lemorel's personal file. "Your reason is hardly flattering and is not based on loyalty.." but I am grateful. How can I reward you? Promotion? Power? Wealth?"

The Highliber was pleased. Lemorel felt as if she were melting with relief. "I would like to help you more directly, Highliber. In your absence I rede signed parts of the Calculor to reduce the need for checking and speed up processing Tell me more of your projects and I can design better ways to run them on the Calculor."

Zarvora peered into a glass case where a brass orrery was standing. She moved a lever at the front of the case and it whirred and clicked into motion. "This is the year 3931 Anno Domini, that is, in the old Anglaic calendar," Zarvora said slowly as she watched the planetary motions being modeled by the clockwork. Greatwinter's Waning 1699 is 3931 AD, and the original Year of

Greatwinter's Waning was 2232 AD."

Lemorel thought carefully.

"If you please, Highliber, but scholars have been arguing over those dates for centuries. How can you be so certain?"

"It's nearly dark enough to use the observatory. Come with me."

She slid the lever back and the orrery stopped. Her lackey Vorion hurried up to lock the study as they left.

"Just before I was imprisoned the Calculor completed a massive project of sorting and correlating all the Greatwinter data known from all sources and texts. It gave me three possible dates, and using those dates and a number of preGreatwinter references to solar eclipses I did a series of double checks. One date verified to within minutes, and I was able to fill in the missing years. This is the year 3931 Anno Domini, there is no doubt about it."

The observatory was an onion-shaped dome, whose sides hinged down like petals as the telescope rotated within to follow the movement of the sky. The eleven-inch refractor was driven by pulleys powered by weights deep below in Libris. A mechanical regulator within the observatory clicked out to the gears that drove the telescope. Zarvora spun a brass wheel and the instrument dipped until it pointed to a part of the sky opposite the vanished sun. While Zarvora adjusted the focus and checked the calibration of the alignment dials, Lemorel looked out over the city, bathed in the day's afterglow. The Wanderer star Cobleni was moving rapidly among the fixed stars. It reached the Earth's shadow and winked out.

"The objective glass in this telescope was made in 1880 AD, yet here it is, still faithfully serving astronomy," Zarvora said as she selected an eyepiece.

"Strange how a piece of glass could outlive so much, yet still be as good as it was the day it was made. It will probably outlive us as well."

Lemorel continued to look out over the city. Midsummer was past, but the days were still long and hot. Water boys went about in the mayoral gardens,

keeping exotic plants alive. Pleasure craft moved languidly on the waters of the lake, and music floated over from some distant beer party beyond the walls of

Libris. An horlogue in the observatory beat out the eighth hour since noon. Zar vora clipped an eyepiece into position and stared through it.

"Please observe," she said finally, standing beside the screen and folding her arms.

Lemorel peered into the eyepiece, in which a faint, coppery star glowed steadily. It seemed dispersed, almost oval. \

"It's Mars, badly focused--but no, Mars is away over there. It's another planet, or perhaps a comet. Yes, a comet. That would account for the odd shape and fuzzy outline."

Zarvora shook her head. "It is a reflection from the inside of a vast band encircling the Earth. The bright spot is from the sun's rays being focused by some sort of texturing on the inner curvature. Sometimes it appears as a starlike point, sometimes it is a thin bar of light."

A shiver passed through Lemorel, although the night air was warm.

"What is it? Something to do with the Call?"

"Three weeks ago it was not visible, but now it has begun unfurling. Do you recall the output from that particularly long Calculor run just before I was arrested? It was a date, December the twenty-seventh, 3931 AD, which is 1699 GW. It is the date of Greatwinter returning, the date of the band becoming active."

Lemorel stared into the eyepiece again. The faint, fuzzy oval was unchanged. "Which theory of Greatwinter do you believe in?" asked Zarvora.

"There are many theories. I favor a physical explanation rather than divine punishment. A failed experiment in the engineering of weather, perhaps."

"An open mind, good. I shall tell you what I have pieced together. The entire world was heating up in the twenty-first Anno Domini century. Then the Call came. In the panic and anarchy that it caused, the stronger of the Anglaic nations fired things called nuclear winter bombs blindly, thereby generating dust that veiled the Earth and made summers like the coldest of winters."

"So the Call caused Greatwinter--indirectly?"

"Yes, but in that century the world was actually being threatened by a

Greatsummer, could you believe it? One may orate Japan was its name, proposed to erect a huge, thin band between Earth and the moon, a shield to weaken the sunlight a little. Its plan was to send tiny machines to the moon where they would replicate themselves out of moon dust. Hundreds of rockets were to seed the moon, but only one prototype had been launched by the time the Call arrived and shattered civilization. Ever since then the tiny machines from that single rocket have been building copies of themselves as well as the modular parts for that sun shield sending them out into orbit where they have been circling as a diffuse cloud. Now they are interlocking and unfurling into a vast band."

"But the Earth is no longer warming up," said Lemorel.

"Quite correct, Frelle, but the machines on the moon do not know that. We now have that band whether we want it or not."

"So the Earth will cool."

"Yes, Frelle Lemorel. In four hours' time we shall have a new year, 1700 GW and 3932 AD. The fuzzy star that you can just see will become plainly visible in a few weeks, and its nature will be deduced. 1699 is the last year of Greatwinter's Waning, 1700 is the first year of a new Greatwinter."

Zarvora made a few observations, measurements, and drawings, then returned the telescope to the rest position. Lemorel helped her to close the dome.

"It is the eve of the new year and century," said Zarvora as they stepped out onto the roof. "Do you plan to join in the celebrations tonight?"

"I surely will, Highliber. It may well be the last such new-year revel. Tell me, though, what are all your studies of that band in the sky leading to?"

"Just before Lewrick was shot I told him part of the answer: to be warned of a disaster is to gain great power."

"And the other part?"

"I am not totally without altruism, Frelle Lemorel. Greatwinter threatens civilization, and civilization is very much to my taste. I have been researching ways to prevent the worst effects of this second Greatwinter happening, and possibly to even stop it."

"Does that involve the Call, and a strange abess from beyond the deserts who eats grilled mice?"

"So you have been reading my beam flash mail. The penalty for that is death."

Zarvora did not sound as if she meant it.

"I had official use of the master password, Highliber."

"Not guilty, then, and case dismissed. As to the Call and the Abbess of Glenellen, yes, I have hopes of making use of them."

The world had changed completely since Lemorel had walked into the observatory. She descended the external stone steps past the guards as Venus dipped below the horizon and a clock tower somewhere sounded half past the ninth hour. By the tenth hour she was walking the streets of Rochester. The holiday was in full cry, with dancers, drinkers, and rowdies seeming to have replaced the rest of the population. Dolorian was away in Inglewood and Lemorel did not want to be alone as the new century began. She bought a mask from a stall and removed her arm band of rank.

By midnight she was at the University, where revelers were throwing each other into an ornamental pool. As the clock tower struck out the hour" there was a countdown, then a cheer as the new century began. Lemorel kissed several dozen revelers, and lingered with one young man who seemed unattached. They wandered back to his undergraduate lodgings, where they removed all but their masks and made love on his hard bunk. Not an act this time, she thought as they lay there. This is really me.

With her lover for the night asleep, still masked, she slipped from the bed, dressed, and vanished from his life forever. Outside, the dawn was twenty minutes or so away, and she strode hurriedly through the streets and back to Libris. As she reached the roof she saw that the Highliber had returned there, too.

"Come," Zarvora said, and they went to the base of the beam flash tower.

The lift took them to the apex in a few minutes, and Zarvora led her up to the beam flash gallery's roof.

"We shall see the new century first from here, Frelle Lemorel. See the glow on the horizon? It will be there. How was the city last night?"

Lemorel hesitated, wondering if the Black Runners had been watching her. She decided that it could not possibly matter.

"I went to the University and seduced a stranger. I... need to be taken at face value sometimes."

"Are you still pining for your dead lover?" Zarvora's face was blank as she looked out to the brightening northeast.

"I'm pining for a lost lover, Highliber."

"John Glasken?"

Outrage and revulsion surged through her. "Highliber!" she exclaimed angrily

"Do not worry, I know of your liaison, but the official records have had the references sponged clean. I could not have one of my senior librarians having someone like him in her past, could I?" "Thank you Highliber, but..." "But?"

"You offered me a reward yesterday. Now I claim it: Please don't release

Glasken for your project to replace magnesium beam flash flares."

"Granted," declared Zarvora once she had stopped laughing.

"Thank you," said Lemorel, feeling very relieved. "How did you spend the eve night Highliber?"

"I need to be alone a great deal, there is so much to think through," Zarvora replied--although I had company last night, she added in her mind.

A brilliant bead gleamed on the horizon.

"There, we are first. Look at the way the light moves down the beam flash tower, and at the land lighting up."

They watched the dawn of the first morning of 1700 GW spread down to the rooftops and walls of the city below. Distant cheers of a few hardy revelers on rooftops floated up to them.

"Because you did not stay for breakfast with your young man--yes, I know that it was a young man--perhaps you will eat with me," Zarvora offered as they descended the stairs to the gallery. "I have some matters to discuss about the Calculor."

"Greatwinter calculations?"

"Military calculations. There is to be a war." The word had a sh6eking urgency. "With the Southmoors?"

"Tandara. I have been planning it for some time, and it underlay my dispute with Mayor Jefton. As you know, following my arrest Tarrin falsely implicated Archbishop James in that Wirrinya conspiracy, guessing that he had voted against me. After the Archbishop was disgraced and I was freed, Inspector Vellum Drnsas came to see me on a very urgent matter."

Lemorel blinked at the name. "I know him, he's a friend. A librarian of the old school."

"The old and conservative school. The Archbishop offered to make him Highliber."

Drusas as Highliber. Lemorel gasped audibly.

"When Drusas asked Archbishop James on whose authority he would do so, he cited the Mayor of Tandara. When James fell Drusas was anxious not to fall too, so he told me everything. Thus by tampering with the Archbishop's bank tally Tarrin accidentally uncovered a dangerous spy. The Mayor of Tandara knows of my intention to attack his may orate and he is both on his guard and making his own preparations. My preparations involve the Calculor and yourself, Frelle Lemorel Milderellen. The two of you are to build me a weapon that has not been seen on a battlefield for nearly two thousand years."

COMBAT

Being in charge might confer authority, but it did not create resources. Even with a dozen edutors from the university in the FUNCTION pool and quite a few of Jefton's personal staff and guards added as menial components, Zarvora still did not have the processing power that she needed. Her biggest problem was that of recruiting

Dragon Color staff. Dragon White, Yellow, Orange, and Red could be scoured from other may orates or from the University, but above that one needed either talent or years of experience. She and Lemorel had to work three weeks of eighteen hour days, but it was not until mid-January that the Calculator had finished designing the new calculator.

"The tests took until the beginning of March," Lemorel told the meeting of Dragon Golds. "Now the battle calculator will be trained and put through its paces. It should take eight weeks."

"We have four weeks," Zarvora interjected. "In four weeks the rail extension from Barhan to Cohuna will be complete. Add the Hunter Triangle par aline and Tandara has a huge loop of rail to supply any war that its mayor chooses to start. I've been in contact with the Mayor of Deniliquin. He thinks that there will be a showdown with the Southmoors over Finley very soon. Tandara will attack just then and seize the whole northwest. We must strike before that."

Lemorel looked back at her figures and nodded reluctantly. "It could be done, Highliber, provided we had no serious problems at all."

"There is the small matter of treaties," Griss pointed out. "We can supply weapons to our ally Inglewood, but no troops."

"No troops, and only one weapon," said Zarvora. "One single, devastating weapon."

Lemorel sat back, weary but triumphant. She could not match Nikalan or Mikki, but she had become a mother to a child that was their peer. She had built a new calculator and Nil(alan was to serve in it. He could not fail to be impressed, she was absolutely sure of it.

Glasken quickly became a model component and was promoted to MULTIPLIER after only a few months. He was made to study to become a FUNCTION, a component with a number of special mathematical skills that could not be easily shared through a team. Components had two hours of free time daily after the extra work of cleaning the cells and passages, cooking, repairing damaged calculator equipment, and exercise. He used some of that time to study equations in probability and the theory of charts. FUNCTION components had a status only just below that of a Dragon Librarian, but were still prisoners. Finally he was made a trainee FUNCTION, which meant that he was apprenticed to a senior

FUNCTION.

His first impression of his master was of a vague, dreamy youth of about his own age. Nikalan was now FUNCTION 3073 and Glasken shared a cell with him. His new master was agreeable but bland company, someone who did not understand the most basic of jokes, yet was brilliant at mathematics. Other components told Glasken that FUNCTION 3073 was nursing a great hurt: his sweet heart had been murdered.

" '84, there's something strange happening," Nikalan mentioned one evening.

"Strange? It's bloody horrible," Glasken sighed as he lay on his bunk. "Five system generations in a week, then all those simulations for the subcalculator group. You'd think they had better use for a marvel like this."

"They're experimenting with a smaller machine. Each system generation was for a different size, and it was followed by tests to determine performance peaks. I noticed that the equipment was confined to small desks. Runners took the results from calpoint to calnode."

"I know, '73, I know. All the components in the last generation were FUNCTIONS, so we had to do our own menial addition and multiplication. No justice, I say. We slave away to become FUNCTIONS but when we're promoted they remove our lackeys."

"You're missing the point," Nikalan said patiently.

"Well, what's your idea?"

"They are designing a mobile calculator."

Glasken sat up, his mind racing already. A mobile calculator might be taken outside Libris.

"They're using me a lot in the tests, that must mean I'm being considered for it," he said hopefully. "That's good. There are aspects of Libris I really hate."

The aspect that Glasken hated most was that of sex--or the fact that others had access to it while he did not. With several thousand people of mixed sexes in the Calculator it was no surprise that opportunities often arose, yet they never arose for him. There was always a guard about to spoil things when fortune beckoned. There were women who looked willing, yet assignments always went wrong. Getting a female component pregnant was a serious offense, and he knew one component who had been dealt with in a chillingly severe way for doing just that. Still, there were means available to prevent such accidents. Why me, why me alone, Glasken wondered, sometimes hundreds of times a day.

The regulators in the Calculator were men, but there were a few women sprinkled among them. One in particular caught Glasken's eye, a woman with a particularly fine figure who often wore thigh-length boots. He decided that she had style, unlike the shy, uncertain girls of the University or the loud, ribald wenches from the taverns and bawdy houses. Glasken almost drooled whenever she strutted past wearing tunics and blouses tailored to show her figure to best effect. He especially liked her in boots with tower heels, and tight black fencing britches. He had never known anyone like her, and was desperate to broaden his experience.

He did pushups and situps by the hundred to shape up, sewed his uniform tight in strategic places to bulge impressively, sang his heart out whenever he could borrow a communal lutina, and sketched the beautiful Dragon Red many times from a distance. He did this for a good many

other women among the components and regulators as well, but REGULATOR 42 remained his fondest hope for amorous conquest.

The day after he was upgraded to FUNCTION status he was sitting in his cell alone when he heard a tap at the bars.

"Shift check," said a husky voice.

"Check," Glasken replied before looking up to see REGULATOR 42. She had never been on cell duty before, and he hastily added "Frelle 42, are you permanent on this shift now?"

"No, just relieving," she said, folding her arms under her breasts, and not without some difficulty.

Glasken made a show of sighing. "Such a pity, 42. The sight of you is all that makes this drab place bearable."

His look of pathos had been practiced for long hours in front of a mirror. She smiled, a soft, open smile. The rate of his pulse shot up. Her tunic was of crushed red velvet, showing a great area of cleavage and fastened by one clasp above a row of buttons. He moved his hand, and the shadows of his fingers fondled her white skin.

"You're a handsome, clever beast, 3084," she observed, looking down at the shadows. "And my name is also Dolorian."

Instead of swirling the honey-brown cloak to cover herself, she merely put a hand up to the clasp. He brought the shadow of his hand down to cover hers. As he moved the shadows, her fingers followed. On impulse, he moved them back to the clasp, then motioned them to tug. The clasp popped open. Each of the buttons below seemed in turn to depend on the clasp. Two quite large breasts with small, pink nipples surged out with such force that Glasken stepped back from the bars in surprise.

"Now you will have to put them back," she purred.

"My--my shadow hands are so clumsy, Frelle Dolorian. Perhaps if you stepped closer?"

She did. The pleasure of touching her flesh made his pulse race so hard that he could feel real pain in his temples.

"For all your cleverness you cannot work simple buttons, 3084," she said, folding her arms behind her back.

"It's the bars, lovely Frelle. Come inside and I shall show such skill with your clothing as you have never seen."

"But you may take my keys and escape."

"I'd never escape from wherever you are."

There was a slight jingle behind her back, and Glasken realized that she was going to come in. There was at least a full half hour before the morning shift began. Sheer anticipation made him giddy. After all those months of deprivation he was about to plunder the greatest prize of all. The assembly bell began to ring.

In a silent, dancing swirl she drew back out of his reach, swept the cloak around to cover herself, whispered "Later," then melted into the shadows. When another REGULATOR came by some moments later Glasken was still frozen in mid grasp

"Reaching for something, FUNCTION?" he asked, stopping to stare with his hands on his hips. Only then did Glasken let his arms flop. "Come on, get your act squared. The Highliber's to make an announcement."

All off-duty FUNCTIONS and the elite of the lower components were herded into the back of the Calculor hall. Glasken stood with his hands slightly out from his body, savoring the lingering feeling of Dolorian's breasts on his fingertips. The System Herald rang twice on the bell and cried "System hold!" At once the whispering of men, women, and beads on wires tapered away in an orderly shut down and the partition curtains swished back. The Highliber entered and climbed the stairs to the System Controller's rostrum. Several Dragon Reds, Blues, and Silvers were lined up on either side of her. Lemorel was there, and over near the edge was the rebuttoned Dolorian. A double squad of Tiger Dragons flanked the components, the fuses in their matchlocks smoldering.

The System Herald banged three times on the floor with his staff of office and called, "Attend to the I-Iighliber, Zarvora Cybeline."

"Components of the Libris Calculor," Zarvora began in a sharp, clear voice, "I am the Highliber. I designed and built the Calculor."

She paused to let them assimilate the words. She had not addressed the Calculor's components since the four Dragon Greens had been shot for degrading its performance, and many components had never seen her.

"Some of you are to be given a change of scenery. We are building a new, mobile calculor to assist the Mayor's army in battle. It will consist of only a hundred components. Those selected for the battle calculor will step aside as their names are called out and be mustered for immediate departure."

The System Herald began to read out a list. Nikalan was first. Lemorel winced as if slapped. There were no women selected, or any components with less than two years' experience as a FUNCTION. The list came to an end without Glasken's name being called. He was not disappointed. After the morning shift REGULATOR 42 would return to his cell, and the thought of what would follow made him pant so hard that the components on either side of him turned to see what was the matter. The Highliber was speaking again.

"The Inspector of Examiners also has a list of less experienced FUNCTIONS who are nonetheless strong, fit, and suited to life on the battlefield." Lemorel walked across and gave the herald a list.

"FUNCTION 3084" was the first name that was read out.

Glasken gasped so hard that he began coughing. Lemorel smiled demurely and Dolorian looked down with a grin. "Conspiracy!" hissed Glasken as

he pushed the component next to him out of the way and stamped off to join the other components of the battle calculator. He tried to stare Dolorian down, but she was not looking his way. He found that his eyes kept dropping to the gates of paradise that had been slammed shut in his face. The additional names on Lemorel's list brought the total number of components selected to 110. That was fewer spares than Zarvora had wanted, but the Libris Calculator could not spare more FUNCTIONS. A squad of Tiger Dragons marched the components of the battle calculator out into a courtyard, where they were gagged and chained inside covered wagons.

Basic military training took only a fortnight, as the components were only being taught to keep up with the musketeers and to defend themselves as a last resort. They ran many miles in helmets and light ring mail each with foraging pack, weapons, and calculator desk strapped onto his back. Glasken excelled in saber and musket and was fairly adept in the use of most other weapons, but Nikalan had trouble with everything. They were no longer known as component numbers, but by their real names: on a battlefield it would be much easier to shout a name than a number.

Glasken was grimly pleased that all the others were now subject to the same celibacy as had been forced upon him in Libris. The camp was on a cleared field about twelve miles from the walls of Rochester, and was used by the mayoral army as a shooting range and skirmish ground. The perimeter was well guarded, but Glasken felt there was little point in trying to escape. He was safe, well fed and clothed, and in a part of the army that would be as far from the front line as any slacker could wish.

The battle calculator was quite different from the thousand-component Libris machine. Each component had fairly complex functions to perform, and there were runners to go between them as they worked with problems and data passed about on slates. The battle calculator would be of most use when applied to a set piece battle where enemy forces could be easily assessed. Clerks would draw a quick map on tent cloth and set it on the ground. Colored blocks represented groups and types of fighters, and were moved according to orders from the battle calculator, or reports from scouts.

The machine's advantage was that it treated fighting as a game, like champions or chess, and was quick, accurate, and flexible. Unlike human commanders, it had no emotions or expectations as it ordered when to move, where to stand firm, and what to shoot at. Signals were sent by coded trumpet calls, whistles, heliostats, and signal flags. There were observers on mobile observation poles to provide a good overview of the real scene, but these were a favored target with enemy marksmen, and had to wear full plate armor.

At last they were put into the field with two groups of a hundred

soldiers and officers of roughly equal skill. At first the practice team led by officers alone outflanked the battle calculator's team every time, and the troops jeered the components. Soon the calculator's officers began to get a feeling for the machine's power to make quick and accurate decisions, in spite of the unfamiliar form that the instructions took. The battle calculator's team was winning one mock engagement for every one that the others did by the end of the second day, and during the third it won them all. The odds were doubled, then tripled, and in a week the battle calculator's team could beat odds of five to one in set-piece engagements.

There were other tests, such as when a party of "enemy" soldiers was allowed to break into the battle calculator. The components repelled them with the aid of the Calculator guard, compensated for "dead" components, and resumed operations. Once the components were even required to solve problems while drunk, and again when they were hungover. The results led to a total prohibition on alcohol. There were still more tests on how fast they could pack the calculator desks onto their backs, move a few hundred yards, then unpack and become operational again.

For all the training in tactical methodology that Glasken had been given in the Libris Calculator, he was quite unaware of the strategic value of the battle calculator. He paid little attention to the number of musketeers from Inglewood training illicitly with the Rochestrian troops, and it was fortunate for the Mayor and Highliber that none of the neighboring monarchs were any more observant than Glasken. Inglewood was, like Rochester, a small sliver of territory dominated by the Tandara Mayorate, which separated the two states and maintained a strict embargo on the transfer of troops between them. Rochester and Inglewood had once been part of a much larger and very powerful mayorate one with proud military traditions. Those traditions were, in miniature, still very much alive.

With no warning the components were marched out of the camp one afternoon, stripped naked, and dressed in striped prison tunics. Next they were taken to a rail side and put aboard a wind train with a consignment of felons being sent to work on the Morkalla par aline extension. At the Elmore rail side the Tandaran customs guards came aboard. The train was searched for undeclared weapons, and the Rochestrian guards were changed for leased Tandaran regulars.

The train skirted the ghostly Bendigo Abandon, then went west across the Inglewood border, where the guards were changed again. All at once the components were given fresh uniforms and calculator desks, and set free from their shackles. By now most of them understood the Highliber's plan. Inglewood was limited by treaty to a tiny army of a thousand musketeers, fifteen mobile bombards, and sixty lancers. Nine mounted kavelars led them. The battle calculator could boost the power of that small force many times over.

Glasken and Nikalan were summoned to the tent of Field Overhand Gratian

of the Inglewood forces, an angular, reserved man with a hatchet face and a penetrating stare. He was also a first cousin of Vardel Griss.

"Vittasner, Glasken, we are about to put the battle calculator to its first real test. Inglewood has declared war on Tandara."

Glasken felt his bowels go to ice. That was about as mismatched as putting him against the Libris Calculator in a mathematics contest.

"Vittasner, you are to be the chief of components during the fighting. All will obey your orders with regard to the working of the battle calculator. Your title will be Chief. Not an imposing title, but we're making this up as we go."

"Yes Fras," he mumbled.

"Glasken, you are to head the Components' Militia, and will have the title of Captain. You will be subject to the Chief's orders until such time as the battle calculator comes under direct attack, in which case everyone will obey you. Is that clear?"

"Fras! Yes Fras!" Glasken barked, having absorbed something of military discipline already.

"Both of you have already been tried in these duties, and found to be best out of the components. Return to your men and prepare them. Dismissed."

"Fras!" they chorused.

Badges of rank were pinned to their arms, a black CC on a silver background for Nikalan and the same with a CM for Glasken. That was the equivalent of Dragon Silver rank, and Glasken wished that Lemorel could have been there to see him with a rank equal to hers. On the other hand, he knew that she would eventually find out. He gloated over fantasies of the scene as he walked.

They called the components together and Nikalan gave a talk about an actual battle being no different from the training runs that they had been doing. Then it was Glasken's turn.

"Okay folks, who can tell me what happens to a component who loses sleep or gets drunk and can't perform up to benchmark?"

"Firing squad!" came the ragged chorus.

"That's it. Anyone planning to drink a hidden jar of wine better remember that. All those out there in the firing line tomorrow will be depending on us. Also, if our side gets minced, the enemy isn't going to believe that we aren't regular musketeers. We have the most to lose if the attack fouls up. Everyone will want a piece out of us."

It was the first speech of his command! A rambling, disjointed little farrago,

it was true, but it made the important points in words that all could understand. The components had to be frightened into being absolutely trustworthy. Unlike the Libris Calculator, this one had only one processor, so there was no parallel processor to verify each calculation. The work had to be fast and accurate on one pass.

They began marching well before dawn the next morning, and came within sight of the castle that was their objective in the first hour of light. The weather was dry and sunny as they passed the boundary stone for the Tandara Mayorate. Castle Woodvale stood among low, rolling hills and sparse woodland. A light wind was blowing from the north.

The fifteen bombards were of recent design, with brass-alloy barrels. They had a good range and fired cast-iron balls with lead cores instead of stone. Thus they could do great damage from just outside the range of the cheaper bombards that were standard in Tandara's castles. They had cost twenty times as much to build as a normal bombard, and had come close to breaking the military budget of Inglewood.

At the border eight hundred Inglewood musketeers and bombardiers joined their group, and after another hour they were set up on a low hill as the troops split up to block the par aline on either side of the castle. Glasken could already see a message pulsing from its beam flash tower, and the Tandaran capital was only four hours' march away--less by wind train or horse, and less still by galley train.

Scenario slates were given to the components. These had been worked out remotely at the Libris Calculor and transmitted in code by beam flash. They included the wind strength and estimated train speeds. Extra squads of irregulars were marching with the Inglewood musketeers carrying spades, axes, and bundles of pikes.

The attack began while they were setting up the battle calculor and observation masts on a scrubby hill some distance from the castle. The Inglewood bombards were brought to bear on the castle's walls and beam flash tower, and an early hit smashed the gallery of the beam flash tower. News of the attack had been flashed north to the capital before the first shot had been fired, however, and relief forces were already in the mustering grounds. Galley trains were being shunted into place to transport them. Zarvora had, of course, cut off all the Calculor's par aline coordination for Tandaran trains. Glasken looked up in alarm at hearing a massive explosion some miles to the north, then another to the south. Seconds later a scenario slate informed him that the para lines had been blown up with wagons of gunpowder.

The castle's bombards were quickly silenced; then troops withdrew, leaving only a token squad to cover the gate. The battle calculor calculated the movement times for the troops on both sides. It was already an hour and a half from the first alert, and the cavalry from the capital were visible to the lookout on the field mast. Galley trains with foot soldiers were following.

Lookouts and scouts soon reported that eighteen hundred heavy lancers were riding hard down the highway from the north. They dispersed into two broad blocks to pincer the Northern line. Scout lancers with hand

heliostats warned the battle calculator's lookouts that two thousand musketeers were marching up the road from galley trains halted by the shattered rails to the south. The Tandarans had timed them to arrive with the lancers but now they would be rather late.

Glasken scanned the colored blocks being moved about on the cloth map and wondered if any of the enemy blocks would ever materialize into real soldiers. Inglewood's musketeers were outnumbered five to one. The components calculated odds, times, numbers, and possible tactics based on which commanders' pennons had been reported by the scouts. The battle calculator ordered six hundred musketeers into the southern trenches, while only bombard crews, lancers, and peasants armed with pikes faced the horde to the north.

Glasken contemplated life as a Tantaran prisoner of war as the blocks representing the groups of lancers formed up. There were weak points in the stake wall, even he could see that. The lancers charged in a line, ignoring the obvious traps at the weak points. The moment that they charged, the battle calculator ordered fire pots to be cast into the grass before the southern trenches, then sent its musketeers running north. The bombards poured grapeshot north at the lancers, cutting down those who broke through the defenses and ignoring those floundering against the more heavily fortified stretches.

Soon the main body of lancers broke through, but instead of ordering the bombardiers to stand and fight the battle calculator ordered them into full retreat. They ran before the lancers, met with the musketeers from the south, then turned to present a triple line of eight hundred muskets to the lancers. Orderly volleys slashed through the lancers as they reached the bombards and tried to move them--but they were chained to rocks, and the battle calculator had ordered the excess powder drenched so that they could not be spiked. The lancers faltered unable to do anything with the bombards that they had just taken. Musket fire still tore through their ranks.

On the ground sheet map Glasken could see the Tantaran musketeers charging through the fires at the now empty southern trenches, but the lancers could see nothing but smoke. With perhaps five hundred dead or disabled littering the field, they broke and retreated. Now the musketeers broke through the flames and dropped into the shallow Inglewood trenches, but discovered that they were dug sheer on one side and sloping on the other. The triple line of Inglewood musketeers turned, and had a clear line of fire at an enemy backed against the trench walls and outlined by flames. Not a single Inglewood death was yet registered on the score slate

For twenty minutes the withering volleys went on, with one Inglewood musketeer dropping for every ten of the Tandarans. The bombard crews had been ordered back, carrying dry powder, and as the lancers tried to rally they were fired on again. The battle calculator ordered the irregulars out to strip weapons from the dead as the Tantaran musketeers retreated over the smoking grass stubble.

At last someone on the castle's walls thought of coordinating their two groups using handheld heliostats, and at this the battle calculator ordered the remaining musketeers into a triangle, with one side formed by the line of bombards. It need not have bothered: the signals were ignored by the confused Tandarans commanders on the battlefield.

The most desperate part of the battle came when those left in the castle charged out, adding another five hundred to the odds against Inglewood. The battle calculator ordered its own guard of two hundred men into the fighting. Suddenly there were a hundred components guarded by only ten regulators, yet they did not rebel. They were in charge and they were proud of it. The Inglewood troops out on the battlefield were their men fighting impossible odds.

The calculator guard caught the garrison troops between the gate and one side of the triangle. Fired on from both sides and unable to retreat they broke and ran south, only to be fired upon by their own people. The battle calculator made its assessment from the reports of the lookouts and heliostat signals from the field, then calculated from the disposition of troops that the enemy would not be able to rally within at least an hour. Secure with these parameters, it ordered its bombards unchained and brought to bear on the castle. A dozen shots had the main gate reduced to splinters and the few Tandarans left inside surrendered. Until now Glasken had seen no action directly, apart from the shot that disabled the beam flash tower. It was a strange, detached way to fight a war.

Messages poured in about casualties, approaching Tandarans reinforcements, and exhaustion quotients for both sides. The battle calculator ordered itself moved into the castle along with all the Inglewood bombards and musketeers; then the gate was blocked solid with stone rubble. Ten of its most expendable FUNCTIONS, including Glasken, were ordered into the decapitated beam flash tower to rig up a communications link with Inglewood--and hence to the Libris Calculator. More trains began arriving from Tandara at the par aline breach, and this time the enemy really meant business. Lookouts estimated eleven thousand enemy troops outside by late evening.

During all this Glasken labored among the flies, dust, and occasional musket balls to nail a wooden beam flash gallery together at the top of the tower while three Dragon Red Librarians set up a mobile beam flash machine and telescope. With a link established to the Derby tower, and hence the rest of the beam flash network, tactical data poured in. Rochestrian troops had attacked over the border and taken Elmore, then gone on special galley trains to secure the main line all the way to the Bendigo Abandon and the junction rail side at Eaglehawk. They might have been stopped by Tandarans reinforcements from the north, except that these were not able to pass the broken track and hostile bombards at Castle Woodvale. All the while, there was no Call. Lemorel's work on Call vectors and times had been used to schedule the battle for a window of days when there was unlikely to be a Call.

By the next day the fighting had died down, so much so that the battle calculator was running at half strength as a local decoder. The spare FUNCTIONS were resting and taking turns working in the beam flash tower. The heavy strategic processing was being done on the Libris Calculator now, and orders were beam flashed to individual over hands. Nikalan and Glasken were assigned to the early afternoon shift. Glasken stared through the telescope at the distant tower, copying out the messages in the distant flashes of light.

"They'll never let us go now," Glasken complained as he mechanically scribbled on a slate. "The Highliber's machine worked, she's tripled her territory, and she will probably demand client status from Tandara's mayor. Tandara's allies will be too frightened of the battle calculator to squawk."

"An elegant contest," Nikalan replied as he worked the beam flash key to send a separate message outward. "Did you know the battle calculator was used to only sixty-five percent of its capacity yesterday? We could have won against even greater odds."

Glasken shuddered. "So, what will the Highliber have us doing next, I wonder? Fighting the Southmoors? I hate being a component, I hate being a part of a machine's brain, and I hate not even knowing what's in these coded messages that we're handling."

"Oh, but I know all the codes," said Nikalan vaguely. "These are but simple messages. This one I'm sending mentions that no battle calculator components died."

"Change it," Glasken said listlessly. "Tell 'em I'm dead."

"But I would be disciplined--"

"So tell 'em you're dead too. Ah, the Derby relay is closing down for lunch. Wake me when they start again."

Glasken dozed. He dreamed of the heady pressure of Dolorian's big, firm breasts pressing against his bare chest instead of being at arm's length: Nikalan shook him awake just as Dolorian had opened the cell door. "Wake up, Johnny, you're dead." "Piss off."

"No, it's true and so am I. Libris has replied to our message. NEW

COMPONENTS

BEING SENT TO REPLACE GLASKEN AND VITTASNER. THE

BODIES TO BE RELEASED FOR BURIAL."

Glasken sat up, horrified. "What?" he cried, seizing Nikalan by the tunic.

"You really did change the message?"

"Yes."

"And Libris accepted it?"

"Well, yes. The code was simple, and I only had to adjust the wording so that the checksums matched."

Glasken released him and leaned back. "Don't you know a joke when you hear one? We really are dead now. The Highliber will spit hellfire when she finds out and.." did you say released for burial?"

"Yes."

Mountain ranges of breasts trembled within Glasken's grasp, forests of thighs bid him come exploring.

"Could you change that to just 'RELEASE THEM'?"

"Well... no. The reply code is different, based on a checksum total requiring the same number of letters."

Glasken thought frantically for a moment.

"How about GLASKEN AND vITrASNER TO BE RELEASED?" "But I don't want to be released. I like working in calculors." "But I need your name to make up the wordage!" "I'd really rather stay."

The urge to fling him over the edge of the tower was almost beyond Glasken's control. In hindsight Glasken realized that Nikalan could probably have had them both released from the Libris Calculor months ago.

"Well, nice thought while it lasted, good Fras," he said as he stretched then adjusted a screw on the telescope. "One favor, though: could you show me what the message might have looked like in code?"

Glasken struck him over the head the moment he had finished, then cried out that Nikalan had fainted and called for a relief team. Before Nikalan had revived the Overhand's lackey came to see them with releases so fresh that the ink was not dry. Glasken poured a phial of salts of night wing down Nikalan's throat to keep him quiet.

War is a great time for opportunists, and in spite of the watchful eyes of the calculor regulators, Glasken managed to loot two gold royals, sixteen silver nobles, and two border passes in the confusion. He paid five silver nobles for a captured Tantaran horse and they set off for Eaglehawk.

The Eaglehawk rail side was only five miles south, and aided by the chaos caused by the war, Glasken's stolen papers, ten silver nobles for two fares, and one gold royal for a bribe, the escapees managed to board a freight wind train by nightfall.

Glasken had planned to ride the Nullarbor par aline to the Western Castellannies, but his train turned due north to Robinvale while he slept. The ensuing months were not kind to the escapees, but they survived.

Glasken sprawled in the desert sand, very drunk and nearly asleep. The campfire had burned down to glowing coals, yet the captain of the Alspring camel train called encouragement, urging Glasken to finish his tale of beam flash towers, wind trains, and calculors.

"Good sir, pray finish your wonderful story. I'll not sleep at all if I do not hear the outcome."

Glasken looked up at the sky, where the stars were shining brightly, then lifted a jar of date-mash brandy to his lips to inoculate himself against the cold of the desert night.

"Ah, not much to tell after.." wind train.." got diverted to Robinvale. Things got really bad. I shot the Robinvale Inspector of Customs when he refused a bribe, then fled with Nikalan into the Southmoor Emirate. He had some idea of traveling to the Central Confederation, but alas, the fool got us auctioned in the slave market at Balranald while trying to buy a camel. Our owner was a caravan master going north. Oh how we suffered.." attacked by freebooters... stole camels, fled into the desert. Nearly died.." wandered into this oasis..." Glasken drifted off to sleep. The Captain gestured to his scribe. "Did you get the whole of his story?" "Yes Captain."

"Then append this before it."

He cleared his throat and thought for a moment.

"To His Serene and Merciful Eminence, Ziran Hoantar:

"Whenever I lead a camel train to the edges of the known world, master, I take particular care to work closely with my drivers and strappers. Knowing their moods, fears, and needs can be the difference between hamony and mutiny. We were encamped at the Fostoria Oasis after crossing the great desert of pebbles when I came upon a strange character called John Glasken. This man was nineteen metric tall, with a thick black beard and uncommon broad shoulders. He spoke the Macadalian tongue clumsily, and hung about the campsite selling proscribed spirits and herbs.

"On the second night of our stay Glasken became most disgustingly drunk with some of my infidel drivers. As I sat at their campfire carousings to insure that none of the talk became mutinous, Glasken began to relate such a strange tale that I soon sent for a clerk to copy it down in dash script. The tale ended when Glasken fell asleep and began to snore swinishly, but the essence is there. You must agree that his story is far too consistent and detailed for such a wastrel to have dreamed up, so that there must indeed be barbarian nations with very advanced sciences beyond the red deserts. If so, dare we ignore their works?

"I had the drunken infidel bound and taken to my tent, then sent armed strappers to fetch Nikalan from his tent near the counting house in the market place. I am now pleased to report that we are returning to Glenellen. This scroll will precede us with a courier squad.

"Read Glasken's tale now, master, read to understand why I am returning to Glenellen with all possible haste. Master, were you to gather a hundred souls of moderate ability with the abacus in some place that

cannot be spied upon, we could use these two components to build our own battle calculator, for the greater glory and prosperity of your royal house. Might I suggest the fortress at Mount Zeil as an admirable site?

"I am your humble and devoted servant, Khal Azik Vildah."

The Call was no respecter of life. Cluttered below cliffs throughout the land were the whitened bones of humans and animals that had followed its allure blindly. For those few who could resist the Call, however, it offered great advantages. To travel within its sweep was to be invisible, and to be immune to human attack.

Theresla and Ilyire left the convent as soon as a Call swept over Glenellen, but they guided their camels along established roads rather than just allowing them to go south. They fled along the steep, narrow roads of the MacDonald Mountains, through palm-filled valleys and regular grids of date-palm plantations, then out into the flat, scrubby dry lands beyond. At the Henbury Gatefort they turned onto the ancient trail south after taking generous stocks of water and stores, and even fresh camels while guards and merchants strained mindlessly at their tethers to follow the Call.

It was a day's journey farther south, near the Erldunda market town, that they encountered a large camel train. It was stopped on the road, anchors manually released by each rider. Theresla and Ilyire reined in their own Call-allured camels. "The caravan has stopped in a very orderly manner," Theresla observed.

"They probably used a Call scout," Ilyire explained. "When a caravan travels north or south on straight stretches, a lone rider with a pilot flag is stationed ahead or behind to ride in view of a sentry. If a Call seizes the scout he lets the pilot flag fall. The caravan master immediately orders all sand anchors to be released and the caravan stops dead. When the Call has passed, the caravan continues on with minimal disruption. Only the scout and his camel wander south until the clockwork timer in the saddle releases the sand anchor. The greatest danger to the scout is from attacks by freebooter bands or Kooree nomads while riding to rejoin the caravan."

The caravan was silent, except for the tinkle of the harness bells and the creaking of leather straps as the camels struggled against their Call anchors. The riders were buckled into their saddles, unable to think to release themselves.

"They have prisoners," observed Theresla. "Those two there have their hands tied, and their camels are tethered to pack animals." She peered at the two men. "They're tall, as you describe the men of Maralinga to be."

"Indeed they are," agreed Ilyire, struggling to keep his camel under control. "In fact I know them from Fostoria! The scrawny one worked in the market, calculating quantities and exchange rates for the merchants and caravan masters. His name is Ni-kalan. A little crazed in the head, but he taught me some basics of the Austaric speech while I regained my strength."

"Could they be explorers from the southern Austaric nations? Might they have sent expeditions looking for us as a result of Kharec's raid?"

"No. More likely they're outlaws or fugitives who wandered into the desert and were lucky enough to reach Fostoria." "Why are they prisoners, I wonder?" "Perhaps they attacked the caravan." "Two against sixty?"

"They may be survivors from a bigger force of freebooters that was wiped out. The skinny one, Ni-kalan, looks unwell. He may have been wounded." "But the big, brutish one is very healthy." Theresla had unwittingly touched a nerve.

"Him? Filthy, drunken, lecherous swine. He's tupp'd every whore in Fostoria, and any number of cloister-wives and their daughters besides. He's a ravening beast that devours women instead of protecting them. He has no morals, no honor, no discipline, and no shame! Jorn Gla-escen, yes, that was his name."

She stared at the vacant face of the broad-shouldered prisoner for some moments while their camels strained and danced against their reins to follow the Call. He had a heavy black beard and was wearing soiled, greasy robes in the style of the Outland camel drivers. With a swift, supple movement Theresla drew her saberine and slashed his camel free of its tether. Ilyire laughed his approval.

"That's right, dear and just sister, feed him to the Call. A fair trial for his crimes is too good for him."

"Hurry now, we must stay with him," Theresla called as she gave her camel its head to go south again.

"I--what! What do you mean?" spluttered Ilyire, hauling his camel's head about so hard that it nearly stumbled.

"I have a use for him."

"Him? Gal-escen? Are you mad?"

"Yes."

"But he's big, bigger than even me! Once out of the Call we could have a fight on our hands."

"But we shall not be leaving the Call for a long time, Ilyire. We are travelling within it for protection from freebooters, the Koorees, and our own people. In just the same way it will protect us from him. Gla-escen will be as docile as a lamb."

"Until we leave the Call. Then what?"

"Then, dear half-brother, he will depend upon us to survive."

"But why bring him at all? He's good for nothing but tupp'ing. Even the camels wouldn't be safe!"

"He will teach us to speak the Southerners' Austaric language fluently."

She had been urging her camel faster than its Call pace all through the argument, and now she seized the trailing tether from Glasken's camel.

"Don't reach for that arrow, Ilyire," she shouted without turning around as she tied the tether to her saddle frame.

"What? And waste a charge of black powder on him?"

"Kill him and I kill you, brother or not. Swear that you will not kill him." "But--" "Swear to it!"

There was a lengthy silence. Theresla continued to observe Ilyire in a tiny mirror on her camel's harness, but he did not reach for his weapons again. She began to count the rhythmic sways of her camel, and had reached eighty-three before Ilyire replied.

"All right, then I swear--but only if you un tether his camel from yours." "Why is that? His camel must be kept with ours."

"The tether between your camels is--too much for me. It's a symbolic union of filth and purity, the sight makes me gag."

Theresla laughed. "You would have him tethered to your camel?"

"It's punishment for my sins," Ilyire muttered before lapsing into silence for the rest of the day.

They journeyed on with the Call, down through the Cavanagh Outpost, past the turnoff to Fostoria, and on into the unexplored dry lands that Ilyire had traversed with Kharec's lancers nearly a year and a half earlier. Traces of an ancient bitumen road remained, threading through clumps of ruins thousands of years old. There were no inhabited towns here, so there was no more water and food for the taking. They began to snare and butcher animals caught in the Call to supplement their supplies, and their waterbags grew less taut.

The road veered due east, but they continued south into the desert, following the Call and covering their tracks to elude any pursuers following in the Call's wake. Theresla's compass showed that the Call was taking a slight westward bias, but Ilyire said that such variations were not unknown so far south. By his calculations they would join the route of Kharec's expedition just north of Maralinga Railside, but there was a long way to go as yet.

Now that they were off the road the camels began to show signs of strain as they struggled across the mulga- and mallee-bush-covered dunes of red sand. The fixed pace of the Call was too much for them, but Ilyire postponed dropping the sand anchors until the last possible moment. It was clear that nobody could be following them, and that the country was too parched to support more than a small scattering of Kooree nomads, yet it was only when their supplies of water had dropped to dangerously low levels that Ilyire reluctantly made the decision to drop the sand anchors and let the protective Call zone go on ahead of them.

Ilyire drew a flint wheel long-barrel from his saddle frame and jumped to the stony ground. He unbuckled Glasken, then stood clear and smiled as he clambered from the saddle, fell, and began to shamble south.

"Catch him, tie him to a bush," ordered Theresla, still in her saddle.

With the sensation of a clammy fog dispersed by a warm breeze, the trailing edge of the Call passed over them. Glasken shook his head and tried to stretch. His hands were still tied in front of him.. " he was standing on hot, red sand and rock, tethered to a mallee bush! Where was the caravan? The land was still dry, red and parched, but was a different kind of desert from where the caravan had been.

There were camels tethered nearby, yet only two Alspring camel drivers were with them. No, not drivers, more like the camel lancers of the Fostorian town guard. Their clean, well-cut robes and gear sacks their very self-confidence warned him that they might even be some type of elite warrior. They were clearly to be assessed with great care before.." suddenly it dawned on him! They had freed him from the caravan, so they had to be friendly! The bonds on his wrists were an understandable precaution.

"Ambicori, gratico. Johnny Glasken ibi," he said in the language that he had been learning in Fostoria. He forced a broad smile and bowed deeply.

"Macadalian dialect, I recognize it but barely speak it," said Ilyire at once. "No good to us, Frelle sister. Free him and let's be gone."

"Not so fast, Ilyire, I understand enough Macadalian to know that he speaks it awkwardly. His native tongue might be Austaric." She held a hand up in a slow, friendly gesture. "Gal-escen. Can speaking Austaric?"

"I--yes!" Glasken stammered in Austaric. "Quite well, my native tongue in fact, and I have letters from the University of Rochester, I am well educated--"

Ilyire spat a curse and Glasken was silent at once. "That's Austaric, Frelle, you were right," he sighed, "I recognize it, even if I don't know the words." He barked at Glasken in Macadalian to hold out his hands. The saberine hissed out in a flat arc, slicing the knot from the prisoner's wrists. Glasken gasped in fright, then began to rub his wrists very slowly, careful not to make a sudden move.

"We speaking little Macadalian. Ilyire, calling me. This Abbess Theresla. Sister mine. Touching her you, remove balls. Understanding?"

Glasken smiled and bowed, still rubbing his wrists and trying to stare at Theresla without seeming to stare.

"Gla-escen, ah, knowing Maralinga fort?" she asked.

Her voice was a low but powerful contralto, and full of authority.

Glasken did not know Maralinga, but he thought quickly. They were in the desert, and if Maralinga was not too far away it was probably a fortified rallside guarding cisterns and stores. Only the Nullarbor par aline was serviced by fortified outposts as distant from civilization as this, and the Alliance did jointly control a few of the rail sides there with Woomera.

"Maralinga, I know it well. A fortress with deep cisterns, a fine

place on the par aline that carries the wind trains west to the great underground cities at Kalgoorlie." ' "

His words were a jumble of Macadalian grammar and Austaric nouns and verbs, but again Ilyire had to grudgingly nod to Theresla.

"Soldier? You?"

"Soldier, yes, I'm a soldier. I was stationed at, er, Maralinga, but I got lost in the desert while on patrol--with my companion Nikalan, that is."

"Good," she said, turning back to Glasken. "Reaching Maralinga five weeks. Maybe. You teaching Austaric us?"

"Teach you to speak Austaric?" he exclaimed, relieved to learn the nature of his value to them. "Yes, yes, my pleasure. I'll teach you to speak as well as the Highliber herself."

"Highliber! Knowing Highliber?" demanded Theresla eagerly.

"Frelle, I worked for the Highliber of Libris for seven months," Glasken replied. Mind you I'm not saying what the Highliber did to me for those seven months, he thought.

"Go Maralinga," said Ilyire. "Desert, salt lakes, Kooree warriors, snakes, scorpions, us to kill. You fighting? Knowing weapons?"

"Can I fight? Fras, Frelle, I've been in the army of Overhand Gratian of Inglewood."

Ilyire tossed him a sheathed saberine, a quiver of arrows, and a recurved bow.

"Reaching Maralinga, you free. Helping go Maralinga."

"Yes, yes, Maralinga. My people are there. I'll introduce you."

Glasken bowed as he buckled on the saberine; then he slung the quiver over his back. He bent back the bow between his legs and st-rung it, then pulled the string. "Seventy pounds, very good," he said as he unstrung it again. Ilyire frowned, disappointed that he knew what he was doing with the weapon. At last my luck has changed, Glasken thought. He would be dropped on the Nullarbor par aline free to go on to the Western Castellanies, the very place that had been his destination when he had escaped the battle calculor. He suddenly remembered Nikalan.

"Where is Nikalan?" he said to Theresla. "The other prisoner."

"Thin man, sick?"

"Ni-kalan, we leave," Ilyire cut in. "Executing?"

"Ah, maybe."

"Friend? Yours?" asked Theresla.

"Yes, a friend. We've been through a lot together."

"Leaving Ni-kalan, very sorry," said Theresla, who was growing impatient with her lack of Austaric vocabulary.

Must not seem annoyed, Glasken thought to himself. "You must have done

what you have thought was right," he finally said with a broad smile. He glanced at the sun, then turned to what he thought was north and waved. "Farewell, and good fortune, Nikalan," he called.

Ilyire untethered Glasken's camel from his with obvious relief.

"Riding, now!" he snapped.

Glasken took the reins. "Kush! Kush!" he said confidently, and the camel knelt at once. He stepped into the saddle, buckled in, and checked the sand anchor and timer. "Shill, shill," he said, and the camel stood. Ilyire spat into the sand, then mounted his own camel. He was sullen as they rode along behind Glasken, and he muttered to Theresla constantly.

"He is lying to us. Probably a deserter from some army."

"Well then, he should be a good fighter," she replied with a smile. "He seems well educated and articulate."

"Perhaps Ni-kalan was a senior officer. They could have deserted together, taken refuge in the Fostoria oasis, then been captured by the caravan's lancers. They were to be questioned about the military arts of the Austaric cities and empires--Yes! Surely that was it."

"Gla-ssken. A strong name."

"Perhaps he will be shot for desertion when we reach Maralinga," Ilyire said hopefully.

"Come now Ilyire, we must speak with him constantly and learn his language."

"I saw him glancing at you, ogling the curves beneath your robes. If he so much as gestures to you I'll cut his hands off."

The journey was all heat, boredom, and red dust, punctuated by a few spasms of alarm when the Kooree nomads confronted them. Ilyire had by now refined a tactic of looking to be retreating while tacking along in their original direction. Thus the encounters seldom involved more than an exchange of shouts and brandishing of weapons. To the Koorees, the invaders were seen to be driven off, honor was satisfied, and nobody was hurt. It was so different from the bloody battles by which Kharec and his larger force had hacked their way south.

Ilyire knew how to survive in the desert now that they were not hastening along with the Call. He could read the subtle signs that showed where to dig soak holes for water, and he used a sheet of translucent membrane over a pit of leaves to collect very pure water when it was safe to stop for any length of time. Glasken was acutely aware that he was being watched for any signs of lechery toward the Abbess. Theresla was quite obviously the leader, but without Ilyire they would have been hard put to survive. Theresla was rather hard to work out: fit, supple, and potentially more of an asset in any fighting than Ilyire, yet sometimes Glasken noticed her staring at him out of the corner of an eye. She definitely gave him little smiles, but they were always fleeting.

The country varied little from day to day, so that even the crossing of a dry riverbed became a big event. The small, tenacious bushes and trees gradually thinned, but never completely gave way to the red sand and broken rock. Harsh country meant fewer Koorees, as Ilyire explained every time Glasken asked if he was sure he knew where he was going.

As the days became weeks Glasken worked at the Austaric lessons as if his life depended upon them. In a sense it did. They could get along without him, and Ilyire clearly would have preferred it that way. Glasken's dilemma was one of staying friends with the Abbess without seeming to be familiar and so arousing Ilyire's anger. The Glenellen fugitives quickly learned the words for flies, sand, heat, danger, and the most minute aspects of camel saddlery. Conversations involving mathematics, literature, and the technology of the Southeast Alliance inevitably swerved to fat lizards, dangerous snakes, and the estimated distance to Maralinga. At night Ilyire always took the watch, and during the day he spent a lot of his time in the saddle dozing while Glasken taught Theresla Austaric ballads--and sometimes love poetry--and explained the basic tenets of physics and chemistry as taught in the University of Rochester.

"Many ladies must have, ah, cried for your leaving," Theresla said one morning as they plodded across a dry lake bed encrusted with salt. It was the first time that the subject of dalliance at a personal level had been raised. Glasken had been patiently awaiting such an inquiry for weeks.

"I had many admirers, Frelle Abbess, I cannot deny that. As to my departure, it was probably a puzzle to them. One particular girl, a mean and poisonous wench, became obsessed with me and sought to make me all hers. She was from a very rich and powerful family, and it would have profited me greatly to marry her. Nevertheless, I refused to trade my freedom for anything other than true love. She flew into a rage and paid a shadow boy gang to abduct me. I laid out five of them with my swagger stick, but they finally beat me to the ground and bound me tightly. I was taken far away and sold as a slave, but eventually I escaped into the desert with my friend and fellow slave Nikalan. We suffered terribly before we stumbled into the oasis at Fostofia."

"So. You are not soldier?" Theresla asked, playfully rather than as an accusation.

Cursing himself for the slip, Glasken wove his words quickly to cover up the rent in his story.

"Frelle... how could I have explained such subtle affairs of the heart before, when we had practically no words in common?"

This seemed to satisfy Theresla, and she rode on in silence for a time. After checking that Ilyire was a safe distance behind and still asleep she guided her camel beside Glasken's again.

"Why did caravan master.. " taking you prisoner?"

"Take me prisoner. We were merely strange fugitives from unknown lands. We were to be questioned by your elders in one of the Alspring cities. Perhaps they want to find new lands to trade with or invade."

By the time they emerged from the dunes onto a vast, treeless plain of bushes and tufty grass on pinkish limestone, Ilyire and Theresla were reasonably fluent in simple conversational Austaric. Ilyire smiled for the first time that Glasken had seen as he unrolled a map and indicated their location. Maralinga was close. They decided to make camp early, and the sun was still well above the horizon as they ate.

Theresla volunteered for the watch, and Ilyire reluctantly agreed. He seemed unusually tired to Glasken and was soon deep in sleep and snoring. Theresla stretched out on her sand mat with her head resting on a pack. The hem of her robe had ridden up a little, and both of her calves were exposed. Glasken glanced at her legs, then hurriedly stared hard at Ilyire.

"Crystal of oblivion, ah, put in drink," Theresla explained, gesturing to Ilyire.

Glasken's head snapped around. "He cannot wake?" he asked, his loins stirring even as his mind scrambled to interpret her words.

"Not for.." ah, many minutes."

For once a seduction was moving too fast for Glasken. He looked into her smiling face, then back down to her legs. She stretched again, and slid forward. Her robe rode up above her knees.

The urge to reach down and fling her robe right back was so strong that Glasken could barely fight it back. He moved slowly forward and knelt beside her. She put a hand out and stroked his beard. "I thought she was afraid, Till she stroked my beard,

And we were both wondrous merry." "

"What is that?" she asked. "Austaric poem?"

"A few words of a student song. An old, naughty student song."

"Our students ... all from religious orders. They sing chants, only. Some times, ah, moral epics."

Slowly, cautiously, Glasken reached out and stroked her hair, then ran his fingers along her chin. She trailed her fingers down his chest, through the black hair there and along his ribs. His hand dropped cautiously to her side. Theresla smiled. His fingertips caressed the lower curve of her breast.." and her smile remained. The gates of paradise are wide open, his mind shouted. "How long will he be--" "As long as need." "You're sure?"

"No needing hurry."

The magnitude of the prize and the fear of who she was blunted Glasken's haste enough to prevent him bundling her out of her robes with no more ceremony whatever. He was still half-fearful as he fumbled with the knotted belt at her waist, but then she did likewise with his own knot. At the feel of a smooth leg against his own he suddenly threw caution to the desert winds and rolled on top of Theresla, but with a sinuous movement she was suddenly on top of him. Her breasts hung enticingly, slowly descended, then the nipples caressed his chest. "Not so much fast, Fras Glasken. Just little more longer."

"In Greatwinter's name, Frelle Abbess! Why hover above the altar of ecstasy when you could just--"

A Call swept over them, blotting out Glasken's consciousness, yet.. he did not move. Theresla hovered above him on her hands and knees, exploring subtle feelings, tensions and energies.

"You are part of a great experiment, Fras Glasken, you should feel honored," she said softly in Alspring.

Slowly she raised herself, so that her breasts barely touched Glasken's skin-and then rose clear. With no contact at all between them Glasken still did not wander away with the Call.

"Your lust defies the very Call itself," she said in genuine wonder. "In all the world, not another lust to match yours, I would wager.. but this is enough for now. I have much to think about."

Theresla suddenly rolled clear, and Glasken heaved himself up to walk south at once. She lashed out a foot and tripped him, then tied a tether to his waist. As she dressed Glasken struggled at the end of the tether, his face blank, his interest in her gone. It took her some time to get him dressed again, as he had no interest in anything except wandering south. Finally she parted Ilyire's lips and tipped a drop of liquid from a small phial between them. She counted fifty heartbeats with his pulse, then shook him roughly.

"Ilyire, wake up! A Call."

Ilyire's muscles rippled but he opened his eyes without jumping up or saying a word. Seeing only Theresla he rose slowly from his sand mat and looked to the sun.

"Nearly sunset, that's good. The Call will stop soon and become a null zone right over us. We'll be protected for the night. Maralinga Railside is not far now. We can throw this turd on their dung heap and be about your business with their mayor." '

Theresla lay stretched out on her sand mat in much the same position that she had been in when Glasken had tried to bestride her, gazing at the ruddy furnace of the setting sun amid the flaming ribbons of cloud. The air was already noticeably cooler.

"We're so close to the Edge of the World, it seems a pity not to go on," she said as Ilyire began to repack the dried meat. "The wind trains will take us far away, to see the Mayor and Highliber."

"But I have seen the Edge for you," quavered Ilyire, like an artisan whose craftsmanship had been questioned.

"I must go there myself. I have tests to perform."

"I did every test that you ordered."

"But I developed new tests and techniques to probe the Call while you were away. I can sense a Call coming, did you realize that?"

Ilyire stared at her with suspicion. He had not realized it, and with a sudden twinge of horror he twisted around to look at Glasken--who was still straggling mindlessly at the end of his tether. No, not possible, he concluded, and turned back to Theresla.

"All right then, we go to the Edge. We can leave this maggot of a camel's turd tethered within sight of Maralinga."

"He will come with us to the Edge." "With--never! Give me one good reason." "There is a thin black band across the sun."

Ilyire turned and stared at the sun, which was just touching the horizon. Across its disk was a thin, black line which had been swamped by the glare while it was higher in the sky.

"What is it?" he asked, wide-eyed and incredulous.

"The end of the world, and the reason why Glasken must come to the Edge with us."

"It's just a cloud."

"Have you ever seen such a cloud?"

Wringing his hands, Ilyire looked from the sunset to Glasken.

"Theresla, dearest sister... I've seen him glancing at you, running his eyes under your robes. Every time he licks his lips I just know that he dreams of running his tongue over your nipples, his filthy mind is filled with thoughts of defiling--" "So what would you have him do, Ilyire? Ogle you instead?" "What? I'd shoot him for a sodomite!"

"So you'd kill him whatever the case. Why not kill him now, while he's helpless?"

"Ladyship, sister, honor forbids that. He just needs to learn his place--" "And he does know his place! Why else would he be furtive about glancing at me? Be sensible, half-brother. The man is a rascal, but we have learned much from him. Besides, I need him for some experiments at the Edge."

Ilyire jumped to his feet. "What? You? Him? Experiments? What sort of experiments?"

"Experiments that require someone not trained to resist the Call."

"Use a camel! Anything would be better than Glasken."

Theresla thought for a moment, looking across to the rapidly vanishing sun. Ilyire followed her gaze.

"There is a risk, of course. A risk that my experiments will fail, and that Glasken will be drawn over the Edge by the Call."

Ilyire was torn between hope and disbelief. "In what manner?" he asked, twisting strands of his beard until the roots hurt.

"I mean to hold him against the Call without a tether."

The disk of the sun winked out below the horizon, taking the black stripe with it. Ilyire's shoulders sagged with relief with it out of sight. He turned back to his sister, but she was solemnly shaking a finger at him.

"It is still there, my brother, an arch of black nothingness where the stars are obscured."

Ilyire shut his eyes tightly. "All right, all right. I understand nothing, but Glasken can come with us."

CATASTROPHE

Early the next morning they broke camp as the Call began to move, and before the sun was high they were within sight of the pale, gleaming walls of Maralinga Railside. As they reached the rails of the paraline Ilyire pointed to a dark shape in the distance, and they could hear a rumble above the wind. They crossed the paraline and let the camels go a hundred paces farther south before reining in and looking back.

"See, that long, low thing with the striped cylinders pointing to the sky?" Ilyire said as he pointed to the machine approaching from the west. "That is a travel machine."

Theresla stared as it drew near, amazed as its sheer size grew increasingly apparent. The rumble in the air seemed to beat against her, and she could hardly believe that there were no horses or camels pulling it. It passed them, an immense complexity of tubular rotors, balance booms, wheels, and masts, and behind it were coaches as featureless as the engine was complex. "Great Western Paraline Authority," Theresla read from the Austaric lettering beneath the windows. They watched it dwindle away toward Maralinga Railside.

"How does the machine's driver resist the Call?" Theresla asked.

"He doesn't. It runs by itself until it's required to stop. Watch, listen."

As it reached the rail side outer mercy wall, there was a clang as a

brake post beside the rails tripped a lever protruding from the engine. It began to slow at once as the drop chocks gripped the wheels, screeching and belching smoke, but soon all except the spinning rotor towers and masts were obscured behind the wall. There was an echoing boom from the impact of the train against the buffers that had brought it to rest.

"All automata, no humans needed," explained Ilyire, attempting to seem casual about the wonder of it all.

"The sheer scale of their machines is a wonder," said Theresla with undisguised awe.

They stopped again just before noon, and while Ilyire tethered Glasken and the camels, Theresla found a boulder that was passably level and set up a brass crosspiece on screw down feet and adjusted it with a spirit level. As solar noon passed she noted the length of the edge pole shadow and direction on a pair of marked scales.

"I have an absolute north from the noon shadow Ilyire. Come and adjust your compass." He was pouting a little of his drinking water on his hands, a ritual that he performed each time he was forced to touch Glasken.

"What is our parallel of latitude?" he asked as he loosened a clamp and nudged the reference ann on his compass.

"Thirty-one degrees, six minutes."

He paused to estimate figures and distances. "Our southwest bearing is five two, and we are following the Call's new bearing precisely, so... the Edge is thirty-five miles away." .

As she began to dismantle her sighting platform she held up a brass plate with a tiny hole at the center and projected an image of the sun onto the rock face. Compared to the previous sunset and the morning's sunrise, the band across the sun had moved a little higher, and was thicker.

"Hold this for me, and hold it still," she said to Ilyire.

He muttered something about blasphemy but did as she said. Theresla took out a pair of dividers and measured the band's thickness and its position on the solar face.

"The Call that we travel in will stop for the night perhaps six miles from the Edge, am I tight?" Theresla asked.

"That is probable."

Theresla gave him her most unsettling smile. "Good, good, that suits me very well. You say that the Call sweeps across this treeless plain quite often?"

"Yes, every three or four days. It's odd, because there are very few animals here. Perhaps the great fish who project it are somehow aware of the Austatic speakers in their wind trains."

Theresla set a timer to wake them two hours before dawn the next day, and they dragged their camels along before the Call began to move. The waning moon rose with Venus to light their way through the stunted bushes and broken rock. Glasken gave a yawn truncated by a gasp as they passed through the stationary leading edge of the Call.

"A Call!" he shouted in alarm, and Ilyire laughed.

"A Call, Fras Glasken. Too right, you are."

"It's You are right," Glasken angrily corrected him as he glanced about. "But I was lying--ah, in a camp, and it was daylight. Now it's night and--look at the moon! I must have been mindless for days. What has... I mean, I don't understand."

"You are slow, even with all studying," laughed Theresla. "Phase of moon show one passing day only."

"And you anchored us out of the Call so we are going.." north? No, the

Call doesn't move at night. Besides, look at the stars: we're going south!" "Very good," mocked Ilyire.

"But how can anyone escape a stationary Call? It's not possible, unless an anchor holds you until the Call moves on."

"Have you not, ah, realized, Fras Glasken?" said Theresla. "Asking how did rescue you from camel train during Call? Call does not touching me and Ilyire."

Her revelation silenced Glasken as he recalled breasts of the most exquisite shape and symmetry hanging above him, breasts which then descended to press lightly against his pectorals. Then the Call had blotted it all out. What had he done as the Call had struck? Obviously Ilyire had stayed asleep: his head was still attached, he thought as he rubbed his neck.

It was dawn when they stopped. Theresla took sightings from the rising sun and measured what seemed to Glasken to be an oddly regular band of cloud across its face. There was a strange, rhythmic rumble in the distance and tang of salt on the air.

"The Edge is very close," Ilyire whispered to Theresla in Alspring, and pointed out an odd parallel below the horizon.

"Time to unpack and secure the camels," Theresla decided.

"Hey, lazy turd of camel have anus disease, you carry rocks, make Call shield wall Ilyire shouted to Glasken, who sullenly obeyed.

Theresla unpacked a length of rope and some instruments; then she and Ilyire walked toward the Edge.

"A band of perpetual Call extends a few hundred paces back from the Edge," Ilyire explained. "That cairn marks it, I built it last year."

"Yes, I sense it," Theresla agreed. "If the moving Call is like a net, this one is like a fence. Whatever is beyond the Edge does not want to

be seen."

Glasken watched them walk some way toward the odd, double horizon, then vanish. Clearly there was a cave in the plain that they had entered to explore, but that was none of his business. He dropped the last of the rocks to complete the V-shaped deflection wall and piled their gear behind it. When the Call came past later that morning they would not be trampled by passing animals.. " except that Theresla and Ilyire were immune to the Call. That perplexed him, yet he was curiously heartened as well.

He reached down to lift one of Ilyire's saddle packs--and was alarmed to feel air rushing past his hands. As he stood frozen the air rushed back the other way. A giant down there, breathing, he thought for a moment. A flat, pink rock beneath the saddle packs appeared to be coveting the mouth of a small cave. Ilyire's gear was right over it... very significant. Glasken grinned and looked to the horizon. No sign of them. He moved the saddle packs and seized the edge of the rock. It was heavy, but he was strong and raised it without much trouble. There was Alspring writing cut into the lip of the little cave, and he recognized Ilyire's script.

Glasken found the entrance a tight fit, and his eyes took some time to accustom themselves to the gloom. He went in a short way and stopped. The place was suffused with the soft gleaming of gold and swirling clouds capes of blue opal, shot with sparkles of gemstones. For a time his mind seemed to blank out; it was almost as if he was in a Call. The trance passed and his thoughts raced. Two pack camels could carry the lot, he could flee north and flag down a Great Western wind train on the par aline but Ilyire was fast and deadly, and more to the point he was immune to the Call. He stared at the piles of wealth again, this time assessing and estimating. The air in the cave continued to move, as if he were in the mouth of a breathing dragon. It continually underlined the danger he was in.

His saddle pack was not full, and he could stuff the remaining space with enough gold coins and small jewelry so that the loss from the hoard and the change in his baggage would not be noticed. Even that would be the worth of the crown jewels in some small may orates He could go to the Emir of Cowra as a refugee Islamic prince from the far west, buy an estate with farmlands, buy five wives, buy enough wine to--but wine would be a problem with the Southmoors. Better to flee west as a refugee prince from the east. He made a hasty but careful selection of items and emerged from the breathing cave. The others were still out of sight.

After replacing the flat rock and Ilyire's gear he carefully hid the wealth of the Call victims in his saddle pack As he pulled the final strap tight he noticed that Theresla had emerged again, and was hurriedly pulling up a rope from somewhere.

She walked back with brisk strides, casting a long shadow in the morning sun. The rope was coiled about her shoulder.

"Where were you, Frelle Abbess?" Glasken asked.

"Climbing over Edge... the world, of."

"Climbing over the edge of the world--you were what?"

"I were--was--making experiments. Watching marvels are, not for your eyes. My Austaric is bettering?"

"Is better, yes, but, but--"

"Ilyire is, ah, left down, under ledge, near water. Ilyire is ordered to experimenting for me." She slipped the rope from her shoulder and held it up. "Ilyire is not happy."

Glasken returned her little grin with a knowing leer, yet his mind was racing all the while. With Ilyire out of the way he could bind Theresla, then empty the treasure cave and take the lot north on the pack camels. The Abbess would fetch a good price in the slave markets of the Southmoors, and he could buy a small may orate for what was in the cave. But first... "Fras Glasken, we have business for finishing," she prompted, as if reading his last thought.

"Please, Frelle Abbess, no lengthy preamble this time," he said, tugging at the knot of his belt.

She spread a sand mat on the pink dust and broken stones, then began to undo her robes. Glasken stood naked facing into the morning sun as she stood with her back to it, holding her robes open.

"Come to me Fras Johnny Glasken. Come do what you will--"

The front of the Call rolled over them. Passion, pheromones, animal and mental cues mingled and balanced. Glasken's muscles crawled and twitched... but Theresla held him against the Call across a narrow gap of air, using no physical tether. In a different age, in a different science, it would have been called a tuned circuit.

What was set up between Glasken and Theresla was more than just an invisible tether; it interacted with the Call itself and tuned signals out of the world's two-thousand-year-old affliction. The Call was from the voices of the Callers, and as Theresla had hoped, they used the voices to communicate. It had always been known that the Call did not affect birds or reptiles, or mammals under a certain size, but nobody had ever traced its allure to sexuality. Most people surrendered to the Call as if being seduced, and Theresla had developed a theory that some rare individuals might surrender to sex so completely that in some circumstances even the Call could not quite draw them away. Glasken was the living verification of her theory, and she knew that she could use him to modulate and amplify the voices behind the Call into speech.

Theresla listened, her eyes unfocused. There were feelings and concepts rather than words at first, but she knew that they came from the shapes in the water beyond the cliffs. Or some of them, at any rate. Ilyire had been right. Sheep and shepherds. Shepherds calling

food for their sheep with fantastic horns that were heard without ears. Meat for fishes. Animals being dragged along by the Call were bounding past now, but the deflection wall kept Theresla and Glasken undisturbed. She noted distant bodies tumbling over the cliff. Small, sharp sensations of satisfaction came to her, and the taste of blood in the water. These would be those sleek and fantastic sheep bleating with pleasure.

The sensations of the shepherds were softer, but more complex. At first she just noted the patterns and feelings without understanding them, but as speech it was simple, she came to realize. These were not elite scholars, they were as simple as human shepherds, she told herself. The patterns were odd, but would not be hard to project. There was a temptation to shout to them, but she hesitated. A sage or yogi seeing a huge fish emerge from a river and speaking a jumble of human words might well recognize a fellow intelligence and try to converse. A simple shepherd would probably reach for his fox gun Theresla listened, watched through other eyes, felt herself float and swim. Words began to match with understandings and perceptions. The shepherds were conversing idly while projecting the Call. They were ideal for Theresla's purpose.

Sooner than she wished, the Call ran its course. She felt the trailing edge approaching, reluctantly broke her self-induced trance, and waited. Her back had been to the sun as she held her robes open, so she had been well protected. Glasken had stood facing her, totally naked, for hours. He was sunburned deep pink.

As his mind returned he cried out in pain and surprise, then collapsed as Theresla swept her robes back across her nakedness. He had sunburn all down the front of his body, although slightly more on the right than the left because of the angle of the sun. She splashed some water from a skin over his head. "Get dressed, Glasken. Ilyire to be getting rope back." "Gallop Callbait, I'm roasted," he groaned. "What, how?" "Dressing. Quickly!"

"My cod! It burns like a dose of pox."

She threw his tunic to him and he put an arm into one sleeve.

"Argh, no. The cloth's agony to my skin."

"Suit yourself," she said simply, picking up a tether. "Now be still, this be for your good health." Glasken howled as the strap rubbed against his skin.

By the time Ilyire crawled back over the Edge Glasken was still lying naked on his back.

"What in the name of--he's naked!" Ilyire thundered as they approached. "A painful experiment, you should be pleased," Theresla explained.

Glasken continued to groan. Suddenly Ilyire gasped, then smiled beatifically as he realized that Glasken was burned only on the front of his body.

"Darling, wise, just, beautiful sister, you staked him naked in the sun for the whole of the Call! How could I ever have doubted you? Please, will you ever forgive your silly brother?"

Theresla forced back a smile. "You can start by robbing ointment on his skin and bandaging him so that he can stand to be clothed again."

"Touch that maggot of a camel turd? Ah, a cruel punishment, sister dearest, but I bow to your wisdom--no, no, don't tell me: You want him saved so that you can do this again."

"Why Ilyire, you read my mind."

"Dearest, wonderful sister!" Ilyire composed a few words in Austaric and knelt beside Glasken. "Camel turd, I bring ointment and rub on with cloth. You lie still or I rub on with saltbush branch. Yes?"

It was another two days before Glasken was fit to travel. Ilyire found another cave in the limestone plain and Glasken sheltered from the sun inside it. Theresla spent the time making observations and drawings at the Edge. She explained that the supposed breathing of the cave was probably caused by waves at the base of the cliffs washing in and out of some vast labyrinth beneath their feet.

The journey back to Maralinga was slow because the blistered Glasken needed to rest quite frequently. He had lost all interest in sex and at first was barely able to keep croaking out his lessons in Austaric, but was much improved when they reached the par aline. When they caught sight of Maralinga's beam flash tower the sun had just set. They could see a light twinkling at its summit, which was trailing flare smoke into the wind.

"Another two hours, sister," Ilyire reckoned.

"Say all in Austaric," she ordered.

"Traveling two hours. Camp here. Go on tomorrow. In dark get shot, perhaps."

"Am wishing arrive tonight," she replied. "I agree," said Glasken. "Camel turds have no--"

"Quiet!" snapped Theresla, gesturing to the sky in the gathering gloom. "Look up."

There was a thin band, a slash of starless blackness which bisected the firmament. In the west a copper-colored, fuzzy light was rising. Like a comet without a tail, it was at the very center of the band.

"So?" grunted Ilyire.

"Important I go Maralinga now. No time losing."

"To lose," added Glasken, anxious to be free of both of them. "I'll ride on ahead and risk getting shot."

"First good suggestion you make--" began Ilyire.

"We go together," Theresla decided.

The Highliber realized that the chance of Ilyire and Teresla ever returning to

Maralinga was probably remote, yet she had ordered the rail side to be

fitted out to prepare for them. They were challenged at the southern

sentry post two hours before midnight, and once the sergeant of the watch realized who they were he lit a green flare to alert the rail side. The Marshal had assembled the staff and troops of the entire rail side for a lavish welcome ceremony that he had been planning ever since he had been appointed. Only the beam flash crew was absent, and they were already transmitting messages to the Highliber.

By the time Theresla, Ilyire, and Glasken were being escorted through the rail side cloisters to a hastily prepared open air banquet, the Highliber's reply was being decoded in the beam flash gallery. A lackey brought it down in a pulley cage and ran to the courtyard where the Marshal was raising the first toast to the travelers. He broke the seal with a flourish and held the poor paper up to a lantern.

"A message from the Highliber," he began grandly. "She sends her greetings to the Abbess Theresla and the intrepid warrior Ilyire, and bids the good Abbess go to the tower gallery at once to speak with her over the beam flash

"A message?" exclaimed Theresla. "I am told... Highliber is living, ah, very distant."

"It's the signaling towers that I tried to explain about," said Glasken. "They relay messages to anywhere within minutes."

"Fras Glasken is nearly right, but we are so remote here that a securely coded exchange with Rochester takes almost an hour," added the Marshal. "Un fortunately Overliber Darien vis Babessa had been recalled to Rochester--"

Ilyire gave a loud sigh of relief and Theresla giggled. The Marshal paused with his mouth open, then went on.

"Luckily a beam flash inspector from Rochester is visiting the rail side to explain some new codes and procedures. She will code and decode for you."

Theresla squirmed, then shivered. She was not used to being with so many men, and the relative familiarity of even the most respectful of them was unsettling

"Where to speak with Highliber?" she asked.

"You could give a message to me, Frelle Abbess, and I would have it taken to the beam flash gallery at the top of the tower for transmission," said the Marshal hopefully.

"An hour exchanging, more minutes for up and down tower," Theresla said aloud as she looked across to the immense stone and wood structure. "I am wishing to say, ah, very secret things. Highliber says go to gallery, so do I. Is Inspector of gallery trust able

"She has a higher security clearance than me," the Marshal assured her. "Then I go. Up tower. Please to have me taken."

Leaving Glasken and Ilyire to eat, drink, and listen to the speeches and music, the Marshal escorted Theresla to the tower's lift cage and worked the drive clamps. He was in full parade uniform while his distinguished guest was still in reeking, travel-stained lancers' robes. The contrast made his skin crawl.

"You have men pulling.. cage up?" Theresla asked as the lift ascended the center of the tower.

"The cage is lifted by counterweights, Frelle, as in a reciprocating clock."

"Re-cipro-ca ting Don't know word. Counter-weight machines, yes, we have them. What resets counterweights?"

"A rotor tower driven by the wind provides enough rewind for twelve ascents and descents per day. We seldom need even half of that."

The beam flash gallery was mostly enclosed, so that the operators' eyes would remain sensitive as they looked through the telescopes and read the signals from the distant towers in daylight. One telescope pointed east and another west. The beam flash network had been extended west by another three towers since Ilyire had last been there, and Kalgoorlie would be linked to Rochester within another year.

The beam flash crew sat ready at their equipment and the Inspector met them at the cage landing. She was a cheerful but brisk woman, dressed in a black uniform and wearing a Dragon Silver arm band that gleamed in the soft light from the lanterns. As the first high official from Libris that Theresla had encountered, she made a good impression.

"Marshal, another request," said Theresla as they stood before the lift's door.

"Man with me is great value. You protect with all cost. Yes?"

"Which man, Frelle Abbess?"

"Big, strong man, Fras John Glasken."

"At your word, Frelle Abbess. Shall I hold him in chains?"

"No, no. Just keep safe. No sexing with women, too. Yes?"

"He will be treated like a mayor but watched discreetly. Now, may I introduce you to Beamflash Inspector Lemorel Milderellen, Dragon Silver, EdR. Frelle Milderellen, this is the Abbess Theresla of Glenellen."

The librarian bowed stiffly in the gloom of the beam flash gallery, her eyes bulging wide and gleaming in the lamplight. There was no longer a smile on her face.

"The day's fortune to you, Frelle Abbess," she said in a cold, controlled voice.

The Marshal stepped back into the lift cage and descended. Theresla was used to people being nervous in her presence, but Lemorel's abrupt change in manner surprised her particularly. After reflecting for a moment she decided that the librarian's sudden coldness was probably something to do with Libris discipline. Lemorel began to show her around the gallery and explain the equipment. Theresla frowned at some of the words.

"Frelle Abbess, I have become reasonably fluent in your language with the help of Overliber Darien. Should we speak in Alspring?"

"No, Austaric speaking please."

Lemorel shrugged and guided her to the beam flash transmission desk. "Now, do you have a message ready for Highliber Zarvora?" she asked.

Theresla had rehearsed any number of greetings for the Highliber, but in spite of Glasken's account of beam flash technology she had not been prepared for this. Lemorel made some adjustments to an encryption machine, then linked its output lever to the beam flash key. Theresla spoke some thoughts and formalities in her limited Austaric and Lemorel wrote them into a consistent message.

"How does this sound, Frelle Abbess? "I am honored to greet you, Frelle Highliber. Your machines and science are astounding. I know the basics of your language. I met a man who once worked for you, John Glasken. He was a prisoner of my people, but I freed him. He taught me some Austaric while we traveled SOUTH." "

"Seeming right," Theresla decided. "Send." "Is that all, Frelle Abbess?" "Ah... yes."

"With respect, Frelle, there is nothing of substance in your message for the Highliber. Do you have anything important to tell her? Remember that her reply will not reach here for at least fifty minutes."

Something important! Theresla frowned for a moment, but could think of nothing else besides the Call. She began to explain what she had seen and done. Finally Lemorel read the text back.

" "I have been to the Edge of our world. I have looked upon the source of the Call. It is made by huge fish. I have listened to their speech with a special machine of my own making. Is this of interest to you? I know nothing of your sciences and philosophical researches. You must ask many questions. What do you know of the band across the sky?" "

"Is good, you send," Theresla decided.

Theresla watched Lemorel typing, mesmerized by her fingers flickering over the keys of the encryption device. The message clicked into pulses of light focused from a flare above the gallery. There were twenty-one beam flash towers between Maralinga and Rochester, and the message would accumulate as much as a minute delay in each of them. In the clear night air of the Nullarbor there were few transmission errors, and the turnaround times were more like fifteen seconds. By the last word of her message the first pulse of light was only four towers from Renmark, at the western edge of the Southeast Alliance. Dispersing fog and the smoke from a grass fire at Robinvale would introduce errors after this, and there would have to be retransmission.

The Marshal sent a change of clothing up for Theresla. She washed and changed in the beam flash operators' tiny washroom while her message was making its journey. She emerged wearing a black tunic and trousers, with a Dragon Silver arm band. Lemorel watched her pace about hesitantly, stiffly, with her arms folded across her breasts.

"Is something the matter, Frelle?" asked Lemorel.

"Feeling bare. Like breasts exposed, legs naked."

"In our society this is modest dress. You could wear a cloak, but it would look odd in this hot climate."

"No, no cloak. Better feeling naked than looking odd." She ran her fingers along the well-tailored fabric. "Very lucky. My size and form, ah, matching uniform here."

"The Highliber sent a hundred uniforms across. The fittings ranged from small and thin to tall and fat. The Marshal's hospitality lackey is trained to estimate fittings by sight alone, then choose the correct uniform. We have gone to great trouble to make you feel welcome."

Theresla searched Lemorel's cold, composed face, increasingly nervous at her manner. "I disappoint you? Yes? No?"

"It's not my business to make judgments, Frelle."

"You seem, ah, distant."

"Do I, Frelle? I'm sorry. I work so much as the extension of a machine that perhaps I have come to resemble one."

Lemorel turned a smile on instantly. Theresla laughed with relief just as a bell clanged. A receptor began to work the keys of his paper tape punch. Although ten feet across the room, Lemorel closed her eyes and typed into the decoder. "You not read paper tape, Frelle?" asked Theresla.

"I recognize his keystroke patterns," said Lemorel tersely, her eyes still shut. A second strip of paper tape reeled out of the decryption box, and this contained the decoded message. Lemorel ran it past a frosted glass screen lit by a lamp.

"From Highliber Dragon Black Zarvora Cybeline, EdR, the day's fortune to you, Frelle Abbess. I have read an account of Ilyire's journey to the Edge of the land written by Darien vis Babessa. I wish to hear your account from your own lips, so we must meet at once. Instruct the Marshal to get a galley train ready. What is the nature of the machine by which you can hear the Call beings? The idea of communicating with them is of great interest to me. Our world is in danger from a machine left over from the old civilization, but while the Call scours our lands and cities we cannot easily stop it. Glasken was declared missing and presumed dead more than half a year ago. As to the band in the sky, I can only tell you to your face." "

Theresla pouted and cleared her throat. "I speak, you type. My Austaric only improve with using."

"As you will," said Lemorel, her fingers poised above the keys of the encryption machine.

"Frelle Highliber, you right. We need speaking together. My machine is, ah, human energies. Explaining later. John Glasken, vital part. His, ah, lustings so much, I never see similar. Must orotectin

Glasken. Costs no rnttr I find l him from Alspring traders. I not free companion, ah, Ni-kalan, also of--Frelle Lemorel, you are unwell?"

Lemorel had almost doubled over, clenching her fists, her face contorted. Almost as rapidly she straightened and took a deep breath, but within her head she had plunged over an Edge and down into insanity. For months she had tortured herself for putting Nikalan into the battle calculator and sending him to his death. She had even transferred to the Inspectorate to try to rebuild her shattered life. Now the truth had ridden out of the desert, and it had Glasken's leering face!

"A slight cramp, nothing serious," muttered Lemorel. She began to type again, speaking Theresla's words aloud. "I encountered, but did not free, Glasken's companion Nikalan." Please continue, Frelle Abbess."

"No more, thank you. Please to call Marshal on, ah, voice wire box?" Lemorel listened carefully as they spoke.

"Preparing... travel machine for Rochester," Theresla began. "A galley train," twittered the distant Marshal's voice. "Whatever. Leaving tonight. Teacher of Austaric come also." "Consider it done, Frelle Abbess. Is there anything else?"

"Yes. Murder wish Ilyire has for Glasken. Ilyire hating. Ilyire has strong morals, Glasken has no morals. Glasken on galley train to come. Is vital."

"That may not be wise. Glasken is badly burned and has sun-exposure sickness. Further travel so soon may harm his health." "Ilyire might soon kill Glasken." "Take Ilyire with you."

"Ilyire has work. Here. For me."

"Once Glasken can travel again I'll be his personal escort. As for Ilyire, I

swear I shall keep Glasken and him well apart."

"Ah, is good."

Theresla broke the connection, leaned back in the chair and stretched. By now it was past midnight. She removed the pins from her hair and it burst free in a black cascade. Lemorel sat with her hands clasped in her lap as Theresla began to comb out the tangles.

"Frelle Lemorel, my words to Highliber seeming strange, yes?" "The Highliber's work is never dull, Frelle Abbess." "More exciting than secret of Call?"

"I cannot comment. It's the discipline of the service."

"Discipline? Very good. Discipline not so much in Alspring cities. No discipline.., no... towers, trains, speech machines."

Lemorel nodded agreeably, then called for a lackey.

"Take the Abbess to the Marshal," she told the youth, then stood and bowed to Theresla. "I bid you the fortune of tomorrow, Frelle

Abbess."

Theresla imitated her bow. Lemoirel watched the roof of the life cage

descending for a moment, then returned to where Theresla had been sitting. With the aid of a lantern she picked four long, black hairs from the floor. She sat at the encoder and typed.

/ HAIR SAMPLES SECURED FROM ABBESS. BARBER HAS HAIR

SAMPLES FROM VINE MAN AND GLASKEN. SAMPLES WILL BE SENT

1 SEALED BAG WITH TRAIN'S CAPTAIN. /

She tore off the tape and walked across to the beam flash crew.

"Send this to the Highliber," she ordered.

"Can it wait until dawn, Frelle, or should I light another magnesium flare? We have orders to conserve them."

"Light a flare, Fras Captain. The Highliber will want to know this."

It took what remained of the night to insure that the almost becalmed westward express was shunted clear of the main line and into the siding at Tarcoola. Theresla did not sleep until she was aboard the galley train with her saddle pack of notes and instruments. As she began the journey east, Zarvora requisitioned a galley engine with the Mayor's personal carriage and set off west, taking Darien with her as linguist and translator. After two days the trains converged on the junction town of Peterborough. Constant, intensive tutoring had improved Theresla's command of Austaric somewhat.

Theresla's train arrived first. Ever curious about the strange and exotic Austafic civilization, she left her carriage to climb to the gallery of the control tower of the Peterborough shunting yards with her translator. The Overswitch had been told only that an important guest of the Highliber had arrived. He went through his usual tour description as they walked around the circular stone gallery.

"Peterborough's always been the junction of three major para lines but now, with the recent linkup of the Rochester may orates through the new Loxton tracks, aye, traffic is double or more."

Theresla looked down at her own train. The galley engine was on a turntable, being turned for the trip back to Rochester. The exhausted navy pedalers crew had already been relieved.

"So much steel," Theresla said in wonder as she looked out over the rails. "Hard to believe.. so much steel."

"Oh yes, these are big yards, Frelle. The rails here have been salvaged from abandons hundreds of miles away."

She looked at a large compass rose set amid the tiles of the floor. The Auso taric word for Call was right on the west point, and the names of the three main lines were also on the rim.

"Rochester is south now, yes?" she asked, disoriented.

"No, Rochester is southeast. The par aline runs due south for a way, then veers east at Edunda. Ah, see that galley train on the southern

par aline Very high priority on that one. It carries the Highliber. I've got nine wind trains ready to leave, yet they've been held for two days while you and the Highliber were converging. Seven of them are from the Central Confederation. Ah, but there'll be sharp words between mayors over that. You must be very important, Frelle."

"I am," said Theresla, watching the red and green engine with its gold coach pulling into the shunting yards.

There was a distant screeching of brake blocks being screwed down, and the train began slowing near Theresla's coach.

"Dummart, she's stopped on a proceed," shouted a signalman from across the gallery. "Right across trailing points, too."

"Switch out the para lines then halt all traffic on accident alert," the Overswitch called. "Aye, and send a runner to the captain of the Highliber's train to ask what her pleasure is. As Highliber asks, Highliber gets."

Theresla's keen eyes picked out the captain of her own train walking across to the newly arrived galley engine. He was carrying a black dispatch bag.

"We should go down to the Highliber, Frelle," Theresla's interpreter suggested, but she shook her head. Too many people were jumping at the Highliber's word, barely pausing to ask how high. She would make her wait.

Far below, Zarvora broke the seal on the dispatch bag from Maralinga and took out Lemorel's papers. Most of it was reports that expanded on what had already been said by beam flash but there were also three slim packages that also bore Lemorel's seal: they were marked THERESLA, LYIe, E, and GLASKEN.

She broke the seals and unpacked a brass microscope from her instrument case. Under the objective, lying together on the slide, the Ghans' samples looked like long, fine feathers. Zarvora sat back and folded her arms, nodding to herself. She took a little scalpel from the instrument case and cut the end of one of her own hairs. Laid between those of Theresla and Ilyire, it became another long, fine feather in the eyepiece. Glasken's hair was a plain rod, like that of any human.

There was no fanfare or ceremony for the meeting of Zarvora and Theresla. The Overswitch assumed that Theresla was a senior Dragon Librarian reporting to the Highliber on some matter of the highest importance, but he was puzzled by his visitor's odd ignorance of geography. The Highliber's galley engine was being reversed on the turntable. It would not be long before the shunting yards were back to normal, he thought with relief.

Zarvora was standing with Darien beside her as Theresla and her interpreter entered the coach. Theresla folded her arms, then swept them open and to her sides, palms outward. Zarvora bowed from the waist.

"Is men's greeting in Alspring," Theresla said as she walked forward. "For bidden to women."

"I shall not report you," Zarvora replied. "How confident are you with our language?"

"Having words for to order bat for breakfast, or lackey beheaded."

"That seems sufficient. Frelle Darien, would you take the Abbess' interpreter to the next compartment and take her report---but be ready to return should we need you."

Darien nodded and turned for the door, but Theresla seized her arm. "You are Darien, with no voice. My brother, ah, besotted with you." Darien blushed, then held up a card with THANK YOU written on it. "We speaking later, yes?" said Theresla as she released her.

Alone with Theresla, the Highliber sat at her desk beside the window while her guest lay on a leather couch on the other side of the coach.

"Moving palace," Theresla observed, looking over the opulent fittings. "It belonged to our Mayor, but is now surplus to his needs."

There was a heavy rumble as the galley engine rolled backward off the turn table, building up to a heavy lurch as its couplings crashed into those of the coach and engaged them. Moments later the coach was moving forward, rattling over a set of points. Theresla watched the vista of track work and parked trains passing the window and seemed disinclined to speak.

"You have never been able to teach anyone but Ilyire to defy the Call," Zarvora stated flatly, not trying to disguise her impatience.

Theresla looked around slowly. "You cannot know, Frelle Highliber."

"I did not go to so much trouble to make you welcome just to endure a display of pouting and posing, Abbess. Either we act as equals or I shall have you returned to Maralinga and turned loose to do as you will."

Theresla looked out of the window again, in time to see the train pass through the gates in the town wall. Beyond was scrubby grassland grazed by tethered sheep.

"But we are not equals, Frelle Highliber," she said without turning back. "I can defy the Call, like this Call..." She raised a hand. "Now."

She dropped her hand. Almost at once a dead hand alarm clanged somewhere at the front of the train as the Call swept over them.

"Ah, you can anticipate the Call," said Zarvora. "A good trick, Frelle Abbess, you must teach it to me some time."

Theresla cried out in surprise and whirled around so fast that she lost her balance and tumbled from the couch, thudding to the floor. Zarvora was sitting at her microscope, calmly peering through the eyepiece.

"Why are you sitting on the floor with your mouth open, Frelle Abbess?" she asked, glancing up. "It does not become you."

"But how? I, I--you..."

"I was born with latent resistance to the Call, as were you and Ilyire.

You have much to offer, but not a method to resist it. If we are to work together, we need some mutual respect. Agreed?"

Theresla remained sitting on the floor, speechless. Her wildest fantasies of this meeting had not included anything like this.

"You have rankings above me..." she began; then her pride smothered the rest of the admission.

"In your patriarchal society you dealt with those with power over you by keeping them guessing, playing the part of a deranged genius. You see, I am not so very insensitive, am I? Frelle Theresla, you do not need to do that anymore. Dragon Silver confers status, freedom, and power. What more do you want?"

By now Theresla was back on the couch, but she sat hunched forward, staring at Zarvora intently. Zarvora noticed a glistening at the edge of her eyelid.

"Frelle Zarvora, very hard, this, for me. I never trust. Not even Ilyire. Having no equals."

"Neither have I, Frelle. Now then, do you understand microscopes?"

The train had finally rolled to a halt, its crew and navy pedalers all in the grip of the Call. Theresla walked over to Zarvora's desk.

"Wish Ilyire been sister," she said, putting an arm around Zarvora's shoulders.

Zarvora reached up and gave her hand a short, convulsive squeeze. "At least you had a brother to love, Frelle. I had nobody." She gestured to the microscope. "Please, look through the eyepiece."

Theresla squinted down the tube. "Looking as would.." three emu feathers, ah, with string across them."

"The feather on the right is a length of your hair, collected by the beam flash inspector at Maralinga. That on the right is from Ilyire, the strand in the middle is one of my mine, and the plain one lying across them is from a human."

Theresla straightened, then walked to a window and looked out at the tethered sheep, all straining to walk east. Emus were walking among them, quite unaffected.

"Birds feel no Call. You, I feel no Call, have feather-hair too. We bird human are, yes?"

"Yes. When did you learn that you could resist it?"

"Turning twelve. Am older than Ilyire. I tried teaching him. No good. Suddenly, he learn. Was fourteen. I tried teaching my nuns. No good."

"Just as I thought, the skill is linked to puberty. I was eleven years old when a Call swept over me and did no more than give me a sort of shivery tingle. Over the years I have examined the hair of hundreds of people, but not one strand was as mine is. Not that of my parents, nobody."

Theresla sat on the edge of the desk, then suddenly lay out flat across Zarvora's papers and closed her eyes.

"Is ancient word for blasphemy against Diety's will. Gen-kehic, tamper in god works

"It is in my books as genetics, a medical skill. Today medicians could, say, cut off your ears, but before Greatwinter the medicians could change you inside so that your children would be born without ears too. Perhaps when the Call first medicians some of feature of birds into a few humans so that began some put they could resist the Call. Every so often an echo of that work arises, and beings like us are born."

"But why ancients, ah, not change all people to be as birds?"

"There was a war that caused Greatwinter. Many arts and sciences were lost. I have rediscovered the art of building calculation engines, calculors, but only by using thousands of slaves. The ancients had calculors called computers that worked by, ah, the essence of lightning, as from clouds in a storm."

"Elt'ronik. Essence of devil. Deity sent angel. Angel scouring elt'ronik from Earth. Scouring still, or so scriptures tell."

"Libris has books talking about an 'EMP' cannon, which destroys electro force machines. I do not know what the letters stand for, but the same book mentions that they were installed on 'orbiters.'" "Orbiter" is an ambiguous word, but it can mean artificial moon."

"The dawn and dusk travelers that wander among the fixed stars?"

"The Wanderers. Some of them appear to be ancient weapons, designed to detect and destroy electro force devices. They are why our attempts to build simple electro force machines always end with the wires glowing red and melting soon after they are activated."

Glasken had eluded his guards by climbing out of a window, and disguising himself by shaving off his beard. He had an assignation. She was a Dragon Orange, a plump, jolly girl with a very pretty face. She alone had been willing to defy the prohibition on dalliance with him that Theresla had ordered. It had not been easy. Winks, simpering looks, and finally notes had been exchanged. Glasken crawled along the stone guttering, then dropped to a courtyard and made his way to the stables.

As Weldie had promised, the stable hands were gone, even though it was only late afternoon. A soft voice called from the hayloft, and Glasken scabbled up the ladder. Weldie was there, out of her accursed Libris uniform, and wearing a cotton blouse and a lyre-print skirt.

"You escaped, Fras Glasken, I knew you could do it."

"Darling Weldie, call me Johnny."

"Hoof Johnny, so very ardent!" she exclaimed as he ran his hands up her legs.

"Please Frelle, please none of this foreplay business, just this once. I have been tortured for months by foreplay without after play

"Johnny, Johnny, of course. I love to be desired by a man who can't wait to have me."

"Then I'm your man. Oh, you're soft, you're paradise."

"Fras Johnny, my hero warrior."

In spite of the heaving and thrashing in the hayloft, nobody came to investigate.

Across the continent, to the east, it was already sunset. Zavora had ordered the train stopped so that she and Theresla could make accurate measurements of the band across the setting sun. The Tiger Dragons paced uneasily, their weapons at the ready. They were on a stretch of track that was not visible to lookouts on the beam flash towers.

"Its thickness seems stable now," Zarvora concluded.

"Is wobbling in orbit," said Theresla. "Soon to leave face of sun, then return. You predicted band, Frelle?"

"Yes, but from sparse clues. I found a reference to a thing called a 'nanocomposite constructor,' an electro force machine that does certain work but also makes copies of itself. One was sent to the moon just before Greatwinter." Zarvora explained the rest as they packed up the telescope.

"What is plan, you have?" Theresla asked as they walked back to the train in the sunset's glow.

"The band in the sky is an intelligent machine. It was built to serve us, so perhaps it can be persuaded to disassemble itself if we can contact it. Otherwise,

I shall attack." "You?" "Me."

"Attack that?" Theresla exclaimed, pointing to the setting sun's bisected disk.

"Yes."

"You being demented as me, but more. We to be getting along, ah, fantastically."

They climbed back into the mayoral coach, and the captain ordered the brake blocks unscrewed. The train began accelerating slowly and smoothly.

"I want to contact more people like us," said Zarvora. "I have begun with a survey of all the, ah, slaves in my Calculor. My study is piled deep with hair samples, just now. They will take days to check."

"Fetch other.." microscope, is name? I help."

"Well, thank you. I need help to explore cites in the Calldeath lands for the ancient weapons and machines. Radios, Fa'eighteens, rockets, plasma cannons

"Working, would they? Two thousand years is old."

Fr

SOULS IN THE GREAT MACHINE

"

"Something called shrink-wrap prevents aging, or so I have read.

"Speaking to Call creatures, maybe I can. Stop Call over Calldeath abandons.

Glasken is key. Call using lust as hook. Glasken having lust with no relenting. Have developed technique with lusting tension."

"Glasken. The name is vaguely familiar. I shall check with my Calculator and find his history."

"With only Glasken, it works. Tried others. Guarding carefully, Glasken."

"Inspector Milderellen will do that, have no fear."

Glasken and Weldie had been in the hayloft for an hour when the butt of a twin barrel Morelac obliterated his reverie. Weldie had been kneeling in the hay while Glasken introduced her to the bull-and-cow position. She heard a heavy thump and Glasken had slid off her.

"Sorry I could not get here earlier," said Lemorel as she turned Glasken's body over.

"That's all right, Frelle Inspector. Shames me to say that I quite enjoyed him."

"There's no accounting for taste. Help me get him back into his trousers."

"I made sure that he kept most of his other clothes on."

"Up, lift, push him down the chute--there. Now go! There's ten gold royals waiting beneath your pillow. Forget this ever happened."

"Good fortune, Frelle Inspector. You'll not kill him, will you? I mean, he was, well--"

"I need him alive more than you could believe. Now go!"

For all her skill with a flintlock, Lemorel was not exceptionally strong. Glasken, clubbed and bound, still weighed over 220 pounds. The camels padded about restlessly as she dragged him across the stables.

"Down! Down, damn you!" she hissed at the Alspring camels--that did not understand commands in Austaric and remained standing.

"Permitting me help, Frelle," said a voice from the darkness.

Lemorel dropped at once and rolled behind Glasken's body, the Morelac in her hand.

"Shooting not, Frelle. Sound bring soldiers."

The voice was soft, conspiratorial.

"Come out where I can see you" was all that Lemorel would concede. Lemorel watched as Ilyire emerged from a corner and into the light diffusing in from the lamps outside. He tugged at a camel's reins and softly barked "Kush! Kush!" It knelt at once. He took Glasken under the arms and heaved him into the saddle, then strapped him securely to the frame.

"Shill! Shill!" he hissed, and the camel stood up. "Kush, down. Shill, up. Remembering, please to. How to saddle and load others, you did?"

"I had a stable hand to do it hours ago. There's nothing suspicious about strapping saddle packs onto camels."

"Ah, but camel turd Glasken suspicious, yes? Why you wanting him?"
"To guide me to a man named Nikalan."

"Sickly one, Ni-kalan? Glenellen, is taken there. All I know. Making maggot rescue Nikalan?"

"Glasken's the guide, I'll do the rescuing."

Ilyire's composure slipped, and he seemed really aghast.

"You? Woman rescuing? Pervert acting, no, no, scriptures tell protect women."

The light was bad, and he barely noticed Lemorel's hand flicker. A palm sized metal star thudded into a post beside his head. He gasped and jerked aside, leaving several hairs stuck to the post.

"Fras Ilyire, in Austaric society you must choose the people that you insult with exquisite care. Insults lead to duels, and duels are to the death."

"Frelle, I... warn, only. Scriptures say protecting of women." He took a breath and swallowed. "You dress as man, act as man, yes? If not, bad morals. Priests lock you in convent, nuns reading scriptures to you, many years."

Lemorel nodded, and began to relax. "So your people have some sort of protection rule, like the purdah of the Southmoor women. I see your point. I must dress like a man to move freely in the Alspring cities. Meantime, you should take care who you insult. Understand? Insults kill."

"Gratitude for lesson. Make Glasken turd teach Alspring. Has few words useful."

"But I speak Alspring," Lemorel said, suddenly realizing that her grasp of it was better than Ilyire's Austafic. They changed languages at once.

"Where did you learn Alspring?"

"A linguist friend of mine gave me lessons." "A linguist without a voice?" "Yes, as it happens. Darien."

"I must meet her again, I love her."

"I think she has a lover in Rochester, but--"

"I kill him!"

Glasken groaned and tried to move against the saddle straps. Lemorel reached up with a pitchfork handle and beat him over the head. He slumped in the saddle again. Ilyire's teeth gleamed in a smile.

"Good Frelle, listen carefully. Go north to the sand hills then northwest, for five days. Then north, for a long time, months. The land is harsh, so there are not many Kooree tribes to avoid. Avoid

them, try never to fight, that is their protocol. It took me a year last time and I had many battles, but the bad will from Kharec's crossing was fresh then. Fifty days, it may take you fifty days.
Dress

SOULS IN THE GREAT MACHINE

as a man, ask the way to Glenellen when you meet anyone. Tell them that Glasken is your eunuch. Better still, make it true."

"Why haven't you killed him if you hate him so much?" Lemorel asked as she climbed the railings and stepped into her own saddle.

"I gave an oath to my sister not to harm the camel turd." He gave a low, oddly deep laugh. "I have kept my oath to the very letter."

"That you have, Fras. Now open the gates, if you please."

"Frelle Inspector, you will make the camel turd suffer, please? Fortune be yours."

At Lemorel's suggestion the Marshal and other senior officers of Maralinga had gathered in the beam flash gallery for a small but exclusive celebration. A lackey brought around a tray with a jar of wine and polished silver goblets as they waited for her to arrive.

"The Inspector is pleased," the Marshal declared to the beam flash captain. "The Abbess is safely with the Highliber and the upgrade of the beam flash procedures is complete."

"But where is the Inspector?" asked Captain Burla.

The Marshall glanced around the crowded gallery. "Delayed with work I presume."

"Perhaps a little toast before she arrives?"

"Why not, she is surely sour company," he whispered, nudging the Captain in the ribs before raising his voice. "Your attention, good folk," he said as he raised his goblet in a toast. "Listen carefully while I--"

A flash of light from down in the shunting yards was followed by a heavy detonation. Flaming debris arced through the air above the shunting yards as shots popped like fireworks in the darkness.

"An attack!" barked the Marshal. "Quickly, light a flare and alert the Irmana tower," he called to the beam flash captain as he hurried to the lift-head. The pulley ropes were gone, and the voice wire had been cut.

"Marshal, the flares are gone from the locker!" someone cried a moment before another explosion blew away part of the emergency stairway in the center of the tower.

Lemorel had not realized that there were tripwires with bells some distance to either side of the northern sentry post. Someone with a megaphone tried to hail her, but she ignored him and rode on. Shapes began moving, dimly outlined by the starlight and the distant fires at the rail side

She led the guards another mile north before anchoring Glasken's camel and attacking. In the gloom they did not realize that she was coming back, dodging from bush to bush. Her first shot barked out, hitting a

guard hit just below the collarbone. In a panic the other two fired at where the flash had come from, but she had dropped her musket and rolled aside, drawing her twin-barrel. The flashes from their own muskets betrayed their positions as her two shots echoed theirs.

Ten miles farther north she drew alongside Glasken's camel and removed his gag.

"Damn you Lemorel, they'll have us back by morning," he spluttered as he shook his head free of the cloth. "They've got trackers who can work by moonlight."

"But there's no moonlight, it's the time of the new moon. The rail side staff think that they're under attack, but once they realize that the shots were only fireworks they'll have to catch the camels I released and scattered."

The whites of her eyes gleamed with mania. Glasken shivered.

"They'll have to wait until dawn, then they must find our trail. Should they manage to do that, they can take you back over my dead body, and that should be difficult."

"I'll testify to the magistrate, I'll have you facing a squad of musketeers--"

"From now on, Frasn Glasken, whatever you say must be in Alspring. Understood?"

"Alspring? I barely know a word of it."

"Then search your memory very hard."

"Alspring's months away, through a bloody desert!"

"You learned survival skills from Ilyire. You'll teach them to me."

"And what will you use for Alspring money?"

"The coins and jewels I found in your saddle pack when I searched your room."

"You stole my treasure?" screamed Glasken so loudly that tiny animals scurried away in the darkness.

"Yield to fate, Glasken. You falsified beam flash transmissions and made me think that Nikalan and you were dead. You ripped him out of my life, now I want him back! You will help."

"You! Nikalan?" Glasken exclaimed, incredulous.

Mirrorsun was high in the sky, but its weak, coppery light gave them no more than a bearing as they rode north. They reached the dunes well before morning, and the wind obliterated their tracks in the shifting sands as they turned northwest. As the banded sun rose over the desert, the man who was the key to the very Call itself vanished without a trace.

A month later, to the very day, Theresja and Zarvora boarded the mayoral coach at Rochester's paratline terminus. The coach behind it

carried several guards and nineteen men and women who were nervous, wide-eyed and apprehensive. The train moved off, and had absolute priority on the parallel track south.

"Twenty Call folk among the Calculor's components!" Zarvora declared in triumph to Theresla. "Twelve from a group that lives within the Calldeath lands. They call themselves avia ds

"But why they were living among humans?" asked Theresla, who had not helped to question them.

"Aviads are prey to the Call until puberty. The children cannot live as vegetables in the Calldeath lands, so they are raised among humans. The twelve in the Calculor were teachers. There are thousands of them there! We no longer need Glasken."

"I am not needed, perhaps, either," said Theresla, drawing the conclusion out further.

"Nonsense. You have an outlook very different to mine, Theresla, you see what is not obvious to me. The teacher avia ds are taking us to their town, Macedon. It is south of the Bendigo Abandon. The other seven want to join

"Is nineteen. Found twenty."

"Ah yes, FUNCTION 9. I need him--that is, his talents, in the Calculor." "Is long journey? Coronation next week."

"Being crowned Overmayor of the entire south is less important than winning the trust of the Macedon avia ds. The coronation can wait."

Hastian followed the ann of his watchman, who was pointing to a pair of camels approaching from due south. His Neverlander warriors wound their Call timers and checked their guns as they stood up. One of the riders was strapped into his saddle, the other was oddly dressed and carried guns of an unfamiliar design.

"The greetings of the day," came an oddly shrill voice. "We seek Glenellen." The voice. Breasts. And she was wantonly wearing trousers.

"Ai-ya, seize the witch!" called Hastian, scandalized.

Two of his Neverlanders started forward, but the witch's gun miraculously fired two shots. Both men dropped. The others fired, her camel reared and collapsed, but she emerged from behind its body with more of the infernal, multi shot guns. Five men fell to six shots, and another two to her saber. A pointed metal star thudded into Hastian's knee, and the pain was such a shocking thunder flash that he fell convulsing to the red sand. Time seemed to stop.

A knee came down on Hastian's chest and a twin gunbarrel was rammed into his screaming mouth. The face looking down at him was female, but something in her eyes was more unsettling than the gaze of a tiger snake. "My guide rode off," she snarled. "You guide me now." Hastian gurgled. She withdrew the gun and stood. "Who?" gasped Hastian, without moving, tasting blood.

"I am dark side of Ervelle's soul, returned from Call for vengeance." He looked around. Nine of his invincible Neverlander warriors were dead. The two other bloodied survivors were prostrating themselves in the red sand. To Hastian there was no doubt of it. This thing was what she to be. He was blessed. One of the gods was calling him to service.

CHRYSALIS

In the four years following Zarvora's coronation as Overmayor the south of the continent united in the most powerful union since the fall of the Anglaic civilization. Her rule was intelligent, tight but fair, and economies boomed. Armed conflict practically ceased, and thanks to the expansion of beam flash and par aline networks no bad harvest was ever followed by famine. There were rumors that the surplus wealth of this golden age of prosperity was being fed into some mighty project to revive yet another marvel from the Anglaic civilization and prevent another Greatwinter, but only Zarvora knew the entire truth, ii That truth was not her only secret, but it was easier to conceal than a more immediate problem.

"You, Highliber, are pregnant."

The Libris medic ian had come to know Zarvora quite well over the years because of her headaches, but he was nervous about how she would react to this particular diagnosis.

"I have been a little nauseous and put on weight," said Zarvora impatiently. "That means nothing."

"And missed four periods."

"That too."

"My advice is--"

"This is highly inconvenient. Leave!"

When he was gone Zarvora sat staring at the Calculor console. In all the world there was nobody she could confide in. She stared at a silver owl with ENCRYPTION ENABLE engraved on the plate beneath it.

"I rule half the continent, yet I am pregnant by a man who does not know it, and does not exist, in a machine that does not exist, but which I nevertheless designed. Constructive suggestions are welcome."

The owl remained silent.

"I have never felt so very alone. Everyone will gloat and laugh, they all want to see me pulled down. Did you hear the one about the component who got

SOULS IN THE GREAT MACHINE

his beam flash tower stuck in the Highliber's input buffer? No, because everyone who tells the joke gets shot!"

She flicked the lever that enabled the voice wire box to her lackey. As the felt damper lifted free and she opened her mouth to speak the voice of the medic ian echoed out.

"I am not making insinuations, Fras Vorion. The fact remains that she is pregnant and unmarried. A woman of her power and in her position--" "You're saying Frelle Cybeline is not married?" retorted Vorion.

"Yes! It's a fact! Public knowledge! The Overbishop is Christian, rain falls from the sky, and the Highliber is unmarried. Now my advice--"

"Frelle Cybeline's husband is a senior engineer working on a secret machine far away--in Kalgoorlie. Gah, now I've already told you too much! Get out before I call a guard. Go. Go go go go!"

Zarvora disabled the voice wire thought for a moment, smiled, then tugged at one of several dozen tassels hanging from the ceiling. Moments later Vorion was at her door. His face was flushed from his exchange with the medic ian

"Fras Vorion, how did you know my secret consort is an engineer stationed in Kalgoorlie?" she asked.

Vorion was thunderstruck. The man that he had conjured out of the air not thirty seconds earlier had suddenly come to life.

"Highliber, I, I, I must have heard you say something."

"Well next time ask my permission before saying it to someone else. Sumeror is a good medic ian but an even better gossip."

Vorion's legs wobbled as the color left his face. He fell to his knees. "Highliber, I can only tender my regrets and my resignation." "How long have you served me?" "Nine years."

"And you are still only a certified lackey."

"Yes. That is--yes."

"Arrange a train for me to Kalgoorlie. I want to be with my consort for the birth."

"Yes, of course."

"Then report for retraining. In seven months I want to be at the ceremony when you are presented with Dragon Red. Any subjects that trouble you can be waived."

It took several shots of expensive brandy before Vorion could string a coherent sentence together again. He poured out his story of being a classics graduate whose career in Libris had been stillborn because of Zarvora's new promotion criteria. He was currently the happiest man in Libris, and possibly the continent.

"I mined your prospects, yet you serve me so well?" she said, not comprehending.

"Highliber, you don't understand. I am nothing, but you share greatness with me. I adore you, I would die for you. I lied about your unscheduled absences when I thought you were having an affair."

Zarvora swallowed. "Fascinating. Have another drink."

"I even forged documents to protect you. I found out about Archbishop James--oh I have friends who know people who get told, well, intimate things. Bitchy bag of lard, but I cut the balls from his little scheme when I put those seven hundred gold royals against his name--"

"What? I thought it was Tarrin."

"Tarrin? That walking soup stain with delusions of adequacy? He carries on like a eunuch, but I've heard that..."

Vorion had heard a great deal, and Zarvora listened for a long time. When she finally spoke she had very little to say.

' Vorion, I--I do not deserve your service, but fortune must favor me. Now, book my train, then take the afternoon off and read the Dragon Red syllabus."

Alone again, Zarvora pondered the servant who had saved not only her pride and reputation, but her life as well. Tears rolled down her cheeks, yet her world had suddenly brightened. She was certainly in strange company, but she was not alone or without allies.

Several years in the may orates of the south had not changed Ilyire. As he paced the floor of a tavern in Kalgoorlie he seemed merely an intense, distraught man in an emu-leather bush jacket and hobnail boots, but within his soul, he was still a Ghan warrior. Seated at a nearby table was Darien, the bands of her Dragon Silver rank displayed on a clasp that fastened her ochre traveling cloak. Although they were arguing, the other afternoon patrons heard nothing. Darien and Ilyire were fluttering their hands through the words of Portington sign language.

"I am going back to LJ.bris with the Overmayor because you have not changed in half a decade," Darien signed with slow, emphatic symbols, then thumped the table for emphasis.

"Me? No change?" he signed in reply. "I learn your history, language, this sign language, everything for you. I learn your cultures and religions."

"But you do not even like to speak Austaric, Ilyire. Your grammar is all over the place, yet your sister can now speak Austaric as well as the Overmayor." "I fix."

"It's not just grammar," she signed with impatient flourishes. "It's jealousy and Alspring protectiveness. All that I did was go out for a drink with the Merredin envoy and there you were, smashing up the tavern and beating him senseless."

"You not tell me about official business. Seem like funny business."

"You should have trusted me."

"I not trust him!"

The gesture for "him" was a violent, slicing stroke, and had a saber been in Ilyire's hand, the movement would have been no different.

"Ilyire, I am leaving. The Overmayor's wind train departs tonight and my berth is reserved. You are violently overprotective. I cannot stand it." "Wrong. Am restrained."

"No. You will not accept me for what I am: a fully grown woman. Men have slept with me, have made love with me--"

"You tell who, I kill them!" Ilyire bellowed at the top of his voice, abandoning sign language.

Several other patrons spilled their drinks in alarm. Ilyire held onto a stay beam beneath a shelf while he fought his temper back under control. Darien drummed her fingers on the table until Ilyire sheepishly made a gesture of apology.

"So that is an example of your new restraint," she signed. "I have accepted the position as Overmayor's aide, Ilyire. I go where she goes, or where she sends me. Just now she is going east, so goodbye."

The other patrons had their hands on their swagger sticks as Darien stood up and dropped a copper beside her pewter goblet, but Ilyire did not attempt to stop her as she walked out. The vintner sighed with relief as Ilyire left a minute later.

"The Constable's Runners can have 'im if he's wont to raise hell in the streets," he said to a serving boy.

"Skinny sort of shadow lad but strong as ye'd never think, Fras," the boy replied. "That stay-beam's splintered where he gripped it."

The vintner whistled as he scratched at the splinters of wood. "Ee, that be kauri, too. Still, a bullet would stop 'im, and if he carries on like that again it's a runner's bullet he'll be getting."

Ilyire did manage to control his behavior, however. He went to the stables around the corner and got his horse, then set off to the west for the Calldeath lands. He rode slowly, knowing what awaited him there.

The landscape below the red upland cliffs was laid out like a scatter of colorful cloth scraps on a Northmoor carpet of pink-and-olive designs. From their vantage on the cliff top three riders observed the aftermath of a battle and made their own judgments about what had happened between the armies of two Alspring cities. They were dressed as Neverlander nomads, swathed against the pervasive red dust in robes, veils, and head shrouds of ochre, light orange, sienna brown, and dappled olive.

"Glenellen is again victorious," said Overhand Genkeric as he lowered

his brass-inlay telescope. "That infernal calculating machine fights their battles for them now. It has made them invincible."

The man on his right continued to scan the scatterings of color on the scape below, using one of the new twin oculars that split the light from one lens into two eyepieces.

"Glenellen's battle calculator, I see it!" he suddenly exclaimed. "It's off to the left, just near those observation masts. Just a group of scribes at desks! Who would ever guess what they are, or what they can do?"

"An invincible machine, Captain Lau-Tibad. Whatever the odds the damnable thing multiplies its men's effectiveness to match. What hope do our Neverland tribes have against it?"

"I see them folding their desks away. The desks are white, no--about a third of them are red."

"Gah, shut up will you! You're not with the bird-watching con vial now. This is war."

"My apologies, Overhand Genkeric," he said as he lowered the twin ocular and let it dangle from the strap around his neck.

"We are nothing, that's what has protected us so far. As nomads we Neverlanders are just a minor bother to Glenellen's expansion, but the raids of brother tribes must become a serious problem eventually."

"To Glenellen? They're the bite of a flea. There's plenty of room for all on the desert, and what do we Neverlanders have but our tents and camels?"

"The day will come when Glenellen scratches its fleas. We must stop biting, and persuade the others to do the same..."

His voice faded as he realized that the third rider had looked away for a moment from the patchwork of despair and triumph below the cliffs, and was regarding them with eyes that were at the same time quizzical and impatient. "If only you could hear yourselves," she said.

The voice from behind the heavy red cotton veil was measured, sarcastic; While the two officers sat proudly erect in their saddle frames, the Commander turned away from them again, and hunched over, intent upon the scene below.

"But, Commander, our numbers are small and we are untutored in such advanced arts of war," replied Genkeric. "That machine multiplies their numbers twenty fold and their numbers already exceed ours."

The Commander laughed, and it was a long, mirthless, unsettling laugh with a light but hollow pitch. "That machine is nothing more than a highly developed book of tactics. I helped to build the first one. I should know."

"Commander, I know how a crossbow works, but that will not stop an enemy shooting me with one."

"Oh so? Well, I too know how a crossbow works, and that tells me where to stand to be out of range, and how much time I have to charge at a

bowman who is reloading. I say that any skilled officer could have done what that battle calculator just accomplished."

"Profound apologies, Commander," said Captain Lau-Tibad, "but if that is the case, why did Glenellen's forces triumph so convincingly just now?"

"Because there are few good officers among those dandified, overdressed lap dogs that pass for the military command of the Alspring cities."

"The Gossluff army was three times bigger--"

"The battle calculator is a strategic weapon. It has some tactical uses, but they're limited. It's vulnerable, so very vulnerable that it could shatter its own army as easily as granting it victory."

The Overhand raised his telescope and began examining the battlefield again, as if looking for something he had missed earlier. Captain Lau-Tibad did likewise with his twin ocular

"Do you have the squadrons of lancers, archers, and musketeers I need?" the Commander asked without turning.

"They await you within a day's ride, Commander," the Overhand replied, hastily lowering his telescope.

"Good, then we leave. I must begin training your lancers before someone realizes that the battle calculator is a fickle ally."

"But, Commander, what advantage will that be to us Neverlanders? We want food, caravan routes, and land."

"And we shall get land, my puzzled Overhand. All the land from here to Rochester, and beyond."

The gusty wind of a late-summer thunderstorm spun the tubular rotors of the wind engine Victoria as it rumbled into the par aline terminus at Peterborough. The sun was down and the lamps of the terminus were glowing brightly. Waiting on the platform was a squad of Woomeran musketeers and all the senior par aline officers of Peterborough. Zarvora Cybeline, Overmayor of the Southern Alliance and Highliber of Libris, was on this train. The gauge of the par aline track changed from seven foot to four eight and one-half inches at Peterborough, so she had to change trains. There was actually a chance she would spend a few moments with them on the platform.

The Overseer of Yards, the Terminus Master, the Presiding Engineer, and the Logistics Supervisor stood around the door of the Great Western Paraline Authority coach as Zarvora stepped out. She hurried under the platform awning to where there was a salute followed by an inspection of the musketeers. The hood of her rain cape was thrown back to reveal her black hair, braided and pinned by silver or bile combs. Her face was pale and gaunt, and she seemed weary.

"We had arranged for a band, Frelle Overmayor Cybeline," explained the Terminus Master, "but then this unseasonal storm began."

"No matter, Fras," replied Zarvora. "This is no state occasion."

"Did you have a good journey across the dry lands and Nullarbor Plain Kalgoorlie, Frelle Overmayor?" asked the Logistics Supervisor.

"Yes. The broad-gauge coaches of the Great Western trains are like

The Presiding Engineer gave a slight bow. "Frelle Overmayor, you will be pleased to learn that the extension of the broad-gauge rails is now within miles of Morgan. Next week the broad-gauge wind trains will be able to run far as the Morgan yards and rail side. The Great Western Paraline Authority be operational from Southeast Alliance territory, you will not have to transfer trains here in Peterborough."

"Good progress," she said, favoring him with a smile, "but rest gentlemen, that I shall always stop at Peterborough for a few words with the parallel lines stitch my overmayorate together as surely as the trains that transport its messages. Peterborough is a linchpin of both networks."

They reacted with discreet smiles and sideways glances, and the Engineer drew breath for his carefully rehearsed reply. He was interrupted by shouted curses and the sounds of a scuffle. The Overseer of Yards snapped fingers and pointed, and a lackey in parade uniform immediately dashed off the rain-lashed platform toward a crowd of gear jacks and riggers.

"The usual problems with broad-gauge and narrow-gauge gear jacks over which system is better," he said with a shrug and a graceful flourish. "The trains' captains have orders to keep them in good discipline, but this still persists."

"I cannot understand this," said Zarvora. "I have witnessed half a dozen such fights on my many journeys between the Alliance and Kalgoorlie. Why are the crews so emotional about the width of a parallel track? The Great Western give a fine ride, that is why I authorized the broad-gauge extension to Kalgoorlie but..."

She was interrupted by the young lackey returning, his uniform of green and gilt braid now soaked.

"Where are the captains, why hasn't that fight been stopped?"

the Overseer.

"It's the captains as is fighting," replied the lackey.

The squad of musketeers was dispatched into the rain, and presently returned with the two disheveled, soaking-wet captains. Both were still fighting each other and struggling against their captors as they approached Zarvora and the group of officials.

"It's frogs and fish plates and thus it's been for two thousand years!"

the captain of the Alliance and Midlands Paraline's galley engine.

His opponent bawled back defiantly. "Fishplates! Fishplates! Fish don't use plates! As for frogs, if I come upon frogs on my track I squashes 'em."

"Just as your overgrown brute of a wind farm damages all track work as it passes over."

"Broad-gauge track work is all balks, transoms, and screw pins it can't be damaged."

"It doesn't have fish plates

"Replace your sleepers with balks and you don't need fish plates
"Replace our sleepers with balks and it'd be easier for your poxy Authority to convert us all to broad-gauge rubbish."

"And what's wrong with that? Mr. Brunel invented balk-and-transom track work twenty-one hundred years ago and--"

"Pox take Brunel!"

A scream of blind rage burst from the captain of the Great Western wind train, his standard reaction to any insult whatever to the memory of Isambard Kingdom Brunel. He did not so much break free of his musketeer captors as drag them with him until he was close enough to deliver a solid left hook to his rival's eye. The musketeers took some moments to restore order, and had to form a line between the officers, gear jacks riggers, and pedal nav vies of the two trains. Zarvora and the par aline officials remained beneath the shelter of the platform's slate shingle awning as the musketeers did their thankless work.

When the captains began yet another exchange of insults, Zarvora interjected. "Are you two quite finished?" she demanded.

The noise of the struggle faded into the hissing of the rain and the rumbling of the free-spinning rotors of the wind train.

"He said my wind engines were fit only to grind corn."

"He called my nav vies mice in a treadmill."

"Rats in a treadmill!"

"There! There! You heard him!"

"He started it."

"Both of you, stop it!" Zarvora shouted.

Suddenly realizing that the most powerful ruler in the known world was angry enough to shout at them, the two captains came to their senses.

"I have a wagonload of work waiting in Rochester, I have not seen my husband for six months, the Council of Mayors of the Southeast is waiting for me to preside over their annual meeting, and what do you two do? You, top-link captains of two of the most advanced and powerful machines in the world? You roll about in the rain trading punches and insults, and arguing about--what were they arguing about, Fras Overseer?"

"Frogs and fish plates Frelle Overmayor."

"Galley Engine Captain Songan, Wind Engine Captain Parsontiac, call your crews to attention." - :

"In the rain, Frelle Highliber?" asked the Overseer.

"In the rain, Fras Overseer."

Zarvora entered the rail side operations room, where a fire burned in the grate and refreshments were laid out on one of the tables. She shrugged off her rain cape and accepted a towel from the Terminus Master.

"What else can I get you?" he asked.

"Good weather, sane engine captains, and my husband's company."

"I didn't know that you were married, Frelle Overmayor," he remarked as she dried her tightly pinned and braided hair.

"Sometimes I almost forget it myself, Fras Terminus Master."

He smiled sympathetically. "I understand, Frelle Overmayor. Since the Unification there has been work beyond imagining for everyone."

Tarrin Dargetty was escorting an important visitor through the complex of halls, corridors, book bays workshops, dormitories, and cell blocks that was the interior of Libris. Jefton was now merely the Mayor-Pretender, the deposed monarch of Rochester, but he still had status.

"The place has changed since I was last here," observed Jefton, ducking under a pulley rack that was humming and swishing with taut wire cables.

Those original systems of 1700 seem so old as to be unusable compared to what we have now," reflected Tardn. "The Highliber can run the Alliance quite smoothly from fifteen hundred miles to the west in Kalgoodie."

"And she runs it better than I could," Jefton said with a hint of annoyance. "Why should I even bother to sire an heir?"

"There is more to running a may orate than collecting taxes, controlling the army, maintaining the roads and para lines and having the turds carted off to the farms. The people need a face for ceremonial occasions, a royal love life to gossip about, and a figurehead to complain to."

Jefton shrugged his podgy shoulders, sending tremors across the rest of his generously fleshed body. "They can throw rotten fruit at felons in the stocks if they have anger to vent. What has this to do with me?"

Tarrin did not answer, for they had reached a guarded door. The Mayor Pretender had to be signed into a register. Beyond that door, and the door behind it, was a balcony overlooking the Calculor hall. Jefton crossed to the edge of the balcony and looked down over the stone railing, overawed.

"It has grown to fill the entire hall," he observed after a time.

"Yes, and there is some dispute among the Libris planners on whether a floor should be added ten yards up for future expansions, or whether more calculors should be built elsewhere for specialized tasks."

"This is impressive, but why did you bring me here?"

Tarrin made a spiraling gesture to the Calculor, then gave a parody of the mayoral bow. "Would you be willing to sit on the throne of Rochester if the Highliber ruled you as Overmayor?"

SOULS IN THE GREAT MACHINE

In spite of his expanding waistline and general look of dissipation, Jefton had retained the sharpness of his mind. "She wants me as a figurehead? I'm to be restored as Mayor?"

"As Mayor-Seneschal, actually. She has the same arrangement in Tandara, Yarawonga, some western castellanies, and the former Southmoor province of Finley."

"I'm not sure I like the title of Mayor-Seneschal."

"So you prefer Mayor-Pretender?"

Jefton did not answer that, but glared away into the bustling complexity of the Calculor. Tarrin scratched at soup stains on the sleeves of his robes.

"The tire is generally abbreviated to "Mayor," " Tarrin explained casually, not wanting to give Jefton the impression that anyone was desperate to have him back. "When the Overmayor is present you would be announced as Mayor Seneschal. The title would be on all official documents and letterheads, but you could move back from your villa at Oldenberg and live in the mayoral palace. New rooms have been built for the Overmayor in Libris, you see."

Jefton folded his arms on the rail and looked up at the skylights of frosted glass. "How often is the Overmayor actually in Rochester?"

"No more than one week in nine. Most of her time is spent traveling the other may orates and across in the far west at Kalgoorie. She works a great deal with its mayor."

Jefton's decision was visible before he spoke it. He suddenly stood up straight and threw his shoulders back in a pose of mayoral dignity that he had not allowed himself for many years. Tarrin heard joints popping.

"I accept!" declared Jefton brightly.

Tarrin was not surprised by the sudden change in mood.

"Well then, very good... Mayor Jefton," he replied, this time with a deep, formal bow.

"Not yet, Fras Dragon Gold Librarian. There are papers to be signed, I know the procedures."

"Now that you have agreed, the articles will be scribed up for a ceremony this evening. The Overmayor is currently visiting Rochester, so your status as

Mayor-Seneschal will be law by the time you climb into bed tonight."

Down below in the Calculor itself the shift change began, with flesh components diffusing in to relieve those who had just completed eight hours of work. Tarrin glanced down at the battered old clockwork on his belt, and checked the changeover against it.

"Now you must excuse me, Fras Mayor, I have another pleasant duty to

perform."

"Nothing could be so pleasant as the scribing of my articles of office." "Oh, I'll order the work commenced as I am escorting you out." "Then please, get me oht of here."

Lackeys with clipboards and slates bustled along with Tarrin and Jefton as they returned to the main reception lobby of Libris. Tarrin gave Jefton into care of a herald to arrange further details such as robes and forms of address.

"Just what is that other pleasant duty you have scheduled?" asked Jefton they stood on the vast point-flower mosaic in the lobby.

"Something very auspicious. The first public release of a ponent from the Libris Calculator."

FUNCTION 9 had just returned to his private cell and was sitting alone Tarrin arrived. At thirty-five, FUNCTION 9 was not the oldest component Calculator, yet he was one of the longest-serving. As a FUNCTION he had advanced as far as he could. None of the younger recruits had overtaken his records in mental arithmetic, and he had even invented methods workings of the very Calculator in which he was imprisoned.

The clanging of a swagger stick drawn across the bars brought his head from a book of pre-Greatwinter mathematics. He recognized Tarrin, the Controller.

"You work diligently in your free time," observed Tarrin.

"Free time is only for the free, Fras Controller," he replied with forbearance. "I have to survive within this rat race of a Calculator, and you introducing younger and faster rats."

Tarfin clasped his hands behind his back and studied the component.

FUNCTION 9 was well groomed, and dressed in clothing that paralleled the in the city. He had sewn the robes himself, or so the regulators reported. Hi intelligent, and definitely not broken in spirit, Tarrin mused to himself. and proud, but not a rebel.

"May I come in?" Tarrin asked as FUNCTION 9 turned back to his book. "That depends whether you have the key," he said without looking up. FUNCTION 9's head jerked up as he heard the creak of tumblers. stepped into the cell, leaving the door open. His cloak was drawn aside to dis a flintlock in his belt. He sat down on the bunk and drew the pistol. it, he placed it on FUNCTION 9's writing desk.

"Very nice, Fras Librarian, but please take it away. We components are: executed if guns are found in our possession. You should know, they're your rules."

"But you are not a component, Fras Denkar Newfeld," said Tarrin as he drew a scroll from his sleeve.

Taking the pillow from the cell's bunk, he placed the scroll on it. He stood up, bowed, and presented it to the still-seated component. FUNCTION 9 regarded him steadily, then slowly reached out and picked up the scroll between his thumb and forefinger.

"The Highliber's seal," he observed as he broke the wax. "Hmm. Be it known to all the usual time-serving lackeys and their constable lap dogs that the guest of the Mayor of Rochester, designated as FUNCTION 9, is a free man, and is henceforth to be known as Fras Denkar Newfeld."

"Not quite Overmayor Cybeline's words."

"Except for the substance. So, is this a joke, then?"

Tan'in produced another scroll, which was unsealed. "I have here your Articles of Release from the Calculor. You are the first to have the opportunity to sign them. In fact I only had them drawn up this morning."

FUNCTION 9 unrolled the second scroll and read the Articles carefully. Tan-in ran his swagger stick along the bars again, then tried to balance it on the tip of his finger.

"Insufferable legal babble," Tarrin said as he noted that FUNCTION 9 was reading the text for the third time. "In short it says that you must agree never to speak of the internal workings of the Calculor to anyone outside Libris under pain of death--without permission from the Overmayor. You must accept that you were mistakenly imprisoned here, and will consider the matter closed for a sum of three hundred gold royals. In her roles as both Overmayor and Highliber, Frelle Zarvora Cybeline expresses her regrets."

"Regrets! She keeps me here nine years, the best nine years of my life, then gives me a bag of gold and throws me out on my ear with only regrets?" "What more do you want?"

"Nine years of seniority at Oldenberg University. I'd be lucky to get work as an accounts clerk after moldering in here for nearly a decade."

"So you don't accept your Articles of Release?"

The scroll trembled slightly in FUNCTION 9's hands, and he felt the beginnings of tears welling in his eyes. Fight it down, don't show weakness in front of this ratty little librarian, he thought as he smothered gratitude with anger.

"Of course I do!" he exclaimed, snatching a quill from a clay grotesque on his writing desk. He checked the cut then scratched out his signature in neat, even loops at the bottom of the Articles.

"One final scroll, now that you are Fras Denkar Newfeld again," said Tan'in. "This is an offer of employment that goes some way to restoring your lost seniority."

Denkx read, then slowly looked up. His color and composure were both gone. "Now this really is some twisted little joke," he said in a clipped whisper. "You want to employ me as a Dragon Green Librarian in the embassy at Kalgoorlie? That's on the other side of the known world!"

"It's a good salary, and they speak the same language."

"I like it here. What about work in Libris?"

"Ah now, in Libris we have no vacancies pending."

Denkar replaced the quill. "No, thank you. Freedom by itself will do nicely." He picked up his pillow, placed the scroll upon it, and handed it back to Tarrin. Denkar had already picked the badges of Calculor rank and numbers from his uniform as they left the cell, leaving only patterns of thread. Several Dragon Red guards challenged Denkar, then saluted in amazement as Tarrin held up the scrolls. Denkar paused by the regulators' canteen.

"May I?" he asked, gesturing to Tarrin's flintlock.

Tarrin stared back at him for some moments, then reluctantly drew the pistol from his belt and handed it to him butt first. Denkar cocked the striker, then entered the canteen. Several regulators of Red, Green, and Blue rank were sitting around a table playing cards and drinking beer. Denkar gripped the gun with both hands and fired at a ceramic jug of black beer on the table. It shattered gouts of foam, and the librarians burst back from the table. A moment later nine ' guns were trained on Denkar's head.

"Fras Tarrin, did he take you hostage?" gasped a Dragon Blue as she wiped the foam from her face with her free hand.

"Lower your guns," replied Tarrin. "Do it! Fras Denkar Newfeld has been released by decree of the Overmayor."

There was devastated, incredulous silence. Denkar savored the moment.

"Remember, I'll not be the last component to be released," he warned before turning his back on them and walking out.

"Why?" asked Tarrin as he hurried after him.

"To improve their behavior toward the other components," replied without breaking stride. "A parting gift to my former comrades in slavery."

"You escaped death by no more than good luck!" barked Tarrin. "Why did you really do it?"

Denkar stopped and whirled around so suddenly that Tarrin nearly collided with him. The former FUNCTION's expression was one of unsettling perception,

"There's more going on than just my release from the Calculor, or you would be marching me straight back to my cell after my canteen trick. What is going on?"

Tarrin stared at the floor. "The Overmayor only tells me--"

"Very little at best, and nothing if she can help it. All right then, what is your theory?"

"Many important components in the early Calculor were, like you, ah..."
"Kidnapped."

Tarfin stepped around him and continued down the corridor with his hands clasped behind his back. Denkar stared after him for a moment, his hands still on his hips, then he shrugged and strode after him.

"We prefer the term conscripted," said Tarrin. "Yes, I admit that several dozen components were inducted without being felons. We needed

their skills, both to run the Calculator and to train the felons. The battle calculator has been known to the outside world for years and the Libris Calculator has become an open secret. There is no point in keeping you here either to protect a secret, or for skills that are no longer unique."

"So even the mighty Highliber-Overmayor can no longer keep innocent components imprisoned--as opposed to criminal components?"

"That's the gist of it."

"Well, Fras Tarrin, I don't believe you, but that's hardly relevant to anything, is it? Meantime, let's get me paid off and outside the walls before the urge to shoot at a Dragon Librarian seizes me."

"Again."

Thousands of miles to the west another captive was about to find freedom, although it would be by escape rather than release. A procession of burlap-clad figures trudged in single file across the desert landscape of frost-shattered pebbles and red sand. Leading them was the abbot of Baelsha Monastery, and their objective was a cairn of rocks containing a shallow cave. The abbot walked around the cairn once after they arrived, then entered the cramped alcove within it. Presently he had satisfied himself that all was in order. The monks went to work as he stood back.

The place was swept clean, and the heavy cistern bolted to the wall of the shelter was checked. Two of the monks unpacked flat bread and dates wrapped in grease paper and stored the food on a rock ledge that served as a pantry. Finally they unlaced the necks of four goatskins of water and emptied them into the cistern.

Venturing back outside, the abbot gestured to three other monks who had been waiting in the intense sunlight. The tallest of them began to strip off his clothing of burlap and cotton, and finally surrendered his flat wicker hat. A gesture from the abbot sent the other monks running to make a row behind their now naked companion. They stood to attention with their feet together.

"Re!" barked the abbot, and all bowed from the waist.

The abbot took a small book from the sling bag across his back and beckoned the naked monk to step forward. He handed the book to him, then stepped back. They bowed to each other again.

"Brother Glasken, you are embarking upon the most important ten days of your life," the abbot said sternly as Glasken stood before him, clutching the book. "This is the culmination of five years of celibacy, abstinence, prayer, fasting, freedom from the vices of the world, and training in the ways of our pure but demanding martial arts. There were many times, Brother Glasken, that I thought you would fall from our regime but you proved me wrong. Here now is your final and greatest test.

"In five days or so, the Call will come. When the seductive touch of Call reaches into your soul, you must resist it with no more than your mind willpower, as we have taught you. With no tether, sand anchor, trained terriers, or Call walls, you will resist its allure. You have nothing to wear, and only straw to sleep beneath in the cold of the desert night. The cave faces south" and nothing hereabouts can be used to tether yourself. Brother Glasken, do you wish to take this final test?"

"I do, Your Reverence."

"Brother Glasken, you can return with us to Baelsha Monastery. The string tendon in your right leg will be severed, but nothing more will befall you and you can live out your life as a gardener with us. It would be an existence of prayer and meditation. Do you wish to step back from this test?"

"I do not, Your Reverence."

"Brother Glasken, should you resist the Call you will become a monk Baelsha, bound by your vows of poverty, chastity, and obedience, bound to my authority, and bound by death should you ever try to leave. Should it be God' will that the Call prove too strong for you, you will follow it into the desert die. Do you wish to step back from this final test?"

"I do not, Your Reverence."

"Then by your own free will you challenge the Call. Re I"

They all bowed from the waist again. The abbot stepped forward with smile and shook Glasken's hand.

"Please, get out of the sun and into the shelter, Brother Glasken," he genially. "Pray and prepare yourself, but have no fear. Should you fail, you be in paradise within a few days."

"But if I should resist the Call, Your Reverence, it would lifetime between me and paradise. You make failure sound attractive."

The abbot put a fatherly arm across the naked monk's shoulder and to the shelter. "I know what you mean, Brother Glasken, but hold the set of' mind very carefully. Should you have a desire to surrender to the Call, why would be suicide. That would be jumping into hell!"

"Your Reverence, I understand. Even after all these five years at sometimes a little joke slips past my guard."

"Ah, Brother Glasken, guard against laughter. Remember, all laughter is the expense of someone, and in this case it is yourself. Should the devil you chuckle just as the Call arrives, you may have his company for all of nity."

"Your warning is the staff with which I shall beat him, Your Reverence."

"God's will be done. Work hard and pass the test, Brother Glasken. You:; have been my greatest challenge."

Five figures left the cairn, this time in a less formal step. The abbot's head was low as he walked.

"Five years ago he crawled out of the desert, starving and crazed with thirst," the abbot said to the others. "Could he really have come all the way from the Alspring cities, as he claimed? And if so, what drove him to face the immensity of the desert?"

"A fugitive from justice, Your Reverence?" said the monk carrying Glasken's clothing and hat.

"Perhaps. Or perhaps he really is what he says he is: a lost philosopher and explorer, who had been charting the extent of the land. A strange and.." a driven man is Brother Glasken."

Glasken watched the monks fading into the heat shimmers at the horizon. He was gibbering softly to himself.

"Alone at last, alone for ten days. Soon there will be others I can talk to--aside from myself. Myself! The only civilized company at Baelsha, that's what you are, Johnny Glasken. Ah... I've kept myself sane by talking to you for five years, but soon Glasken will talk to Glasken no more."

Once he judged that the monks really were gone he darted into the shelter. Reaching into the cistern, he stretched down until his head was almost submerged. There they were! Dozens of pebbles wrapped in squares of cloth, and ten tightly tied leather bundles. Glasken fished them out by the handful, giggling.

"Ten little waterskins of rat, cat, and bird, thirty squares of cloth, and the thread and thonging that bound them while they traveled within the waterskins. Now, little prayer book, answer my prayers." He eased back the cover boards of the prayer book and peered between the spine and the binding. "A scrap of razor and a needle--everything's here, everything!"

He began to sew the squares together, his fingers flashing along to leave well-practiced stitches. He muttered dementedly as he worked.

"My magic carpet to carry me to the western may orates to women, wine, revels, seduction, women, money, gambling, women, more women..."

Once his kilt and a sun cape were complete, Glasken used the razor to dress some of the straw, which he quickly wove into a wide conical hat. His water pouches seemed depressingly small as he filled them, but he also gorged himself on water, dates, and flat bread. Every so often he checked outside, making sure that the abbot had not decided to return.

Using some of the thonging, Glasken strapped several pieces of flat bread and some dates between the hat and his shaven head. He carefully left the book in a corner, open in mid prayer then he rumbled the straw as if he had been sleeping in it. Stepping outside, Glasken estimated that the sun had less than an hour to set. He looked to the west, where the abbot and other monks had gone. He laughed loudly and spoke to the horizon.

"Careful you were to inspect me, Abbot Haleforth, but you never thought that I'd break into your rooms and inspect your pack, aye, and put a needle and razor into that little book you've been torturing me with for five years. I know you packed a telescope, you scabby old fox, I know you're sitting out there squinting back at me. Well roast in the sun while I recline and feast in the cool of my stone verandah. Roast, for when you set forth for your monastery at sunset, I'll set forth too, but I'll be going south. Roast, all you lazy lackey monks who wondered which kind and charitable soul had already filled those goatskins with water when you came into the kitchen at dawn--aye, and laced up the necks good and tight!"

As the last glow of the sun faded from the sky Glasken drank from the cistern until he was almost sick, then set off for the south. He moved at a slow, shambling pace to leave tracks as if he were in the grip of the Call. As he walked he glanced to the west, where Baelsha lay.

"Goodbye, Baelsha," said Glasken with a wave to the faintly glowing horizon. "Give me long enough and I'll bed a wench and drink a pint for each and every one of you, aye, even though you number twice twelve dozen."

Using the stars and Mirrorsun as clock and compass, Glasken continued south. When the waning moon rose to augment Mirrosun's orange light he broke I into a steady jog-trot across the rocky sand. Often he stumbled, sometimes he fell, but he pressed on in high spirits.

Denkar stepped hesitantly through the gates of the Libris forecourt and into streets of Rochester. The sky was luridly bright after ten years inside the huge library and he shaded his eyes as he walked. There would be eyes watching, he was sure of that. He bought a honey pastry with a gold royal and told the astonished vendor to keep the change. At the par aline terminus he booked a passage to Oldenberg, but the pedal train was not due to leave for hours. Tarrin had given him a voucher for the Cafe Marellia, an expensive eatery just across Paraline Square.

I'm meant to go here, Denkar decided. As he reached the door he beckoned to a man standing in the street.

"Did you mean me, Fras?"

"Yes, come in, call all your friends who are watching me from greater distances."

"I don't understand, Fras."

"Of course you do. I want my shadows to have a coffee with me. I'll pay, of course." ' "

The man turned and walked away briskly. Denkar entered the cafe, and a waiter hurried across to him, wax gleaming on his hair and long mustache like dark, textured wood that had just been varnished.

P

SOULS IN THE GREAT MACHINE

y in reserve bower, Fras," he murmured, his eyebrows arching. "Liking your company, she is."

Denkar was well beyond surprise by now. "Indeed. But I may not be liking her company, Fras waiter." He winked and pressed a silver noble into his hand. "Tell me, is she pretty?"

The waiter smiled knowingly. "Thank you, generous Fras. Beautiful lady, Fras, beautiful lady. Fine, delicate face, with bushy black hair untied--and such eyes! Expensive silver or bile combs in hair, hah, from rich husband too busy making money, yes?" He nudged Denkar's arm. "Big eyes like velvet--"

"Stop! Enough. Either she tipped you more than I did, or she really is all these things. Tell me, though, is she a Dragon Librarian?"

"No uniform, Fras."

"Indeed. In a way I'm disappointed, but I'm relieved as well. Lead the way, Fras waiter."

They walked among chunky but polished redwood tables and benches, at which a cross-section of the bland, bored upper class of Rochester was seated before their eggshell coffee cups and dainty squares of bread with emu liver pate. Denkar noted that body-hugging shirts with loose sleeves were the current fashion.

The reserve bowers were a row of rooms running down the center of the cafe, with doors on either side. The waiter gestured to a lattice door, then left. Denkar rapped at the door, and a resonant, honeyed contralto voice responded, "Enter." He pressed the latch down and opened the door to the candlelit bower.

Her face was partly shadowed, but there was absolutely no doubt of her identity. "Highliber!"

"Close the door behind you, Fras Denkar."

Denkar sat down warily on the leather of the bench seat, the horsehair padding scrunching in the silence like the crackle of kindling in a fire. Zarvora's hair was unbound and bushy, embroidered with a few gray strands and pinned to frame her face. Her face was relaxed and remarkably winsome in the privacy of the bower. He had only ever seen her being rigidly formal at official announcements, or with her features contorted by rage when she had visited the Calculor in a vile temper because of some malfunction. Here she was now, the very wellspring of his enslavement. He noted with odd detachment that no hate was blazing up within him. She was like Tarrin, or the door of his cell: just a thing that had once confined him. Unlike Tarrin, however, she was very attractive. Do you wish me to apologize for your decade of slavery, Fras Denkar?"

she asked after an awkward silence.

Death hovered just behind Denkar, awaiting the one word of defiance. He swallowed, steadied his breath, then replied.

"Yes."

Death's scythe began to swing.

"Then for you alone, I apologize."

The scythe was checked. Denkar felt giddy. In spite of his quite bitterness he somehow wanted to be pleasant to her. She had apologized. NoN what?

"I wish to become the Dragon Gold in charge of the Calculator."

"The post is not vacant."

"You are Highliber--and Overmayor."

Zarvora considered for a moment, then stood up.

"So I am," she said as she left the bower. Moments later she and sat down again.

"How do you find freedom?" she asked awkwardly. "Pleasant beyond telling, but..." "But?"

"The years in the Calculator were fascinating. I learned such skills at matics as I could never have done at Oldenberg, and I made discoveries in culating theory, too. I have friends in there, I may even meet them again, willing."

She nodded, her eyes never leaving him. Denkar held her gaze for then looked down, unsettled.

"Interesting," she said. "Now what are you going to do? Return home.

in the taverns, chase wenches?"

"Home, well.." they may even remember me there. I'd certainly like of black beer. You forbid that to your components."

"Black beer? That must be an old regulation from earlier, more des times. It will be repealed by tomorrow."

Denkar inclined his head. "You're generous. As for wenches, I do have a. ah, request to make in that regard."

Zarvora said nothing, but continued to watch him. It seemed to she was preparing to pounce and snatch something away. He took a deep then another. Finally he leaned toward her, defiantly looking into her dark, eyes. "I have--there was a Black Runner who would visit me in the of the confinement cells."

"Ah yes, the solitary confinement cells. Do you know that they have once been used to punish anyone by solitary confinement for the whole of the Calculator? They are rather heavily booked for private assignations librarians and components, however."

"Highliber, I never saw her face but she was lovely beyond telling.

I

to stay in Rochester to try to meet her as one free citizen to

another."

"Stay in Rochester! So, Tarrin was right. Denkar, I left some very business in Libris to meet with you like this. I really want you in Kalgoorlie."

"I want to stay."

"I am used to getting my way! Kalgoorlie--"

"Highliber, I'm serious. If not in Libris, I could work as an edutor at Roch ester University. You see, I do love Black Alpha. I think that she loves me, and she knows what I look like. If I stay in Rochester she will see me one day. She will come to me, I know it."

"She has work elsewhere."

"So you do know her!" he exclaimed, his arms laid along the table, his hands open and pleading. "Please, what is her name?"

She shook her head.

"Youmytu free me, then you bind my life as tightly as if I were still a prisoner." He rose to his feet, the menu he had been fiddling with crushed in his hand. "Well, you can have me dragged back to the Calculor for all I--"

"Denkar! Please lower your voice and sit down--and notice that I said please. Thank you. Now hold out your hand--please."

Denkar felt a slight crawling of revulsion as she reached out her small, bone white hands. She took the crushed menu and placed it with her own. He had expected her skin to be moist and as cold as porcelain, yet it was very warm and dry, somehow familiar. She leaned forward until her face was very close.

"I love you too, Fras Denkar, and I am touched by your devotion to me
"

There were no words that could have possibly had a place in the moments that followed. For a time he sat staring into her huge, green eyes; then he reached out to touch her hair. It was oddly bushy, much like his own. He closed his very eyes as his fingers caressed her face. His fingertips told him that there was no doubt at all.

"It/s you," he whispered. "But your voice, it was much lighter."

"You mean like this?" she chirped.

In spite of the intensity of the moment, he found himself giggling.
"Oh, Highliber."

"Frelle Zarvora, although you can continue to call me Black Alpha. I prefer

"But--Frelle, ah, Zar--Highliber, why me?"

"Why you, Denkar? Come around to my bench and sit beside me, there is much to tell." Denkar hesitated only for a moment, then shuffled awkwardly around in the cramped space. Zarvora took his hand again.
"Firstly, why you? That is not easy."

Zarvora put her hand to his cheek, then ran her fingers through his hair. Although she was trying to explain some important matters, the heady sensuality of her presence made it hard for Denkar to concentrate. The huge green eyes, the warm, dry tingling touch of her

fingers, the musky, feathery scent of her hair... With an effort he

brought himself back to what she was saying. She explained about avia ds and the Call, and about his own hair. Finally she explained about! their romance.

"You were such a challenge, you could make me laugh. I liked to be you so much." She began to fiddle with a strand of her own hair, twirling around her index finger.

"So, you released the other avia ds in 1700 but kept me as a pet."

"That was stupid of me. I--I was worried. I walk a tightrope, I need certainty. With you in the Calculor I could at least be certain of something in life. I can make it up for you."

"You spied on me and Dolorian. You sent her away."

"I promoted her into the beam flash network. A real tyrant would have her shot."

Denkar closed his eyes and ran his fingers through Zarvora's bushy trying to recapture what she had once been to him.

"Everything around me has been controlled. I... don't know what to say." "Denkar, darling, for years what I did was actually controlled by you, if that makes you feel better. Once I kept the Alliance mayors waiting four hours because'. you wanted me to stay longer. When I had to start spending so much time in Kalgoorlie I was tom between being separated from you and tellin thing and risking.." risking a bad reaction."

"The mighty Highliber and Overmayor, frightened of her slave?" "Frightened of losing what we had." She pressed her lips together, looked down at the crumpled menu. She began trying to smooth it out, as if i was an allegory of Denkar's life. "Concerning your time in the Calculor, all that I can do is apologize. I needed raw calculating power very quickly back in and you were one of the thousands that I enslaved to get it. Several dozen of the best early FUNCTIONS were as blameless as yourself, I admit it."

He pondered for a time while Zarvora stroked his hand.

"It was courageous of you, telling me this," he concluded. "You lied."

"Den, I want you of your own free will. A galley train is waiting for us * the Rochester terminus." She slid her arms around his neck and placed her head against his. "For some time now I have been telling people that I have a consort. Many are anxious to meet my mysterious husband who is too busy bask in the glories of court life." "Me?" "Yes."

"You, you want me to transform from an unknown slave into the the most powerful ruler in the known world--in twenty minutes?"

Zarvora had not thought of it quite that way. "Ah, well.." yes," she ventured. "Will you come with me?"

"Life is hell for the nobility," sighed Denkar, smiling grimly. He turned away to clasp his hands together on the table and shake his head slowly. "Frelle Overmayor no. I cannot forgive you. I am very angry, I want someone beaten for my nine years in the Calculator, and--"

Zarvora stood up and snapped her fingers. The door of the cafe was slammed open and there were shouts and shrieks as a squad of guards tramped in. The door to the bower was not so much opened as torn from its hinges and flung aside. Tarrin stood before them, held firmly by two guards and gagged. As Denkar watched he was stripped of his robes and insignias of office, which were placed on the table.

"Four blows," said Zarvora, folding her arms.

As Denkar sat wide-eyed with astonishment Tarrin was turned side-on to face a burly guard whose helmet's rim shadowed his eyes. A right cross smashed into Tarrin's jaw, followed by a left to his eye. He was now standing only because he was being held. A blow to the stomach doubled him over. He was released, and fell. The guard kicked him in the ribs as he lay on the floor. The guard turned back to Zarvora.

"Five blows," she ordered as she came around the table.

Denkar braced himself for the beating, but nobody seized him. The guard nervously rubbed his fist and shifted his weight from foot to foot.

"Five blows!" Zarvora demanded.

The left cross to her jaw sent her reeling back to sprawl over one of the open area tables and its terrified patrons. The waiter and owner were scrabbling to hide behind each other as she picked herself up and returned to the guard.

"The jaw again," she ordered, and his right cross knocked her into a shelf of crockery that clattered down and smashed around her. Slowly she got up, blood trickling from a split lip.

"Highliber!" shouted Denkar. "Stop it! What is this?"

Zarvora's jaw gave a loud click as she opened her mouth. "Your order, System Controller Denkar. A beating for those who enslaved you. One blow for every year. Four for Tarrin, five for me."

"I never meant this!"

"For me there is black and white, Fras System Controller," she replied coldly. "Nothing else. I asked what would make up your lost years and you told me. I believe we are up to 1702, Fras Executioner."

"Stop!" shouted Denkar. "You. Take your boot off that man's neck and give him back his robes--and office. Then get out--Zarvora, not you!"

They faced each other in absolute silence as twenty-five pairs of terrified eyes looked on. Zarvora's jaw clicked again.

"I am serious about needing your forgiveness--" she began.

"I forgive you! I forgive you, sincerely, I really do." He dropped a

few gold royals on the table then held out his arm. Zarvora placed her hand upon it. "So where is our damn galley train, then?"

Crockery fragments crunched beneath their feet as they made their way to the door, and Denkar realized that Zarvora was unsteady on her feet and leaning heavily on him.

"Thank you, c-call again," stammered the waiter.

Denkar saw that BY APPOINTMENT TO OVER MAYOR CYBELINE had been chalked on the door.

The Calldeath lands were marked by a dry stone wall snaking across the boundary's location sometimes moved a few miles, however, so no wall be really effective. When Ilyire's horse suddenly became less responsive settled into a steady walking pace, he knew that he had crossed the boundary. sunset Ilyire was seven miles into the Calldeath lands and within sight of wooden stockade. Its angles and colors were starkly geometrical and vivid the overgrown leafy jumble of the Calldeath countryside, and it drew his eyes he approached. He did not pay sufficient attention to an overhang of branches i dripping with vines.

The dirk fang cat that waited in the vine-shrouded cover wei pounds and had fangs over an inch long. Seven hundred generations ago ancestors had sat purring upon human laps and eaten canned pilchards in from saucers on newspapers. The evolutionary predilection for cats to grow heavy and develop huge fangs had been boosted more than anyone could have by the procession of large, entranced animals passing through the Calldeath lands on the way to the sea. Weight was required to pull them down, and large to flay them open to die of blood loss. The balance was delicate. Those that grew too heavy were themselves drawn off by the Call. Lately had altered in the equation, however: some of the humans could fight back.

The cat sprang with precision rather than surprise in mind, expecting due its prey with a few slashes and bites. Ilyire brought up his as it sprang, then twisted from the saddle as it made contact. The dirk fang thrown clear in a flurry of dust and scrabbling paws and it regained its feet to confronted by a human on his knees and very much

Ilyire slowly drew a flintlock from his belt and cocked the striker. The big mewled and began to inch forward on its belly. Ilyire smiled, then uncocked striker and returned the gun to his belt.

The cat sprang, but Ilyire executed a turn-dodge, snatching at one stretched paw, whipping the cat off-balance and slamming it to the ground. slashed through leather, cloth, and skin as Ilyire used his superior weight to down the animal. He slammed the heel of his hand into the dirk fang Standing back, he watched the cat writhing and gasping its life away.

Now his own lacerations began to assert themselves with sharp pain. The Call anchor on his horse had dropped when his weight had left the saddle switch, and the grapples were snagged on a vine-smothered bush. He bent over the dirk fang seized its head, and twisted. The sun was down by now, and the glow of Mirrorsun was rising above the trees in the east. Tonight it was a glowing red oval in the middle of the band. There was also a faint orange corona. By the ruddy light, Ilyire saw a single aviad emerge from the stockade as he led his Callertrapped horse toward the gate.

"Cutting it fine tonight, Fras Ilyire," said the man, who was in his early fifties. "The cats here still don't know to avoid us."

"Unlucky," said Ilyire, heaving the body of the dirk fang off his saddle. "Cat not kill me."

Ilyire dragged his horse into the stables and the older aviad whistled as he examined the dead cat.

"How did you kill it? There's no cuts."

"Bare hands. Very macho. Yes?"

"Yes, yes indeed, Fras Ilyire. You'll be wanting the pelt and fangs, so--" "So nothing. Needed good fight. You keep body."

Ilyire entered the stockade's little hall. He removed his torn leathers and unrolled a medical kit. The air grew sweet with the scent of eucalyptus oil as he cleaned his scratches. The other aviad brought a kettle of hot water over from the grate and poured it into a bowl beside him. "So, you are depressed again, Fras." "Hurt from claws dulls hurt in heart." "More fighting with your sister, Theresla?"

"Always fighting with sister. This ... something else." "Another woman, a romantic interest?" "Honor holds me silent."

"Now then, I--ah, I hear the others. They have the counter-Call wagon quite close now. In a day, perhaps two, we can leave the Highliber's precious rockets for the Ca/lbait humans beyond the boundary wall."

Ilyire was glad of the change of subject.

"We had rockets in Alspring. War rockets. Two yards, brass. What special about ancient rockets?"

"They're bigger, Fras. They be built in three pieces that boost each other higher, and the biggest piece is thirty feet long."

"Thirty feet! Big indeed, Do they fly when so old?"

"Oh they're just strong tubes that you fill with fuel. Simple, fantastic things, they are. The metal seems as strong as ever after two thousand years in that naUseum, Making the fuel will be difficult."

"Black gunpowder plentiful."

"Ah no, the explosive must be much more powerful."

"More powerful than black gunpowder! Hah! Wonder indeed."

The other avia ds were inside the stockade by now, dragging and prodding their Call-bemused horses into the stables and exclaiming at the body of the dirk fang. Soon three men and two women entered the hall. Ilyire recognized Sondian, a councillor from the Macedon settlement in the Southeast Alliance.

"Ilyire, you're back in the west again," Sondian said as he caught sight of the Alspring Ghan by the fire. "Did you kill that dirk fang out there?"

"Was me. Where my sister?"

"Not with us. She's much farther in, at the Perth Abandon. How did you kill--"

"Who is with her?"

"Nobody."

"Then how you know where she be?"

Sondian's welcome rapidly chilled. "She stayed here. She told us of her plans. Then she traveled on alone."

"Where did she sleep? Who slept with her?"

Sondian slowly drew a well-worn flintlock and pulled back the striker until there was a soft click. He cradled the gun in both hands as he stood leaning against a kauri pillar.

"Listen and listen carefully, Ilyire of Glenellen. You may be twice as strong as a comparable man, faster of reflex, and immune to the Call, but remember that we're all avia ds here. Everything that makes you special is just ordinary. If you want to live among us, then observe our manners and courtesies."

"Will not have my sister defiled!" Ilyire shouted, flinging down his mug and standing.

Sondian looked at him for a moment, then gently released the striker and tossed his gun to one of the women. At this signal the three other aviad men began to close in on Ilyire.

"Best not to reach for your gun, Fras," said the woman holding Sondian's flintlock.

Ilyire lunged, throwing a punch at Sondian, but the Ghan's reflexes attuned to dealing with humans and Sondian easily dodged him. Seizing Ilyire's arm he threw him over his shoulder and onto a chair, which smashed. Ilyire was pinned down and disarmed at once.

"Throw him out," said Sondian.

"The stables?" asked one of the aviad men.

"Right outside. He should be safe enough if he can kill dirk fangs

with his bare hands."

Ilyire was stood up and marched to the gate with his arms pinned. Sondian strode up behind him, and without warning delivered a bone-jarring kick to his backside with his hobnailed boot. Ilyire cried out and collapsed.

"Get out, crawl," snarled Sondian. "There are too few avia ds and too many humans for us to fight among ourselves. I'll beam flash the guards at the counter Call wagon to shoot to kill if you come too close."

Ilyire turned his head. "You defiled my sister--"

Sondian bent down and backhanded Ilyire across the face, striking him so hard that the Ghan lost his senses for a moment. When he revived Sondian was gripping him by the hair.

"Listen well, you pathetic little worm. Not only did I not touch your strange and demented sister, but I am greatly insulted by the insinuation that I might have. Now take your filthy, twisted, diseased, perverted little mind and go!"

Ilyire spent the night beside the stockade, huddled by a fire of off cuts left by the carpenters and wainwrights. He kept watch as shapes warily prowled in the distance and spent his time making a crutch and fire-hardened T-spear. In the morning he turned his back on the rising sun and limped off into the west. Sondian watched from the gallery of the beam flash scaffold. "If we're lucky the dirk fang cats may eat him."

"From what I've seen of his sister, she may eat him," said the watchman. "Compared to him she's civilized. At least she tries to mask her weirdness." "Sometimes. What of his horse?"

"Release it with the anchor pinned, the Call will lure it west along the road. He may catch it."

"Generous of you, Fras."

"Well, his sister may be hungry."

Ilyire limped along slowly, now careful to watch for lurking cats and other predators. Presently he encountered the transport wagons. Musket barrels followed him as he approached, and until he was out of sight. The wagon containing the rockets was the biggest that he had ever seen, but the ancient devices themselves were swathed in tarpaulins. The counter-Call wagon that pulled it was far more striking. It was long enough to accommodate twelve horses, in pairs on the tray. They were being strapped into their frames as llyire went past and he noticed that they faced backward to the west, where the Call was luring them. Their hoofs drove two articulated treadmills, which in turn drove the wheels through a gear box. The horses mindlessly strained to walk west, but the engine-wagon traveled east, pulling the wagon loaded with rockets behind it. Some time later Ilyire's own horse caught up with him. He was mightily glad to ride again, even though it hurt to sit in the saddle.

It was another day before Ilyire reached the Perth Abandon. He surveyed the OVergrown buildings and towers, looking for evidence of habitation. There it was, fluttering in the wind from the sea. A flag, the one object that could not have lasted two millennia and could only have been put there by an aviad. It was on the new littoral that

had extended into the streets of the Perth Abandon. Ilyire blew his whistle to announce himself, then dismounted. His horse strained to continue west, and into the water.

"Can't drag you all the way back," he said as if in apology, then pulled his saddle pack off and released the reins.

The horse immediately set off for the water, splashed in and began to swim. He watched until its head was lost amid the greenish-gray waves of the bay.

"A cruel experiment," observed a voice behind him, and Ilyire jerked around to discover Theresla watching him.

"Sister!" he exclaimed.

She was staring at him from barely three yards away, a girl-woman with her hair pulled into a bushy ponytail. She was dressed in the tie-cotton green and red tunic and trews of the other avia ds Ilyire noted with instant disapproval. Her expression was odd: intense, calculating, almost hungry, and somehow devoid of the mischief and mockery that she always reserved for him.

"What of my books?" she asked.

Ilyire took a package from his saddle pack and tossed it to her.

"You don't want them," he said sullenly. "You wanted me away, only." "Think what you will," she said, turning and gesturing for him to follow. Theresla began to walk and Ilyire fell in beside her. The trees were loud with the buzzing and clicking of insects in the heat of the day. Miraculously, some of the ancient towers had retained their shape over two millennia and looked like oblong, sharp-edged hills under their mantles of green vines.

Theresla explained that a dirk fang had been stalking Ilyire as he watched his horse swimming away. She had sent it off, but Ilyire was not grateful.

"Why you live here? Dangerous place."

"I am alone, Ilyire. Surely that should please you."

"You should be safe. Safe from dangers. Safe from desires."

"What do you suggest?"

"Return to Kalgoorlie. Set up convent. Spread our great Alspring Orthodox Gentheist faith."

Theresla stopped and gestured to the vine-smothered mounds.

"In the eastern Calldeath lands the Anglaic buildings have been looted by avia ds over the centuries, but avia ds are never born among the peoples of the western may orates and castellanies. Thus in these Calldeath regions the buildings have been undisturbed for nineteen centuries. We can learn a lot."

"Pah. Anglaics walk on moon, now trees grow in their roads. So what? Nothing by sinful mortals be built is lasting."

"That is not the point. Now that Zarvora has secretly brought aviad settlers across from the southeast, there will be plundering and disturbance, even with the best of intentions." Ilyire snorted impatiently, then stopped to look out over the bay.

"Those things like blocks in water, over west," he said, pointing.
"Ancient beam flash towers. Nothing new."

"They are too close together."

"Used water for defense against freebooters?" he ventured.

"According to old maps, those towers were once on dry land. The water is higher now."

"So what?" grunted Ilyire.

She raised her eyes to the sky. "So I am wasting my breath," concluded Theresla. "That building there is a museum, and it has survived the years well. Come."

They entered warily, looking for predators. The museum was a series of highceilinged, spacious hallways, but they were now dark caverns due to vines and mosses smothering the windows. Most exhibits were either crumpled piles of corrosion or entrusted with mold and bat droppings. Those that survived were incomprehensible to Ilyire. There was a musty, feline scent, and the flapping of bat wings high above them. Theresla unclipped a under-lock from her belt, lit the fuse to a paper-wrapped charge, then tossed it ahead of her. The blast was a sharp, echoing whiplash, and two tabby shapes frantically scrambled from their lairs and streaked out of the building.

"The dirk fangs can be befriended, but it takes time," she explained.
"Those rockets on the counter-Call transporter came from here. Something of their workings was described on that slab of very hard polished rock over to the left."

There were a dozen rockets left in the display, with their nose cones partly cut away to display the complexity within. Ilyire surveyed them with no com prehension.

"Two thousand years old," said Theresla. "Most materials of the old civilization are brittle and useless after so long, but not the metal of those rockets

"So, men came here with reverse-wagon?"

"To remove four of the rockets, yes. Zarvora was here a week earlier. She studied the rockets and their plaques for an entire day before deciding upon which to take. She intends to make them work again."

"Where the men sleep?"

Theresla stared at him, hands on hips. "You amaze me. People come here to revive the glories of the old civilization and all that you can think of is who slept with your sister."

"There! You said it!" Ilyire cried. "You slept with one. Sondian, I know it." "Sondian, a fine man and a good leader, an example for other avia ds to--"

"He defiled you, then he beat me. Know his kind. Domination pervert. Power and sex same for him. I hunt him down, I kill him."

"Ilyire, I did not unload my virginity on him or anyone else. Leave

Sondian alone. He's the leader of the colony here, and they need his wisdom and leadership."

"I bring his head in bag, I show you. Rent he put in your honor be fix. Where guns? You give me one you carry."

Theresla drew the flintlock from her belt. Ilyire started forward eagerly, then froze as she cocked the striker and pointed it at his chest. It had a short barrel, but a bore of at least 45 points.

"You have turned yourself into a thing, half-brother. Things are easy to kill." She fired, looking straight into his eyes. Ilyire saw a flash before Theresla vanished behind the cloud of smoke that belched out between them.

Ilyire awoke in the late afternoon, lying where he had fallen. Needles seemed to stab at his chest each time he breathed, and the pain increased when he sat up. His hidden metal breastplate had absorbed the impact of the shot, but not before buckling inward and breaking two ribs. There was an impressive hole in his tunic. i Using his knife he cut the straps of the breastplate away, and the pain lessened. He looked at Theresla's footprints in the dust and felt an unfamiliar numbness. There had been death in her eyes; then she had shot him. She had not laid his body out in the way prescribed in the scriptures. She had meant to shoot him all along. His world was suddenly empty, his passions quenched.

"I... am dead," he said experimentally, and his voice echoed through the ancient gallery.

Brother John Glasken, late of the Baelsha Monastery, had traveled an incredible sixty miles at the end of his first two nights and one searingly hot day as a . man. Five years of monastic training and discipline had given him quite extraordinary powers of endurance. His routine in the days that followed was to sleep during the hottest part of the day, with his makeshift cloak rigged as a sunshade,: Glasken was experienced in desert survival after his three ordeals a half-decad earlier, but although raw lizards and snakes supplemented his flat bread and dates, his water diminished faster than he had planned. His rate of progress dropped to thirty miles per day.

On the eighth day a pile of whitened bones appeared ahead. Glasken limped toward them, then squatted to examine the skeleton. It had been partly scattered by scavengers, but lying beside the pelvis was a dagger with the Baelsha cross i engraved on the blade. A little purse nearby had rotted to reveal six coins from i the Kalgoorlie Mayorate. Glasken scooped up the dagger and coins, then noticed something long and straight lying half-buried in the sand: a staff!

"Alas, Brother, I mourn for you," he said as he knelt in the sand, his hand on the skull, "and may your soul rest in peace. How did you ever get all these things past that old devil and his watch-monks? Perhaps you brought these at the expense of food and water-skins. Very foolish, but I appreciate your sacrifice."

Glasken stood, leaning gratefully on the staff. I'll buy a candle for you in that underground Christian cathedral at Kalgoorlie, then I'll drink to your memory with a pretty wench in some tavern. Meantime, I'd best be limping on. The Great Western Paraline is still sixty miles away, and my water just ran out."

The wind train was nothing more than a speck amid the shimmers on the horizon as it came into sight from the platform at the Naretha rallside. A small group of people stood watching as it approached, its array of tall, tubular rotors and their framework of masts and rigging distinct above the flat, sleek body. The Railside Master looked at the register in his hand, then at the schedule plate. Away on the wind train, at the forward masthead, a twinkling of light began, and almost at once a bell clanged for attention at the base of the station's beam flash relay tower. The Railside Master strode over, trying to seem neither casual nor anxious. The register board bore the code of Overmayor Zarvora.

"That's it, the Overmayor's train."

The rail side militia scrambled to take up guard positions, leaving a single traveler waiting on the platform and a crowd of gangers watching from the stone fence. The rotors of the train had been disengaged and were spinning freely as it approached. Its brakes squealed and shuddered, and as it came to a stop the gear jacks jumped down and ran with cans of sunflower oil to the oil traps at the axle heads of the coaches while others crawled beneath the wind engine to attend to the beating wells. They felt them for overheating first, then topped up the lubricating oil. Fires in badly maintained traps were not so much possible as likely. Each of the huge steel-rimmed, wood-laminate mans el wheels was inspected for warping and slippage, while high above them the riggers adjusted and tuned the ropes, masts, and spars that held the spinning rotor tubes vertical.

Two passengers stepped out onto the platform, glad of a chance to be on solid ground for a few minutes. The Railside Master stood nervously with his clipboard, noting that one of the passengers was a tall woman dressed in an Inspector's uniform of the Libris Beamflash Network, and with her black, bushy hair clipped back from her face with silver or bile combs. She nodded to him, just a single, curt nod that all was in order and satisfactory as far as she was concerned. The Rallside Master threw a quick salute back, then busied himself with his board, writing, "Inspected by Overmayor Cybeline. Found to be satisfactory."

As the crew began to load water and supplies aboard, the traveler who had been waiting patiently walked up to the over gear

"Greetings of the afternoon, honorable Fras Overgear," the tall, tanned man said in a strange amalgam of Southeast and Kalgoorlie accents. "I wish to work a passage west, I wish to serve aboard your glorious broad-gauge Great Western Paraline wind train."

The over gear looked him up and down. He was big and strong, with muscles in good proportion. His patched olive treads, tunic, and cap were the type that the par aline gangers wore, but his sandals looked several sizes too small. When he removed his cap for his bow's flourish there was about a fortnight's stubble visible on his scalp.

"Were you thrown off another train's crew?" the over gear asked.

"I've not worked on a wind train for years. I was once a cabin boy and runner, then an apprentice gear jack

"You're hardly a cabin boy now. We need extra hands for rotor windlass and gear jack work, but have no time to spare for training. What can you offer us?"

"Strength to wind the rotors up and down, and to screw down the brake blocks I can tell when an oil trap is running hot on the axle head, and when a rim or flange has slipped its seating on the mans el Mind you, thought Glasken, I only learned all those words by listening to gear jacks and riggers singing tuning shanties in the Rail's End tavern years ago. "I've also worked in beam flash towers, so I know the unsecured codes."

The over gear was more impressed that he showed. Too much enthusiasm and the stranger might expect to be paid.

"Aye... well that's a start. We're short of a relief beam flash monitor... and you're strong besides. You'd have to work the gears and handles on order,

then take over at the beam flash seat as needed."

"Aye, I'd do that."

"How did you get out here?"

"I've been in the desert to the north, meditating. Now I want to return to Kalgoorlie."

"So, a hermit. And what is your name?"

"Jack." "Just Jack?" "Jack Orion."

The over gear considered. He was experienced at picking fugitives and troublemakers but this one had no obvious hallmarks of either.

"Well then, Fras Jack Orion, you're on approval. Start by loading those boxes beside the warehouse into the supply wagon."

The over gear went over to the Railside Master as Glasken got to work. "What do you know of him?" he asked.

The Railside Master scratched the back of his neck, then looked across to where Glasken was working. "He arrived about a week ago, wearing rags and crawling along the par aline from the west. He was raving with thirst. Once he had regained his senses he said he was a student of Cordaheldian theology. He got so engrossed in his meditations at some sacred ruin that he ran out of supplies. He had money, though."

The over gear rubbed his chin as he looked across at Glasken, who was obviously working hard to impress him.

"So you had no trouble with him?"

"Oh no, he's worked well. He can do the work of ten men--in fact when I did my noon inspection yesterday there were ten men sitting idle and only Orion working, yet still the rails, balks, and transoms were stacked in good order by the evening."

"I'll watch him, but he could be a rare good recruit. We had to crew this train in such a hurry that full shifts could not be covered." He bent closer and winked. "Like to know where this broad line engine was engaged?"

"Why, Peterborough--oh no! You don't mean to say that the broad-gauge track has reached Morgan."

"No less, but it's not official. I'd best be aboard. Long life and broad gauge, good Fras."

"Long life and broad gauge."

Glasken joined the gear jacks as they unscrewed the brake blocks and released the wheels. The over gear waited for the captain to ring through for primary torque; then the brass arrow of the dial slipped forward a notch. At the over gear signal each gear jack pushed back the clutch lever-rack and engaged the gearboxes to the bank of rotors that spun in the wind. The rotor engines strained forward against the couplings, and then the train began to roll. There was a ragged cheer from some waving gangers who had come to see Glasken off, all of them looking the worse for the night before.

From inside the luxurious mayoral coach Denkar noted the sen doff. "Some one popular seems to have joined us," he remarked to Zarvora.

"The over gear recruited an extra gear jack she replied, without looking up from an ancient text.

"He's being fare welled by a lot of badly hungover men."

"If he is a rake and drunkard named Glasken, a reward of a thousand gold royals has been on his head for five years."

Denkar turned from the window. "Who is Glasken?"

"FUNCTION 3084."

"Ah yes, one of the only two components ever to escape from the calculors. Well, from what I remember of him, if he were still alive he would surely have been arrested by someone for something by now. Were that the case, you would soon know."

"True, too true. Fras Glasken could not have been kept out of trouble for five years without being gelded or dead."

She put down her book and patted the seat beside her. Denkar walked across the gently rocking floor and sat down with an arm around her shoulders.

"Now, to continue your briefing on Kalgoorlie sciences," she said. "We in the Alliance are ahead of them in calculator technology, optics, code theory, and a few other related areas. They have nothing like Libris, either. It is a treasure house of ancient texts."

Denkar bent and peered into a microscope that was bolted to a bracket in Zarvora's desk. Beneath the objective, a human hair lay beside one of his own and one of Zarvora's. The latter two certainly had a fluffy, feathery appearance. "When can I meet more avia ds he asked.

Zarvora thought for a moment. "There are not many where we are going. For some reason avia ds do not arise among the peoples of the west, but I have arranged for some avia ds from the secret Macedon community in the east to come over and do some work. In return, they have a whole, new, unoccupied Calldeath area to explore and settle."

"What work is that?"

"There are things in the half-drowned abandon of Perth that I need to transport to the par aline terminus at Northam. Big, heavy, ancient rockets, mainly." "Rockets?"

"I shall explain later. It is a vast and complex undertaking."

After the vast expanse of the Nullarbor Plain, Denkar welcomed the occasional scatter of trees that soon thickened into an open eucalypt forest as the train slowly rumbled west, a light breeze spinning its rotors. An Inspector of Customs came aboard at Coonana, but he did no more than exchange pleasantries with the Overmayor. John Glasken watched with puzzled relief from his hiding place behind the rear-starboard gearbox in the primary rotor engine as the Inspector strode past down the access corridor without the slightest attempt to search for aliens who lacked border papers.

"Someone important aboard," he muttered, unable to break the habit of talking to himself that had kept him sane for five years.

They rolled into Kalgoorlie two days later, after being delayed by particularly light winds. The sun was down, the rail side was lit up with lanterns of all colors, and a brass band played the Overmayor's personal anthem. On the platform the waiting crowd cheered as the sunflower-oil running lights of the huge wind train came into sight, the vertical blades of its mighty rotors flashing and gleaming.

Inside the rotor engine the Purser realized that the pennants for both Highliber and Overmayor of the Southeast Alliance were still furled, just as the cheers of the welcoming crowd and the blaring of the band became audible above the rumbling of the wheels and rotors.

"You, take these!" he cried as the bare-chested and sweating Glasken finished winding down a rotor drum. "Climb the front of the rotor engine and stand by the port railing. Hold these pennants up as we pull into the rail side

"But, Fras Purser, my tunic--"

"Do as I say! Be dignified, and whatever you do don't drop the pennants!" Glasken had not seen himself in a mirror for over five years, and had no idea of how the ordeal in Baelsha had changed his physique--which had previously been impressive, if slightly chubby. Gasps mingled with the cheers of the crowd as the magnificent, bare-chested pennant bearer at the front of the rotor engine was illuminated by the lanterns and torches of the rail side. Sweat glistened on his skin, and the dancing flames highlighted the outlines of his muscles with dark shadows. Glasken began to catch comments as he rolled past the crowd on the platform.

"Look at that figurehead."

"Fanciful carving."

"Nay, he's real, he smiled at me." "Does gear jack work do that for you?" "I'm joining Great Western."

Girls in white toggetras showered the puzzled Glasken with rose petals and mint leaves meant for Zarvora and Denkar. The train came to a smooth stop with the engine facing into the darkness of the marshaling yards beyond the rail side. Glasken crawled back through the access hatch with the pennants. The Purser was elsewhere, but his dust cape and sling pack were still there, abandoned beside the flare locker.

"I know I agreed to work my passage, but I'm worth a bonus," he muttered as he rummaged for the feel of a purse in the sling pack. The purse was large, and contained mixed gold and silver. He reached in for a generous handful, then returned it to the sling pack.

Moments later he was on the platform with his pack roll under his arm and his tunic over his shoulder. Several girls in the crowd recognized him as the pennant bearer from the front of the train.

"Fras, Fras, are you a Tiger Dragon?" one of them called breathlessly.

"Sweet Frelle, I am also not at liberty to tell you," he replied in a deep, educated tone that marked him as something more than a gear jack.

"Fras, are you off duty now?" her companion asked. "The Mayor's guards are here to protect Frelle Overmayor Cybeline and her consort."

Cybeline? Highliber--now Overmayor? Glasken got such a fright that his knees nearly buckled, and he did actually drop his roll pack.

"Fras Tiger Dragon, are you all right?" squeaked the first girl.

Glasken was careful to steady himself on her arm as he scooped up his roll pack. The other put her hands against his chest, her eyes wide with concern. The feel of smooth, soft female skin against his after so long nearly made him pass out again.

"Just... weary. A good meal will set me right."

"Fras, have you eaten, will you drink?" called a portly man wearing a vintner's striped sash. "My tavern is but close by. Come, bring your Frelle lady friends, honor my humble establishment."

Not a hundred paces away Zarvora and Denkar stepped from the train as a fourteen-bombard salute began to boom out and fireworks streaked into the sky. Denkar noticed an olive-skinned man of short but powerful build in bead-point and ray robes. He was approaching at the head of a large retinue that seemed to have at least one member of every race that Denkar knew of, then more besides. A racial mixing bowl of peoples, Kalgooflie was well known for that. One of the courtiers was leading a tiny pony that was being ridden by twin boys of toddler age. They were dressed in the Rochester pennant colors.

Zarvora squeezed his arm and her indrawn breath hissed between her clenched teeth.

"Denkar, I had meant to tell you before. I am sorry."

"What? I can't hear with the noise."

"Shh. Mayor Bouros, my dear friend!" she called.

"Overmayor Zarvora, my fulsome pleasure to greet you again," Bouros declared loudly as he stretched his arms out to embrace Zarvora.

"Mayor Bouros, I have missed your hospitality. This is--"

"Fras Denkar, your consort. Fras! A pleasure."

Denkar, crushed in the Mayor of Kalgoorlie's embrace, wheezed, "Delighted." Bouros stood back to regard him.

"Ah yes, reserved, and keen eyes, intelligent eyes. Don't tell me, Frelle, but he is an engineer. No, the mighty Frelle Zarvora Cybeline, Highliber of Libris, Mayor of Rochester and Overmayor of the Southern Alliance, could take none other but an engineer for a consort. Tell me, Fras, what is your field?" he said, putting an arm around Denkar's shoulders.

"I--ah, applied mathematical systems."

"Mathematics and engineering! The Empress of Sciences and--" Bouros suddenly raised a hand, then put a finger to his lips. "Ah, Frelle Zarvora, how could I be so indiscreet? An engineer of systems that.. cannot be spoken of Fras Denkar, I too am an engineer, but merely of structures, and of fluid dynamics. I am a graduate of the University of Oldenberg."

"I taught there for five years," Denkar exclaimed.

"You taught at my old university?" Bouros said, his voice booming out again. "Frelle Zarvora, your good taste never ceases to amaze me. Ah, but what manner of barbarian am I? You must be desperate to greet your magnificent twin sons yet I stand blocking the path. Dahz!"

"What's this? Are you a widow?" Denkar hissed to Zarvora behind his hand. Zarvora whispered urgently back in Denkar's ear. "Please, just play along."

Say that you like the names. Bouros helped choose them, and he is a fanatical admirer of Brunel."

"Brunel?" whispered Denkar. "Was he your husband?"

Her elbow dug into his ribs. "No, you are my only husband. These are our sons."

"Frelle Zarvora, Fras Denkar, here are your boys, safe and hale," Bouros announced proudly.

Zarvora lifted the toddlers from the pony and the bewildered Denkar was glad that he had to kneel to embrace them. "Charles, Isambard, this is your father," Zarvora said gently while Mayor Bouros led the cheering. The twins were still at an age when they greeted all strangers without reserve, and they hugged and kissed Denkar at once.

"This Daddy?" Isambard asked Zarvora, who nodded.

"Isambard was my humble suggestion, after Brunel," explained Bouros. "Zarvora named Charles after the legendary Babbage. But come now, I have had a welcome prepared for you both for a day past, but the winds saw fit to thwart me."

Bouros led them to a cable terminus where his private tramcar was waiting. The tram cars worked whether the Call was sweeping over the city or not, and were powered by a wind pulley farm backed up by a water-drop wheel station. The capital was situated over a complex of old mine shafts and much of it had been built down rather than up. The most prominent exception was the mayoral palace and its soaring beam flash tower.

"Oh, my head," Glasken groaned, wincing at the pain of his hangover.

He could not bear to speak again. Where am I? he wondered. Big arches, incense, drapes and pictures on the walls, colored glass in the windows.. looks like a church. Maybe I'm dead. Wonder who the mourners will be... but this is a bed. Haven't slept in a proper bed since... 1701?

"Fras Tiger Dragon, are you awake?" whispered a light female voice from somewhere under the covers beside him.

"Ah--aye."

An arm and a leg snaked over him, and black hair washed across his face. Almost at once the opiates of arousal began to blunt the ferocity of Glasken's headache. He noticed a gold wirework coronet still tangled in her curly hair.

"I have never, never met a man like you," said the woman, who looked to be in her late twenties. While not actually fat, she had certainly had access to fine food and drink for most of her life. Glasken found the effect quite pleasing after the privations of Baelsha. Her skin was light brown, its natural color rather than from tanning. "Do you still like me, Jack, now that it is morning?" she crooned.

"I always choose with good taste, Frelle."

"But, dear Fras Jack, would you have chosen me from all those others were I not the sister of the Mayor?"

Glasken's hangover vanished, sucked down into an enormous chasm that had opened up at the bottom of his stomach. He was thankful that he was already lying down, and that she was whispering into his ear and not watching his face go pale. The sister of the Mayor! He did not even know her name. He did not even know the Mayor's name if it came to that.

CAHTRIP

As the Glenellen lancers formed up against the Neverland freebooter cavalry, the city's battle calculator made an outline assessment of both the terrain and the enemy. Scribes pushed colored blocks about on the scenario ground sheet and runners hurried about with weighting cards that identified the speed, weapons, and experience of the various blocks of fighters. Senior components studied tactical cards detailing freebooter behavior in past battles. Glenellen's battle calculator was no longer a novelty in the Alspring cities; in fact, this was its fourth use in anger. Its record was thus far flawless.

Overhand Baragania frowned and tugged hard at his beard as he surveyed the scenario ground sheet

"The Nevefland freebooters are a weak but difficult enemy," he said to his deputy, Mundaer. "Their ranks are open and they are lightly armed and armored, yet they are fast." He shrugged and spread his fingers. "They can do us little damage, but we cannot catch them."

"Except in a trap," said Mundaer smugly, straightening his ochre robes. The Boardmaster was hovering beside them with his cue ready. "Would they but come here, to this plain south of the hills, we could let them exhaust their attack parameters on our heavy brigades," he said eagerly. "All the while we would be encircling them with mounted archers disguised as lancers." "Except that they are not obliging us," replied Baragania simply.

"But it's their move!" exclaimed the Boardmaster, as if it were a game of chess.

"But they do not move. We are stuck here, with the heat, flies, and red dust."

The Boardmaster cursed sharply, then flung a block in the Neverlander colors to the ground and stamped on it.

"Svmtathetic marc. Boardmaster?" asked Mundaer mirthlessly.

Mundaer walked around the scenario ground sheet several times while the Overhand and Boardmaster stood watching. Scribes respectfully moved back and forth out of the way as he paced, and he occasionally bent to tap terrain pins and nudge blocks with his riding whip. Moving and reconfiguring the ground sheet was not easy, and the scribes and Boardmaster were as anxious as the Overhand and his deputy to confront the Neverlanders with a decisive battle.

"With respect, Commander, but why not move our trap?" Mundaer said with a flourish of his whip. "We need to fight on a plain, otherwise we can't maintain our communications, as the battle calculator requires. The ground is hilly where the Neveflanders are sheltering."

"But we can make a plain! If we send in a dozen small units of heavies with heliostats to take the hilltops and dig trench forts they will have a view of the whole area. The Neverlanders may attack one individual hilltop with overwhelming numbers, but meantime we can use the cover of the hills to guide in our mounted archers unseen--the battle calculator can give us the optimal path."

"Hills that are really a plain, invisible archers.." this is all very appealing, but it relies totally on the heliostat signals."

"How can they fail, Commander? The sky is cloudless, the air is still, and there is little grass for the freebooters to set afire."

Baragania glanced from the map to the hills, then back to the map. Five weeks of desert skirmishes and discomfort had worn down the resolve of his troops and lancers, but for the Neverland freebooters the parched, dusty landscape was home. There was a subtle danger, of course. The freebooters could swamp one of the hilltop positions and annihilate the troops there in a fast and furious strike, then retreat and claim a victory. A Glenellen position wiped out by freebooters: the emotional impact on the Glenellen Makulad was likely to be far worse than the military significance. Overhand Baragania fingered his neck nervously at the prospect of explaining something like that to his master.

"Major-Director Mundaer, have the battle calculator work out times for every possible route the mounted archers would need to reach each hill. Tell me the longest."

"Already done, Commander. Nineteen minutes is the longest."

"As long as that? Too long--but wait. If the mounted archers could be split into two groups and deployed at either end of the hills, then that time would be halved and they could arrive in time to blunt any attack. Meantime, the rest would arrive as a second wave. Yes, I like that. Tell the calculator translators what we want, then begin the deployment of our men in the hills."

The deployment took five hours, which was roughly what the battle calculator had predicted. Both the Glenellen officers and their men were eager for a fight, so eager that they were willing to look for one.

"There now, a heliostat signal," said Baragania. "Mundaer, what is it?"

"Neverlander movement, Commander. Grid 44 by 79 with a vector of A9 at 40 degrees."

"That threatens our battle calculator!" exclaimed the Boardmaster as he moved his blocks and scanned the overview of the battlefield. "They're coming here, through those smooth, shallow gullies." He jabbed at char black shading on the ground sheet

"We're dug down behind lancers and archers," said Baragania. "We stay." The Neverlanders did not attack the battle calculator. Instead they rode for the line of sight between Baragania's command group and the hills. They appeared to be leading packhorses, and as the Glenellen officers watched, the freebooters cut the packs free and abandoned them. Smoke began to belch from the fallen packs: thick, acrid, black smoke.

"Smokepots?" wondered Mundaer, scratching his neck at the base of his helmet. "But they can scarcely hide behind--"

"Regroup, here!" shouted Baragania. "Transmit the message now!" "Commander?" "Do as I say!"

Mundaer barked an order to the heliostat operator and Baragania listened to the click of the mechanism while watching the nearest hilltop through his tele scope. Tendrils of smoke began to drift across the field of view.

"What are they waiting for?" he shouted, then he saw a faint twinkle through the smoke. "What was their message?"

"REQUEST CONFIRMATION," replied the observer at the large telescope beside the heliostat mirror.

"Send confirmation!" called Baragania frantically, but heavier billows of smoke were already across the field of view.

"The battle calculator has worked out six possible scenarios," began Mundaer, unsure of what was unfolding.

"Damnation to that, we've lost already!" said the Overhand quietly, shaking his head. "Our signals are cut and our men are trained to fight only under instruction Their first blow was a gash above our eyes to blind us with our own blood."

"There!" cried Mundaer, pointing at a dust cloud. "Something in those gullies, look at all that dust! Freebooter cavalry, about six thousand, at least half of their force. They're going to hit the calculator."

"Break post, go, move! Get the battle calculator moving. Make for the smoke pots first. We'll use their own smoke as cover, and then dash for the nearest hilltop."

The battle calculator and its escort were already moving when scouts reported that the dust was being raised by a few dozen freebooters

trailing ropes and sacking behind their horses and camels. Baragania decided that the nearest hilltop, the one designated by the scribes as Hill Alpha, was still the safest position. In the distance they could hear trumpets and whistles, and the sounds of a conflict. The smoke pots were flaming out as they passed them, and the air was clear to the hill.

Abruptly arrows began to pour down from Hill Alpha. The freebooters had captured it behind the screen of smoke. Overhand Baragania led them to a rocky outcrop that was within sight of the hills but still held by his own men.

"They can't have taken more than one hill," insisted Mundaer, who was struggling to understand what was happening. "The battle calculator proved there was no time."

"Masterful," said the Boardmaster. "They took the very hill that would cause us the greatest delay setting up the battle calculator again. What say the heliostats?"

"We're just getting their attention," replied Mundaer. "Green flare, fire when ready."

The arc of green smoke drew heliostat reports from two hilltops, and the twinkling signals began to tell their story. Hill Alpha had been attacked almost as soon as the pall of smoke had gone up, smothered in a suicidal charge by Neverlanders who had paid with casualties of at least ten to one to buy their victory. The smoke pots and riders trailing dust-raisers had added to the confusion, but the other eleven hills were secure, as were the two groups of mounted archers.

Mundaer began to regain confidence when he realized that very little real damage had been done to the Glenellen forces, aside from the loss of the men on Hill Alpha. The Overhand Baragania was less optimistic.

"Signal the archers to converge to this outcrop," ordered Baragania. "Then we'll go from hill to hill, collecting our garrisons in greater strength."

For a moment the Overhand's composure cracked. He seized the Major Director by his pennant scarf and shook him roughly. "Of all the stupid..." Then, just as quickly, his control returned. "Where are the Neverlanders?"

"On Hill Alpha," replied the confused and uncomprehending officer, "and riding about with dust-raisers and smoke bombs."

"I say that only ten percent of Neverlander men are accounted for there."

"There's more than that. The battle calculator estimates that eleven point two percent of their known forces are all that are required for--"

"Damn you, Major-Director! Can't you see? All those dozens of men with their cumbersome folding desks, cards, and abacus frames can better my experience by only one point in a hundred! Gah, the battle calculator can screw itself, I'm done with it. Now get the archers back

here before something else goes wrong for us." ' The mounted archers of his first group rode to skirt a ridge adjoining Hill Alpha. The ridge had not been adequately scouted for the Glenellen archers, yet they chose to skirt it as the shortest route available to regroup. As they were riding through the neighboring gorge a cloudburst of arrows descended upon them from the main force of Nevedander freebooters, who had been concealed there. Within minutes there was blind panic among the Glenellen archers. Many fled up the slopes of Hill Alpha, forgetting that it was in freebooter hands. These were slaughtered. Others reached the summits of Hills Beta, Gamma, and Delta. The second group of archers made it safely to the outcrop of rock where the Overhand was sheltering.

By late in the afternoon the Neverlanders had brought in more smoke pots and were again disrupting the signals between the hilltop positions and the Glenellen Commander. Scouts and messengers were ridden down and slaughtered by what appeared to be elite freebooter squads assigned specifically to that purpose, yet some Glenellen messengers managed to reach their assigned hills with their messages. By morning, Hills Kappa, Mu, Theta, and Lambda had been evacuated and the garrisons consolidated with the main group. It was a feat of desperation that seemed to surprise even the Nevedanders.

"They're treating this like the Surgeon's Gambit in the champions board game," Baragania told a meeting of his officers and nobles. "Who can tell me what that is?"

A captain from Hill Lambda shook a tasseled lance with his unit's colors. "Esteemed Overhand, the enemy's forces are mostly left on the board until the king is ready to fall."

"Right, and that king is ours! We need to get our remaining hilltop garrisons back together, but I estimate six thousand of the enemy are in the hills in a rapid strike force. We have been evacuating hills singly, and I think that they will rush to the next garrison that shows signs of movement. Instead, we shall move all seven remaining garrisons at once. One or two could be trapped and wiped out, but that's better than losing them all one by one."

The Neverland freebooters had another surprise. They were known not to have bombards, only siege rockets that were lighter and could be transported in racks by camels. These had not been modeled on the scenario board, as they were notoriously inaccurate. At extreme range they could barely hit a 100yard diameter circle.. " yet the main Glenellen encampment was significantly bigger than this. The first of the rockets plunged down and exploded among the Glenellen men a quarter hour after the tactical meeting. The warhead flung deadly metal shards into humans, horses, and camels.

By the time the consolidation order went out from the Overhand's heliostat there was rebellion in some of the garrisons. They did not want to add their own bodies to a shooting gallery for the Neverlander

rocket artillery. At last three garrisons were convinced to rejoin the main force, but two were mauled by the freebooters. Rockets continued to plunge into the main Glenellen encampment at the rate of one every five minutes.

Overhand Baragania finally decided to cut his losses and return to Glenellen. He had over half of his original force, which was still double the Neverlander numbers, and his men were adequately provisioned for the three-week journey back. Their morale improved at once, for they would now be out of reach of the siege rockets.

"This is a miracle," declared Baragania as he rode. "This morning I expected to be lying dead in the sand by noon, yet here I am at the head of an orderly retreat of over half my men."

Mundaer was looking back toward the hills. "There! Another puff of smoke. They're using the siege rockets on our four rebel garrisons."

"Good, it will keep the Neverlanders occupied while we run and it saves us the trouble of executing our own traitors. Boardmaster, what estimate would you give for reaching Glenellen?" he called.

The Boardmaster rode his camel over. "No less than two weeks, no more than three, Overhand."

"We shall, of course, be executed for our trouble. The invincible battle calculator has been humbled. There's been four men out of every ten dead, and a great boost to the confidence of the Neverlanders."

"Why then are we returning?" asked Mundaer morosely.

"Why? To deliver ten thousand troops to the city for its defense and for the protection of our families from ruin and slavery."

"I can't understand what went wrong with the battle calculator!" exclaimed the Boardmaster.

"Ah, but nothing went wrong. From what I can tell, however, the Nevedand freebooters were commanded by someone who knew exactly what a battle calculator can do, and what it cannot. That was what defeated us."

The gardens of the mayoral palace of Kalgoorlie had been designed by the grand father of the current Mayor, and specifically with dalliance in mind. There was a true maze of hedges, bushes, and hidden alcoves, surrounded by a cloister square fifty yards on a side. Couples not only had privacy, but they could hear others approaching by the crunch of pebbles underfoot. To Glasken, the gardens were also a discreet and direct route from the main gate to Varsellia's rooms, and he had become quite familiar with them since arriving in Kalgoorlie. To Ilyire, the gardens were a place where he could be alone without leaving the city, and he needed to be alone increasingly often.

One clear, bright autumn day Ilyire did not move quite fast enough. Glasken had been slipping away from the palace in the late afternoon,

all spruced up for a night of reveling in the market quarter of the city. He almost walked straight into Ilyire in the deserted garden maze, appearing like a phantom amid the tall topiaded hedges. Ilyire had been dozing on a small rectangle of lawn, but he jackknifed to his feet at once.

"Glasken!" he exclaimed, incredulous.

Glasken began to ease back, holding his swagger stick before him in both hands. Ilyire had a swagger stick too.

"So, first time I glad to see you," Ilyire added, stepping slowly but confidently toward the bigger man.

Glasken eased back another step, glancing around.

"Can't say I share the feeling," he replied in an oddly casual tone.

Ilyire advanced on Glasken with confident contempt, yet he was unsure of what he actually intended to do. Theresla wanted Glasken recaptured, but Ilyire was no longer in her service. Zarvora had a big reward posted for Glasken, yet Ilyire held money in contempt. Ilyire basically resented the fact that Glasken existed at all and wanted to do no more than humiliate him. Glasken did not share his indecision.

Ilyire reached out with a feint, at which Glasken twisted and took the first step of a headlong flight--except that his back leg swung up and around in an arc as his arms counter rotated. His foot caught Ilyire squarely in the face, sending him sprawling, stunned, and with a cheekbone cracked. The Ghan hit the path in a shower of polished quartz stones. Glasken swung a blow at his knuckles to make him drop the swagger stick, but missed as he slid in the pebbles himself. Seizing the advantage, Ilyire rolled a blow at Glasken's face, but his old enemy rotated, easily deflecting the blow upward with his forearm. Ilyire spun with his own momentum. Glasken's knee slammed into his ribs, but Ilyire snatched at Glasken's arm. Glasken let himself be caught, then twisted. Ilyire's arm was wrenched around, levering him into another fall. The impact winded him and his arm was twisted behind his back as scarlet waves of pain washed past his eyes. Presently Glasken released his very precise grip on a nerve in Ilyire's neck, yet he kept him pinned to the path.

"You dirty, filthy wretch," Glasken said smoothly.

Ilyire tried to struggle, glaring at Glasken out of the corner of one eye. "You wanting to ravish my sister!" Ilyire panted. "I kill you."

Again Glasken jabbed at the nerve, and again Ilyire was racked by such pain that he could barely draw breath.

"I've visited your treasure cave at the edge of the world," said Glasken as he released the nerve again. "The one with ERVELLE carved at the rim."

"Swine--" Ilyire began, then caught himself. Horror chilled him. He stared at the terra cotta gutter beside the path, suddenly desperate to turn into water and flow away to hide.

"Swine? Me?" Glasken was saying. "I discovered a fair princess in your foul clutches. You slept with her bones."

"Liar, I kill you," whined Ilyire, trying to fan anger through the cold shroud of shame.

"I sleep with the Mayor's sister, and that gives me access to all sorts of interesting documents. I read Overliber Darien's transcription of your boasts. On your first journey to the Edge you discovered the bones of a girl named EVA NELL. I suppose that the Frelle Overliber could be forgiven for a few mistakes in recalling such a long and rambling tale, but I saw the original cave."

"I kill you, I kill you," squealed Ilyire, despair in his voice.

"But Ilyire, surely it's obvious that I'm a vastly better fighter than you now. I could kill you, just by pressing your neck, here, for a minute. Nobody would ever suspect me."

Ilyire's breath came now in short, wheezing gasps. "As I live, I live to kill you."

"But only to keep the word from finding out about Ervelle. That's not the vendetta of honor, that's the sting of a guilty conscience."

"Not true!"

"You slept with the bones of Ervelle herself, the most revered legend of the Alspring cities. Poor girl. You despise me for the rogering of such maids as would have me, yet you did that to a helpless shade who could not even scream for help?"

"No!"

"No woman has ever screamed for help while in my arms, Fras Ilyire. They've screamed for a few other reasons, though. I am a good lover. You are a pervert." "No, no."

"You're desperate to kill me," Glasken said as he slowly released Ilyire and stood clear, "but have you heard of lawyers?"

Ilyire looked up at Glasken, his expression a study in hopelessness.

"So, you have. I've had to engage a few in my time, so I know what they can do. They can hold sealed letters in trust, to be sent to such people as the town crier, your sister, or the Alspring trade envoy at Maralinga in the event of my death. Kill me, Fras Ilyire, and your private perversions will become exceedingly public. Remember what you used to call me? Camel turd, penis pustule? Imagine what you will be called: bone buggerer--and with the very bones of Ervelle herself."

"No! No, never, I lay dose to her bones to guard her, I only wanted to give her the protection that she never had in life. Please, please, believe me, Fras Glasken, Fras John Glasken. I couldn't live if, if..."

Ilyire was on his knees with his hands clasped in supplication, tears streaming down his face. Suddenly he bent down and began to strike his

forehead against the pebbles. Glasken unfolded his arms, surprised at the abrupt completeness of Ilyire's collapse. It was not often that he found himself in a morally superior position, and he could not carry it off very well. He reached down and seized the devastated man by the arm.

"Stop that, your forehead's bleeding," he said as he hauled Ilyire up. "Get up and piss off."

"Deserve to die. Here, take knife. Kill me."

"Put it away and--"

Ilyire twisted out of his grip. "Then I kill myself!"

The toe of Glasken's boot flickered out delicately to send the knife spinning high into the air, across the garden and out of sight. It stuck in the buttocks of a wooden cherub in the cloisters' gargoyleresque, where it remained undiscovered for several months. Glasken stood with his hands on his hips looking down at Ilyire, who was curled up on the path with his hands over his head, weeping hysterically.

"Come along, I can't leave you like this."

After some persuasion Ilyire stood up and wiped at his eyes with his sleeve. "What--where we going?"

"Off to a medic ian shop."

Ilyire threw up his hands, tearing at his hair. "No philtre, no medic ian could help."

"This shop is where souls are healed, Fras Ilyire. It's called the Green Dragon's Tankard."

The retreating Glenellen army was within a day of the city and riding as fast as their horses and camels could manage when the Neverlanders made their challenge. The ground was largely open, but bounded by wide gullies.

"This terrain is optimal for a battle calculor," suggested the Boardmaster as Overhand Baraganian stood in the stirrups of his camel's saddle frame, studying the Neverland freebooter movements ahead of them.

"There will be no use of the battle calculor," replied the Overhand firmly. "Now then, over there: the heavy brigades will chase the Neverlanders along those gullies and tear their rear guard to shreds, while our mounted archers come across to outflank them."

"The men are not trained for such fighting, Commander," pleaded the Boardmaster. "They would be out of sight, having to make decisions themselves without the benefit of the battle calculor."

"Precisely. The enemy is not expecting it."

They watched the heavy brigades stream into the wave gullies in a wide, leisurely pincer movement. Presently the distant thunder of hooves gave way to battle cries, whistles and the clash of weapons,

interspersed with occasional gun shots. The Overhand sent out scouts with heliostats, only to have them run down by small, fast squads of freebooter lancers.

"Again, they hack at our communications," said the Overhand. "They try to keep us blind and deaf."

"Commander, the advantage is still ours, we outnumber them and we're on open ground," Major-Director Mundaer insisted.

"I hope you are right. See there, our archers riding across on their correct vector. Come now, let us move toward the wave gullies ourselves. Keep my pennon high. The helioscouts need a focus for their signals."

As they began to move at a leisurely canter a lancer suddenly appeared over the edge of the wave gullies and rode furiously for the center of the plain.

"One of the heavies, a deserter, by Dalahrus!" the Boardmaster exclaimed. "Neverlander squads are after him," said Baragania.

"He's trying to use a hand heliostat," Mundaer observed through his tele scope. "It's impossible on a galloping horse."

As they watched, the lancer glanced again at his pursuers, then reined his horse in. As they closed the gap he began to signal in the direction of the Over hand's pennon. Moments later he was obliterated in a swirl of dust and flashing weapons.

"Brave man, he gave his life for that message," said Mundaer. He hawked and spat into the red sand. "Well, did you get any of it?"

"It was the codes for 'archers' and 'trap,'" said the Boardmaster.

"Ah, he was calling for our archers to be sent in to trap them quickly," said Mundaer, turning to the Overhand.

"Not 'archers-trap,'" said the Boardmaster. "That's a separate code, it can not be confused with the others."

"A man with death at his back has a right to confusion."

The Alspring archers had reached the wave gully now, and were vanishing over the edge.

"Three Neverlander squads, behind us!" cried the captain of the Overhand's escort. "See there! Cutting us off from the square."

"Make for where the heavies are!" ordered Baragania.

"We outnumber them, Commander, we could turn back and charge," suggested Mundaer.

"That may be what they want, they could be trying to distract us. Forward, ignore them unless they attack."

They changed to horses in anticipation of the fighting ahead. As they rode, the squads of freebooter lancers gradually closed in. When the Overhand finally realized that he had to fight and closed with the

nearest and weakest group, a reserve squad of lancers came out of the wave gully. The final conflict was drawn out and savage, and lasted

for more than twenty minutes. The Overhand and Boardmaster were taken prisoner, but Major-Director Mundaer died in the fighting. Most of the battle calculator components had been sent on ahead, however, and reached Glenellen safely.

The Neverland freebooters dressed very much alike, but as soon as their leader spoke Baragania knew it had to be the she-demon herself, the one known as Lemorel. She treated him with courtesy.

"I know about your battle calculator," she said as they rode toward the nearest wave gully. Baragania looked over the edge, and was speechless with shock.

The gully was a scene of carnage. The heavy brigade had been set upon by Nevedander archers disguised as lancers: exactly the tactic Baragania had used to try to ensnare the Neverlanders in the previous battle. The archers had shot down the horses of the Glenellen vanguard, plugging the gully so that those behind floundered under a rain of arrows. By the time the Alspring archers arrived, the Nevedanders were ready for them.

"Never let your enemy choose the battlefield," said Lemorel to Baragania from the shadows beneath her heavy veil and hood.

"I tried not to," replied Baragania with undisguised exasperation. "That was why I retreated from those hills in the north."

"A good move, a brilliant move. I thought I had you, but you slipped away in good order. Was that your battle calculator's advice?"

"Calculator? Pah!" He spat, with a dismissive cut of his hand. "My horse could have advised me better." He patted the horse's neck, then spread his hands and shrugged hopelessly. "No, that was experience guiding me. The battle calculator brought us disaster."

"Calculators can do that when used incorrectly, Overhand. You must not stop thinking when you use them, or you will surely be lost. Behold," she said with a gesture to the gully. "All lost."

Baragania was silent at the sight of the gully filled with dead and dying. After a moment he hung his head and closed his eyes.

"And yet the machine worked before," he said slowly, unsure of what fundamental point he was missing.

"Ah yes, but through luck and good leadership as much as itself. The Highliber of Libris designed the original machine as a strategic weapon, not a tactical aid. It brought the entire resources of the may orate behind the action over scenarios spanning hundreds of miles. Oh it can be used tactically too, if the enemy has never fought one before. When set against a force commanded by someone who knows its limitations, well, nobody knows the consequences better: than you."

"You annihilated us," he breathed.

"Not intentionally. My Neverlanders fight only as much as they have to. Life in the desert is short enough without throwing warriors away

in futile combat. I stopped the fighting as soon as your force was broken, and not a minute later. Had your Major-Director not been hell-bent on fighting to the death, you would not have lost a single one of your personal staff. I am recruiting, Overhand Baragania. Consider it."

"You want me to join you?" asked Baragania, looking up at once.

A subtle twist in the skin about her eyes betrayed a smile beneath the veil. "An uncommon offer from a truly exceptional enemy," he concluded. "You have a choice. Become a prisoner, and perhaps your family will ransom you. You can also become one of my probationary over hands but if you do that there is no going back. One desertion, one betrayal, and the consequences will be unimaginable. I need clever people like you. I shall have captured all the Alspring cities very soon. After that, there is a world beyond to take. My spy merchants are out and at work there already. You could grow with me, Overhand Baragania, think upon it."

"I shall treat your offer very seriously, My Lady Commander," he said in a level voice.

She put her whip gently but firmly across his chest. "Just Commander, when speaking to me."

As the Glenellen overhand was being led away to join the other captives, one of Lemorel's own Neverlander over hands moved in closer at her gesture.

"Glenellen lies before you," he said with flamboyant enthusiasm. "Take it and there will be rich pickings."

Her riding whip thudded against his chest. It was not a heavy blow, just a caution.

"We are not petty thieves, Genkeric. If you want to scavenge, I can arrange for you to tend a rag and bone cart."

"Commander, I meant only for the men."

"No! You're still thinking like a raggy nomad, a petty thief. Glenellen is a symbol of strength. I want it to be mine and I don't want its power weakened by looting and pillage. With Glenellen fallen, Ringwood will join with me against Alspring itself. I'll no longer be just another freebooter warlord. Go after that Glenellen overhand there, give him a tour of our forces. Be polite, be friendly: he may be fighting beside us in the next battle."

Some days later Overhand Genkeric died in a confused, minor skirmish not far from Glenellen's walls. He was quickly replaced by a senior officer from the ranks of the Glenellen prisoners: Baragania.

Dawn was in the sky but the lamps at the street corners were still alight as Glasken and Ilyire returned to the mayoral palace. Mirrorsun was just above the western horizon, spilling its light in between the spires and towers bordering the square, and the nightly shape-changing

glow was that of a six-rayed star. Glasken pushed the brake chocks on the stolen costermonger's cart down onto the wheels as they emerged into the square before the palace gates. Ilyire was lying on the tray, singing incoherently with his legs hanging over the front board. Glasken had some quiet words to the three girls who had been helping with the cart, and they departed into the predawn shadows, each leaving a kiss on his cheek. Two of them also kissed Ilyire.

"Frash Glashken, you good man," Ilyire bawled emotionally as Glasken helped him out of the cart and onto the cobblestones. "Help man into gutter, who is." "That's out of the gutter, Frash Drinking Apprentice." "Everyone dis-pishes, er... Ilyire." "Shame on them." "Sister shot me." "Lucky she missed." "She didn't."

"Lucky you're tough. Look, we're home."

Ilyire began to sing in ancient Anglaic: "I belong te Glasgow, Dear old Glasgow town."

"Shush! The guards'll think we're drunk."

"Where' sGlasgow?"

"Long way away. I think it's a Northmoor city."

Ilyire lurched free of Glasken's supporting arm and stood with his hands on his new friend's shoulders.

"Did you robert my sister?"

"Roger your sister."

"So you did! Filthy swine," Ilyire paused to emit something between a belch and a sob.

"I never did it," said Glasken, fanning the air between them. "You didn't? Why not?" "She wouldn't let me."

"You lucky, she's weird. Eats mice, poisons suitors, shot me."

"Ilyire, it's nearly dawn, we're at the palace, and you're going to bed. I'm going to clean myself up and visit the lovely Varsellia." "Fine, fine girl. What's she like?" "Stop that!"

"Like ride on hay cart with broken axle, yes?"

They meandered toward the main gates and the six increasingly uneasy guards. Ilyire suddenly lurched to a stop.

"Frash, friend," he said, confronting Glasken again. "You I give treasure cave. Jus' one promise."

"What sort of promise? If it involves your sister--"

"No! Never. Poor, shamed myself, never return there. Friend, take

all treao sure, but gather bones of Ervelle. Bury at Maralinga. Graveyard there for Ghans. Ghans who die in desert, following Call. Do it, Frash. Please."

"A noble gesture," said Glasken, taking off his cap to Ilyire with a wobbly flourish.

"Not gesture! Her soul you put to rest. Hero needed for that. You hero. Me? Just worm."

"I... dunno, worms have all the fun," said Glasken, elbowing him in the ribs.

Ilyire collapsed with a cry of pain. Glasken helped him up. "Sorry Ilyire, what did I hit? LovebiteT" "Fras Glasken, Johnny... big jokings."

"Do you have a map of how to reach the cave?"

"No."

"Can you draw one?"

"No. Navigated by, ah ... innuendo? Intercourse? Intuition! Yes, yes. Only Theresla made maps."

"Well, can you take me there?"

"No, Frash. Shame, the shame."

"Gah, dummart! How do you expect me to help?" Glasken waved to the guards. "Will ye help him inside?" he called.

"We know you both, Frash Orion," replied the duty officer. "You take him in. We can't leave our posts."

"Thank God," murmured the gate sergeant.

They watched them totter past, and presently heard the rattle of a pulley lift's mechanism. The six guards relaxed visibly.

"They're the floor domo's problem now," the officer said with relief as he noted their entrance in the gate register.

"Thought the Ghan didn't drink," said the sergeant, who was staring at the abandoned cart across the square.

"After three weeks of watching Frash Orion arrive back here at strange hours in stranger company, I've ceased to be surprised by anything," the duty officer replied.

Zarvora was awakened by the sound of distant shouting and smashing crockery. She shook Denkar awake. "Listen!" she hissed.

"Some cook throwing a tantrum," he muttered sleepily, pulling the covers over his head.

"It does not sound like that."

"Zar, I've been up until four A.M. converting your trajectory equations

into binary on punch tape. Unless the palace is on fire, I'm asleep."

Zarvora strained to hear words in the distant argument.

"Filthy wretch, get out!" shrieked a female voice.

"I'm going, don't shout," pleaded a man.

I'll shout what I want! You're not a Tiger Dragon, you're a damn gear jack You lied to me!"

There was a series of percussive smashes and inarticulate cries of rage, then running feet.

"Drunk! Drunk every night!" Something like a very large vase smashed, fragments skidded and tinkled.

"And when you' we not been mounting a tavern bench you've been mounting my serving maids!"

A door slammed, sending booming echoes through the corridors and cloisters. For some moments there was silence, but this was broken by another smash and a cry of surprise.

"And take your filthy rye whisky with you! Nobody dupes the Mayor's sister!"

Zarvora raised an eyebrow. "But somebody appears to have, nonetheless," she concluded.

She settled down again, but could not get back to sleep. Such outbursts were rare in the palace, and one of the parties involved had been Varsellia. The other.. a Tiger Dragon? A gear jack Zarvora pushed back the covers and stood up, stretching for a lingering moment before stepping into the drench bath. Wrapping herself in a towel, she went into the next room to check her sleeping sons, She drew the curtains against the sunlight, so that they would not wake early and disturb Denkar.

Although she had arisen to investigate the disturbance, Zarvora was in no hurry. It was indeed prudent to let Varsellia calm down a little before calling by to speak with her. She dressed in her working clothes of gray cotton treads and tunic, then went down to the palace kitchens for breakfast.

"Frelle Varsellia seemed a little excitable this morning," she mentioned to the serving maid who brought the tray of coffee and freshly baked raisin bread.

"The good lady discovered that her lover was not all that he claimed to be," the maid replied.

"Apparently he claimed to be a Tiger Dragon."

"Most of the palace heard that, Frelle." The maid looked to the floor and blushed a little. "I can tell you, though, that Frelle Varsellia has discarded a rare accomplished lover."

"Does experience speak?" asked Zarvora, daintily cutting up a slice of warm bread.

"Fras Jack was generous with his affection, Frelle."

"Jack, an ancient name," said Zarvora, before taking a sip of coffee.

"Aye, Frelle, but nothing else was ancient about Jack Orion."

On her way to Varsellia's rooms Zarvora noticed heavy snoring from the room occupied by Ilyire. The door was ajar, which was unusual for the paranoid Ghan. She pushed it open to find him on his back and snoring, sprawled across his bed and still fully dressed. His trousers and codpiece were on backward, however, and a fashionable shade of women's ruddy cheek-ochre was smeared over his face and collar. What appeared to be claret stained the ruffles down the front of his orange tunic.

"Ilyire."

There was no reaction whatever. She shook his leg, which should have made him leap to his feet with a knife in his hand. He did not stir. Finally she took a ray-stipple pitcher of water from the sidebe,"d and poured it over his head. Ilyire spluttered, and his eyes opened.

"Ah, sister..."

"I am the Overmayor."

"Wasser difference? Both shout at me. Both strange as... devil's codpiece." "Have you been drinking?"

Ilyire raised his head slightly, then cried out in pain and flopped back onto the pillow. Zarvora pulled open the towel drawer in the sideboard beside the bed, only to discover that he had vomited into it. She left, returning some minutes later with another pitcher of water, a towel, and a glass tumbler containing some white powder.

"Get up, drink this," she said, splashing more water over him. "Lemmedie."

"Head up. Drink this."

"No! No, that's wha' Frasn Glasken sayn' all night. Drink this, drink that."

Glasken. Zarvora froze. Jack Orion, lecher. John Glasken, lecher. She suspected that they had everything in common.

"Drink! This is salts of willow for your headache and soda for your stomach."

Ilyire drank, but threw up almost at once. Zarvora skipped back from the foul torrent, then forced him to drink pure water until he had ceased to vomit. After that she gave him more of the mixture, and eventually he lay back, panting with exhaustion but reasonably lucid.

"Who were you with last night?"

"Can't remember.." much. Woman! Soft as silk."

"You?"

"Embarrassed. Knew no positions. Belgine, good teacher. Know some now."

Zarvora lifted two generous lengths of sheep gut sheath from his half-open pouch with the tip of her dagger.

"Poor sheep. Died fr'a good cause. Women's thighs.." heavenly. You

know that, Highliber?"

Zarvora blinked. "I shall take your word for it. So, you spent a night drinking and wenching with John Glasken?"

"Fine fella, misjudged him..." mumbled Ilyire, pulling a sheet over his face.

Zarvora pulled it away again. "How long has he been Varsellia's bobble boy

"Dunno. Arrived... your wind train."

"My wind train?"

Zarvora could get no more sense from him. An inquiry to the palace guard revealed that llyire had arrived at the gate on a costermonger's cart. A check with the Constable's Runners turned up a report of three women and a tall, strong looking man pushing someone singing in a foreign language on a stolen cart. A check of the Felonies Register at the Constable's Watchhouse led her to the fruit and vegetable markets south of the par aline rail side. She began asking after a gift named Belgine at the nearby taverns, and at the Green Dragon's Tankard she finally met with success. Glasken--as Orion--was staying at the tavern, but was in no condition to see anyone. Apparently he had company.

"Has he committed a felony?" asked the tavern master, rubbing his hands anxiously as he stared at the official braiding on Zarvora's tunic.

"No, but I want him watched," said Zarvora as she opened her hand to display three gold royals on her palm. She tipped them onto the counter. "Report his movements to the Constable's Watchhouse. Tell them WATCH BOOK SE379G with each report."

He swept the coins from the beer-seasoned counter and wrote down the reference. "By my life, Frelle, I'll guard him as a son."

Returning to the palace, Zarvora sat down to write a coded message to Theresla.

Riots were unusual in Kalgoorlie, as were civil disturbances of any kind. Thus the chanting mob drew a crowd of spectators bigger than itself, and so gained the strength to intimidate further by that very increase in numbers. The number of people was no more than a thousand, yet that was enough to intimidate the nearby merchants, vendors, and artisans. The leaders carried banners bearing the Gentheist symbol of a wreath of green leaves surrounding a blue disk and they were chanting a mixture of prayers and slogans. Zarvora could not see the mob outside the palace walls, but she could distinguish the dominant chant of "No steam!" among all the others as she swung herself up into the saddle of her horse.

"It shames me that you must travel on horseback when a cable tram is available," said Mayor Bouros to Denkar, who was having difficulty with his mount after ten years out of the saddle.

"A group of riders gives them nothing to focus on," Zarvora explained. "They think to attack the of-cwttt net th oecrtr "

"Why not send out lancers to clear the way?" Denkar asked.

"They have women and children mixed in among them," Bouros replied.

"An old trick of the Gentheists in the Southeast," said Zarvora. "Human shields. Hit them and you are called a butcher."

"Oh so! That's where a lot of these Gentheists are from, even though they wear the robes of my Kalgoorlie subjects."

"If they attack us, what then?"

"I'm prepared. If there's fighting, stay with the rest of us and no heroics if you please."

Zarvora slashed the air with her swagger stick, then rested it over her shoulder while Denkar experimentally rode his horse around the courtyard. The gates were pushed open and the forty riders moved out toward the crowd of protesters. The Gentheist leaders held back at first, looking for a carriage or cable tram behind the horses, but when the gates closed behind the last of the riders they led a surge toward the horses.

With the exception of Denkar and Zarvora, all of the riders were cavalry guardsmen, and when fringes of the crowd began to close in front of them chanting "No steam! No steam!" they brought their swagger sticks to the ready and rode straight for them at a trot. Those in front tried to push back, but those safely behind them continued to advance. The leading riders reared their horses, which had been trained to lash out with their hooves.

This was the cue for fighting to break out, for the Gentheist leaders had deliberately set up the confrontation with violence as an end. Screams and blood were added to the jostling swirl of bodies. The riders were all dressed in cavalry leather and ring work except for the Mayor, who also wore his heavy gold chain of office over his armor. Swagger sticks and sabers clashed, but the riders had the advantage in terms of arms, armor, and horses. The column made steady progress through the crowd.

The gunshot itself was barely audible, but a rider beside Mayor Bouros flopped forward and began to slide from his saddle. Denkar reached over to hold him up as something whizzed past his head, followed by the bark of a second shot.

"That's two!" shouted the Mayor, lifting a whistle to his lips.

At his signal the riders drew flintlocks and began firing birdshot at those rioters who were half a dozen back from the horses. The rout began almost immediately, while scattered gunshots continued from farther back in the crowd. The distant gates of the palace compound suddenly opened again, and a far larger squad of cavalry poured out, cantering straight into the rioters and laying about them with sabers. Barely six minutes from when the first blow had landed, the riot was over. One of the Mayor's officers and nineteen rioters were dead. Two of the dead were women, and another three were children.

The wind train journey did not get off to a good start for Glasken. Eastward K207 had been listed to leave on time until he had booked himself aboard. Immediately the schedule was put back an hour. Glasken cursed, spat on the platform, and made for a nearby tavern. As he sat sipping his ale beneath a vine-smothered pergola he noted that several of the loafers near the station were strutting slowly, rather than just casually wandering about.

"Black Runners," he said to the serving girl who was removing his empty tankard.

"Indeed, Fras?" she said with polite skepticism.

"Hah, you doubt me," he said, putting an arm around her waist and raising his free hand. "Oi, Black Runners! Ye stand out like tits on a bull!"

Of the dozen people who turned at his shout, two moved with a distinctly martial reflex.

"Surely they're not all Black Runners, Fras?"

"World's full of 'em," replied Glasken. "Well, time for a stroll down Tumble Street," he said as he stood up.

The girl squeaked with indignation, then ran off. Glasken shouldered his roll pack twirled his swagger stick, and sauntered off toward a tangle of shabby buildings and alleyways. A half hour later he reappeared, a slash across his roll pack and his swagger stick splintered. As he arrived at the platform he stopped to remove a tuft of hair from the toe of his boot. Darien was on the platform, dressed in a neutral ochre kaftan that blended in with the Kalgoorlie crowd.

"Frelle Darien, so you're the Dragon dignitary they held the train for," Glasken bawled as he strode through the gate. "I suppose you're on hush-hush work, so I won't bother asking."

Glasken's appalling pun had been accidental, but was not lost on Darien. She swung a slap at him, but again Baelsha's training came to his rescue. A quarter step twist-dodge allowed Darien's hand to sweep harmlessly past his face, and she spun and stumbled with her own momentum. Without looking back at him she picked herself up and ran from the platform. One of the men who had tried to ambush Glasken in Tumble Street came stumbling through the gate holding a bloodied kerchief to his head.

"Oi, she forgot her journey cases," Glasken called to him, tapping the brassbound wooden luggage with his swagger stick. The man glared at Glasken, then pocketed his kerchief and snatched up the journey cases. "I've owed that to you bastards since 1699," Glasken added.

The man stalked off, with blood starting to trickle down his face again.

Glasken felt a touch at his ann.

"Varsellia!" he exclaimed.

She held a finger to her lips, then drew Glasken back away from the crowd. The Mayor's sister was dressed as a common goodwife. Ochre sun

powder had "Surely you are not leaving forever?" she said anxiously. "I do apologize for throwing you out--though I still think the blame was not all mine." "Pah, worse has been done to me."

"You were naughty for drinking every night in the taverns."

"And you're guilty of parading me as your pet man."

They stood contemplating their respective sins and staring down at the red flagstones of the platform.

"So we are both sorry, Fras Reprobate," Varsellia conceded, and Glasken nodded.

"Did Ilyire pass on my message?"

"Yes he did, but why are you here, Frelle?"

"To see you off with a sweet memory of Kalgoorlie, lonely boy."

"Pah, I'll not be gone long."

Her face brightened into a wide smile. "So you're not leaving forever?"

"Weeks, at most. Lately I have been feeling an odd urge to be... more settled."

"You?"

"Me. I spent five years in a very isolated, ah, outpost doing.. contract work. All that time I dreamed of girls, wine, and jovial times, but now that I have all that I find myself wondering if there is not more to life. I hope to raise some, well, venture capital for mercantile dealings during my trip."

"Hmm. A more settled Jack Orion could be even more attractive to me. Mercantile dealings, you say? As the Mayor's sister I can give you some important introductions. Am I forgiven?"

"As long as I am."

When the wind train finally pulled out, it was with a galley shunter pushing it until it was clear of the city and able to take better advantage of the light and uncertain breeze. Near the outskirts of Kalgoorlie the houses were smaller and lower, neat little jumbles of red-on-white blocks. Finally they passed through the par aline gate in the immense curve of the city's outer defensive wall, but there were still whole suburbs of nomad tents and shanty dwellings before the train reached the irrigated patchwork of farmland.

"Thae sac Mirrorsun's weakening thee winds," said the Merredinian cook as Glasken bought several jars of ale.

"As long as I'm not pushing pedals in a galley engine, Fras, I don't care," Glasken replied as he flipped a copper from his change to the man.

"Think thee that Mirrorsnn be Deity's disapproving of wind trains, Fras?"

"I think Mirrorsun's the Deity's way of lighting drunks home on moonless lghts.

Strangely enough, however, Glasken's daydreams were of being a rich merchant and building a splendid villa, rather than of drinking ale,

fighting in taverns, court life and his five years at Baelsha had changed him more than he wanted to admit.

Zarvora and Denkar's trip to the University was postponed until the Mayor called a Noontime Magistrade in the square before the palace. Two Gentheist priests and five others had been caught and identified as being leaders of the rioters. All but one were foreign nationals, four from the Southeast Alliance and two from Woomera.

A massive scaffold wagon was wheeled out from the stables, and the gibbets folded out and locked into place. As a crowd of Kalgoorlie citizens gathered, the bodies of the dead were laid out on stretchers before the gallows. A small group of Gentheists began a chant, but they were immediately surrounded and their leader escorted away to stand with the others on trial. The Mayor ascended the steps of the scaffold wagon and began to read from a scroll.

"My loyal subjects, justice rests with the Mayor through the text of the Mayoral Charter. Though I delegate my authority in justice to the magistrates of this city and may orate I retain authority to pass sentence when I have personally witnessed an act of felony. In this case, I saw a crowd led by these men attack cavalry escorting myself, appearing as Mayor and wearing my chain of office. This is treason. During the fighting shots were fired that killed one of my loyal officers. This is murder. When more riders came to rescue us, these members of the crowd laid out here were trampled to death. As you can see, several are women and children, and these were made part of the crowd by the cowardly Gentheist leaders who used them as shields to fight behind. This is also murder."

The square was in silence. A clock in a tower began to ring out the for noon. A herald with an agenda board climbed the steps and stood beside the Mayor.

"On the charge of treason I find these men guilty, but commute the usual sentence on my discretion. On the charge of murdering my officer, I declare the charge to need further investigation and pass it to the City Constable. On the charge of inciting a riot that led to the deaths of these people before you, I find these men guilty. I have been in contact with their mayors via beamttash and have obtained orders of extradiem proxian. I sentence them to death. Carry out my order, Constable."

The swift retribution caught both the Kalgoorlie citizens and the Gentheist extremists by surprise. Seven men were wrestled to the gibbets and into their nooses. One by one the platforms beneath their feet fell away, leaving them spinning and dangling. The single latecomer stood wide-eyed and horrified as the Mayor turned to him.

"For incitement to riot within a public gathering I find you guilty,

and sentence you to three hundred strokes of the sunrise and fifteen years in the Bonelake Penal Garrison. Carry out the first part of the sentence at once."

The Gentheist died after two hundred strokes, and was left bound to the triangle set up beside the scaffold wagon and its grisly display. The City Constable's report showed that two-thirds of the rioters had been from outside the may orate and deportation proceedings for the remaining Gentheist militants were begun.

It was not until late afternoon that Mayor Bouros and his two guests finally reached the University and entered the walled research park.

Wind rotors and windmills spun in the dry, warm breeze, and there was the steady rush of water being pumped into reserve tanks to provide back-up power. The smell of burning alcohol and vegetable oil was on the air, mixed with more exotic chemical scents.

"This is our power field," said the Mayor as they walked between the pumps and rotors. "It drives the cable trams in the city, the water pumps and lifts in the underground shafts, and the bellows in some of the smelters."

"It smells like a brewery," said Denkar.

"Close. It's a distillery. We make alcohol here for fuel export. The Gentheists maintain that we also have steam engines hidden down in the shafts and burning alcohol, but that's all nonsense, isn't it?" The Mayor arched an eyebrow and--unnervingly--smiled on only one side of his face. "Alcohol burners are main rained at the bottom of the shafts, and they circulate air from the surface by convection. Some of the rising hot air also turns turbines that power small generators in Faraday cages half a mile down."

"Convection engines, Denkar," Zarvora said. "They are weak, but have been accepted by all the major religions as not coming under the steam and explosive gas proscribium."

"Not quite, Frelle," said Bouros. "The Gentheists are still arguing among themselves about convection engines."

"They seemed united when they attacked us," Denkar pointed out.

"Ah no, Fras, that was nothing to do with convection engines. Their spies have gleaned word of two beautiful triple-expansion, high-pressure steam engines that also burn alcohol and vegetable oil and reside at the bottom of my deepest shafts. After all, I have to have a reliable source of power, don't I?"

The Edutor-General of Physistry met them as they stepped out of a lift that dropped so far that Denkar's ears popped constantly with the pressure difference during the descent. Vegetable-oil lamps gave the shafts the scent of an enormous kitchen, and Denkar was reminded of Libris. They toured several workshops first. These were filled with artisans at benches and desks, which were piled with wire, glassware, and vats of beeswax.

Warm, rushing air was everywhere, laden with the scent of alcohol and

sun flower oil. Faraday cages were built into several tunnels, so that no electromagnetic signals leaked out to attract the attention of the orbiting Wanderers--and conversely, so that any electromagnetic thunderbolt from the ancient military satellites would be absorbed.

"Mayor Bouros has been experimenting with ancient electro force devices of the old civilization," Zarvora explained. "When I came over two years ago on a... diplomatic visit I discovered that he was very advanced in his work. Much of what I thought I would have to pioneer myself in electro force studies was already done. He has a spark-gap or spark flash transceiver that can send an in visible signal across empty space."

"I have a two-hundred-yard length of tunnel fully shielded for my electro force experiments," Bouros said proudly. "There's nothing else like it in the known world."

"Well in Oldenburg we had the Loyal Company of Electroforce Studies," began Denkar.

"Pah! Faraday cages the size of broom closets and pedal-powered generators no bigger than a tinderbox. This is real electro force just like the ancients had it."

His steam engines were nothing like the soot-belching, wheeled juggernauts of admonitory religious texts. They chuffed and hissed busily and steadily, and their brass work was polished so that it gleamed with dozens of highlights in the glow of the lamps. There was a dull roar from the burner in the alcohol and oil mix boiler, and an insect like whirr from the generators spinning beside both engines. Denkar noted two cables in varnished wooden trays, both insulated with poor paper soaked in beeswax and bound down by woven mesh.

"Come this way," said the Mayor, putting a thick arm about Denkar's shoulders and gesturing along the mesh-shielded tunnel. "Along here we have the greatest triumphs of my sixteen-year role and patronage of this laboratory. I have prepared demonstrations of an arc lamp and a type of beam flash signaler called a click wire that uses shielded copper wire and electromagnets that produce clicks. It can replace beam flash mechanisms, it is not affected by fog or smoke, and wires can travel over the horizon and beyond the line of sight."

"The Loyal Company tried that back in 168 I," said Denkar. "Shielded wires were slung between two houses containing Faraday cages, but a currawong landed on one of the wires and disturbed the foil and pitch shielding with its claws. A Wanderer passed overhead as they were testing it, and flash! It became all smoke, flames, melted wire, and beeswax."

"Hah! Foil and pitch shielding indeed. We use woven mesh over poor paper and beeswax. Still, that was a noble effort, and one day we may make such things operational. It's only a matter of engineering of

course."

"Of course." ' "Now then, I also have a spark flash radio to demonstrate, an electro force engine that drives a water pump, and best of all, a model electro force tramway. First, however, I have been working with your good wife on a tiny but clever device that she calls a dual-state, electromagnetic relay. It can store the status of something like an abacus bead--"

"Why yes! An electro force abacus frame, and you could have dozens of relays for each component to use," Denkar exclaimed, suddenly catching on. "Each frame could be connected to the central correlators by a bundle of wires. Why, with a few hundred component people you could outperform the entire Libris Calculator."

"Well... that is possible, but it was not our approach," said Bouros. "Be hold this device here."

To Denkar it looked like nothing at all. Layers of polished wooden racks and metal struts were draped with wires and springs, and made a sound like the Calculator of Libris in miniature.

"This is a calculator," said Zarvora. "Although less versatile than my first Libris Calculator, it is faster and more accurate in tasks of pure calculation."

"It's the Highliber's design," the Edutor-General added. "She calls it an Induction-Switch Relay Calculator. It's powered by electro force from one of the generators you saw earlier. This one has the equivalent of two hundred fifty-six component-step per timed cycle. Originally there were four cycles per second, but that has been speeded up somewhat."

"In terms; of raw calculating power it is roughly the same as the Islamic Calculator in Libris," said Zarvora.

"The, calculating power of over two hundred and fifty-six people in a machine the" size of a hay wagon

"Ah, but this is a tiny device, Fras Denkar," said Bouros grandly. "Frelle Zarvora has designed a machine of over four thousand ninety-six component steps in capacity. That's more than the great Calculator of Libris itself can boast. All that slows us down is the lack of sufficient artisans to build switches as fast as we can install them, but we are recruiting clock makers from wherever we can."

"Unbelievable," Denkar said in awe, running his hand along the frame of the electro force calculator. "When does work start on the big machine?"

"We still have two thousand relay units to make," began Zarvora, but Bouros waved her silent with a flourish that ended with a finger on his lips.

Taking Denkar by the ann, he led him to tall double doors in the rock wall, which the Edutor-General hurried ahead to open. Beyond it they passed along a short archway cut in the rock, then into a hall-sized cavern as alive with clattering and clicking as the insistent pounding of hail on a metal roof. The thing itself was a metal lattice of

scaffolding draped with wires and cables, and the warm air reeked of beeswax and ozone. The roof gleamed with metal mesh, and a halfdozen people were tending a complex bank of instruments on a raised platform surrounded by a railing.

"Here now is my little wedding present for you two dearest of my dear friends," said Bouros, coming up behind them and putting his arms around their shoulders. "It's a little late--when did you say you were married, Zarvora?" "I... two years--no! Three years ago."

"We forgot to date--that is, we keep forgetting the date," added Denkar. "Lucky man," said Bouros, grinning broadly and wagging a finger, "having a wife who doesn't bother about silly things like wedding anniversaries. We decided that this calculator can be made partly operational with a mere two thou sand forty-eight units, so here it is, all ready at half-power."

"My need for calculating power has exceeded even what the Libris machine can offer," said Zarvora. "Unfortunately it has also exceeded my ability to do the development and research to improve it all by myself. I have decided to begin to bring the cream of the FUNCTIONS of the Libris Calculator across to help with the work, starting with you. Would you like to take charge of this machine's development while I continue with other researches?"

Denkar had been following the signs and wires festooned from the steel racks, trying to make some sense of the architecture.

"Where are the correlator registers?" he asked.

"Why it's that board stretching along the wall there. A dozen regulators plug and unplug the wires according to instructions that arrive from above via that paper tape punch."

"I designed a harpsichord keyboard in a Faraday cage that sends impulses down a half mile of shielded wire," added Zarvora.

"Why not replace all those plugs on the board with a bank of relay connections?" asked Denkar.

"Why, because ..." The Mayor scratched his head, then turned to Zarvora. She shrugged. "Look, there is a coffee room with a chalkboard just past that rack to the right. Would you like to repeat what you just said while I scribe up a diagram?"

As they were leaving Zarvora whispered in Denkar's ear. "We had better think up a plausible date in 1703 for our marriage. I can beam flash a message to my lackey in secured code and he can enter some forged records in the Libris data store."

"Don't bother him," Denkar whispered back. "All I have to do is prepare a numeric string to go down the beam flash and straight into the Libris Calculator." "You do not understand, Den. We need someone with a password to--"

"No, no, I broke your Calculator's transmission conduit codes back in 1697. I've been able to do whatever I wanted to in your data store for eight years."

Zarvora stopped dead in her tracks. "You what?" she shrieked.

SOULS IN THE GREAT MACHINE

Bouros and the Edutor-General stopped and turned. Zarvora waved them on. "I can write a numeric string to go down the beam flash network and take over the transmission conduits so that the data following is automatically acted upon by the Calculator."

Horror stabbed through Zarvora, horror that was real, physical pain. "You-you were able to control the Libris Calculator for eight years?"

"I confined myself to a few experiments. I was afraid to tell, ah, Black Alpha."

"You could have started wars, ruined the economy, destroyed my power and credibility completely, yet, yet.." you did nothing?" "You almost sound disappointed, Zar." "But..."

"I'm not a vandal."

Zarvora's shock sublimed into warmth and adoration, and she suddenly realized that she could unreservedly trust someone for the first time in her life. So this is what it is like to be rescued from a dragon by a handsome kavelar, she thought as she flung her arms around Denkar's neck.

Bouros and the Edutor-General again looked back to where Zarvora and Denkar were standing in the golden lamplight of the tunnel.

"Just look at them, kissing and embracing," said Bouros.

"It must be a very exciting day for them," agreed the Edutor-General. "Why, getting such a magnificent wedding present as this must melt away the years and make it seem as if they have only just been married."

"Aye, true. Now what could I fashion for my own wife so that our romance would blaze up as fiercely as with those two?"

Glasken bought another roll pack and swagger stick at the rail side market at Coonana, along with a cap that sported a wicker frame eye shade and goose feather painted with one of Mirrorsun's many shapes. He also bought a reel of white ribbon and a handful of lead shot. The wind had begun to pick up by then, and the train made 120 miles per day thereafter. Just beyond Naretha Railside he dropped a padded bottle of ale through his window into the darkness. It was unlikely that any other refugee from Baelsha would find it before some par aline ganger came by, but Glasken was happier for the gesture.

As the train rolled through Cook Railside on the fourth day, Glasken was reclining in drink-shrouded contentment, sipping delicately at macadamia-mash brandy and watching the treeless expanse of the Nullarbor Plain passing the window. Sensibly, he was chained to the shackle rail on the wall. He had by now checked the passenger register for unattached women, and there was one, in a private compartment at the back of the train. He thought through various pretexts to meet with her, then decided that lethargy was his wisest option.

Glasken was roused as someone walking past stumbled at the open door to

his tiny compartment. He caught a flash of green and red needlework woven with gold thread into black fabric very like fine cheesecloth. A woman's robes! She wore a veil of blue gauze that hung from just below her eyes but only reached down to her chin.

"Ta'aal back, Frelle," he said politely, assuming that she was Islamic, and that a husband, father, or other guardian would be close to hand.

"But surely you are not a Southmoor," the woman replied. Glasken sat up at once.

"No, I'm of the Southeast Alliance, Rochester actually, Jack Orion's the name, do come in--should you feel my hospitality is honorable."

She stood regarding him for a moment, and he noted what beautiful eyes she had. With the expertise of a practiced lecher he also noted that the nipples of her breasts were beginning to stand up under the cloth. As if to confirm his observation she sinuously slid down into the seat across from him.

"I am Wilpenellia Tienes, from the Carpentarian Mayorate of Buchanan." "I don't know it," he replied easily. "Is it west of Kalgoorlie?" "No, it's directly north."

"Alspring?" exclaimed Glasken with surprise.

"No, not those barbaric nomads!" she replied, throwing her hands up in mock horror. "Carpentaria's may orates are to the north of even Alspring. Have you not heard of the Northwest Paraline Authority, and the link through the Great Sandy Desert?"

Glasken had not, but the idea seemed plausible.

"So, what faith do you follow?" he asked.

"Reformed Gentheist, not the Orthodox Gentheist of those Alspring Ghans.

I am a scholar, on my way to work on some rare texts at the great library of Rochester, Libris. You look to be a man of learning, have you studied in Libris?"

' Libris, I know and love it well. Why, when I worked there I simply couldn't get out of the place. Lately I've been settling family matters to the west: an unfortunate death of a distant relative that involved a great deal of wealth."

With these words Glasken stretched out along his seat like a large and languid cat.

"Ah, a man of means," she said.

"And do you like train travel?"

"I hate it. I have a tent that my servants set up every two days or so. There

I stay in comfort until the next wind train arrives."

"An eminently civilized strategy, Frelle. And when is your next

stop?"

"Oh, I thought to disembark tonight, possibly at Maralinga Railside. Have you been there?"

"Years ago. A boring place, you might say."

"Boring? Ah, but, Frasier Orion, what glorious peace there is in the

desert. Not a sound but the wind, none of the bustle of towns and cities, nor the rumble and rattle of the trains. Have you ever slept in the desert, Fras?"

She drew breath rapidly, so that her veil outlined the pouting lips beneath. Glasken found the effect unsettlingly erotic.

"I... have been known to. Would you drink to such a thing?" he asked boldly.

She batted her eyelashes at him for a moment, let him dangle, then caught him.

"Only from a glass tumbler, Fras. We must be civilized, whatever the beauty and tranquillity of the wilderness."

Glasken jerked the service cord for a new jar of brandy and an extra tumbler. Once the conductor had gone they drank to the Nullarbor Plain and the tranquillity of the desert. Glasken was already ahead by an entire jar, but felt obliged to match her drink for drink. He did not notice her squeeze something into her mouth while feigning to politely stifle a belch.

Wilpenellia slid over to his bench with a flowing rustle of cloth, and Glasken's arm snaked under hers to seize and fondle her left breast. She immediately lifted her veil a little and planted her lips against his, sliding her tongue into his mouth in a lingering, passionate kiss. The night wing solution in her mouth--that she was immune to--worked surprisingly quickly on even such a large and powerfully built man as Glasken.

In an unexpected bonus for the aviad woman, a Call rolled over the train while it was still a mile from the Maralinga Railside. As the train thumped into the safety buffers she already had Glasken on a lead. She dragged him to the stables and appropriated two camels, which she loaded with packs from the train. Glasken was too large and heavy for her to strap into a saddle, so she let him walk south beside the camels on the end of a rope. When the Call stopped for the night she fed him, and the food was mixed with salts of night wing. It took an hour to maneuver him into the saddle frame of a kneeling camel; then she led their camels out of the stationary Call zone and south, toward the Edge.

Glasken awoke with dawn seeping through the fabric of an ochre-colored tent. His head was muddled with something that was neither sleep nor drink. There was a sweet, pleasant scent on the air, and the ground was strewn with blankets and air cushions.

"Where's the train?" he said to nobody in particular, but was not surprised to be answered.

"Long gone," a woman's voice purred from the other side of the tent. "Was I right? Was my tent indeed more comfortable than the train?"

Glasken raised his head, to see the veiled face of a kneeling, naked woman across the other side of the tent.

"Wilpenellia?"

"Oh, Fras, but you hold the spirits rare well. What a rare and wonderful time we had." ' "

Glasken considered. His head was muddled rather than splitting with a hang over, but his lusts seemed as rampant as if he had been abstaining for days. She slowly raised herself to her knees, confirming that she was naked except for the veil. Her skin was faintly honey-brown. Glasken got to his knees as well, noting that he too was naked.

"Frelle, you'd best remind me," he said, affecting a suave leer.

Some people never forget a face, a voice, or a pair of eyes, but for Glasken it was breasts that always burned themselves indelibly into his memory. Before him was a smallish yet perfectly formed pair of breasts in the Davantine classic shape. Theresla. He had suspected as much from the first.

"Wait!" she said, holding up a hand. "Wait, please, Fras..."

He sat back, selected a grape from a bowl, and ate it.

"It's only a cramp, it will soon pass," she added, surprised by his sudden indifference.

Glasken had no doubt that a Call was close. Theresla would wait until it was nearly upon them and say, "Come to me, Jack Orion. Come do what you will." "Ah, the pain has passed. Come now, Jack Orion, do what you will."

"Actually I'd rather prepare for the Call, Frelle Abbess," he said as he sat back in a lotus position.

Glasken slammed down mental shutters developed and nurtured in him by the abbot of Baelsha over many, many celibate years. He squeezed desire from himself like water wrung from a sponge as the Call's front rolled over the tent. Glasken was torn by allurements that he did not think possible clawing at every thing that made up his being, yet he remained hunched over with his fists clenched, shivering and gasping for breath. It's getting easier, he noted. Theresla stared down at him in amazement.

"You resist it," she whispered. "A human resisting the Call."

Glasken did not reply. There were hours to go.

"You now resist the Call by yourself, my allure has nothing to do with it,"

Theresla continued. "How can you do it?"

"Sheer spite," whispered Glasken.

Slowly she tilted his head up. His eyes were open. He was aware of her nipples a tongue's length from his face, yet she no longer allured him.

"Spoiled," she said glumly as she sat back.

The trailing edge of the Call passed the tent, and Glasken slumped to the blanket, limp and exhausted.

"That was amazing, Fras Glasken," breathed Theresla.

"Getting easier," he panted. "Please, have a drink." "More sleeping potions?" "I'll partake first."

"You probably drink a little every day to become immune."

"Oh take it, damn you!" shouted Theresla, flinging the waters king across to him. "You have nothing I want anymore. How? You must be the only human in the world who can remain aware and awake during a Call." "I've had lessons." "From who?"

"Truly horrible people. Eventually I surpassed them. Where are we?"

"Not far from the Edge itself, the very spot where I did my experiments with you over five years ago. We can return to Maralinga whenever you like." "I like now," said Glasken.

He caught sight of his clothing in a corner and crawled across to retrieve it. Theresla frowned with the strain of some decision, then tossed her veil aside and stretched out among the cushions.

"We are far from anywhere and alone," she said simperingly. "I have in experience on offer--"

"You'd better let another relieve you of that inexperience, Frelle," he said as he checked that his purse and pockets had not been looted. "No slight on your wonderful body of course, but I cannot trust anything you say. Not after what you did with me five years ago, and just tried to do again."

"Nobody has ever denied me!" snapped Theresla, abruptly sitting up. Glasken shrugged, pointedly holding his bundle of clothing across his loins. "Still, it's happened," He reached for his flintlock pistol, then presented it to her butt first. "Here, kill me. Prevent the world from learning that a man has rejected your advances."

Theresla pouted and echoed, "Still, it's happened." She slumped back on her haunches, her head turned to one side. "Get dressed, I'll leave you alone."

Glasken unlaced the tent flap and stepped outside, looking around as he began to dress. It was the flat, treeless semi-desert of the Nullarbor Plain, and off to one side were the Edge cliffs. The dark blue of the ocean horizon lay beyond. Nearby was the crude Call wall that he had built back in 1700... and close by was the flat stone covering the hole in the ground that was the entrance to Ilyire's treasure cave.

An incredible stroke of luck, he thought. Theresla had brought him to the very place that he had been seeking, the place to which Ilyire could not return. Theresla emerged from the tent fully dressed.

"Apparently Ilyire has a treasure cave somewhere nearby," she said as she joined him. "Darrien mentioned it in a letter."

I'll wager it's well hidden," replied Glasken casually.

"We could search for it."

"Plunder my friend's treasure? Not I."

"Your friend? Ah yes, you got him rolling drunk then had him laid abed with a couple of hopsicles at the Green Dragon's Tankard."

"You shot him."

"The man was a toad. Now he has changed, too."

Glasken walked over to the camels and checked the gear and harnesses. "Bloody camels," he muttered. "Even when they're standing up you feel like you're falling."

Theresla was packing the tent away as he returned, but he stopped dead as she pointed his own flintlock pistol at him. He raised his hands.

"More nuttery in the name of scholarship?" he asked wearily.

"Fras Glasken, I've tried to give you my body, I've tried to give you wealth, but now you are going to get my third gift whether you want it or not. Walk toward the Edge. When you enter the narrow Calldeath region, do whatever you do to resist it."

Theresla put the gun down as Glasken entered and began to fight the weaker, permanent Call. Theresla walked beside him, ready to trip him if he suddenly lost control. They reached the edge of the cliff. It dropped sheer to rocks pounded by the ocean waves.

"Stop here, Fras Glasken, and look out across the water. Those dark shapes out there, note them well. They are the source of the Call. See there, one breaks the surface and blows water into the air. No human has ever seen such a sight as this, and not many avia ds have either. Look near the rocks, see that great dark thing? It is one of the Call creatures' livestock, a fanged fish as long as a windtrain carriage. The Call creatures are even bigger. Come back now, and I shall take you back to Maralinga. There will be no more tricks."

On the streets of Glenellen there was apprehension as the first day of the month of Gimleyat began. As the eastern horizon brightened the vendors in the market were already doing a heavy trade in foodstuffs, particularly food that could be stored. Nuts, dates, sultanas, dried mutton, candied apricots and figs, salted whitefish, rice and seed flour commanded outrageous prices from customers who were nonetheless relieved to buy anything at all. The vendors of cloths, perfumes, utensils, and Call-anchor belts sat idle at their respective stalls, watching the nearby bedlam over their red cotton veils as the sunlight spilled over the horizon, painting the towers and cliffs fluorescent red.

"So, the great day is here," said Emzilae, the nomad cloth merchant. "The mighty Commander Lemorel rides into the city at the second, hour past dawn." Heczet, the vendor of Call-anchor belts, reached over and

set a clockwork release to one hour. "One hour, then I pack my stall and hide. There will be looting."

"Looting? How so?" asked Emzilae, brushing at a moth with his emu-feather whisk.

"The Commander's Neverlanders," drawled Zeter from his perfume stand. "They're barbarians, they've never been in a city. They don't understand money, they take whatever they want."

"One hour," declared Heczet again. "Then I pack my stall and hide it. When I watch the parade enter the city gates I'll be wearing rags and have a pox badge."

"Ah, but the city will be full of beggars when the Commander enters," said Emzilae. "I saw it happen at Gossluff, Tempe, and Ayer. The same thing, every time."

Emzilae stood up, stretched, then clapped his hands. A youth with a wispy, pubescent beard scuttled around from the back of the stall. He was unveiled, the sign of an apprentice who has as yet no means or skill to guard a sanctum of his own.

"Master?"

"It's time, Da. I want twelve dozen camels, twenty handlers with their own weapons, and six strong eunuchs to pack and carry. All to be here in two hours." "Aye, Master."

When the boy had disappeared into the bustle of the market Zeter sauntered across to Emzilae's stall and fingered a bolt of deep blue cloth.

"A-he, fine Northmoor cotton," said Emzilae. "A fine, fine bargain at--" "You have only enough to pack two camels." "Alas, such cloth is rare, my friend."

"So, a pack beast for Da and another camel for you, others for the handlers and eunuchs: that leaves a hundred and fourteen excess camels."

"A-he, they are needed to carry dried fish, candied fruits, roasted almonds, spiced walnuts, and the like."

Zeter jerked a thumb at the melee across at the food stalls, then gestured to the blue cloth between them. "You would be lucky to trade a whole bolt of this cloth for a single dried fish."

"A-he, but within two hours I will buy that same fish for a copper. Nomads know the cities better than you think, my worthy per fumier He gestured to his chest, his fingers spread. "This nomad has seen the Commander enter half a dozen cities. Her warriors are highly disciplined, and to show that nobody should dare attack her she never has more than a hundred of her personal guard escorting her."

Now Heczet walked over to the stall. "But only yesterday you were standing on a fish barrel, shouting to all who would listen about scenes of bloody horror in Gossluff. Youths cut down in the street for

sport, girls stripped and raped in their very sanctum rooms, looting and burning, followed by starvation for those who survived. What of that?

"People listened. Just look at the boom in foodstuffs across the way."

Zeter suddenly straightened, his hands on his hips. "Oh so, then what is to come may not be so bad?"

"A-he, such suspicion."

"What really happened in Gossluff?" asked Zeter.

Emzilae's face split in a wide, knowing grin. "Why, the Commander entered with a few dozen lancers and rode through the boulevard to the Palace of the Makulad. She was met there by the Makulad and his College of Elders, who surrendered the city. Without dismounting she shot the Makrulad through the heart, then killed his son. The rest of his family and some of the Elders were led off into slavery, but that was the worst of it: two killings. No looting, no rape, no murder."

"By the noontime heat!" exclaimed Zeter. "So who rules Gossluff now?" "An exiled pretender, whose family lost power in that city centuries ago. The Commander said she was reinstalling him as the rightful Makulad. Later this morning the fugitive Prince Alextoyne will ride through the gates at the ri hand of the Commander, and when she has shot your Makulad he will ascend the throne. There will be new taxes to fund her wars--"

"Prince Alextoyne?" exclaimed Heczet. "The descendant of Makulad Moyr zenko, who lost the throne for love of the beautiful Ervelle?"

"None other."

"An inspired choice. This is a legend coming alive, the Golden Age of three hundred years ago being restored."

Emzilae smiled enigmatically, looking across to the crowds fighting over dwindling stocks of food.

"You have no broad vision, friends. In two hours those fools will that the Commander will do no more than tax them. Those who have spent savings on food will want money for the tax, especially since those with no must provide mounts, weapons, or sons for the Commander's army." patted the coin bags of his float. "When they come streaming back with bags of dates, rice, and dried meat, I shall be here to buy, and what I buy I take to Alspring to sell at twenty times its value when the Commander to the city."

Heczet and Zeter stood back, stunned.

"But such a rich caravan, you will have. Surely freebooters would you without a ruinously large escort."

"My friend, no freebooter would dare touch me. I am under the of the Commander."

"She uses you?"

"But of course. I spread fear, then she enters and shows mercy. The mood of the people becomes one of great relief. The Commander gets another undamaged city to support her wars. A pillaged city is of no value to a conquerer."

"So the great Lemorel is not such a demon after all," said Heczet, stroking his beard.

Emzilae frowned. "Demon she can be, rest assured. There is a nameless town, a place of five thousand souls not far from Olgadowns. It was proud and fortified, and they resisted her for five weeks. I passed through the place two months after the fall, and it was a horror such as I could never describe. Not a man, woman, child, or beast was spared, and the surviving officers were tortured to death before the rulers of Ayer, Olgadowns, and Tempe as a warning. Every pot was smashed, everything that would burn was torched, then the town was left just like that, as an example. Bones lie in the streets still, and the houses are all burned-out shells. Commander Lemorel has an evil temper when resisted."

Zeter was wringing his hands nervously, glancing to the crowd then back to his own stall. "I, ah, should make a presentation to the Commander, a blend of my rarest fragrances in a phial of Carpentarian porcelain. I will say that it is to refresh her after the heat and dust of her ride."

"A-he, she will like that," said Emzilae with a shallow nod. He inclined his head toward Heczet. "I also happen to know that she is a great judge of fine lenses and clockwork."

"Truly?" exclaimed Heczet. "Then I shall buy a fine chronograph and sex tant set. Morgyo has one to sell at a very low price, what with the silly panic about buying food."

Later that morning Lemorel Milderellen rode into the city on a war camel at the head of ninety lancers. As Emzilae had predicted, she shot the Makulad dead, dispersed the women of his family into various convents, and had the men and boys gelded before being taken to the slave markets. Prince Alextoyne was made the new Makulad of Glenellen, and for his gift of perfume Zeter was made Royal Hospitalier in the palace. Heczet's gift had him appointed official agent of Glenellen to supply Lemorel's army, a position which brought him wealth, property, a royal title, and--eventually--the attention of loyalist assassins.

Emzilae did indeed spend the afternoon buying food stores at the market at a fiftieth of what had been charged in the morning, being ever careful to undercut the local vendors who were charging even more ruinous rates. The city was almost back to normal by then, except that Neverlander guards were in charge of the palace and their wardens were stationed at every watch house

Servants thronged about Emzilae's stall, laden with sacks of food to be sold for coins to pay the war tax, while camels carried sacks away to the pens just outside the gates of the city. Emzilae supervised, sometimes bargaining, some times carrying sacks, and even driving

camels through the crowds. The citizens wore an odd mixture of beggars' rags, disguises, and fine robes, and most were in a festive mood. The mud hovels, redstone houses, and even towers were decked out with Neverlander pennons and colors, while veiled women waved coyly to passing nomads from balconies, some throwing flowers.

The journey back to the par aline took Theresla and Glasken several days. They exchanged stories of the preceding five years, ranging from her explorations in the Calldeath lands to Ilyire's first night on the town. Glasken was reluctant to talk about his time in Baelsha, but under persistent questioning he eventually outlined some of his training, trials, and torments.

"I begin to understand," Theresla said as their camels swayed along together. "The monks taught you to meditate on an object like a mandala, something that symbolized the Call's greatest hold upon you. That symbol, that was almost certainly me."

"Perceptive," agreed Glasken.

"You, Fras, are highly, even grotesquely oversexed. I once used your drives to attune myself to voices within the Call. Now you have been trained to use my image as a channel to divert the allure of the Call past you. You know within the deepest recesses of your mind that you will never let yourself have a consummation with me. That is your strength."

Glasken nodded agreement and sat up a little more erect in the saddle. He knew that he was exceptional in his resistance to the Call, but to be considered unique was something more like an honor.

"The Baelsha monks and the Kooree nomads merely drop down unconscious at the touch of the Call, but I can remain awake. Why is that?"

Theresla thought about this for many minutes, staring straight ahead. surreptitiously dropped yet another length of white ribbon weighted at one end: with lead shot.

"Because you are extraordinary. Live long, Fras Glasken," she concluded,

"Do not get yourself killed for a very long time." "Well, the same to you too, Frelle." "And don't trust me. Never trust me." They both began to laugh.

"I went to a lot of trouble over you, Glasken."

"All the girls say that."

"It took the word of Mayor Bouros himself to convince the Great Western' Paraline Authority to depart from their precious schedule for even one hour."

A white smudge was by now visible on the straight-edge horizon, and Glasken realized that they were approaching Maralinga. He hurriedly checked a little: compass concealed in his hand while pretending to cough.

"Tell me now, if you were a woman, and were you interested in... initiation, what would you do?" Theresla asked.

"Find a man."

"By my age, the alluring men are all taken. Those that are left have been left for a variety of very good reasons."

Glasken thought for a moment. "Theresla, if you're really determined to bed someone for its own sake, then just select a nice Fras who is already taken. Get him to a hostelry one afternoon with a couple of jars of the great leveler."

"Fras Glasken! That's... that's worth further thought. How were you deflowered, if I may ask?"

Glasken nearly dropped his compass in surprise. He glanced across furtively to Theresla, but she had turned away, giggling.

"When I was fourteen I was quite a good hand with the lutina," he said, firmly refusing to smile. "The local hicks would hire me to serenade their Frelles for them. One night the girl at the upstairs window invited me in. When I went inside I found she had more in mind than a couple more songs and a honey cake

"That's lovely," Theresla laughed as Glasken dropped another white ribbon. "Couples get together in such silly and unsuitable ways, yet those unions can lead to mighty alliances of may orates advances in scholarship, anything and everything. Just one awkward, vulnerable moment, one desperate gesture when pride, dignity, and self-respect are offered to another in one's trembling hand." "One gently pinched bottom that does not result in a slap?"

Theresla pouted at him, her eyes narrowing. "You have a way of going straight for the crude fundamentals."

"I am a rake. I deal in crude fundamentals."

"It is said that rakes love sex and conquest, but not women. You, Glasken, are not a rake. Your heart is in the right place, even if the rest of you is... wherever it is."

Maralinga had grown into a fortified garrison post and beam flash relay, with a nomad market and even a hostelry. With Theresla safely on a wind train that was vanishing west into the heat shimmers, Glasken strode over to the stables to equip himself for a second--and this time lone--expedition. As he fumbled for coins to pay for stores and camels he felt a square of poor paper at the bottom of his purse. He unfolded it, then read it again.

"Fras Glasken: Theresla is return palace. Highliber tell her of you. You go par aline Great Western. Theresla know. I fix. Your drinker friend, Ilyire."

"Lucky she didn't find that," said Glasken as he dropped the paper into the coals of the stables' forge, where it ignited with a soft pop. It had been a desperate gamble, but it had paid off. Theresla had taken him where Ilyire could not bring himself to return. This time Glasken had been careful to drop markers as they returned to Maralinga.

CLOCK SMITH

Glasken spent several weeks on the Nullarbor, stripping Ilyire's treasure cave clean. He re-secreted three-quarters of the contents in other caves, then removed Ervelle's bones and wrapped them in a saddle blanket. Finally, he stood in the cemetery at Maralinga Railside early one morning, seeing to it that Ervelle's remains were buried properly and played the old Alspring tune "Ervelle's Fare well" on a borrowed lutina. A Reformed Gentheist lay minister from the beam flash crew--the closest equivalent of the Alspring Orthodox Gentheist religion that Glasken knew of--read a service.

"Ilyire begs forgiveness," Glasken said in Alspring as he sprinkled a handful of pinkish limestone dust into the open grave.

The headstone bore Ervelle's name in both Alspfang script and Austaric Roman, as well as the dates of her birth and death. It had been sent out on a wind train by Ilyire. Glasken stood watching the hired paroline navies shoveling limestone rock and sand into the grave, and a plume of dust streamed away from the hole on the hot, blustery wind like a tenuous white soul that was free at last. He raised his cap a fraction.

"Glad to be of service to such a legend, Frelle," he whispered. "Perhaps one day I'll meet some girl as wonderful as you were said to be. Preferably today."

He sighed. All of his seductions had been conquests, yet he had never been any gift's hero. Legends were full of virtuous heroes, evil villains, heroines, but there were never any harmless rakes who were merely fun to be with. Could he only ever enter a legend as Ervelle's undertaker? Could he be loved for being himself and not some insipid alter ego? Now he had the riches to do whatever he wanted, but he had no idea what he wanted to do.

A wind train was due in the afternoon, and Glasken wandered about the rail side looking at the changes that had taken place in the years since Lemorel had abducted him. What surprised him most was the scatter of Alspring Ghans who were living in a small encampment to the east of the rail side. There were fifteen or twenty of them, and about sixty camels munching on fodder in wooden troughs. Two Kooree men were lounging in the shade of the warehouse, speaking to one of the uniformed rail side staff. Glasken could draw his own conclusions easily enough: the Ghans had negotiated caravan fights across Kooree land, and were now trading with merchants on the wind trains. Coffee

SOULS IN THE GREAT MACHINE

would be of great interest to the merchants from the inland, but he doubted that any political contacts had as yet been established. He did not spare a thought for Lemorel.

Wandering past the rail side cemetery Glasken noticed that three Ghan merchants were prostrating themselves before Ervelle's grave and wailing softly in unison. He recognized some words of a prayer of reconciliation. The ticket master came up to him as he stood watching.

"It took them only minutes to discover that grave this morning, Fras. They've been wailing there in rotation ever since. Just whose bones did you bury?"

"Ervelle was an exceedingly beautiful young Alspring woman who was mistakenly sentenced to death and turned loose into a Call, strapped to a camel. I chanced upon the bones, and was familiar with the legend. She is revered by the Alspring Ghans, as you can see."

"I certainly do. Fras, you may have made Maralinga some sort of holy place. Your name should be on the headstone too."

"Oh no, no, good Fras, I have no place in legends."

"As you will. Now, this afternoon's wind train west has no vacant A-class compartments left, according to the beam flash

"Damn and hellfire! I couldn't sit up in a B-class seat all the way to Kalgoorlie, not after five weeks on a camel."

"Fras, Fras, let me finish. I expect that several will be vacated when the train arrives. There are always a few coffee merchants on each train, they come to trade with the Ghans."

The wind train was later than expected, so Glasken indulged in a bath and shave, luxuriating in cool water from the cisterns for a half hour. The glow of the sunset faded in the west as Mirrorsun rose in the east. Its form this night was a dull bar of reddish light across the band in the sky, and the band was actually visible right across the sky owing to Earthlight. He was staring up at the sky when he realized that he could hear the rumble of the wind wain.

Glasken stood back as the front rotor engine rolled past, its brake blocks squealing and its rotors disengaged and spinning free. In the lamplight it looked like some enormous, unwieldy insect. The Alspring Ghans rushed about, shouting their wares to the merchants emerging from the coaches, and the quiet rail side rapidly became a bustling night market. Merchants' lackeys unloaded bags of coffee beans and a variety of spices. Glasken was about to push his way through the crowd to one of the carriages when he noticed Darien stepping down from a carriage.

He eased back into the shadows beside the kiosk and watched while a robed Alspring Ghan went up to her and addressed her after an elaborate flourish. The mute Darien selected a card from a small satchel on her belt and handed it to him. He read, bowed, then gestured toward the

camp. Glasken was puzzled, but relieved that she was going away. The rail side ticket master met him at the door of the A-class carriage.

"Fras Orion, you're in luck. The Purser's board shows that several A-class compartments are now free. I assigned A-one to you, I'll just mark your ticket."

Glasken was pleased. He wanted privacy whenever he opened his roll pack quite apart from his own privy and the luxury of having a folding bunk to stretch out along. The whistle blew for departure. Glasken boarded and held up his ticket to an approaching conductor, but the rotund and splendidly dressed man brushed past him without a word. He was dabbing essence of hedge rose on his face from a small bottle, and his freshly waxed mustache might have been carved out of black wood and oil-polished. Glasken wondered why the man was wearing a parade uniform in the middle of the Nullarbor Plain.

The train began to roll slowly along the rails with a smooth and gently rocking motion. Glasken checked his ticket: compartment A1. He noted that compartments A5 up to A2 were vacant, with their doors open, but A1 was shut as he reached it. He assumed that it was something to do with it being reserved for him, and he slid the door aside and stepped in without breaking stride.

A woman in her mid-twenties was reclining on the bench seat. She was very tall, but with a well-curved and attractive figure beneath her plain dretan of sienna cotton. Her face was a pleasant oval, framed by honey-brown hair that was unbound and cascading down to the seat and as far as the floor. She had scuffed clogs on her feet. At the sight of Glasken she shrank back in alarm.

"Oh--I'm in here!" she squeaked in surprise, then snapped in a much deeper voice: "Now you get out!"

Glasken was quite weary, and in no mood to be pushed around. He sat down heavily beside her, footsore from pacing the platform and depressed from the funeral.

"Indeed you are in here, Frelle, but A-one has been assigned to me." He held up the ticket, which had been marked to A1. "A-one was not booked," she insisted. "I just boarded."

He noticed a large, battered artisan's tool bag and overnighter in the corner. Her accent was Eastern Highlands but stronger than Lemorel's.

"The conductor gave me to A-one," she insisted. "You get out or he'll throw you off."

Glasken began to rub the muscles along the back of his neck. "It's my bet that you're about to see more of him than I ever wish to. Artisans like you can't afford A-class tickets. You get out. I'm going to report the two of you to the Purser. '

A subtle sag of her shoulders showed that his retort had hit home. With her lips pressed together she stood up and hoisted her bag's strap to her shoulder.

"Good Fras, I--I, please, I apologize, I'll go." Her tone was now subdued. "My miserly clock maker husband gave me only enough for B-class fare, but conductor said he'd let me ride in a vacant A-class tonight. Please, good Fras, don't report me. I'm not up to a fine, and they'll impound the tools of my trade, I'd have to sell my hair."

Suddenly Glasken imagined himself in her position, staring down with her hurt, frightened, brown eyes. The woman was tall, so she would have had trouble sleeping in the B-class seats. Just because you're big, everyone assumes it doesn't matter if you're hurt, he thought. She began to sidle out, giving a deferential little bow at each step. He thrust his foot out to block the doorway.

"Frelle, you stay here, I'll move to A-two. If anyone else gives you trouble, just call me and I'll punch some manners into him."

Glasken stood up, unfolding and straightening to his full six feet five inches. He blinked with surprise to find that even when standing he still had to look up slightly to meet her eyes.

"You--you're leaving?" she asked. "A-two to A-five are still vacant." "You'll not report me?"

"No harm done, pretty Frelle. Nothing a mere smack on the bottom wouldn't set right."

He grinned wearily at her. She grinned back, yet something subtle had changed in her expression. Her face hardly seemed to belong to the same woman as she regarded him coyly over her shoulder.

"So, you'd be liking to smack bottoms, Fras?"

"Only if I be allowed to rub them better again, Frelle," he quipped, finding the words out of his mouth before he was aware of speaking them.

She put her free hand on her hip, then presented the curve of her left buttock to him with a slow, rolling motion.

"Well Fras, I'm waiting," she said, batting her unusually long eyelashes at him.

Glasken did a double take: he had not even been trying to seduce the woman, and she was also still free to share a vacant compartment with the conductor. He reached for her hand, then brushed it with a kiss. She dropped her bag and slid her arms about him.

"Fras, you've just been more gentleman to me than any man. Ever. Please don't go, or I really will be hurt."

Glasken put his arms about her and squeezed gently. Her lips hovered close to his, and after another moment they drew each other into a long, soft kiss. Her skin was slightly moist, and he could feel her heart pattering wildly. Their eyes were almost level as they stood with their foreheads pressed together.

Nearly an hour later Glasken rang for service. The conductor made a

note in his pocketbook and walked briskly away down the narrow corridor to the galley as if he was anxious to have some unpleasant duty out of the way.

"A jar of Sundew leg-opener for the pair in A-one," he snapped to the cook. "Not that they need it."

"So, Fras, your arrangements for the night have gone awry?"

"Gah, and I overheard the most ridiculous proposition in the history of the Great Western Paraline Authority. Well I suppose I can do nought but pray for strong winds."

Daily life in Glenellen was little different under Lemorel's rule from that of the former Makulad, except that the punishments for rebellion were devastating. The whole family of any offender was punished, giving households the incentive to become unofficial extensions of the Nevedander wardenry and keep rebellious members in check. With Glenellen fallen, only the great city of Alspring remained against her. Unknown to everyone, however, Glenellen itself had been her real objective. The greatest moment of her life was close.

With the proclamations done, Lemorel secured the palace and had the seneschal summoned. He was a tall and dignified man, wearing a heavy red veil below his eyes as a mark of his duty to protect the palace. Lemorel paced before him, her riding whip held behind her back. It seemed to him that she was steeling herself to do something that was bound to be distressing, yet he could not imagine what it could be.

"There is a device in this palace," she said at last, continuing to pace with restless, driven strides. "It is a device made up of some two hundred people with abacus frames and known as a calculator. Where is it?"

"In the great median tower, on the tenth level, Your--ah, Majesty." "My title is Frelle Commander." "Frelle Commander."

"Now take me to the calculator."

The calculator hall was on two separate floors in the tower, and the components worked in very cramped conditions. Nikalan was one of ten FUNCTIONS at the front of the hall, and the machine was whirring and clacking through a calibration task as Lemorel entered. She recognized him at once, but her face was veiled.

"System halt!" shouted the Chief Regulator, and the tasks being performed tapered away into silence as an orderly shutdown was performed.

"A fascinating design," said Lemorel as she picked her way through the maze of wires and struts. "Components sitting at desk-frames stacked atop each other five high. That means much faster transmission speeds, and faster calculation times for the same number of components."

"My own innovation, Frelle Commander," said an Elder who had been standing beside the Chief Regulator. "There were areas of the original design that were too concerned with neat layout. They neglected efficiency."

Lemorel regarded him coldly, yet her veil hid her expression. "The man who designed this for you. Bring him to me."

"That man is myself, Frelle Commander," replied the Elder.

"I shall not ask again. A prisoner was brought here from the Fostoria Oasis five or more years ago. His name was either FUNCTION 3073 or Nikalan Vittasner. Bring him to me!"

Interpreting Lemorel's tone as anger with Nikalan, the Chief Regulator decided to gain favor by presenting the component to Lemorel in person. He took the keys from the System Warden and strode over to a complex of desks where he unlocked a shackle on a thin, white leg in the second row up. He reached into the desk, dragged Nikalan down by one arm, then marched him to where Lemorel was standing. He forced Nikalan to his knees, then pushed him in the back with his foot, to prostrate the component before Lemorel. Looking up for the Commander's approval, he saw a twin flash as her double-barreled flintlock discharged. For the first time in her life she had lost control so badly that she had fired both barrels together.

"Nikalan, my poor, shattered Nikalan," she crooned as she knelt and held him in her arms. "This is Lemorel. Lemorel here with you again."

"Lemorel? Will you take me back to Libris and the Calculator?"

Lemorel looked into the vacant eyes, her control again slipping away like a greased rope in her grasp. He knew her, but she was not enough. Only as part of a bigger machine could she ever be what he could love. With a great effort she caught herself.

She had conquered over a million people for this moment, yet her long-sought holy grail was no more than a handful of shattered pieces. As she knelt with him she suddenly saw her new self for the first time. She was larger than life now, she was vast and powerful. Nikalan was no more than the scrap of smoking fuse cord that had unleashed the power of a mighty bombard. By the time she stood up again, Nikalan had become nothing to her.

"The Libris Calculator is very far away, Fras Nikalan, but give me time," she said in a bland tone. "I shall take you back to it, I promise."

She helped him to his feet and gestured to the Seneschal, who trotted over quickly.

"Have Fras Nikalan Vittasner bathed by the concubines and eunuchs of the former Makulad. By the time he is clean and dry I want the palace tailors to have a suit of the Makulad's robes altered to his fit, then see that he dines better than any other in the palace. He is to be veiled as protected by my sanctum. Nikalan is to be put in the Makulad's bed tonight."

"But, Frelle Commander, what about Prince Alextoyne?"

"Have him serve at Fras Nikalan's meals. He can sleep in the guest rooms." "Yes, Frelle Commander."

"Seneschal, allow Nikalan to be harmed, and I will do something so

tointlessly hideous that you will die as much from disbelief as pain.
I am insane, Fras

Seneschal. Never forget that! Nikalan, go with this man."

"But my shift is not over."

"You have been promoted to System Controller, and you must rest before beginning your new duties."

When they had gone Lemorel gave the body of the Chief Regulator a vicious kick, then seized the Elder who had built the calculator. She held him by the hair and made him stare at the corpse, which had been decapitated above the eyes.

"Clean that up before the components get upset," she snarled.

"At once, Frelle Commander, at once."

"And another thing. If I ever hear anyone refer to you as more than a lackey who helped Nikalan to build this calculator, I shall have you diced into pig meat starting at your toes."

With a kick to his buttocks she sent him sprawling, then walked from the calculator hall without another word.

The following morning Glasken and his companion lay together on the narrow bunk in compartment A1, she watching the brightening sky and almost featureless panorama of the Nullarbor Plain through the window of the compartment, regarding the shape of her breasts pressing against his chest.

"Can you be breathing under my weight, Fras Jack?" she asked yet again.

there, pretty Frelle, please. I can feel you all the better from below,"

"Stay he said as he caressed her long and sinuous back.

"I'm two hundred pounds."

"So? I'm two hundred and thirty." He peered at a passing milestone and frowned to see the train making good time. "So, is your clock maker husband in Kalgoorlie?"

"No, he's in Rochester doing contract work for big library." She stretched out with her hands against the bulkhead. "He heard of need for clockwork in Kalgoorlie but was worried about leaving secure employ. I said I'd go see what was what. I've skill in clockwork, as Dada was a clock maker

"Oh, so will you be needing someone to tend the springs of your clock work?"

"Yesss. Be your key free for winding, Jackry?"

Glasken rolled on top of her. "Aye. You'd best send your husband bad reports of Kalgoorlie while you are there."

"Pah, I'm never going back to Southeast. Damn strutting Dragon Librarians and Constable's Runners."

"Surely you've not been a felon, Frelle?" asked Glasken, at once nervous about his bag full of gold on the floor.

She put a hand theatrically to her forehead, then flung both arms in the air before squeezing Glasken again. "No, but my sister's as you'd never believe. Brains of Family, that's as Dada called her. Went about with damn stupid depressed poets. I hate poets. You're no poet, are you, Jacky?"

"Not damn likely."

"Dada made me his apprentice and saved money for schooling her to median level. "What of me then?" I asked. "Oh no," says teachers to Dada. "She's too dim, look at her." What the fykart did they expect? I was six feet tall when I was eleven! I looked eighteen and stupid, while being eleven and bright." "Dummart bastards," Glasken sighed.

"Unfair, Fras, unfair. It really--There's a thought. Where's privy in Aclass?"

Glasken rolled to one side and pointed to what she had taken for a wardrobe. "All self-contained luxury in here, Frelle Jemli."

She rummaged for something in her bag, then sidled through the narrow door of the privy. Within her now open bag Glasken could see three books. Suddenly he sat up on the bunk with a start. It was not so much the title, Encyclopedia of Mechanical Physistry, that had alarmed him, as the embossed red letters declaring LIBRIS READING ROOM REFERENCE: DO NOT REMOVE. Jemli emerged and washed her hands in the demi-drench with a little bar of scented soap.

"Are you a Dragon Librarian traveling incognito?" demanded Glasken. "Absolutely not, Fras."

"But there's books from the Libris Reading Room in your bag."

"Oh those?" she said dismissively. "I stole them."

"But, but, but--you can get shot for picking your nose while reading in there, and you stole books?"

"Aye."

"Gak--" Glasken was speechless for a moment. "But why? You can't sell them."

"I needed them for studies! I'd no money for transcript sheets and no time for scribing what I needed for studies."

"Studies? For your guild?"

"My guild? Pox take guild, though no guilds men could raise it long enough to catch pox. It's Rochester University I was in, studying by night and tending clockwork by day. Eight years, eight subjects."

"Extraordinary."

"I'm transferring to Kalgoorlie University, I'll graduate in four years. Then it's divorce and into the beam flash service for me. Tower captain, I'll be on day, you mark it. I love the towers, they're like us, Jacky: damn-hell tall and proud of it!"

"Uh, divorce?"

"Aye, Dada matched me to one of his smelly old guild friends. He died, and his money went to my sister. Ach, what a waste, Jacky."

She put out a hand and stroked his head gently. Glasken immediately snaked his arms around her and held her tightly, his chin resting over her shoulder.

"You're just beautiful, beautiful all the way through, the most beautiful woman I've ever met," he said with tears in his eyes.

He pulled back a little and rested his forehead against hers, gazing into her chocolate-brown eyes. Jemli rubbed his temples, feeling both confused and nervous. Glasken was no less confused. What am I doing? he wondered. I have the Mayor of Kalgoorlie's sister waiting for me when I return, yet my heart is slipping away to a clock maker wife with hardly a copper to spare. Damn you, Theresla, you cursed me to fall in love.

"I'm sorry if I shot off my mouth a bit there, Jacky, but I've had nobody to tell all that to for eight years. Once it started, out it came."

Jemli wiped his eyes with her brown hair, then draped it over his shoulders.

"I've always wanted to do that with someone, but nobody's been special enough until now," she said, stroking his head.

"Your hair is exquisite."

"It's nice enough, but it's also three months of University fees if the trade in Kalgoorlie is not up to promise. Long hair is a blessing, it's like a purse nobody would think to steal."

"Never!" exclaimed Glasken angrily. "Don't say it, don't even think it!" He put his hands over his ears.

Jemli shrank away, alarmed. Glasken swung his legs off the bunk, undid the laces of his roll pack and rummaged within it for a moment. To Jemli's ishment he pulled out a gold coin and dropped it into her open bag.

"Here's gold, say when more's needed," he said in a parody

Highlands accent.

"Fras! That is gold. It could keep me in food, fees, and rent for a month."

He cupped her jaw in his hands and looked into her eyes. "Jemli,

wonderful. Wanton but canny, brave but sensible."

' Fras Jack, that's all the things I see in you."

"Ah well, we must be suited to each other. Will you stay?"

"Stay? Jacky, even without such fittings as you it's heaven in here. Are sure? I'm not used to getting things free."

"I meant with me, after we arrive at Kalgoorlie."

"Oh, Fras, do you really mean that? If you do, my heart is as big as the of me."

Glasken swallowed and walked two fingers along the edge of the bunk, took a deep breath.

"I... may have a few nights occupied ... sometimes. Business contacts of a female kind. In the mayoral palace. Would you be jealous?"

"After what we've been up to, and me a married woman? Business contacts are to be cultivated."

"Done!" exclaimed Glasken. "I rather fancy myself owning a tavern, actually. Let's look over the prospects when we arrive in Kalgoorlie."

"Done! Then we can have a really big revel for free. Ah Jacky, you're my hero and you're such fun to be with."

A hero and fun to be with! So it really was possible, he thought hopefully. Perhaps all the real people in legends had been expunged by dour, boring scholars.

Lemorel was forced to undergo purification and penance for shooting a man in the head, an act proscribed under the Orthodox Gentheist religion of the Alspring cities and Neverlander nomads. The head was seen as the link between the Deity and the human soul, and as such was held sacred. Enemies could be poisoned, shot through the heart, even decapitated, but the head itself could not be harmed. Lemorel's sacrilege was tempered, however, by the romance of the circumstances in the eyes of her followers. She had found her long-lost beloved, but he was dead--and she had shot his murderer. A great commander was expected to be passionate, so the incident had actually worked in her favor.

Within a week she was again with her army, leading them east to Alspring's checkerboard walls of red and white stone blocks. As this was the last of the great cities of the inland region, her Council of Overhands was anxious to know what would happen after it had fallen. Lemorel had also made her Council of Overhands members of her personal sanctum. She gathered them in her circular tent of red ochre and yellow stippling, and as the tent flap was drawn she slipped the ties of her veil, then let her outer robes fall to the ground. The effect was startling for the Ghan men, both Neverlanders and those of the Alspring cities. Straight hair cut sharply at shoulder level, painted red lips, and eyes traced out in ebony liner. Her skin was powdered a slight shade pink, rather than the tusk white of Ghan erotica, and she wore black riding trousers and a black shirt unbuttoned to display her cleavage as did no other Ghan woman. Two double barreled Morelacs and two daggers were at her belt. Seductress and daughter, child and warrior, nun and fiend, protector and protected: to them Lemorel was all these in one. Although she was entrancing, they could not see her as one of their own women or comprehend her by any familiar values.

"A drive south, to conquer the fat, soft lands of Woomera and the Southeast Alliance," she told the gathering as they sat cross-legged before her.

There was no muttering, but an uneasy shifting and rustling of the men in their varied but colorful styles of robes, head windings, and veils. "But Commander, where will the time be to enjoy what we have conquered asked Baragania. "Even the Neverlanders among us are hungry to enjoy the newly won lands and riches."

"Then you can enjoy them under infidel rule," she said in a carefully understated voice.

All of them knew her ways of speech by now. When a thing was so because it was beyond her control, she always said it softly. When Baragania did not reply, she took a small white cylinder from her sleeve. She slipped the string from its rim, and it unwound a long streamer of paper tape, all punched with little holes.

"This is a machine message taken by my spies in the Woomera Confederation. The former Abbess of the Scalattera Convent in Glenellen has just married. The consort of the Overmayor of the Southeast Alliance, to become their invelspouse. The wedding was in Kalgoorlie."

Again she was silent, and she paced before them while they muttered among themselves and speculated about the consequences of such a union.

"Do you know what that means?" she suddenly shouted, flinging the streamer of tape at the cross-legged half-circle of men. "It means that

Zarvora can claim associative rule in Glenellen. Since the Abbess' father died she is the heir to his seat as an Elder, and the Overmayor can claim the right to restore her as a member of the College of Elders." Lemorel paused again to her words be discussed and assimilated. "I shall not restore any part of the vious Makulad's dynasty or College of Elders, so the Overmayor has the excuse she needs to attack."

"Commander, the rights of the Abbess Theresla are forfeit because she deserted the protection of her sanctum keeper, the Marshal of the Convent," began Baragania.

"Wrong!" shouted Lemorel. "Under the convention of the Forgiveness Ervelle, one of your most respected laws, any woman who deserts her keeper under the protection of a male member of her family, and in order marry for love into a union above her station is--come on, someone tell me who can tell me?"

"Is blameless under the eyes of the Deity and the rule of law," came quavering voice of an aged overhand from Ayer.

Lemorel stood with her hands on her hips, triumph in every angle of posture. "Theresla has opened the way for the southern Liberal to stream north. Her invel-sister the Overmayor has already gathered into her mighty web of alliances. She wants wants nothing less than rule of entire continent."

Now the muttering and hand-waving of the over hands was bright with at Lemorel's breadth of vision and foresight.

"I have no particular liking for a bloody conquest of the South. It was

SOULS IN THE GREAT MAC HIRE

home, my dear parents and brother are buried there. My surviving sister dwells in contentment there with her devoted husband, and doubtless there are many children clinging to her robes and looking to her for protection. I do not want to attack my home, but I have no choice. The safety of my new home and you, my people, comes first. The Deity cries out for it. The Deity is even slowing the winds that drive their wind trains as a sign of disapproval. What other sign do you want? Mirrorsun torn asunder?"

By Coonana the Nullarbor Plain had given way to open eucalypt forest that was interspersed with patches of grassland and dotted with water holes. Nomads were visible from the wind train, me with camel caravans, others in painted wagons drawn by mules. The town itself was a major interchange for the wind trains, one of the places where east- and westbound trains were able to pass on the parallel. The parallel rail sides such as Maralinga and Naretha were exotic and isolated, but Coonana was the cultural beachhead of the Western Mayoralities. Jemli marveled at the colorful pageant beyond the wind train as it slowly rumbled into the rail side. The eastbound train was in a bypass, waiting for a clear line.

"Kalgoorlie is much warmer, drier, and windier than Rochester," Glasken explained. "Coonana is a foretaste."

"What are all those colorfully dressed people?"

"The locals and nomads have a market whenever trains arrive. They stay for only a few hours, but a lot of money changes hands. It is said that the latest fashions always arise among the stalls of Coonana before they are seen on the streets of Kalgoorlie."

Jemli stared longingly through the window as Glasken stood behind her,

thoughtfully running a finger along the drab brown cloth on her back. "We should dress you in Kalgoorlie style." "Oh, Jacky, how could I pay?" "By letting me pay."

They visited the sugar-fruit stalls, then bought small bags of nuts and pastries for the remaining journey. Jemli discovered the metalwork stalls next, some of whose products had traveled as far as the Libris Calculator, to be incorporated in the mechanisms in Zarvora's study.

"Fras Glasken--er, Orion--fancy meeting you here!"

Glasken closed his eyes before he even began turning. He knew Theresla's voice all too well.

"The day's fortune to you, Frelle. Travelling east, I hope?"

"Oh yes. My train is on the bypass beside yours."

He opened his eyes to see her dressed in the current style of mirror-inlaid cheesecloth dyed dark blue, with a lyrebird picked out in

highlight beads. The cut of the cleavage did not suit her, for her breasts were not especially big.

"Kalgoorlie was wonderful in the autumn festival," she said with her hands on her hips. "I seduced a man!"

"Poor devil," replied Glasken, folding his arms and arching his eye brows.

"I think he enjoyed it. I did."

"Is he still alive?"

She gave him a little push, and giggled.

Glasken suddenly remembered Jemli, and quickly glanced around. She was watching from beside a metalwork stall with large, unblinking, and worried eyes, her hands clasped together. He hurried back to her, reluctantly beckoning Theresla to follow.

"Frelle Theresla, this is my..." He took a deep breath and gathered Jemli close against him. "My mistress, Jemli."

Theresla noted the plain brown dretan and black wood clogs, then looked up at Jemli's very nervous face. Theresla was not a short woman, but her forehead barely came up to Jemli's chin.

"Frelle Theresla is an edutor, a woman of science, and, ah, quite a lot more besides," Glasken babbled desperately.

"So this is why you went back to the Alliance, Fras Orion. What a lovely, lovely figure you have, Frelle." i

"Why, why thank you, Frelle Theresla," stammered Jemli, still nervous and overawed.

"Frelle Jemli has a husband--"

"And you stole her away? Were I a man I'd steal her too. Well, come on Jemli," she said, linking arms with her. "We'll soon have you out of those Rochester drabs and into Kalgoorlie fashions."

Glasken stood staring after them, then suddenly realized that he was gnawing the butt of his swagger stick. An hour later Theresla returned to join him beneath the awning of the vintner's tent. Jemli was still at the clothing run, as most of her purchases had to be altered or custom-sewn. He snapped his fingers for the serving maid and called, "Chilled half-jars, Mergeline white!" They poured the little jars into each other's goblets and toasted Theresla's future. Glasken allowed himself a smile.

"Your dalliance in Kalgoorlie... did it weaken your psychic ears?" Theresla looked up from swirling her goblet. "Thanks indeed for your concern, Glasken. It changed me, it attuned me differently. We always need to change when we think we are perfect. You taught me that."

She flipped a copper coin into the air. It landed with a splash in Glasken's wine.

"Nice shot," he said without moving.

"Pure chance," she replied. "Look after Jemli, you never will get another chance like that."

"I can afford to." Glasken reached slowly for her hand and squeezed it. "Thank you for leading me to Ilyire's treasure cave."

Therelsa snatched her hand back. Her face turned red, then white, then red again. "Consider your face slapped," she muttered.

"The hardest part was trusting you with my life, Frelle Abbess."
"Remind me to be less trustworthy in future, Fras Glasken."

The Rochester Overmagistrate banged his staff for order and laid it in the rack across his desk. He took his seat; then the Constable of the Court took the staff and banged it once more for the court to be seated. The Overmagistrate picked up his highlight scroll and adjusted his spectacles. Tarrin sat glumly on the back bench as the representative for the accused.

"Case of the morning: the Family of FUNCTION 22 against the Mayorate of Rochester, in the matter of false imprisonment for nine years in a device known as the Libris Calculator."

"Are the assailed's representatives present?" called the Constable after banging the staff on the floor twice. A man and two women stood up.

"Fal Levey, attorney for the assailant, present."

"Pakul ak-Temros, Rochester Association for Human Rights, present."
"Gemile Levey, wife of the imprisoned, Endarian Levey."

"Objection, Fras Overlord," exclaimed the man beside Tarrin. "The legal name for this man is FUNCTION 22, and this is a court of law."

"Endarian is my husband and not a number, you librarian bastard!" screamed Gemile Levey. "He was christened Endarian James Levey, and if you think--"

"Order! Order!" bellowed the Constable, pounding the floor with the Overmagistrate's staff until there was silence.

"Frelle Levey, another our burst like that and I shall have you expelled from the court until such time as you are called as a witness," admonished the Overmagistrate. "As to the objection, overruled! This court is sitting to determine the legality of ah, the assailed's incarceration, and the name FUNCTION 22 is a product of that incarceration. Henceforth the prisoner will be referred to as Fras Endarian

James Levey, which may be abbreviated to Fras Levey. Constable, proceed." "Are the defendants present?" called the Constable. Tarrin and his attorney stood.

"Tarrin Dargetty, Dragon Gold Librarian, the mayoral library of Libris in the Mayorate of Rochester. I am representing the may orate on behalf of the Mayor and office of Highliber."

"Holward Derris, attorney for the defendant, being the Mayorate of Rochester."

"The court will be seated," the Constable concluded.

"He's not sympathetic," whispered Holward as Tarrin sat preparing himself for the ordeal ahead. "My objection should never have been overruled, the law is the word of the Mayor in decree until challenged and--"

"Order!" warned the Constable.

"Fras Overlord, I wish to call my first witness," said the attorney for the assailed. "Fras Tarrin Dargetty."

Tarrin and his attorney ordered emu steak and kidney pies for lunch as they sat in the taproom of the Drunken Wizard. Both were nursing a fist-shot of macadamia whisky.

"He should be free by now," grumbled Holward.

"Didn't even want to be free," muttered Tarrin. "Told me as much. He has an... understanding with MULTIPLIER 417---lovely woman."

"His wife's been sleeping with her attorney. The Scribe of the Court told me."

"Then why free FUNCTION 22, ah, what's his name again?"

"Fras Levey." Holward stared into his fist-shot whisky. "The attorney has now created a precedent by freeing a component who does not want to be freed. That means he can mount a class action to free all components who are not held in the Calculor against a specific felony or who have served out their original sentences. That will be a major professional victory, as well as giving him a big share of the damages that the Overmagistrate awards. Drink up, here come our pies."

Two large pies were placed before them, but Tarrin seemed not to notice.

Holward smiled up at the serving wench. "Thanks, Frelle, oh, and two do heads of ale at your convenience."

"We're doomed," said Tarrin morosely.

"Oh no, not at all. A class action will take time to assemble, and will apply only to Alliance citizens who were not felons. That means all Southmoors are excluded until the Emir signs an extradition treaty, and that's not happened in two centuries. The felons still serving their original sentences are also included."

"But the felons who have served out their original terms are not and if they go, then the heart of the Calculor will be cut out. Our most experienced components are those most likely to be released."

"Ah, but how many of those are of military service age? Even though it's peacetime you can still have a goodly number for five years of military service-fighting for the Mayor and may orate by working in the Calculor. Now, should the Overmayor start a Class-A war, we would have the right to demand five years of military service from everyone, felon or nay."

"A Class-A war is an invasion," said Tarrin, shaking his head. "There are no states left that would contemplate that. The Southern Alliance has become too powerful."

"Well, whatever, but as you can see, there's no cause to give up hope. The

Calculor may grow a little lean, but it's by no means broken."

"Overmayor Zarvora will be furious nevertheless."

Holward began to cut into his pie. "Fras Tarrin, the problem is that the Overmayor's power is being eroded by her own innovations. For example, the Mayors are learning to move troops by galley train and use the beam flash towers to their advantage. They have their own calculor teams, as they call them." He washed down his pie with a mouthful of newly arrived ale.

"I know what you mean, and it's another reason to drag us through the courts," said Tarrin as he at last took a bite from his pie. "The Libris Calculor is the greatest source of trained components in all of the known world. I have heard rumors that the Human Rights people are being funded by a secret group of mayors, all of whom are anxious to build up their own calculors with experienced people."

"But surely the Overmayor will not put up with that? What are her plans to fight the releases?"

"She says that she needs the Calculor and has instructed me to fight the releases all the way. Pah, she spends most of her time in Kalgoodie and sends her data over the beam flash network. I feel used and abandoned, Fras. The Calculor is in decline and nobody seems to care but me."

The Bullfrog's Rest was in the rail side quarter of Kalgoorlie. Denkar wandered about the tavern's rooftop beer garden as he awaited the landlord's arrival, sweltering in the white mask of an auditor. The shady rooftop garden was cultivated from both local and rare, imported plants, all strange and subtle. Goldentongue shrubs attracted swarms of bees, which provided a soothing yet busy background as mixed and complex as that of the city streets below. The landlord kept hives, and the big tavern was famous for its mead. Ferns grew in stone tubs amid the bushes in whitish limestone soil, and their fronds were soft and lurid green in the shade of the garden's folly stones. Beneath these were subtle, spidery plants with flowers about the size of a small pea, but with no leaves. Bending close, Denkar noted that each of the flowers was fringed with a frill of red tendrils that ended in a sticky drop of fluid. One of the flowers had a tiny insect struggling in its grip.

"A sundew," announced a voice behind him.

"Yes, yes, a carnivorous plant," said Denkar, neither turning nor getting up. "I've seen them in illustrations."

"Where I was born they grow wild. Welcome to the Bullfrog's Rest, Fras

Auditor, home of the finest mead and chardontal white in Kalgoorlie." He gave a formal bow. "I'm Jack Orion."

Denkar bowed, they shook hands, exchanged script cards, and rattled through the Business Morality Oath together. Lackeys came running with wickerwork chairs and deep cellar mead. Denkar sat back with a clipboard against his knee and began to scribble with a char black stylus.

"Now, how have I sinned?" asked Glasken.

"There's nothing to fear, Frasn Orion. So, you bought this tavern six weeks ago?"

"That I did," replied Glasken, gazing at the bees at work in the golden tongues. "A fine investment--nay, more than an investment, a real home." "You seem rich, for someone so young." "I come from a good family."

"You paid for this estate with gold bars. I see that you also have a fine collection of Alspring gold coin, as well as personal and harness jewelry."

"Ah, so you have heard of it too. It's been the pride of my family for generations. Would you like to see some pieces?"

"Certainly, but later. Some weeks ago a diligent clerk in the Rochester treasury noticed an increase in unregistered gold bars in the intermayorate repository, Fearing that they were adulterated, he had them examined. It was quite a desirable sort of adulteration, as it happened. The gold in those bars turned out to be of an even finer grade than either Alliance Standard or Kalgoorlie Benchmark."

"Is this not a cause to celebrate?"

"Indeed, but on inspection of the standards and sample tables by the color, the gold turned out to be identical to that of the gold coins ori the Alspring Cities."

"Ah-ha, I know what you are going to say, but rest assured that I have been robbed, Frasn Auditor. Not one gold coin, not a single ring of my is missing."

Denkar leaned back, holding his clipboard out at arm's length. He at his host's face again and nodded to himself. Glasken gently brushed away bee that had alighted on the rim of his polished silver goblet; then he took a of mead. Denkar finally held up a sketch.

"Oh, very good!" exclaimed Glasken. "Such an excellent likeness although is my expression really so somber today?"

"Take it, it's yours."

Denkar leaned forward and handed the sketch to him. After a ken's eyes bulged as if he were being strangled.

"By your expression, Frasn, I gather that you have seen the caption at base." Glasken began to read again, but aloud this time. The words

were slow deliberate: "COPY OF CALCULATOR COMPONENT FILE SKETCH /
COMPONENT

NUMBER 3084, FUNCTION. FEBRUARY 1700 GW. DRAWN

BY THE HAND OF WILBUR TENTER FORTH PERSONNEL LACKEY,
GRADE 2."

"I have a very poor way with art, Frasn Glasken. I merely added your month's growth of beard. Do not panic, all that I want is the answers to a few questions. I am Denkar Newfeld."

Glasken slowly lowered the sketch to his lap.

"If it's about the gold--" Glasken began, but Denkar shook his head and reached for his goblet of mead. He took a mouthful before replying.

"It seems that we have something in common, Frasn Glasken," he said, rummaging in his sleeves. He held up a strip of punched tape. "You and your friend Nikalan were the first components to escape from the Calculator, while I am the first component ever to be legally discharged from its service."

"You do seem familiar," said Glasken, peering at him more closely now. "A senior FUNCTION, were you not?"

"I was FUNCTION 9 for nine years, two months, three weeks, six days, fourteen hours, and twelve minutes." "And they let you go?" "They did."

Glasken frowned doubtfully. "In my limited experience in the Calculator's ranks, Frasn, the better that you performed, the more they wanted to keep you." "In mine, too, but here I sit."

Glasken clasped his hands together and stared intently at Denkar. "What was demanded from you in return?"

"I was offered other work, which I accepted."

"To me it sounds more like you rogered some highly placed Dragon Librarian and pleased her mightily."

Denkar gazed at him steadily, his eyes unblinking.

"Frasn Glasken, you have a grubby mind, but then the world is a rather grubby place. Now to business: services are required of you."

"Really? What manner of services?"

"The enhancement of explosives and some calculator work--as a regulator, not a component. Additionally, you are an escaped felon with a half-century of sentence outstanding."

"That's no worry, Kalgoodie has no extradition agreement with the Southeast Alliance," said Glasken smugly.

"As of last night, wrong."

Glasken's smugness evaporated. "That's a worry."

"However, Overmayor Zarvora signed a provisional pardon for you last night."

"A pardon? The devil she did!" exclaimed Glasken, then his eyes narrowed. "Where's my copy?"

"Uh-uh, it will be given to you and registered with the Constables' Presidium once you sign her contract, The Overmayor needs experts in the chemist tic of explosives, especially those who also understand the programming of caiculors. At the contract's end you will be granted a full pardon."

"Can I have that in the contract?" asked Glasken eagerly.

"I... don't see why not."

When the constable of the watch arrived at the chapel of the Liberal Reformed'. Gentheists the priest was waiting by the door. He beckoned to the constable, then led him to the alleyway beside the chapel, where a large handcart was the narrow gap entirely. There was a tarpaulin over the load, and the ties werel sealed with red wax and an unfamiliar guild imprint... "I found it after this morning's Call," said the priest. "The glazier was tol repair a lead light window beyond, and he couldn't get past with his ladder and kit."

"Aye, and the wheels be strapped as well," observed the constable, over with his hands on his knees.

"The alley is maintained by the parish," explained the priest. "Nobody me can approve standing rights for carts, and I didn't approve this one."

The constable looked at the wax seals, lifted his hat, and scratched his "Don't know the guild house as uses these."

"They can be looked up in the register later. I just want it moved." "Suppose I can impound it, but I'll have to go find hauliers." "Pah, don't trouble yourself, I have two volunteers from our ready to move the thing. All we need is authority to move it."

"Aye, I'd say there's a case for moving." i The priest left, and presently two young men arrived. They unstrapped wheels as the constable watched, making sure that they did not tamper with load. Lifting the push beams they strained to set the cart in motion.

A thin cord attached to a spoke tightened, pulling against a catch which turn released a spring-loaded lever. The lever slipped free, ramming a striker and sending a shower of sparks into a pan of gunpowder beside

The ensuing blast was heard across the entire city. The priest and glazier had been just around the corner of the alleyway although thrown many yards they were not badly hurt. The wall of the was blown in, bringing most of the roof down with it. The stables on the side were totally demolished. Dust and fragments were still raining down as priest got to his feet, his ears ringing. All around him were groaning, shoppers, tradesmen, and merchants who had been hit by flying debris.

For the size of the blast it was amazing that only five had been killed. The constable, the two boys from the Youth League, a worshiper in the chapel, and a stable hand in the other building died, but more than sixty others were injured. Before the hour was out the synod of the Liberal Reformed Gentheists was blaming the blast on Mayor Bouros, while the local bishop held a service in the ruins and railed against machines and mechanisms of all kinds. Watching from a distance were two merchants from the may orates to the west.

"A passionate speech, Fras Sondian," commented the taller of them, "but the blame is misplaced."

"That does not matter. The priest and glazier survived, and they know the cart was not there before this morning's Call. When the priest is fit to preach again you can be sure it will be against Call demons or whatever they call us here."

"They have no name for avia ds in the western may orates Fras Sondian." "Ah, but they will soon, and it will be an unpleasant name, too. Aviads are at a threshold, Raleion. We are more organized than ever before, but we need unity too. War with the humans will provide it."

Denkar and Glasken interrupted lunch upon hearing the blast. They watched the cloud of smoke and dust dispersing from the rooftop garden of the tavern. Glasken speculated that some militia's powder store had blown up. Jemli sent a servant after them with their goblets and another jar, then returned to the management of the tavern.

"Impressive Frelle you have there, Fras Glasken," Denkar remarked as they were descending to the master parlor. "By her accent, I'd say she is from the Eastern Highlands."

"That she is, we met on the train. She's quite presentable and charming until someone says 'librarian' or 'poet' in front of her--and she's a wonder with accounts."

"She hates librarians?"

"Aye, so don't let on that you are one. She has a tongue like hellfire. When I bought this place I flicked through the accounting papers and settled down to a drink with the vendor. Before I'd finished my pint--and I'm not a slow drinker she's gone through all the columns in her head and uncovered six hundred Kalgoorlie royals worth of outstanding debts and more botched entries than a whorehouse gets on old folks' day. Well, you never heard anything like what followed! I got the place for twenty-nine hundred, and now I give her five percent clear for managing the books and minding the staff. So, what have you been about since you were FUNCTION 9?"

"Performing certain tasks on a new type of calculator."

Glasken shuddered, picked up the jar again, and discovered that it was

SEAN McMULLEN

empty. He rang for another two jars. "I hope you're easy on the

"They don't complain. More recently I have been confronted with

Frelle Theresla: Dragon Gold, Edutor of the Chair of Call Theory at the of Rochester, Personal Adviser to the Highliber Zarvora--and weirdo."

Glasken seemed to shrink a little into his chair. "Does she still eat mice on toast?"

"When there is toast available. I was approached by her one morning at the Kalgooflie mayoral palace. We had coffee in her rooms, during which she her intentions toward me very plain. She is quite attractive and fascinating course."

"Of course." Glasken allowed himself a smile.

"I pointed out that my wife, Overmayor Zarvora, was very dear to me, that it would hardly be fair to cheat upon her."

"Very generous of--Hell and Greatwinter! You're the Overmayor's sort?" exclaimed Glasken, jolting bolt upright and spilling his newly

"Correct. I left for the University where I am developing.." various thingl Fourteen hours later I rolled home reeking of sweat and burned beeswax tion, covered in grease and soot, and near-blinded by a migraine, only to be by Zarvora and Theresla. Theresla had asked Zarvora for permission to my invel-spouse. Zarvora had agreed to give up her right to invel-husbands would wed Theresla."

Glasken thought for a moment. Liberal Gentheism allowed but only to one partner or the other. Zarvora would have given up her right other husbands so that Theresla could marry into their partnership.

"Should I askT" Glasken said with a shrug.

"Oh I agreed. I was almost surprised that they bothered to consult me. weeks later we had a full mayoral wedding: Theresla in white, Zarvora and gold."

"New-star-in-the-morning-sky symbolism. Very traditional."

Glasken closed his eyes and exhaled. A clock began to ring out the with cool, pure chimes.

"So, ah--look, did you actually roger her? That is, in the classic sense?" "Well yes, as a matter of fact. There was one odd thing about it, "Only oneT"

"One in particular. Although she was consummate at little the general banter that precedes the act of seduction, she was..."

"Was something of a virginT"

Denkar smiled broadly. "I've never encountered any degree of other than a hundred percent or nil, Fras John, but yes. Her behavior

strange in some ways, but perfectly civilized in others. Now Zarvora

me to go east and seek her out over some business that I cannot discuss with you."

Denkar drained his goblet and placed it upside down on the tabletop in the Kalgoodie gesture for farewell.

"I am sincerely delighted by this meeting," Glasken said as they stood up together.

"You have changed since you were 3084," Denkar said as he shook Glasken's hand. "Thank you for your hospitality. May your tavern thrive."

"May your components be ever sober, Fras."

"And speaking of components, Fras Glasken, call in at the palace and ask for the Highliber tomorrow morning at the tenth hour, or you may find your name changed back to FUNCTION 3084."

They shook hands, bowed, and made their way out into the street. Denkar mounted his horse and gestured to his escort to set off. "Fortune be with you, Fras Glasken." "Fortune be with you too, Fras Denkar."

To say that Glasken was apprehensive as a palace lackey showed him into Zarvora's meeting parlor would be like saying par aline rails are parallel.

"Fras Glasken, the very man I wanted to see," she said genially, "but I am sure all the girls say that to you."

A joke! Coming from Zarvora it seemed almost a contradiction in terms. Glasken tried to force a grin, but the contortion looked more like he was trying to swallow a hot pepper.

"A graduate in chemist dc with experience in the Libris Calculator. Fras Glasken, you are a rare combination and I need that exact combination just now. How would you like some months of contract work translating experiments with explosives into calculator input? I might offer, say, twenty gold royals per month." "Twenty-five," croaked Glasken in a desultory attempt to seem awkward. "Done! Oh, and here's a pardon for hitting the Rector of your old university college with that bag of coins. There are still fifty-six years of your sentence outstanding on that conviction. So, you own a tavern and have an importing business. You can change it to Glasken Enterprises now."

"I want to settle down and become established, Frelle. There's been too much running in my life. I need to feel wanted."

"Wanted. Well as of now you are no longer wanted in every Constable's Watchhouse in the Southern Alliance, but doubtless you can live with that. I was impressed with that trick you used to escape my battle calculator. Persuading the Libris calculator to release you by tampering with the transmission codes was very clever. You will not try to feed any more creative data strings to the new calculator at the University, will you?"

"I am your loyal, obedient, and dedicated employee," declared Glasken with a bow.

"What of Lemorel?"

"I escaped her during a Neverlander attack. She probably died."

"Pity. She was brilliant, if twisted. And then?"

"I lived with the Kooree nomads for some months, then left them when I saw Baelsha. Big mistake."

"Where did you get the Alspring gold?"

"A chance find in the desert. I used it to buy my tavern."

"I'm surprised. I would have expected you to have spent it all on the greatest revel of the century."

"I was tempted, Overmayor, but revels have gotten me into any amount of trouble in the past. Besides, I fell in love--sort of---by accident."

"Fras Glasken, I know the feeling."

Denkar did not journey all the way from Kalgoorlie to Rochester, but left his galley train at the Bendigo Abandon. Disguising himself as a Gentheist pilgrim, he began a journey south, on foot. The Caldeath lands south of Rochester had been colonized by refugee avia ds for a century, although less formal groups had lived there for much longer. Macedon was a town of about two thousand avia ds and had been built behind abandon stone walls on the slope of a lopsided mountain. It was surrounded by farmlands, and its principal buildings were the university and technologium, although the artisan quarter was growing rapidly.

Denkar noted everything with voracious fascination as the Deputy Mayor, Guidolov, took him on a tour.

"Our numbers are small here, Fras Denkar, so we use machines wherever,

we can. In this building here, for example, we have a steam engine fired by

'i alcohol and crop tailings to mill grain for bread."

Denkar looked the building over, approving the clean, compact efficiency the mill compared to the inefficiency of humans.

"Have you any problems with the religious aversion to steam power?"
"Fras, every aviad here would be killed by the humans for merely being immune to the Call, so we have no respect for their laws. We are a pious and religious community, however, and we follow the Gentheist principle that we should use no more than we can grow and that all should be in balance. Within that context, steam machines are allowed."

"What else is run by steam?"

"Water is pumped for irrigation, wood is cut in the sawmill, and there are two small mobile engines driven by steam traction that pull carts along the roads of the farm grid."

"Amazing. And you say there are other towns like this?"

The Deputy Mayor beamed with pride. "There are five more over a thousand, and another twenty settlements bigger than a hundred. We estimate twelve thousand aviads live in the Calldeath lands fringing the Southeast Alliance, and we have explorers extending our influence to the settlements in the north. You know about the exploration and colonies in the far west, I presume."

"Yes. The Overmayor transported two hundred of your people to the west in return for two steam engines and the labor to get her rockets out of that museum in the Perth Abandon."

"The Overmayor has been of great use to us. We modified our town charter to base the Council on a library structure, and are planning a beam flash network. Our weakness is that aviad children are affected by the Call from about two until they reach puberty. That means we can either keep them here as vegetables for their first twelve years, or we have to live in human lands in secret to bring up our children."

Later that day they took a ride on a steam tractor to the edge of an abandon that was being mined for building materials. There was a crew of ten using a steam crane and a steam crusher, and their output was that of a crew of hundreds of humans. They are building a whole new world, reflected Denkar proudly, and I am one of them.

"And farther down that path?" he asked, pointing south along a partly re stored road.

"It leads to the salt water, the ocean, the sea, whatever name you like to use. That particular road leads to Phillip Bay, and beyond that is the limitless ocean."

The idea of virtually unlimited water both perplexed and allured Denkar. "Have you ever seen the Call creatures?" he asked.

The Deputy Mayor shook his head casually, and did not seem interested. "There is no clear and close vantage to watch from. We have seen animals and humans walk into the water and vanish. Sometimes their bodies are washed back ashore, dead. Occasionally we have seen dark fins and a splash."

"Do you ever follow them out with boats?"

"Not anymore. It was tried at the Gambier Abandon in 1617, and the two boats used just disappeared in a swirl of spray. Smashed planks bearing the marks of huge teeth were later washed ashore. Fifteen of our best educators and warriors died that day, and we have always been too few in number to waste lives like that. One aviad is living on the shores of the Phillip Bay at present, though."

"Would she be a rather strange woman named Theresla? My invel-spouse?"

"Yes, and she had your genototem release signed by Pandoral the Gentheist Bishop, and the Highliber herself, of course."

"Genototem release? What--oh never mind. When can I be taken to her?"

"Your pardon, Fras, but I have nobody to spare at present. You must wait a week."

"A week! I'll find my own way."

"That is not possible, Fras. There are too few of us avia ds We cannot allow a single life to be risked in traveling the Caldeath lands alone."

"But Theresla--"

"Theresla is different. You are a gifted mathematician, you must be protected."

They returned to the town, where the sentries were told that Denkar was not permitted beyond the walls. Other than that, he was free. He explored the town. The architecture was not on a grand scale, except for one auditorium in the university that could accommodate a thousand people. The houses were a mixture of terraces with wood lace trim, decorator-art line bungalows, and functionalist revival cottages. At the center of the town, beside the university, was a little square shaded by gum trees. There was a scatter of cafes under canvas awnings in the dappled light. The incongruity of a cobbled square with outdoor cafes serving coffee and seed cakes in the middle of the Caldeath lands was not lost on Denkar. Student couples strolled hand in hand in the weak winter sunshine, or sat at tables gazing into each others' eyes, their cups and plates forgotten. Three youths sat at another table, gesturing first at the faint band of Mirrorsun in the blue sky, and then at a diagram that one of them had chalked on the wooden tabletop. It easily have been Rochester or Oldenberg.

Denkar ordered a jar of beer beneath the awning of a small tavern,

that the currency was Rochestrian royais, nobles, and coppers. Very soon he was surrounded by curious edutors and students. He had worked in the Caiculator Libris, after all. They were operating a primitive caiculator in the university, but had only sixty components and only ran twice a week in five-hour sessions. He did not have the heart to tell them about the new machine in Kalgoorlie. The senior edutor of Physistry took him to the university and showed him a Faraday cage whose floor was ten yards square, and which housed an electro force laboratory. Denkar quickly recognized the equipment for a spark flash transceiver, simplified version of the Kalgoorlie design.

After an afternoon of being quizzed and questioned on caiculator theory and architecture, Denkar made his way to the modest abandon stone cloister-plan house! where Guidolov, his wife, Nayene, and their family lived. For all his frustration at being held there, Denkar certainly felt better for a meal--of roast emu steaks in orange sauce on a bed of rice and nuts, with a large bowl of Rochester the center of the table. Their two teenage daughters were well-educated and friendly, having been brought up at a villa near Oldenberg. Their other three daughters were still at the same villa. The two teenagers had some odd conspiracy nudges, giggles, and snickers that their parents either frowned at or tried to ignore. Nayene had the figure of comfortably approaching middle age, and was wearing a low-cut Northmoor print in a style that was currently all the rage in Kalgoorlie.

"A Kalgoorlie import, Frelle?" asked Denkar.

"Why thank you, Fras, but no, the pattern was sent along the beam flash in a numerical string. All that I did was select the cloth to suit it, and adjust some seams to my own figure."

"Tailored to perfection, Frelle," replied the weary Denkar, his manner friendly and gracious, but automatic.

"Now then, Fras, you have no silly qualms about genototem hospitality?" asked Guidolov genially. The two girls giggled.

"Fras Deputy Mayor, your hospitality is my rule."

"Splendid! Come now, young Frelles, off to your rooms and into your coding exercises--now! You will excuse us?"

Nayene took Denkar by the arm and led him from the table to his own room. It was a generously large room, tastefully furnished with a double bed at the center. He turned to see that Nayene had dropped her robes to stand before him wearing only kid-leather lounge boots. Denkar nearly choked on his own gasp of shock, took a step back, and fell over onto the bed. Nayene followed eagerly, and climbed onto him at once, pinning him to the softness of the bedcover.

"See there, your genototem release has been pinned above the bed and inspected by Bishop Pandoral herself," she said brightly. "We allow no lewdness in such intimate and sensitive matters, Fras Denkar, we are a very pious community."

Suddenly the precise meaning of genototem hospitality dawned upon Denkar. He spread his arms in disbelief as he lay there. Nayene took it as a gesture of welcome. She slid her arms beneath him and squeezed, then began to unfasten the ties of his robes, trews, and codpiece.

She sighed, her head against his chest. "Five daughters, Fras Denkar, but not a single son. I have great hopes for you, though. Your genototem trace is very promising."

It was all very logical, he realized as they climbed between the cool and scented sheets of the wide bed. A small population trying hard to expand, yet constantly in danger of inbreeding. Hence this scheme of systematic mixing of bloodlines, "genototem hospitality." If only Glasken had been an aviad, he thought.

Lemorel's strategy with the city of Alspring was tailored to suit the siege conditions that were being played out there. The city had sealed itself tightly, with stores laid in and well-trained warriors on guard, all armed with the finest weapons available. In one sense Lemorel was sweeping all before her, but in another she was very vulnerable. Time was not on her side, and she had little but conquest to offer her followers. If the conquests stopped, disillusion might set in.

True to her style, she had thought strategically. A year earlier she

had arranged the purchase of five bombards from Inglewood, a may orate so remote to her followers that none even knew that it existed. The barrels were shipped in cases marked as coffee to the par aline rail side of Maralinga, then trekked by eight-camel sling across the deserts to a stronghold where they were mounted on gun carriages. Using contract artisans in several cities, including Alspring itself, she had secured a large supply of precisely wrought bombard balls, but until now the bombards themselves had only been used in test firings. The other cities had sent their armies out to meet her, as her forces always seemed weaker than was the case. Thus the finely made bombards were of no special advantage. Until now.

It was not enough to lay siege to Alspring, she had to break the defenses quickly. The walls were far thicker and better defended than those of any other Ghan city. They were encrusted with bombards, and these could belch copious grapeshot to shred all opposing infantry or cavalry. Against Alspring many other aspiring conquerors had been tested and found wanting. Lemorel had to defeat Alspring, or her aura with the Neverland nomads would begin to fade.

The first volley of shots caught the Alspring defenders totally by surprise. They were fired from twice the range of the bombards on the walls, and they smashed among the red and gold domes and spires of the palace. After that a pattern set in, with a shot every two minutes that was sure to land with mathematical precision. Only the palace and one section of wall were being targeted, and the bombardment continued through the night. Presently the palace became a shambles, while the famous checkerboard-pattern city walls were ragged and crumbling along the southwest face.

As it became harder for the defenders to mount their own bombards on the southwest wall, the Neverlanders moved in conventional bombards and began pounding the wall at close range. Casualties were heavy among the bombard crews on both sides, but the wall slowly crumbled and fell under the sustained: . battering. Within the city the word was spreading: Commander Lemorel was only interested in their Grand Makulad, she always spared the common people when she conquered a city. This was the opposite of the message that her spies and agents had spread in Glenellen, but then this was a full siege. The evidence was the smashed towers and domes of the palace, and the untouched temples, houses, and shops of everyone else. Siege engines began to appear in the distance, but the ground before the walls was trenched, mined, and littered with obstacles. All defending forces were concentrated near the disintegrating part of the wall in preparation for the attack to come.

"We shall lure them into our city like a mouse into the jaws of a cat!" the infuriated Grand Makulad of Alspfung ranted to his Elders, senior officers, and other advisers. "She shattered my palace, she smashed my treasures. I want her in the stocks, stripped naked with a waterfall

of pig dung and offal pouring over her. We shall fight street by street, sponging up their lives in the ruins until her army is bled dry, then my elite Palace Lancers will ride out and crush those cowards that dared not venture inside."

It was a fine, fighting speech, but the audience went its way in small groups, all animated with anxious discussion. Commander Lemorel showed mercy when a city surrendered in the face of overwhelming odds. Commander Lemorel was unspeakably cruel in the face of pointless resistance.

A gunshot echoed through the rubble-strewn corridors and halls of the palace. Someone shrieked inarticulately; then another shot barked out.

"Muskets!" exclaimed the Overhand of Artillery. He and his adjunct rushed back into the Grand Makulad's throne room to find the monarch shot dead before his throne. Nearby was the Overhand of the Palace Lancers, lying dead with two flintlocks beside him. A scroll was tucked into the sash around his waist. The Overhand of Artillery read the words aloud:

"Commander Lemorel wants no life but that of the Grand Makulad. In the Name of the Deity I offer it to her, with mine, for the protection of the women and children of Alspring."

By now other over hands Elders, and advisers had rushed in, along with the throne-room guards.

"Where the hell were you and your men?" the Overhand of Artillery demanded of the guards' captain.

"We were ordered from the room," he replied in a strong monotone. "Ordered? By whom?" "The Overhand of Lancers."

"But you answer only to the Grand Makulad."

"He gave his consent to it, sir."

"His consent. I see. And you left the Grand Makulad with a man armed with two loaded pistols?"

"The pistols are the symbols of his protection for the Grand Makulad, sir." "Once again, I see. As the senior overhand I am the Grand Interim for now. Sub-Overhand Dalin, you can command the Palace Lancers. Stay with me. The rest of you, out!"

When they were gone the Overhand indicated the barrel of one of the flint locks on the floor with the toe of his boot.

"What is that sticking to the barrel?" he asked.

"A white down-feather, sir."

"Yes. Do you think that he discharged that gun into the backside of a chicken and then forgot to clean it, or might someone else have fired it into a feather pillow to muffle the blast?"

"Sir?"

"Look there, a jagged, messy hole in his forehead and the back of his

head blown out, yet there are no powder burns around his face. Could he have shot himself from a mere hand span away?"

A Neverlander artillery shot whistled down in the distance, to land with muffled boom followed by a clatter of heavy masonry.

"A conspiracy, sir?"

"Very probably. My guess is that somewhere nearby a cushion is being burned, and that two guards are frantically reloading their muskets. There four shots, Dalin, but these two flintlocks were fired into a cushion after Overhand and Grand Makulad were already dead. I thought at the time that I' heard muskets, not pistols."

The Overhand went to the fretwork shutters and pushed one open.

the palace the city remained undamaged. Suddenly a bombard shot whistled and they both recoiled and threw themselves to the lavish carpet as it " close by.

They picked themselves up and dusted plaster off their robes.

"The conspirators were right, Dalin," said the Overhand, "whatever morality of what they did. Run up the orange and white pennants for a truce assemble a delegation to meet with Cormmander Lemorel. You will lead it, you will surrender the city on my behalf."

"Me, sir? A mere sub-overhand? Surely Commander Lemorel would suited if any less in stature than yourself were to go?" ' "

"I want to remain here and insure that some hothead does not seize and resume the siege. If Commander Lemorel is insulted, I offer my life 8in payment. Unlike a few of the hypocrites in this place, I really am willing to my life to protect the innocent of this city. See to it."

"Yes, sir, Overhand and Grand Interim."

The Overhand turned away to gaze through the window over the city as began to walk away. "And Dalin!" "Sir?"

"Discreetly arrange a tragic accident for the throne-room captain and six guards if you manage to survive the next couple of hours."

"Sir. As good as done."

Denkar's escape from Macedon went horribly wrong about fifteen miles walls. He had thought the huge lizard to be a log until it charged out at him a collapsed and overgrown ruin in the abandon. Partly by reflex, mostly he fired both barrels of his Morelac 50-point into its mouth, and one of the balls tore through the great reptile's brain. He sought open ground, and kept improvised lance across his knees as he sat reloading the pistol.

He was about to leave when Theresla seemed to materialize from the In spite of her emu-leather bush jacket and lace-up boots, she still looked svelte and shapely.

"Denkar, you're here alone," she said in a disapproving tone. "Why did the Mayor of Macedon let you come here without an escort?"

"How about something like "Welcome, Fras Invel-Spouse'?" he replied.

She halted a few paces away and regarded him with hands on hips. "Take it as said," she said impatiently. "Why did they allow you come here alone?"

Denkar remained seated. He was somewhat annoyed at his blunt reception. "They didn't. I was to wait with them for a week while some men could be freed from digging an irrigation canal, and soon that week stretched beyond a fortnight. In the meantime their edutors were anxious to get me involved in the development of their calculor, and as for my sleeping arrangements!"

"Ah yes, very.." hospitable. Zarvora and I decided that you would have enough on your mind without.." anticipating your reception at Macedon."

"Very considerate of you."

Someone in the early twenty-first century had built a very solid dwelling, even to the point of using steel beams and interlocking terra cotta tiles for the roof. It still provided shelter with a view after two thousand years, and Theresla had cleaned out the accumulated creepers and nests. Denkar was surprised at how neat and orderly the place was, given her behavior in human society.

"Vermin accumulate after a time," she explained. "Every month I seal the doors and windows and light a fire on the ground floor, using the branches of certain trees and bushes. I also move my bed around. I am nomadic within my own house."

He glanced about approvingly. The lines, space, and lighting were well evident, even after two millennia.

"A pleasant house, too."

"A house built of greed, Fras Invel-Spouse. Only four people lived here, yet it can hold thirty."

"Thirty! But four would be needed merely to maintain it."

"No, they had machines to do that. There are piles of overgrown rust and oxides that were once their vehicles, there is a tiled cistern that they appeared to use for swimming, and there may even be a flying machine behind the house. The building that sheltered it has collapsed and been overgrown by blackberry tangles." She went to the wide window and stood proudly framing herself against the scenery. "There are thousands of similar dwellings nearby, and more under the water."

They had a meal of nuts, raisins, and wild oranges on a balcony overlooking the bay. Theresla explained about her explorations and researches. Her estimate was that the Melbourne abandon had once housed three million people.

"That seems fanciful," he said, rubbing at his temples. "No city could

sup SEAN McMULLEN

port so many people in such a small area. The place should be covered in the remains of para lines and beam flash towers."

A dirk fang cat jumped into his lap and began to purr. Theresla lay down on the rugs and cushions beside him and held up a complex lump of corrosion about the size of her hand.

"Remember that they could use electro force devices like this might been, and that they had personal carriages driven by steam and turbine cycle engines." ' "

"Three million people with their own steam tractors!" he scoffed.

"Yes, and this city was no exception. It is hardly a surprise that so many of the surviving books speak of the air being rank with fumes. There is hardly any evidence of books, however. No bookcases in the houses, no neighborhood libraries, only one huge library in the central city area. I've checked it, but books that survived the mold, insects, rats, and mice for two millennia have been, taken by other avia ds It seems to have been more of a museum for books a working library as we know them. I don't know what to make of this city,

Denkar: such a huge, advanced yet illiterate society."

"Not so illiterate as you may think."

"How so?" she asked, lying up against him with an arm draped over his chest.

He ran his fingers idly through her hair, straining to assemble thoughts into common language. "I've done some experiments on that electro, force calculor that Zarvora and Bouros built at Kalgoorlie. I took a words from a romantic novel and keyed them into what I have called the memory, to be stored as positions of switches held either open or closed electromagnetic relays. I could read the entire text back on the display."

"As on paper tape with punched holes?"

"No, I designed a row of one hundred thin wheels on a common axle, with the letters of the alphabet, numerals, and common punctuation painted the rims. They are spun by gears connected to the calculor to present a line text at a frame window, just like a line of text in a book or scroll. I read thousand words of text back with no errors at all. Next I tried moving s from one place to another, like letters in a printing press. That worked well."

"An expensive way to store a page of words."

"Indeed, but with a hundred years of development one may reduce devices to the size of a small room and store thousands of whole books them. When I switched off the electro force current to the calculor, the were all reset to a zero representation and my page was lost. Think upon that." :

Denkar gingerly lifted the dirk fang cat and sat up to pour out some the soupy yet flavorsome tea that Theresla had brewed out of local herbs. ceramic oot was a oriceless Anlaic artifact that she had found

somewhere, were the matching cups. His head was still pounding from being denied coffee for more than a day, and he attempted to use a Southmoor breathing technique that Ettenbar, the new System Controller of the main Kalgoorlie calculator, had taught him. The afternoon was becoming overcast, and a light wind had made the water of the bay choppy.

Theresla sipped quietly at her tea, her mind turning over possibilities. "You are saying that the Anglaic publishers put all their books into electro force calculors," she said at last. "When the supply of electro force stopped, the books were all lost."

"There is more to it than that, but--"

"A stupid idea, even their engineers must have been humble enough to accept that even the best machines have failures. Still... I have met a lot of stupid engineers since I came south from the Alspring cities--present company excepted. It would explain why books were already rare even before Greatwinter. Zarvora has told me of a legend that people actually mined a huge library in the Canberra Abandon for books to burn."

Denkar put his finger to her lips. "As I was trying to say, I think there was more to it than that. In another experiment I channeled my thousand words of magnetically held text onto a reel of paper tape."

"Pointless. You can read the symbols represented by the punched holes with out a calculator."

"Yes, but the calculator can read it too, and present it back in a much more readable form than punched-hole code. Just imagine a vast library of paper tape reels connected to as many as a hundred calculors. If these calculors were connected by wires to a device in a house like this, then those living here could read whatever they wanted in that library without ever having to open a book or even walk out of the door."

Theresla was impressed by the idea. "Cumbersome... but it makes sense."

"It did until the anarchic wars of Greatwinter. Some may orates must have built the Wanderers in order to cripple the electro force libraries of their rivals." "So their governments were based on libraries too, just as ours are now?" "Undoubtedly. With the calculors gone, the books and documents were just too hard to read directly from paper tape. Chaos and anarchy followed. Without books their ideas and sciences quickly became distorted and went into decline. There must have been other factors as well, but that would account for the lack of books."

"But what of the religious proscription upon heat engines?"

"Just think: the furnaces of three million steam cars in a city such as this would produce a lot of heat. Perhaps the combined steam cars of the whole world were heating and poisoning the air. I hope it is not true, for I have a weakness for engines."

Some time later the sun set amid a scatter of clouds with a slash of

Mirrorsun band across its disk. Theresla and Denkar were in each other's arms beneath a blanket, already settled down for the night.

The following morning Theresla took her visitor down to the new foreshore, where a chill steady wind was driving heavy waves onto a jumble of sand, rubble, and mined buildings. They had taken a small telescope with them.

"Be careful of any concealment like those walls over to the left," she advised. him. "Large, amphibious carnivores that the ancients called sea lions keep up a sort of patrol here. They are clumsy but powerful, and the cetezoid Call creatures use them as we use guard dogs."

Denkar was peering out to sea through the telescope. "I see a dark, body from time to time, and sometimes a jet of water."

"They are the dolphins that have this bay as their territory. They generate i what is known as the Rochester south Callsweep. They have some sympathy fori us land animals, and dislike the sea lions

"They lure thousands to their death, yet they have sympathy for is?"
"Be grateful, Fras Denkar. They deliberately start their Callsweep instead of farther north. That is why Rochester and Oldenberg never feel the Call."

He looked around at her, astonished. "By heaven--the great mystery of thousand years, yet you toss it to me as casually as a bone to a dog?"

"Your explanation of why books were in decline before Greatwinter was no less wondrous to me, my clever and resourceful lover."

"So you can communicate with these, ah, dolphins?"

"I have learned to, yes. One needs a very nonhuman attitude, but it can done by someone like.." me." She snapped her teeth at him, but he did not flinch. "I have studied the dolphins near the Perth Abandon as well, and situation with them is the same. They are forced to cast the Call by other, creatures. Those are called cetezoids, and they appeared in the oceans about time of Greatwinter. The dolphins are treated like tenant shepherds or and my Bay Dolphins resent it. At the edge of the Nullarbor Plain the themselves make the Call. It is a special place where they give birth."

"What do the Bay Dolphins think of us avia ds

"They are fascinated, they want to know more. I am actually negotiating casting of a null zone over Macedon, so that aviad children can be brought free from the dangers of contact with humans. See that large lump in the across there? Watch."

Theresla made a series of hissing, sibilant sounds and Denkar thought he heard something pattering through the bushes. Presently a small, tabby emerged from nearby cover, crawling with its belly against the ground, toward the dark shape in the seaweed. The cat sprang and sank its long

CHAOS

into the blubber of the sea lion back. There was a roar that sounded more like outrage than pain, and the cat bounded away as the sea lion reared up. With a surly glance at the two avia ds it turned to shuffle away toward the water. "It was stalking us," Theresla explained. "And the cats obey you?"

"Well... I'm their leader, one might say."

They walked down to the water's edge. Denkar splashed his hand in it and tasted salt. He shivered in the stiff wind.

"Are we going to meet your Bay Dolphins?"

"Not today. They are easily confused and worried by new sounds, scents, and tastes. Their speech is all clicks, whistles, touches, and postures. The cetezoids use other means to communicate. I have devised other means to study the Call and overhear their thoughts. They speak with thought exchange, and that is why we use the older dolphin language here: we cannot be overheard. The cetezoids do not approve of fraternization."

"Cetezoids. Where does the word come from?"

"It was a thought-form that I learned in my first attempt to eavesdrop at the Nullarbor cliffs. It is their name for themselves, but it also seems to be an old human word."

Glasken entered the control room of the Kalgoorlie calculator and received two surprises. Firstly, it was no more than a medium-sized room cluttered with the familiar half-harpsichord input keyboards, some very functional paper tape engines for output, and a wall full of gearwheel registers. Only a half dozen operators were on duty, chatting and drinking the bitter local coffee sweetened with banks ia honey. The second surprise was the System Controller.

"Fras--ah, Fras... FUNCTION 795?" stammered Glasken from the doorway. "No, 797, that was it."

The System Controller left his work desk and came across to greet him. "Ah, Fras FUNCTION 3084, it is indeed a pleasure to meet with you again, and praise be to Allah that your life was spared over these years past. But your name: you are Fras John Balmak Glasken now, the great Frelle Overmayor sent me a personal communication that you would be arriving."

"Yes, but FUNCTION--no, please, what is your real name?"

"Ettenbar Alroymeril, good Fras. Ettenbar to my friends. Ha-ha, Fras

Glasken, I have not yet given up my hope of converting you to the path of Islam, or have you already forgotten?"

Glasken thought of his years in Baelsha and shuddered at the prospect of yet another future without alcohol.

"Well, that could be harder now. I have spent five years as a novice in a strict Christian monastery."

"Fras Glasken! You?"

"Brother Glasken, actually, but Fras is good enough between friends."

"But you were born a Gentheist."

"Correct, but I was raised as a Christian, and that was sufficient for Baelsha."

"Well then, Fras, what are you doing here?"

"My last and most difficult test, Fras Ettenbar. I must spend a year abroad in the world, alone while I fight the temptations of the devil. Greed, the drink, and the lovely form of the female body combined with the enchanting female face anticipating the feel of female skin against my own while--"

"No, no, Fras Glasken, please do not torture yourself to demonstrate your great faith."

Glasken dropped his pack to the floor, then stretched the stiffness out of his shoulders as he looked around.

"So where's this calculator, then? In the basement?"

"Not so, Fras, it lies a full half mile below us in ancient tunnels."

"In tunnels! Poor devils, I say. I may be free, but I'll always feel sympathy for the components."

"Ah, but these are happy components," said Ettenbar slyly. "Their work is faster than that of the Libris machine, even though they do not have the

FUNCTION versatility as in Libris."

Glasken stared at him intently. "Is this a test of intelligence, and am I failing

"No, Fras, but there are certain matters about its architecture that I may not divulge to you." Ettenbar took him by the arm and whispered conspiratorially in his ear. "It only has one processor, but makes no errors at all."

"The devil you say! Only one processor! Hi then, are there any pretty components or regulators?"

"For shame, Fras, and from you who aspire to the clergy!"

Glasken quickly settled into his duties of converting chemical test data into optimization-curve programs for use in the underground

calculator. He, like everyone else on the project, assumed that Zarvora was designing new weapons for the Mayor of Kalgoorlie. He was surprised at the power of the explosives, as well as their instability.

After nearly blowing his foot off with a single drop of liquid he decided to leave the mixing of glycerine and concentrated acids to whoever else was foolish enough to volunteer.

The rocketry tests were done on the dry bed of Lake Cowan, generally with rockets no more than a yard in length. There were several impressive explosions, and several more rocket flights where the little missiles flew right out of sight and could not be found again. All the while Glasken carefully invested in the property market of Kalgoorlie, maintained his liaison with Jernli, and paid an occasional visit to the Mayor's sister. Life was becoming comfortable and prosperous yet there were some habits that never left him.

He trained at the martial-arts exercises he had learnt at Baelsha for two hours every day without fail, and the sight of a monk of any denomination or creed would make him duck for cover. Whenever Calls swept over Kalgoorlie he practiced balancing the allure against his self-discipline. In all of the world Glasken was the only human who could maintain even limited movement and control when the Call swept over him, and the talent was growing all the time.

Living up to her reputation, Lemorel taxed Alspring heavily in terms of wealth, weapons, livestock, and recruits, but there were no atrocities that could not be attributed to criminals taking advantage of the disruption. She was now the undisputed ruler of the entire center of the vast continent.

As an exercise in logistics, she soon launched what she termed a thunderbolt strike to the north, at the Carpentarian cities. Rather than following tradition, with all supplies carried on the attack camels, the lancers were backed up by armed supply caravans that stood well back from the fighting. Several Carpentarian patrols were wiped out or captured; then a regional city was captured within four days. The shock caused the other cities to seal themselves into siege law, leaving the countryside, roads, farms, and canals in the hands of Lemorel's invaders. Each city was isolated, then led to believe that all the others had fallen. Mere brigades of lancers gathered groups of tens of thousands of Carpentarian peasants near the besieged cities, giving the impression of enormous armies. Surrenders were generally swift, and within three months every city was under Lemorel's administration. A population of 900,000, which was not even registered on the Libris Calculator's data cards, had been subdued at the cost of 860 lives.

To the south of Alspring was a gap in a rocky ridge known as Call Funnel, where a mercy wall had been built to save people in the grip of the Call from wandering south into the desert. At the center of the curved wall was a stone speakers' platform which was used for religious orations, reed pipe concerts, military reviews, and public executions. It was known as the Red Stage, both for the executions held there and for the blood-red stone from which it had been cut.

Lemorel strode the Red Stage alone, wearing robes of red ochre that

were tied and bound to make her look as small and sharp as possible. She had selected her attire to seem both small and in need of protection, yet hard, sharp, and unkillable, like a saber ant. The veil below her eyes was of such a thin gauze that her face was quite distinct to those standing close by, but it allowed her voice to carry farther than the more mundane type. The nine thousand in her audience were the elite lancers and officers of her army.

She started by congratulating them on conquering all of the Alspring cities in the six years since she had led her first band of Neverlander freebooters into the battle, then went on to rant against the Overmayor in the distant south. They were cheering spontaneously by the time she told them that they were all united as Alspring Ghans now, led by the Neverlanders. She reminded them that talk of other groupings was treason. To become an officer was to become a Neverlander, and to become a Neverlander was the highest honor of all.

"I once told you that the Center would tremble at your name, and now it is true. I once told you that you would rule the cities that treated you with contempt, and now it is true. I once told you that nations would surrender at the mere dust of your approach, and now it is true."

It was several minutes before the cheering, shouting, and discharging of muskets had subsided. Lemorel was patient; she was happy to see them exuberant. They had just won an exhausting race, but they were about to be told that they had to run several times farther.

"Now you are mighty. Now you are rich. Now each of you has many involvives to protect and you are all blessed in the sight of the Deity."

She paused for emphasis. Her entire appeal to them had been based on headlong and unstoppable expansion, and not one expected that they would be told to go home and tend their newfound prosperity in peace.

"Now I tell you that every overhand will soon be a prince. Every officer will be an overhand. Every lancer will be rich enough to live in a mansion and own a hundred camels. This very day I had word from my envoys that many cities and may orates to the southeast are begging to be our clients so that together we may subdue the sprawling lands beyond the red and rocky deserts, lands where the water never dries up and the grass is green all the year. Neverlanders, nomad lancers that are my mighty and invincible right hand, this day I shall begin to muster an army of a quarter of a million to sweep south--"

The sheer scope of the adventure raised such euphoria that the rest of her oration was lost in deafening cheers and commotion.

That afternoon Lemorel met with Overhand-in-Chief Baraganian and the four logistics over hands who managed the care, feeding, supply and transport of her troops. Scribes had already produced renderings of the routes south from the caravan maps, and details of states beyond the deserts had been culled from maps mnrle.d north in hn of coffee

"This is all soft, undefended land," she explained in a hoarse voice as her fingers brushed across the names of states that few of them had known existed until recently. "They rely on the desert to keep them safe, yet the desert can be as fickle and unfaithful as a Rochesterian suitor. This land can be crossed by an army of lancers, men able to live in the saddle, carrying all that they need to survive on a minimal number of spare camels. Our spearhead will be camel lancers, but horses will soon be provided by the Southmoors. Large herds are being moved to the northwest of the of the Balranald Emirate, by secret agreement. We shall get them here, north of the Barrier Grasslands."

"And cities, great lady? Soft, rich cities like the great explorer Kharek promised to us?" asked a logistics overhand.

"Rich, lazy cities, with no skill in our type of war."

"But they have powerful machines and deadly weapons, Commander Lemorel," Baragania warned.

"Their machines are easily bypassed, or even turned to our use. We shall use their wind trains and beam flash towers, just as we have built a superior calculator. As for their weapons, ours are better. We have camels that carry lancers, water, and supplies faster than an army can march, and our long and secret preparations will be a knife in their back."

With a nod of heads the logistics over hands indicated that they were satisfied by her explanation. The discussion moved on to specific invasion scenarios, as modeled by the Glenellen Calculator. The figures were encouraging, and the group became eager. When they had finally gone, Lemorel sat alone with Baragania,

who was one of the very few that she treated as anything like a peer.

"How is Nikalan?" he asked as Lemorel rolled up her maps.

"Improving, but still little more than a shell," she said after a moment, as if she had been struggling to recall a distant memory. "The finest physicians in Alspring agree that he has been allowed to do nothing but work on Glenellen's calculors for far too long. When Nikalan was wandering free with--" She exhaled, then inhaled again. "--with Glasken through the deserts to the Fostoria Oasis, he was forced to live a varied existence and his mind was slowly healing. He had lost a great love, and the trauma had unhinged his mind. When made to do nothing else but calculator work, his mind retreated again into a smooth, pure shell and he slipped further away from our world."

Baragania watched her closely, noting that she now spoke more openly about Nikalan. Perhaps her own heart is healing itself?" he wondered.

"And how are you, Commander?" he asked. "You came to our lands to rescue him, you conquered us during that rescue, then you found that he lives as if dead. This is the day of your greatest triumph, but are you happy?"

"I am happy," she said after a pause to think the question through. "Could you imagine it, but one physician attending him employed a harlot who is especially good with very aged clients," she said, then

giggled. "The woman actually coaxed a response from him. No less than three times, I have been assured she calls him a sweet little boy, even though he is about thirty-five. He can't even cut his own bread and pour juice for himself.." yes, the repairs to his mind are proceeding apace."

"That is hardly a life."

She dropped her gaze, then looked up at him again. There was still a measure of pain in her eyes.

"I know, but can you suggest anything better? Baragania, he was the general that set me on the road, but now that I have him I find that the road is more important. Nikalan was like a finely bred racing camel: superbly suited to a specific course, but hopeless for use elsewhere. I bumped him once, and he fell to the ground and shattered. Had it not been me, it would have been someone else."

"But what drives you now, Commander? Why, in the moment of your greatest triumph, are you not at the celebration?"

"Why, you ask? Because there is work to do, preparing the strike south. The Overmayor is a fool. She built her entire power base on calculators and some Ion frail networks of parallel lines and beam flash towers. If I cut her precious infrastructures at strategic points, I can seize two-thirds of the continent in less than a year. It is like when I spied upon you and your Glenellen Calculator, many battles ago. You were so very vulnerable, I simply could not wait to engage you, lest someone else realize how very easily you could be defeated.

"My agents have organized joint operations with the Southmoors and have infiltrated the beam flash and parallel line networks. I have even been chipping away at the mighty Libris Calculator itself by financing civil actions to free its components. In fundamentalist Gentheist circles my people have been dropping hints about steam power being used in Kalgoorlie. Baragania, what does all this suggest to you?"

Months of campaigning with Lemorel had taught him to think as she did when the occasion required it. "The war with the Southeast and Woomera has already begun, but in a subtle way," he speculated.

"Precisely, superbly observed and reasoned, my friend. The war has begun. I have insured that every single merchant who travels to Maralinga is a trust agent. Those same agents have been negotiating right-of-way across Kooree land for my armies as well. Add all of that activity together, and it becomes a highly noticeable operation. All that it will take to alert the Overmayor is a blunder, an accident, or even a traitor's word. We must move now. If we do not take our enemies by surprise, they will be far too strong for us."

The first of Zarvora's ancient rockets left Kalgoorlie amid a noisy festival honoring the glory of technology. The first stage was firmly

bolted to a flatbed truck and painted a bright green with red bands. Two galley engines pulled the flatbed and its attendant cars, while another five carried relief crews and the support equipment. It had been arranged that Denkar would stay in Kalgoorlie and provide calculator backup over the beam flash line as Zarvora required it. On the parallel platform Glasken was saying goodbye to Jemli, who was by now his business partner.

"When the Golden Jar comes up, begin the bidding at a thousand royals."
"A thousand! That's too much."

"But don't go over fourteen hundred without asking me." "But you will be in Woomera, Glassy." "Use the beam flash

"The beam flash It's a royal per thousand words!" "A royal, be bugged. Hey there, sonny, catch." "Glassy! That was a gold royal."

"You don't make royals by skimping on coppers, you're too much of an accountant, Jemmy. Besides, I know about a few embarrassing matters that I can threaten to reveal if I have to. Beamflash me, all right?"

Zarvora had been standing nearby with the galley engine's captain, checking the freight lists and timetables. Presently she walked along to the door of her personal carriage, where Denkar stood gazing at Glasken farewelling Jemli.

"Don't they look the sweetest pair of lovers you ever saw?" he remarked.

"Apparently she has a tongue like a machine-crossbow," replied Zarvora doubtfully.

"Apparently she never flays Glasken with it."

"I overheard him trying to persuade her to have an affair with Ilyire while he is away."

"What?"

"It makes sense. Ilyire is one of Glasken's... vassals, if I can use the term so loosely. Glasken probably feels he has control over whatever she gets up to while he is away. She is ambitious, Den. Although she professes hatred for librarians, she has been simpering about with the minor nobility at court and going out of her way to show off the results of her elocution lessons. Soon she will have a degree as well. Will she still want Glasken once she no longer needs him?"

"Glasken is Glasken, he will never be short of women," replied Denkar, but now he was frowning.

"Really? All his life he has left a trail of Frelles with the breath knocked out of them and their skirts about their ears, yet look at him now."

"Without Glasken you'd have died in that explosion at the test range, like those five engineers. It left his left ear and back quite a mess."

"I know. He saved my life so now I worry about him."

Mayor Bouros' personal band began to play as the trains were made ready to go. Denkar and Zarvora touched foreheads in farewell.

"Why Woomera?" Denkar asked yet again, shouting above the cheering and music.

"I am unsure myself," Zarvora replied. "The ancients also used the Woomera site to launch rockets into space, so they may have known something about the location that we cannot even guess at."

The train moved out of the rail side slowly and smoothly amid showers of petals and streamers, but the tumult died away rapidly once they were into the suburbs of the great inland city. Ettenbar was with Zarvora in the mayoral coach, finalizing arrangements for returning data to the electro force calculator via beam flash

"These galley engines are an expensive way to move freight, Frelle Overmayor," he said as he watched the houses give way to fields and grazing cattle on group tethers.

"The rocket has to be launched from a precise place at a precise time, little worrier. Expense is no object."

"I could help better if I understood, exalted Frelle. If I understood, I would give my life to insure that your results were satisfactory."

"And that is one of the reasons why I am telling you nothing. If you not know what results I hope to get, you cannot bend the actual results please me."

Ettenbar laughed and wagged his finger. "Very cunning, exalted Frelle, shame upon your suspicious nature."

She pulled at a green tassel that hung from the ceiling, then spread of a launching gantry on the folding table. Moments later there was a slap just outside the door; then Glasken entered rubbing his cheek.

"I swear, the train lurched just as I walked past her--"

"Come in, Glasken, and sit down," said Zarvora. "In a week we shall in Woomera, and from there the rocket stages and support equipment will taken by mule cart to where the launching gantry has been assembled. the unloading and mule cart ride the rockets will be your responsibility. them as you would guard your life, guard them as you would guard your cles--"

"--for the latter will surely be forfeit if there is any sort of accident," Glasken in quite a good parody of her tone and accent.

Zarvora looked up and stared at him for a moment, neither smiling ing. "Fras Glasken, I think that we are beyond threats of that sort by now. would have said please if you had let me finish."

"Your pardon, Frelle Overmayor. Where will you be?"

"I shall ride ahead and insure that the gantry and other equipment is

for the rocket's arrival. I shall be in charge of its assembly, arming, and launching. This is the most difficult and ambitious endeavor since the fall of the Anglaic civilization, Fras Glasken, and it is a thousand times more important than the Calculor of Libris."

It was long after sunset, and the plains to the northwest of Woomera were illuminated by the glow of that part of the Mirrorsun band opposite the sun. This time the Mirrorsun glow was from sixteen bright points arranged in a square of twelve enclosing a square of four. It was a most intriguing spectacle, yet this night's display, like all the others, had no explanation. Many edutors had written erudite papers on the changing Mirrorsun configurations, but all remained pure speculation.

Lamps outlined a structure that rose from the dimly illuminated plain like a huge weapon, and yet for all its size it seemed insignificant against the vastness of Mirrorsun in the sky above. Lanterns glowed and moved amid shadowed wood work structures, indicating dozens of people hard at work. A green flare arched up into the sky and began to fall.

The ancient rocket ignited with a howling roar, and it shot up through the framework of the launching gantry like a thunderbolt out of a giant crossbow. It flew free from the apex rails and the glow of the brilliant gleam of its exhaust jet quickly dwindled as it ascended, leaving dark, dispersing exhausts to occlude the stars. Zarvora and her engineers and technicians watched together, raising their telescopes as the glow faded. When the rocket was barely a speck in the sky, the first stage burned out and separated and the second stage ignited. Presently the rocket was nothing more than a point of glow. There was a slight break as the second stage burned out and the third ignited.

"It looks good, but it is out of our hands," said Zarvora to the sky.

She turned to the horizon but did not use her telescope. The Range master continued to watch its progress through his own device, calling the reports out as he was given them.

"Fourth-stage ignition reported from the downrange telescopes. The rocket is reported as little more than a moving star. It's too high to track reliably."

Zarvora released her breath explosively. "Give the order "Transmit," to the four beam flash towers," she ordered, and added more softly: "Let us draw attention to ourselves."

The Range master gestured to the nearby beam flash crew, who ignited a flare in the Ixansmission rig and began to send out the enigmatic order.

"With respect, Overmayor, but whose attention do we wish to draw?"

"I do not know, Fras Range master, but should my electro force beacon de vices in those beam flash towers begin to smoke and melt, we shall have been successful."

"And the rocket, Overmayor?"

"A complex and desperate gamble, Frase Range master."

"And if it fails?"

"We shall return here in a month or so and try again." She lifted her tele scope to her eye again, and focused toward the southern horizon. "Ah there, a signal from beam flash tower South," she said as she gazed through the eye piece. "TRANSMITTER COILS BURNED THROUGH HOUSING

AND

MELTED." "

"Overmayor, beamflash West--" "Is reporting the same thing?" "Yes."

"Then a Wanderer is interested in what we are doing. Let us hope that it is also.." enthusiastic. Too enthusiastic."

High above the atmosphere the fifth stage of the rocket flew smoothly along its trajectory. When its fuel had been exhausted a fuse had burned through a tether and released a timer that ticked out the seconds. Hundreds of miles away in space, an ancient orbital fortress detected radio emissions on the ground and shot EMP bursts down until all four sources had been silenced. There had been more than one source, there might be more remaining, its AI command module decided. It remained on alert.

The timer in the rocket's payload engaged the first setting, and a circuit closed. DIT DIT--DIT DIT. The circuit opened again. The transmission had taken less than two seconds. The orbital fortress had not fired, but it tracked the fifth stage as it moved along its ballistic curve. It had transmitted for a moment, and the fortress' control logic had tagged it as suspicious. DIT DIT--DIT DITJ DIT DIT, the signal commenced again, and the fortress spat a pulse adequate to silence it. A fuse burst, the timer ticked on, then the little radio transmitter began again with a new, heavier fuse.

The fortress spat another EMP, but the coils of the transmitter in the were built to withstand a moderate pulse and the DIT DIT continued. Again the fortress fired at the tiny fifth stage, this time a sustained pulse. The circuit finally melted under the load and was silent, yet the fortress continued to follow it its beam of electromagnetic energy. Zarvora's rocket drew the beam across the limitless backdrop of space.." until it slashed across the band of the nanotech shield that orbited thousands of miles farther out. Circuits melted and died in their trillions, and the ribbon was cut right through. Each tiny slab of Mirrorsun's fabric was a separate, versatile machine, with a small amount of onboard intelligence and powered by solar radiation. The sum of all the parts was sentient.

The AI command of the fortress traced through paths of logic not run for millennia, then reached a conclusion. A radio source traveling

above the atmosphere had resisted EMP attack for an unusual period. It might still be live. A railgun swung around and received its programming, then spat a cloud of alloy spheres on an intercepting trajectory with the fifth stage. Seconds ticked into minutes. The last stage of Zarvora's rocket was pulverized under a hail of metal that then plunged into the upper atmosphere and streaked into trails of glowing long.

The orbital fortress moved on and vanished over the horizon as the fragments of the rocket fell into the atmosphere and burned. The fortress noted the disruption in the Mirrorsun band, but continued to ignore the glow from its electro force activity, as it always had. Nothing like it was in the ancient mission parameters, and it had not shown any sign of hostility. Each of the old weapons platforms classified Mirrorsun as an unidentifiable but harmless natural phenomenon.

On the ground there were cheers in the Woomera observatory as the monitors observed the first signs of the rent in the band. The Range master congratulated Zarvora on ending Greatwinter's second coming.

"You reached out and slew the gods themselves," he declared grandly, for he had been in the student theater ensemble at Woomera University.

Zarvora was pensive as she looked through the eyepiece of her telescope. "Slew it, Frasn Range master? I wonder. But perchance I merely annoyed it a great deal."

The Range master put his hands on his hips. "Overmayor, you cut the band."

"It may recover. The question is one of whether it takes centuries, decades, or merely years."

"So you will launch the second rocket?"

"I shall keep it ready."

Zarvora inspected the initial measurements of the flight, then handed them to Darien to take back to the beam flash tower in Woomera to transmit west to Kalgoorlie. The hardcopy accounts would follow on the par aline but they were only for verification, and the archives.

High above the Earth, the band's collective consciousness enhanced itself into a neural network to deal with the rent in its body. Over the days that followed, meteor damage lines formed out of chains of nanocells, then whiplashed across the gap to join the two ends and draw them back together. By that time the gap was thousands of miles across, but six weeks after the breach the band was whole again. The network now turned its attention to the cause of the trauma that had cost it so dearly in energy and resources. Slowly, ominously, the band began to restructure itself.

Zarvora observed the activity with initial dismay, then she noted that the band was putting itself through strange and unprecedented

configurations. It was seeming to experiment with localized con caves in its greater curve, and the localized con caves were focused on the Wanderers. Zarvora knew that she had failed in her attempt to cripple Mirrorsun for at least a few decades, but she dared to hope that something even better might come from her ambitious and desperate project. She decided that it might be worth attempting to antagonize Mirrorsun just a little more.

Glasken had learned to travel light during his many journeys. Thus when called upon to travel with the Highliber's train, he packed a change of clothing, his under cottons a swagger stick and cheap Gilmeys 40-bore, his seal, and some money. He reasoned from past experience that if he was to be robbed, swindled, or otherwise set upon there was little point in taking anything of value.

"I find that possessions travel better than I do," he explained to Ettenbar as he poured wax into the seal countersinks of a wooden crate and pressed his seal ring down hard. Within were calibrated circuits that had been damaged by the electromagnetic pulses from space.

"Perhaps bags and trunks do not have enraged husbands, fathers, and Constable's Runners in pursuit of them," Ettenbar suggested.

"Very funny. Throw me that strap. There, all sealed for the customs bald heads at Coonana to see."

"What is your design's meaning, worthy Fras?" asked Ettenbar as he helped. "The barrel and sickle framed by leaves?"

"The Kalgoorlie Guild of Master Vintners."

"I did not know that you are a master vintner."

"I'm not. That cost me five hundred gold royals. Look upon it as patronage. I may not be a master of the guild, but I employ two masters to tend my investments ' "

"Fras, your logic is convoluted indeed."

For Glasken it had been a quiet trip--it was free of people trying to abduct, murder, torture, enslave, or imprison him. Much to his surprise the Highliber had granted him the temporary rank of a Dragon Blue Librarian. He did not mention it in his beam flash mail and letters to Jemli.

"Another rocket due in a week," he said to Ettenbar as he snapped his for a waiter in the refectory. "Two weeks more and the third rocket arrives, then I'm free to drink, sing, and get my face slapped by non librarians Ah, waiter! Urn, plistebe grep enfolo, bieratel, salavou kremti, eti--Gah, how does one say 'Islamic menu' in Woomeeran'?"

"Viadatem Islam, good Fras," responded the waiter.

"Why the hell didn't you say you spoke Austaric? Lucky for you my Frelle isn't here. Now, a pie, beer, and salad for me, and your Islamic menu for my friend here."

The waiter scribbled the order on his slate and hurried away.

"Well, Fras, I suspect that my own days tending the calculors of the Highliber are over as well," Ettenbar confided as they sat waiting. "Now that this glorious project with the rockets is close to completion, my intent is to return to the Southmoor province of my birth and design a calculator for the university." "So what about women?"

"Ah-ha-ha, Fras, you think that I am all working and no passions, but yon are wrong. I have been in discreet contact with my family and.. there is talk of an arrangement with a gift who would be a highly suitable match." "An arranged marriage?" "A suitable marriage." "You're mad."

"Fras, Fras, you are on a different path, but that does not make you any the worse." ' '

"Look here, my pie and your menu. Where's my beer? Gah, different waiter! Speak Austaric7 Thought not. BieratelissiT"

"Numeren vor eti dwel, da he," said Ettenbar to the waiter.

"Bloody hell, Ettenbar, why didn't you say you spoke Woomeran?" exclaimed Glasken.

"I thought you wished to make good the chance to practice, Fras." "Dummart. One day I'll be your overseer, then we'll see some smart work."

"Ah, whatever else you are, Fras Glasken, you are never boring as company.

When the third rocket has gone its way and we have gone ours, I shall miss you." "Just as well. Most folk seem to hit me without any trouble." "A-h-ha-ha, you have the jokings again."

A week later the second rocket had arrived from the par aline terminus, and was mounted on the railings of the launching frame. This was to be a daytime launch, for reasons determined by Zarvora's calculations of the Wanderers' orbits. The time for the passing of the orbital fortress approached, and the Range master monitored a little windmill attached to a friction axle.

"The wind seldom drops below ten miles per hour, Frelle Highliber," he reported.

"The ramp should be safe at that speed."

"But it's gusty wind, 'untidy' wind, as the par aline engine drivers would say."

"So what is your opinion?"

"If a gust was to catch the rocket while it was just emerging from the tower and still moving slowly it could alter its course very slightly."

Zarvora weighed up several factors, political as well as technical.

"Prepare for a launch in four minutes, by my authority," she finally ordered.

A technician set the timer at the base of the rocket, then ran for his bunker a hundred yards away. The mechanism clicked, the wind gusted.. "the wind gusted just as the igniter flared, distorting the launch tower very slightly. The second rocket rammed itself into the slightly distorted rails, and the watchers saw the top of the ramp shatter in a plume of rocket exhaust and smashed wood. The force snapped the rocket between the first and second stages, and the burning first stage slammed at full thrust into the desert with a boom that shook the observers in their bunker. The upper stages did not fire, but crashed to the ground in lesser cloud of dust.

Zarvora climbed into the remains of the ramp as soon as it was declared safe, It quickly became clear how lucky they had been. The supporting structure was nearly intact, with only the upper framework and guide rails wrecked. The technicians and engineers estimated a fortnight was needed to make repairs.

"The upper stages of the rocket are badly dented and twisted," the Ran master reported as Zarvora descended to the ground. "They'll have to be taken apart, de fueled and beaten back into shape. The armorers and mechanics think:~i four months is needed."

"But meantime there is a third rocket on the way from Kalgoorlie. Damn and damn hell, this was my fault. I should have had tests done for wind We only have four rockets, we cannot afford to waste any."

A far-off movement caught Zarvora's attention, and she glanced around where a boundary rider had appeared, driving his horse as hard as he could over the limestone sand and broken stone. Nobody rides like that without news disaster, she said to herself.

The rider called to the guards as he reached the shelter tower, and pointed to the launching gantry. As he rode up to her, Zarvora could see of his arms hung limp, and was soaked in blood.

"Hostile lancers and musketeers on camels and horses, Frelle he cried, sitting upright only with difficulty.

"Warriors? Out here?"

"Aye, and making right for the towers and ramp. They must have the explosion. I was shot as I rode from them."

"A patrol from Woomera," ventured the Range master. "A mistake."
"There were hundreds."

"And to the northeast?" responded Zarvora. "Unlikely--wait! How they dressed?"

"They were swathed in robes of red, vermilion, and orange, Frelle mayor."

"Alspring Ghans, come all the way across the desert."

"They tried to ride us into a pincer-trap, but their camels were too our horses. Even so, they shoot well, and only I have survived out of five.

"And they broke off the pursuit?"

"Aye, when we were in sight of the towers. They might have thought that this is a fort. They were bringing up horse cavalry."

Zarvora ascended a few steps and peered to the northeast. There were camel lancers in scattered groups, and a central knot of perhaps fifty. Behind them was a vast dust pall from a far larger force.

"The Ghans are said to strike hard and rapidly," she said, shading her eyes against the glare as she leaned away from the timber rails. "I can see them scouting this place Yes, they will attack before the main force arrives. They have surprised us, and they will want to take advantage of that. Ilyire told me that their commanders value surprise highly."

"We have sixty lancers and nine Tiger Dragons," said the Woomeran marshal. "We should be able to stop a mere eight or nine dozen Ghans, no matter how fierce they may be as warriors."

"There's as many as ten thousand Ghans behind 'em," the rider insisted.

"Ten thousand, Fras. Probably more."

"Pure fancy," said the marshal dismissively. "What do you think, Frelle Overmayor?"

"How far away is the main column?" she asked the rider.

"Seven miles, no more."

"Assume the worst." She stepped down from her vantage point, and there was a look of grim determination on her face. "Glaetin, take two lancers and escort this man to Woomera, take him to the Overhand."

"Frelle Highliber, he bleeds freely--"

"Well, patch him as you ride, but move! A lot more will bleed otherwise. Marrocal, douse the gantry with spirits, then set fire to it. I shall set fire to the papers, drawings, and tables in the bunker. Range master, set the timers on the upper stages of the rocket. Make sure that they ignite and wreck themselves. Understand?"

"Aye, Highliber."

"After that, ride for Woomera as hard as you can. Captain Alkem, take the sixty lancers and the Tiger Dragons and set up a rear guard when I ride to the south quadrant tower. Make it seem as if you are defending this burning gantry."

"But, Highliber, we could outpace them if we all left for Woomera right away." ' '

"Fool! Obey orders! I need ten minutes in the beam flash tower to alert the network and clear all wind trains from the par aline. If they capture a wind train they will move like a bushfire, they will shatter our undefended outposts, be in Kalgoodie within a week, and Peterborough even sooner. Ten minutes, by your anchor timer. After

that, ride for Woomera."

Three minutes later Zarvora was pounding up the steps of the wooden

beam flash tower, glancing north to where the lancers were riding to intercept an enemy marked only by a cloud of dust. She burst into the beam flash gallery and pushed the transmitter from his seat.

/ POLL: PRIORITY DRAGON BLACK she keyed. Seconds passed, reply came. ,

/ ACKNOWLEDGED: BEGIN TRANSMISSION /

/ SATURATION TRANSMISSION: ALL BEAM FLASH LINES:

VAS ION FROM AL SPRING NATIONS FROM NORTH OF ESTIMATE AT LEAST TEN THOUSAND LANCERS, UNKNOWN IARIES, SEVEN MILES NORTH OF OUTPOST HARTLAK. CLEAR WIND AND GALLEY TRAINS FROM THE PAR ALINE FROM TO WOO MERA PETER BOROUGH AND BROCK NIL ALL MOVE TO FULL WAR ALERT: BURN ALL BUILDINGS AND THAT CANNOT BE MOVED BEHIND THE FORTIFIED WALLS: FIRE ANY WIND TRAIN THAT DOES NOT ANSWER CODE IN 2T-3GK: BE ALERT FOR OTHER INVASION COLUMNS COMING THE NORTH ANYWHERE FROM NARETHA TO BROCK NIL EDGE THAT TRANSMISSION HAS BEEN PASSED ON. /

There was an unnerving delay of nearly a minute, followed by a of light in the tower to the south. ACKNOWLEDGED

ORDERS /

Zarvora turned to the beam flash tower's captain and pointed to the

"What has been going on over there? Did our lancers hold the back?"

"They're still fighting, Frelle, but they seem to be in trouble."

"In trouble!" exclaimed Zarvora, astounded. "But they're our finest part of my personal guard." ;

"It's what I see, Frelle Highliber."

Zarvora thought for a moment, then clicked / BURN YOUR TOWER

EVACUATE TO WOO MERA She did not wait for an acknowledgment,

seized a lamp and smashed it down on the floor beside the bench.

"Evacuate to Woomera, now!" she barked, then ignited a flare with its strip and flung it into the spilled oil as the crew began to clatter down the

For a moment she hesitated, glancing north to where the savage battle the two groups of elite lancers was raging. Her anchor timer read eight two minutes more would ensure her safety, yet... "Cowardice is punishable by death," she reminded herself, then she gabriel rocket from the flare box.

The flames were blazing up around her as she swiveled the launching around to point north. She thrust the wick into the flames, then smoking rocket into the tube and ran for the stairs. As she reached

the the rocket shrieked away, howling its message to retreat over the red sand and frost-shattered rock. The tower captain was holding her horse ready. As she mounted she pointed south.

"Every man for himself, Captain, and every woman too," she cried as she dug her heels into the horse's flanks.

His reply was lost in the detonation of the flare box high above. The tower's gallery disintegrated, fringing smoking debris around them. They traveled at a gallop at first, then Zarvora eased back to a canter and glanced back to the north. "Why are they not retreating, I see only a half dozen--"

She caught herself, horrified by the truth: her elite lancers had been all but wiped out by the time her rocket had shouted its orders. Other riders were streaming across the plain, Ghan lancers on horses from other squads. The tower captain drew a flintlock.

"No!" shouted Zarvora. "Give me your loaded guns."

He drew alongside and handed them over to her, then drew his saber and rode alongside her. The horses were beginning to tire, and a squad of a dozen Ghans was slowly closing with them. Zarvora turned in the saddle and fired with a smooth sweep of her arm. A Ghan lancer threw up his arms and fell from his mount. She flung the gun away and drew another from her belt. This time she hit a horse and it sprawled amid the sharp stones, flinging its rider down. The next shot missed. Zarvora dropped the third gun and drew her fourth. Turn, sweep, fire--the head of the leading lancer exploded as the heavy lead ball found its mark. The remaining nine suddenly lost their resolution and slackened pace.

In the distance to the south Zarvora noticed that the beam flash relay tower was on fire, trailing a plume of dark smoke into the light wind. Their pursuers began to fire their muskets, and a shot tugged at Zarvora's robes as she reached for her last gun, a stubby Westock half-inch. More riders were closing from behind to join the Ghans--then the pursuers broke into a confused, wheeling,

shouting gaggle as the newcomers hacked into them with their sabers. "The last of our own lancers," shouted the tower captain. "Then turn, here's enough of fleeing."

The wild scramble that followed lasted no more than a minute, but six Ghans and the beam flash captain lay dead before Zarvora and the three surviving lancers from her personal guard set off for the south again.

"Wild, savage warriors," shouted the man beside her. "We were evenly matched, but we barely held our own. A second squad hit us just as your rocket came over." ' '

They rallied with more surviving lancers at the burning relay tower, then set off for Woomera again. They reached the fortified capital in the late afternoon. The towers of the city rose against the blue sky with the darker blue of the Mirrorsun band arching across like a mighty

sash. The band had drifted into an 352

SEAN Me MULLEN

eccentric orbit as it strove to repair the damage from the Wanderer's beam, so the glow was easily visible late every afternoon.

"I changed the very heavens, yet look at me now," Zarvora muttered under her breath as she rode for the west gate of the city.

Zarvora's lackey was shouting messages from the beam flash network to her even as she dismounted from her exhausted, trembling horse.

"Force of two thousand on the Great Western Paraline at Warrion, laying siege. Another force reported at Hawker, but no numbers as yet. Yuntall Railside under siege by a force of over five thousand--"

"Yuntall! But that's on the Barrier Paraline to Brocknil."

"It's confirmed, Overmayor. Wirramina reports three thousand crossing the Great Western Paraline and moving south, but not attacking."

"A pincer movement. They will meet at the south of Lake Tyers, Woomera off from the Southeast Alliance. They move fast, and to our vulnerable points. How do they do it? Did that escapee Vittasner build them another battle calculator? Take me to the par aline depot, now."

The City Overhand of Woomera caught up with Zarvora at the depot, as she was trying to find a galley engine and crew.

"The Ghans are burning the scrub between our beam flash towers to us," he said as he followed her about. "Soon all links with east and west be gone."

"The beam flash network has done its job already," Zarvora assured "Your fortified towns have been warned and secured. Most could withstand limited siege from a few thousand attackers."

"But Hawker is under attack by ten thousand, perhaps twelve."

Zarvora stared at him in astonishment. "As many as that?"

"And they have bombards. I've requisitioned a galley train to relieve

Four hundred troops and a dozen bombards of our own."

"That does not seem enough, but how can we know? I must be on train."

"If you wish, Frelle Overmayor, but to be anywhere outside a fortified or city is dangerous."

That night, as the galley train reached the southern tip of Lake Tyers, ordered it stopped. She had a horse unloaded in the darkness, then ordered captain to proceed without her. As the train moved out over the trestle sat alone on her horse, watching the wagons dwindle into the distance by light of Mirrorsun. The Calldeath lands were quite deep here, and were only quarter-hour ride from this part of the par

aline She set off slowly across of the dry lake.

Suddenly there was a faint flash of light to her left, followed by the sound of a distant blast. The bridge had been mined. I would have done that, Zarvora thought as she rode on. After another twenty minutes a faint tingling feeling warned her that she was entering the Calldeath region. Her horse grew eager to go south, and for a time she let it have its head. Now she was safe from human attack, and she could follow the Calldeath strip all the way to Peterborough.

As she rode, a name kept echoing through her mind. Lemoirel, Lemoirel, Lemoirel. Several coded dispatches had referred to Commander Lemoirel, the leader of the Alspring Ghan invaders. Lemoirel was most certainly not a Ghan name. Lemoirel Milderellen had abducted John Glasken and gone in search of the Alspring cities a half-decade earlier. Lemoirel had also been one of her most trusted and promising young Dragon Librarians. No wonder the Ghans knew exactly where to strike in order to do the most damage.

The whirring and swishing sound of the Libris Calculor room began to take on a regular rhythm as the diagnostic program ran its course. There were no anomalies, the Libris Calculor was in perfect order. MULTIPLIER 8 and PORT 3A cleared their frames, and MULTIPLIER 17 sat back from his frame as he tapped the floor pedal with his foot and sent his last calculation away to the local node. The sound of the huge machine began to fade, as if they were leaving a shift and walking away down a corridor.

" 'Tis running down, PORT," said MULTIPLIER 17, but the components nearby only turned to glare at him. A regulator walked up, rested her cane on his shoulder, and held a finger to her lips.

The noise faded further, until there was nothing but the swish of polling signals being sent at five-second intervals. Input had ceased, there was no more work being entered. The System Herald stood up and banged the floor with his black wood rod.

"System Hold!" he called clearly and firmly. The polling signals stopped, and there was silence. Four thousand pairs of eyes were upon him. "Components attend! Shift terminated. Announcement to follow."

Buzzing conversation welled up throughout the Calculor. The regulator beside MULTIPLIER 17 sat down and began sobbing softly. He put an arm over her shoulders, and she put her head on his chest and began to soak his tunic with tears. He scarcely felt any happier himself.

"Some damn major reconfiguration, I'll bet," said MULTIPLIER 8 to

PORT 3A.

"Don't be a dummart," he replied. "They're going to shut down the Calculor."

They sat in silence for a moment. "They can't do that," said

MULTIPLIER 8. "What about our work? Who's to do it?" "Contract labor? Perchance the may orate itself is no more, perchance

Southmoors have crushed the mayoral armies and are advancing on the

"None of that's in the beam flash traffic. Things is quiet, and except that inflation on the royal is up to three point two percent."

"Then this is it, then.." the end of the machine."

"No, it's a new configuration."

As he spoke there was a deep clack at the back of the Calculor hall.

heavy curtains that divided the hall began to be drawn back along the wires.

they bunched up at the wall, the double doors between them opened. A

entered carrying a scroll bound with a black ribbon and sealed with black

It was a decree from Tarrin, and the System Controller appeared followin him. He was going to read it in person.

When Tarrin reached the rostrum the System Herald banged his rod for tent ion in spite of the near-complete silence. "Attend the System Controller!"

"My fellow souls in this great machine, the Calculor of Libris," he be breaking the seal on the scroll. "I have here a decree from

Jefton, in his capacity as the ruler of Rochester. It reads thus: "Be it all magistrates, servants and officers of the Mayor, and citizens of the of Rochester, the machine known as the Calculor of Libris is hereby declared be decommissioned. All components who were formerly felons are hereby a mayoral pardon. All components who might have been pressed into the culor's service although not felons will be granted their freedom, fifty and full restoration of their property. Your service in the Calculor of Libris changed the very world itself. Accept my thanks." "

He lowered the scroll and surveyed the Calculor Hall. There was no movement amid the ranks of faces focused on him. He raised his voice again.

"There will, of course, be administrative assistance for those who have difficulty in readjusting to life outside Libris. All Dragon who are acting as regulators will be redeployed to other duties with no loss rank. Please go to your cells and pack your possessions. The doors will be locked. Components of the Libris Calculor, on behalf of the goodbye and good luck."

He stepped down from the podium and began to walk back along the through the center of the Calculor. A component stood up as he passed.

"Fras Controller, what will replace us?" the component pleaded, his open and extended.

"This is our home," called PORT 3A from nearby. "This is our our world. You can't take it away from us." ' '

There was a rumble of assent that rippled out across the Calculator.

shrugged hopelessly as he looked from component to component.

"There are smaller calculors, and even mechanical devices. These over much of the work of beam flash decoding and records control."

"We won't go!" shouted the component in front of him, and his shout was echoed by both the walls and scores of other components.

"There's stores down in the vaults to last months," cried the regulator who had been sitting beside MULTIPLIER 17. "We can stay here."

"This is none of my doing. I fought hard and long for the Calculator. The Mayor will have us removed if we don't go."

"We can arm the components!" cried a regulator. "Twelve thousand components is a fearsome army!"

"Aye, and most of us has been felons," bellowed a gruff voice. "We can shoot, hit, an' stab withe best of 'em."

Tarrin looked about him, bemused. "But most of you must want to go!"

"Those who want to go are welcome to go," PORT 3A shouted out across the ranks of the components. "We choose to stay!"

The cheering that erupted was deafening, and components and regulators closest to the doors ran off to tell the off-duty components what was happening. Tarrin was surrounded by angry, shouting components, and was unable to move.

Beyond the gates of Libris, the delegates and supporters of the Rochester and Southeast Alliance Human Rights Association waited in vain to welcome the newly liberated components of the Libris Calculator. When an hour passed with no result they demanded to send in a delegation, refusing to believe that the components had barricaded themselves inside, and that the regulators and guards had joined them. The delegation was beaten up and ejected. The candles in their party globes began to burn out; then it began to rain. The letters in the banners that they carried began to run, and were soon illegible.

The siege of Libris lasted only a few hours, during which the Libris Calculator was again made operational. A message arrived under the Overmayor's personal code, and it declared the entire Southeast Alliance to be in a state of general mobilization. Civil rights were now subject to the provisions of martial law, and the Calculator was most definitely not to be disbanded. Tarrin was carded shoulder high from the Calculator Hall by the components, all grateful for his long series of court battles to keep them where they were.

John Glasken emerged from the beam flash public office after three hours, too exhausted from arguing with the clerks and lackeys to feel rage. Ettenbar joined him and they strode off down the road.

"Morgan! They shipped that bloody third rocket to Morgan and the only reason that it didn't get as far as the marshaling yards in Rochester is that the gauge of the rails changes from broad to narrow at Morgan and they didn't have a suitable flatbed available with narrow bogies! Misrouted beam flash message, that's what the Controller of the Morgan Paraline Shunting Yards said. The beam flash system really is letting standards slip."

"The Overmayor will not be pleased!"

"The Overmayor will blame me! Fools and incompetents, they're all around: me--present company excepted. I'm going to get that rocket back to on time if I have to strap a saddle to it and ride it there."

"A trifle extreme, Frasn 3084?" Ettenbar ventured.

"STOP CALLING ME THAT!" Glasken shouted, his voice hoarse.

"Ah, yes, and I am sorry, Frasn Johnny. Under stress I tend to revert to serenity and discipline of the Libris Calculor. Still, you prevailed."

"That I did, and now I'm going to have a drink, then catch the next train to Morgan Railside."

The tavern was packed with patrons, and after another long and wait Glasken emerged with their pies and his tankard. They sat on a pile of roofiJ shingles and began to eat.

"Lot of worried folk in there," said Glasken between mouthfuls.

about an IW10 code. Everyone was saying it was an IW10 code. Come to of it, there was mention of it in the beam flash office as well."

Ettenbar turned to him at once, eyes wide. "That is Invasion War alert at level ten."

Glasken frowned, put down his pie and took up the tankard of black "War, eh? There's always a war somewhere, I bet it's the Southmoors

It's as inevitable as the Call. Or maybe some castellan's sent his gamekeepers shoot at his neighbors again--hope it's not one of my old man's neighbors. last thing I want on my doorstep is refugee parents." He took a thoughtful low of ale.

"Frasn Johnny, level ten is a very large war, with an invasion fifty thousand."

"Fifty thousand!" Froth sprayed over the edge of Glasken's

"There's never even been an army that big. I--Etten, what's wrong? The got to you?"

Glasken followed his gaze. Ettenbar was looking down the street, to a lone rider was slowly approaching on a lame horse. It was a tall woman. her hair roughly bound back, and wearing a ragged wayfarer's cloak. bandages covered her left arm, and dark splotches of blood showed through. she drew near they could see that she had bound a saber into her injured and there were fang marks in her boots and the flanks of her horse.

"Overmayor!" shouted Ettenbar, dropping his rice pie and running out the street. Glasken followed, tankard in hand.

Zarvora reined in her horse and looked down at them, but her eyes unable to focus. "Beamflash tower," she managed in a slurred whisper.

Having stopped, the horse was unable to walk any further. Glasken for a stabler as he helped Zarvora from the saddle. She could hardly

stand, after a sip of his ale she regained her senses.

"Beamflash, take me there."

"Frelle Overmayor, you need the attention of a medic ian first," began Ettenbar.

"Take me to the nearest tower at once," she replied emphatically, a contralto tone returning to her voice.

That was enough for Glasken. "Aye Frelle," he said as he lifted her in his arms and began to walk toward the beam flash tower. He was surprised at how light she seemed, just as Ilyire had been when he had lifted the drunken Alspring Ghan into a stolen cart. Ettenbar followed, and behind him was a small crowd who were muttering about it being the Overmayor.

"Overmayor, do not be afraid," said Ettenbarrassuringly. "We are your loyal servants, two FUNCTIONS Of the Dexter Register."

"Calculor FUNCTIONS? I can hardly believe it," she mumbled.

"He's raving, Overmayor, it's Glasken and Ettenbar," added Glasken.

At the beam flash office Glasken suddenly found himself given far more deference than had been forthcoming for the previous three hours. The deputy captain of the tower ushered them straight into the counterweight lift and they were raised to the beam flash gallery itself. Glasken was still holding Zarvora in his arms. The tower captain met them as they stepped out into the gallery.

"What news is there?" Zarvora asked. "I have been traveling two days." "Hawker has just fallen," said the captain, assuming that Glasken and Ettenbar had a high security clearance. "Before the signal was lost there was word that Wirrinya was under attack and unlikely to last another day. There was a fierce attack on the walls of Woomera itself, but grapeshot from the bombards drove the Ghans back. The Great Western Paralane's rail sides received a destruct order from Kalgoorlie last night, so the rails have been blown up and the roiling stock burned as far west as Naretha."

"Good, the desert will do Kalgoorlie's fighting for now. What else?" "The Barrier Paralane has been taken from Nackara to Cockburn, and the Ghans have captured at least two galley trains and several wind engines. The citadel at Brocknil had held, but the city proper and the rail side have fallen. Also, the Southrnoors seem to have an alliance with the Alspring Ghans. The Darlington beam flash tower was destroyed by Southmoor bombards yesterday. Contact with the Central Confederation has been lost."

In the background Glasken and Ettenbar listened to the litany of disaster with near incredulity.

"The Ghans attempted to cut off Peterborough, but for once their lines were overextended. The Peterborough Mayoral Musketeers Cavalry stopped them in a battle ten miles to the east."

Zarvora shambled over to a map on the wall where she ran her finger over the names of several towns.

"So, someone is a match for them," she said with her finger poised Peterborough.

"There is one more piece of good news, Highliber. A suicide squad fifty Ghans got all the way to Morgan. They blew up a section of par aline and detonated another charge against the wall of the beam flash tower before militia killed them. Luckily they had used too little powder, so the tower is standing and in operation. Also the par aline track that they blasted turned out be a shunting line, so traffic is still getting through."

Just then a medic ian emerged from the lift to tend her, and as her hand being unwrapped she accepted a honey cake from one of the beam flash crew.

"Without help they could not have moved so fast and far in three days," she said to the tower captain. "There must have been advance parties sent all coordinated to act at the same time. There must also have been help within our own system. How many galley engines are there here at enough?"

"Two, Frelle Highliber. Three others were ordered north on the second of the fighting, and were destroyed on the line near Hawker."

She removed two of the four pistols from her belt and handed them to ten bar He immediately began cleaning and reloading them.

"Tell the Mayor to seal the town, begin rationing, and prepare for a siege. Assemble all sheep and horses that cannot be fed out of stores and them overland to Morgan. They must not fall into the hands of the Ghans. Set the gangers destroying track to the north and east of the town. Put much rolling stock behind the two galley engines as they can pull at low and load the train with all the noncombatants that it will carry: women, and wounded. I shall take it south to Burrat."

The tower captain nodded at each of Zarvora's instructions, but his had no sense of urgency. "Overmayor, that would be unwise. The townsfolk to you for leadership. Your place is here, defending your dominions invaders."

Zarvora waved his objections aside with her newly bandaged hand. would see me isolated, Fras Captain, for this town is surely to be besieged the invaders."

"So you will leave us, Frelle Highliber?"

"Yes. Now obey my orders."

In spite of his misgivings, Glasken decided that being close to the represented his best chance of survival. He and Ettenbar were sent to make that all was in order with the galley engines and to pass on Zarvora's

By the time they reached the streets the town had erupted into bedlam, with truth about the invasion finally common knowledge. Prices had

increased within minutes, women and children were being hurried along toward the hastily assembled train by grim-faced men, and agitators were shouting to the crowds that Rochester and the Overmayor had abandoned them. The train was standing ready, with the galley engines Firefly and Iron Duke coupled to pull it. The crowd around it was unruly, a mixture of weeping women, hysterical children, and un certain men being harangued by yet more agitators.

"Good old Glasken, you've picked another winner," Glasken said aloud as they left the cabin of the lead galley engine after delivering Zarvora's messages.

"Friend Johnny, this is no time to think upon horse racing," admonished Ettenbar.

"Ettenbar--look here, have you ever been in a war?"

"Why, no."

"I have, but it wasn't like this. A few hours ago people were worried about whatever was happening with this rumored war, but they were still loyal. I should know, I stood farting and complaining with them in the queue at the beam flash office. Suddenly there's all these men shouting the same message against the Overmayor. This isn't a spontaneous rabble, this is organized."

They arrived back at the beam flash tower as the sun was setting and the clerk in the office rang a message for Zarvora to come down. She emerged from the pulley lift limping but looking better than when they had left. They walked along the streets to the jeers of those who recognized her.

"Run from the Ghans, ya coward!" bawled someone in a hoarse voice, and something flew through the lamplit gloom and splattered on her ragged cloak.

"Stay an' fight, ya bitch!" This time the voice was female, and from a balcony. "Us women belong here, with our men

"We'd rather welcome the Ghans than fight 'em. Death to the Overmayor!"

Glasken and Ettenbar flanked her as they made their way through the thickening crowd.

"Pay no attention, Frelle Exalted Overmayor," said Ettenbar, marching proudly erect with a scattershot gun at his shoulder.

"Aye, Frelle Overmayor," agreed Glasken. "Folk have been calling me a coward all my life, but--Stand back, ye buggers!"

"They call abuse well in Austaric, although this is a Woomeran town," remarked Zarvora. "I know mobs, and this one is better organized than the Great Western Paraline Authority's schedules."

Zarvora went straight to the lead coach after pushing through the angry, restless crowd at the rail side. People began banging on the outside of the coach, while within were shrieking children and their wailing mothers.

"Go to the Firefly and tell the captain to wait," she said to Glasken and Ettenbar. They immediately made their way forward.

Captain Wilsart of the Firefly, the lead galley engine, helped them through the forward access hatch.

"If this train starts to move there'll be a riot," Glasken warned. "The Overmayor says wait. Who's behind this trouble?"

"Whoever 'tis, the Overmayor can count on the Great Western Paraline Authority replied Captain Wilsart calmly.

Glasken looked out of the driver's window slit, and noted that the track ahead of the train was relatively free of people. A small knot of men with muskets stood on the balks and transoms, and one of them had a sledge hammer and bolt-wrench over his shoulder. Glasken turned at a commotion behind them. Zarvora was ing up into the driver's cabin, filthy with grease and dirt, and panting heavily. "Highliber! Did the crowd beat you?" gasped Ettenbar.

She shook her head. "No, I crawled from the lead carriage under the Iron Duke, then entered by the floor access hatch. At my word, prepare to leave. your crew and nav vies on alert, Captain."

"But what of the Iron Duke?" asked the captain of the Firefly.

"I uncoupled it as I crawled here. I also unpinned the safety catches on brakes and jammed them."

"Very good, Highliber," he said as he unclamped the brake lever and engaged the Ready signal.

"Who are those men on the tracks up ahead?" exclaimed Zarvora.

them is removing rail bolts!"

Captain Wilsart seized Glasken's shoulders. "Glasken, go down to the for ward gunner, tell him to fire the grapeshot barrel at anyone who fires on us when we begin moving. Quickly!" He turned to the driver. "At my word... For, ward!"

The Firefly moved smoothly away, with little more noise than the its wheels on the rails as a warning to those ahead on the track. Some of the crowd cheered, thinking that the galley engine was abandoning with the Overmayor still in it. One of the gangers looked up to see the engine approaching and shouted a warning to his companions. He raised his musket and fired at the driver's window slit. The bullet glanced off the heavy armored glass; then the forward gunner replied with grapeshot. The blast annihilated the group of men, and a moment later the Firefly jolted over flesh and weapons. The loosened rail held as the galley engine passed.

It was not until the exchange of shots that those in the crowd realized that anything was wrong. A peppering of fire lashed out at the departing Firefly people fled or flung themselves behind cover. The leading agitators stormed aboard the Iron Duke, but the crew were all loyal Great Western Paraline employees and they feigned confusion. By the time the forward bombard had been unclamped and run out, the Firefly had disappeared around a bend.

"The town has been filled with hired churls and churlenes from the independent castellanies, probably in the pay of the Alspring Ghans," Zarvora said grimly to Captain Wilsart. "The beam flash tower crew was with them, too. I could tell by the pattern of clicks from their instruments that they were sending out orders contrary to what I was saying."

"But what will--"

Across the darkened rooftops the gallery at the top of the beam flash tower exploded in a ball of lurid flame. Glasken gasped in horror, but the gunner beside him did not even turn to look. Zarvora climbed down from the access walkway to join them.

"The town walls are ahead there, gunner," she said as the Firefly rattled over a set of points. "If the gates are shut you will get but one shot at them, and that must hit the transverse beam or we are all dead."

"Not to worry, Frelle Highliber," he replied. "Just tell me what speed we do."

"Twenty-five of your speed units."

"They be miles per hour, Highliber. Good enough for Brnnel, good enough for us. Now then, closed the gates be, and twenty-five, ye say. That's a three nick elevation, and a true of four point five."

On the town wall, two of the militia watched the galley engine approaching with more than purely military interest. In spite of the darkness the two members of the Peterborough Train Spotters Brotherhood were sufficiently expert to be able to identify it from little more than the sound that it made on the parallel rails and the outline of its shape from its running lights.

"There be a GWG-class galley engine of five-segment configuration," said musketeer first class Mansofial.

"Firefly, that be the Firefly, GWG-409/5," replied his companion, Prengian.

"No sighting on a number, we can't claim a confirmed sighting without seeing the number."

"No carriages or wagons, now that's worth a note."

"Leave the gates closed, we can hold up a lantern to the number as they wait. Have you got the sightings book?"

A rocket flew straight and true from the Firefly's forward tube, striking the gates a little below the transverse bar and exploding. Instead of breaking, the bar was blown clear of its clamps, and it came down just as the Firefly was butting through the splintered gates.

"Firefly shot out the gate!" cried Mansofial in disbelief.

"I'm a-nofin' it in the book," Prengian called back excitedly.

The great wooden beam crushed the rear roof of the galley engine's last two segments as it butted through the heavy swinging gates and the

Firefly slowed as it dragged the bar clear of the gates. Amid the cries of injured nav vies worked alongside Ettenbar, Captain Wilsart, and Zarvora to cut through of bar, fabric, and ash wood frame with hatchets. They were puzzled that militia on the wall had not opened fire.

"Do we call this sighting an accident or an incident?" asked Prengian. "Accidents is unintentional, incidents is intended in part," was the reply. "Looks to be elements of both here. An incident what results in an accident. "We should put it to the next monthly meeting of the Peterborough Spotters Brotherhood," said Mansorial excitedly. "Good Lord, now look at They're convertin' it, they're detachin' the last segment right there on the

"You're right!" exclaimed Prengian, "GWG-409/5 has become

Does this merit a new entry in the book, or is it part of the incident report?"

At last the nav vies were able to push the bar and wreckage onto the

The rear of the engine was so severely mangled that its wheels were but galley engines were built from articulated modules. At Captain the rear third of the Firefly was evacuated and unclamped, and the galley en rumbled forward as if it had been freed from a leash.

"Ah, Prengian," said Mansorial tentatively, as if remembering important.

"Aye?"

"GWG-409/4, Firefly, has just shot out the gate we're a-guardin'." "Aye, but as GWG409/5." "Shouldn't we have fired on it?" There was a short, awkward silence.

"Ach, that would never do. It's a Great Western Paraline Authority GWG-class! The Peterborough Train Spotters Brotherhood would have us pelled before a single day was past for a-doin' that."

"But the Gate Captain will have us shot for not doin' so when he gets here."

"Aye, you're right. Let's put a shot or two from the bombardiette into wreckage that's left."

The little bombard had a flintlock striker instead of a fuse. Mansorial drew the safety pin, aligned the sights with the dark mass on the par aline squeezed the trigger. A one-pounder ball was spat from the barrel. It struck canvas and ash wood wall and smashed into the rocket locker for the rear The damaged segment was blasted apart as the warheads exploded, the mixed-gauge rails and in the process rendering the par aline impassable at least an hour. By this time the Firefly was lost in the darkness of the cast night.

"Five crew dead and fifteen injured," Ettenbar reported to Captain Wilsart they passed the tiny rail side of Gumbowie. "Twenty-seven

pedal mechanisms smashed or lost, and a quarter of the roof destroyed. The rear grapeshot bombard and rocket launcher are gone too, with the rear of the engine." "What about rockets?" asked Zarvora. "The main store was at the rear."

"Damn. How many rockets are left at the front?"

"Three, Frelle Highliber."

The Firefly rolled swiftly along through the night. Zarvora had the relief crewmen relocate the bow rocket launcher and bombard on the roof, so that they could be fired in all directions. At last there was no more to do. Zarvora, Glasken, Ettenbar, and Captain Wilsart retired to the driver's cabin, where they sat cleaning and loading their muskets and pistols in the lamplight.

"Soon we shall fire a rocket into the tracks behind us," said Zarvora. "We must cut the track where we can."

"Good work, Frelle Highliber," replied Captain Wilsart easily, "but there be better ways."

"Better ways? And you are not upset at the damage?"

"As Overmayor you authorized extension of the broad-gauge all the way to

Rochester, Frelle, and you named your son after Brunel. You can do no wrong." The answer was not what Zarvora had expected.

"What is it about you Great Western Paraline people?" she said, sitting back with her arms dangling beside her. "Why this fanatical loyalty to some preGreatwinter engineer who we know practically nothing about--and his seven foot par aline gauge?"

"Because it's the best, Frelle. We always ask what Brunel would have done.

Oh and by the by, it's seven foot and one-quarter inch."

Zarvora smiled at the correction. "Was Brunel a general too? If he left any writings on battle tactics I ought to look at them."

"He were a man of peace and building, Frelle. Our motto at Great Western

Paraline is: Look To Functional Requirements. Just now your functional requirement is to tear up as much track as can. One rocket would take out a mere rail or two, and take a ten-minute to fix. I'll show you a scheme to do better."

Zarvora sat thinking and resting for some minutes, while the Firefly's captain began to sketch a mechanism at the back of the galley engine's logbook. He handed it to her and she held it up to a pin lamp

"Have you ever thought of becoming a Dragon Librarian, Fras Captain?"

she asked as she realized what he was proposing.

"Nay, Highliber. Train work is the only real work. No offense, mind.

Libraries have their place and someone has to mind books and such like, but I count myself lucky that it's not me."

Zarvora had killed everyone in the Peterborough bearnflash tower before she had even lit the fuse to the charge that blew its gallery apart.

Thus the final set of messages sent out across the beam flash network was as she intended them to be,

and in particular there had been no false orders sent south to Burra and Eudunda.

Burra was actually a fortress of the old Spalding Castellany, and was well equipped for any siege. It had not been targeted by the infiltrators, and the local governor was loyal to the Southeast Alliance.

The Firefly rolled into Burra without further incident. The governor and a

small group of dignitaries were at the rail side to greet Zarvora and receive their orders.

"Send an unmanned wind engine north," Zarvora instructed the Burra governor. "Attach a balk drop truck and put mines with timers on the slip rails. Set them to drop right on the parallel every seven miles, and set each after one minute. Have one large mine to explode in the engine after the is made."

The injured from the Firefly were taken into the fort, and mechanics through the damaged section repairing and replacing mangled pedals and rigging up canvas streamlining. Before the work was complete, a crewless wind engine began its journey north, pulling its truck laden with mines. Zarvora was in the beam flash gallery of the Eudunda-facing tower when there was a flash of light to the north, followed by a distant boom.

"That's the first mine dropped," said a beam flash receiver,

the telescope facing north. "I can still see the rear running light of the engine. You know, Overmayor, the flash of the Peterborough gallery blowing gave me quite a start. Had spots before my eyes for a good quarter hour."

"If they want war by infrastructure, I shall give it to them," Zarvora grimly.

The receiver continued to stare through his telescope's eyepiece. "I can see the glow of Peterborough clearly, and streaks like signal rockets above it.

sorts of colors. A big party to welcome the invaders, it looks to be. Now wind engine--Argh!"

The flash of light had even caught Zarvora's unaided eyes. She pushed the dazzled receiver to one side of the telescope as the boom reached the gallery.

"Fires, burning trees. Damn timer for the main charge must have gone early--but wait! Burning carriages, all smashed and tangled, at least a dozen them. They must have sent a galley train in pursuit of us from

Your uncrewed wind engine slammed straight into it."

The receiver massaged his eyes. "A good job, too," he said, "and by

a

Western machine." ii

Twenty minutes later they were traveling south again, with the Firefly repaired and a full, fresh crew at the pedals. Glasken was unimpressed by the cold wind in the cabin from the open side windows.

"Can't you have this thing glassed in like the South and Eastern Standard's wind engines?" he asked as he sat shivering beside Captain Wilsart.

"Oh no, Fras. The feel of the wind gives you the mind of the land and weather. I mean, those SES ruff ins would take a wind's strength from the gauge on the roof." '

"Seems reasonable to me."

"But Fras, it's quality of wind that ye want. Is it steady wind, or is it blustery? What of direction? Is the direction changing from minute to minute? How cold is it?"

"Well tonight it's damnable cold! I thought your galley engine is independent of winds."

"Why yes, Fras, but the Firefly presents a profile to a headwind, and even a more of a profile to a vectored wind. The gears that you select and the pace of the crew depends on the wind--taken with the gradient of the track and the loading of the train as well. In a galley engine we must be optimal in our selection of the gearing between the pedals and the drive wheels to balance speed and torque while at the same time not wearying the nav vies who push the pedals. As captain, one must become part of the train, Fras, you must feel the wind as the train does. Now Mr. Brunel--"

Zarvora interrupted. "This Brunel engineer, he is pre-Greatwinter, yet you know a great deal about him."

"Aye, Frelle, he died two thousand eighty year ago next September, and those damnable traitors in the Britanical government destroyed the last of the broad gauge track in 1892 of the old calendar."

"Britanica, I have read about that in one of your par aline verse epics." Her eyes narrowed for a moment. "Now, how long ago would that have been?" "Two thousand forty-seven years, Frelle Highliber."

Zarvora sat uptight. "But that is exactly right. Do you know the date that the Call began?"

"2021 of the old calendar, Frelle. One thousand nine hundred eighteen years ago."

"Correct, all correct. Did you get it from my published papers in the 1702 Astronomical Transactions?"

"Nay, just from good bookkeeping and logs, Overmayor. Mr. Brunel specified that good records must be kept. Some of our par aline epics and sagas help too, for when disorderly mayors made wars and burned our archives over the centuries, our epics were used to keep the records alive and preserved. Drop into our Kalgoorlie offices sometimes and you can check any entries and dates in our archives. We also have there the original pre-Greatwinter model diorama of Pangbourne Station in 1885. It's thirty-six feet long, and in four millimeter to the foot. Nearly all our knowledge of the original Great Western track work comes from that model."

Zarvora closed her eyes and lay back. Glasken mixed some of his Naracoorte brandy with some water and held it to her lips. She sipped, coughed, then sipped again. Captain Wilsart went aft to check on the nav vies and Ettenbar had by now fallen asleep.

"Glasken, John Glasken," Zarvora murmured.

"Aye Overmayor?"

She regarded him quizzically in the dim light from the navigation board pin lamps. A long thin scratch across his forehead was beaded with drops of dried blood.

"You stayed with me when you could have turned me over to the mob. As for the explosives wagon disaster last August, well I would be dead without your heroics. What drives you, Fras?"

The question caught Glasken off-guard. He sat hunched over, wringing his hands with the cold in the weak light.

"I'd not stopped to think, Frelle Overmayor. I suppose I've been in the stocks for more felonies than I can think of, but.." well, I may be a bastard, but I'm not a traitor. I mean, you're the Highliber and Overmayor, and the Southern Alliance is my home."

Zarvora lay back against the ash wood and canvas wall of the galley engine to think. She stayed that way for several minutes while the train rolled along the tracks to the rhythmic clatter of wheels on rails and the shanty-cycle chant of the nav vies who provided its power.

"The Ghans seem to know where to hit us to do most damage," she said at last. "Our strength is in infrastructure and they hit us there. Why is that, ken?"

"They've studied us, I suppose."

"No, I think not. They are being led by Lemorel Milderellen."

Glasken sat up at once with a loud gasp. "Frelle Overmayor! She--I mean I--surely you don't think that I'm working with her?"

"Not anymore. An evil, difficult war has broken out, Glasken. I did not foresee it, but I managed to escape to rally my armies. The trouble is that there will be no quick and convincing victories through my innovations and ingenious engines, just a lot of desperate men shooting muskets at each other in fields. Still, what is the alternative?"

Glasken began to reply, then seemed to think better of it. He hunched over again, almost collapsing in the gloom. Zarvora watched him carefully.

"What were you going to say, Fras Glasken?"

He raised his head and looked directly at her. "I lived among the Alspring Ghans, at one of their desert outposts. They're not monsters. Should it matter if they conquer and rule us?"

Glasken expected an outburst, but she was pensive at his proposal.

"I have friends who are Southmoors, Glasken, and I SULOse I could live

under Southmoor rule, yet still I have fought many wars against the Southmoor cities and states. As for the war with Tandara, why they were neighbors."

"Agreed, Frelle."

"There is more to this than just a stupid struggle for power, Glasken.

I

sometimes feel as if I am trapped in a pit and trying to build a ladder to escape,

yet my fellow prisoners keep trying to snatch the wood away to stoke their fires.

It annoys me intensely."

Zarvora said no more, but slowly pulled herself up by the cabin Call railing and stood beside Captain Wilsart, who had returned from his inspection. They stood talking, looking out into the darkness ahead of the galley engine. Glasken rewound his Call anchor's timer, then joined them.

"The Firefly is traveling at its top endurance cruise speed," the captain commented, a strangely dispassionate inflection in his voice.

"Are you worried about the Ghans or their agents tearing up the tracks or laying mines," said Zarvora.

"Were I a Ghan, that I'd be doing."

"But it's not a Ghan leading the Ghans, Fras. Their leader knows the value of track work and captured roiling stock for the transport of her own troops. I'll wager that they cut only the track near Burra or Eudunda, or even mount an attack on the bridge across the river at Morgan. They need transport between towns more than we do, so out here we should be safe."

Glasken moved across to the open side window and stood in silence, reassured yet shivering with more than the chill of the night air. He had told Zarvora only part of the truth. He had really gone to her aid because she was female.

Theresla was right. He liked women in general, not just sex. If it had been, say,

Mayor Jefton, he might have been able to rationalize an excuse to run. He looked across at Zarvora, standing beside Captain Wilsart in the gloom. Zarvora: inhumanly strong, unnaturally light, but still a woman. Now she was being civil to him, she actually seemed to respect him. Glasken had to admit feeling pride and loyalty.

"Pride and loyalty can get you killed," he murmured to himself, but the words were insufficient to stoke his fears.

"One last matter, Fras Glasken," said Zarvora as she returned. She led him down to the now unmanned gunner's chamber. "There are spies within my great system of para lines and beam flash towers, yet I have my own

agents too. Using them, and carrier pigeons, I can get messages through to Kalgoodie. At Morgan

I shall be sending a message back with a lot of coded instructions. You are on intimate terms with an artisan from the Southeast named Jernli Cogsworth."

"Ah yes, a fine--"

"--tall figure of a woman who is probably quite entertaining in bed. I can find no records of Jemli using beam flash transmission, except on your business."

"That's right, she thinks the charge per word is too high."

"All of her communications with her husband in Rochester are by letter, and those letters have all been checked. They carry false reports about the working conditions and cost of living in Kalgoorlie. Meantime she runs your mercantile interests rather well and she has made friends with your other lover Varsellia.

She is living in the mayoral palace itself just now."

"They probably talk about me all the time."

"You flatter yourself. Has she ever asked you about calculator programming, or my rocket-fuel development, or the electro force experiments in the old mine shafts of Kalgoodie?"

"Only in terms of how long I would be away, whether I was in bed with other women, and if I was would it change things between us. Oh, and those metal and coil switches. She once asked if the market for them was liable to trail off in the near future."

"Did she? Was that all? Did she ask you for figures? What did you tell her?" "I had just asked her to be assistant manager of the newly renamed Glasken Enterprises and Imports. I was offering her ten gold royals a month to forget clock making and work for me full time. I was more than fair, and I also offered her--"

--a twenty-percent partnership and seneschal status if your growth index exceeded fifteen percent in the first year. Anything else? Dealings with my staff, edutors, or other associates?"

"She once said that she fancied Ilyire."

"Ahhh, yes."

"What? What do you know?"

"Everything."

Glasken's blush went unseen in the gloom.

"Well as I once said to her, better him than some riffraff churl with the pox. I trust Jemli as I trust no other woman, Frelle Overmayor, in the counting room as well as in bed. She has a strategic outlook and an excellent head for figures."

"She ought to. Her maiden name is Milderellen and her sister is Lemorel." Zarvora shot out a hand and caught Glasken as he reeled and fell from his seat. Some minutes and quite a lot of brandy later he was recovering. Zarvora held his face into the wind stream from the side window. As they sat back she held up a folded square of poor paper

"After I intercepted this I decided that the worst of my suspicions were correct, and that Jemli was a spy for Lemorel, that she was trying to wheedle her way into places where she could do damage at the highest of levels. I drew up and signed the order for her death, Fras Glasken, but your words saved her life. Just as well, I did not want to kill a woman who is five months pregnant."

She took the death notice from her jacket and dipped it down the funnel

of a pin lamp. It burned quickly, flaring up bright in the dark of the cabin. Glasken sat watching, barely comprehending.

"Highliber, your wisdom and mercy--Pregnant? Jemli?" Glasken held up his fingers and began to count. "January, December, November, October, September--oi, then I'm the father!"

Glasken suddenly realized that he was embracing Zarvora. He hastily released her and backed off a step; then she handed the square of poor paper to him.

"It is a beam flash message. It has been chasing you around the beam flash network for some days. I just happened to notice it in the routing buffer while I was in the Peterborough beam flash gallery. Varsellia's pregnant too. It should have a bad effect on Ilyire's sex life."

Glasken unfolded the poor paper fumbling with both haste and confusion, then he dropped his hands and stared at Zarvora. His face was a study in baffled amazement, and he shook his head as if struggling out of a dream.

"I don't understand you, Frelle. You joke about a woman whose death order was in your pocket until just moments ago."

She smiled and touched his arm. "Fras Glasken, I had to turn Jemli into a thing before I could have her killed. Now I need to turn her back into a person. Turning people into things is dangerous, Fras. I thought of the Calculor components as things for many years, then discovered that I loved one of them. That shook my nerve, and I can no longer kill and imprison so easily."

"Lemorel will scream hellfire when she finds out about me and Jemli."
"If she ever conquers Kalgoorlie..."

Glasken raised his hands. "That's enough, I'll fight in your army."

Morgan was on full war alert when they arrived there at 3 A.M. Several suspected Ghan agents and agitators had been lynched from the par aline signal towers, and the bodies swung in the Firefly's slipstream as it rolled into the rail side. Zarvora went to the beam flash tower and established a link to Tarrin at Rochester. Her hope had been to bring the Libris Calculor straight into the war, but the process was slower than she had planned. The Calculor itself had been saved by the siege of its own components, but civil lawsuits had released many components and forced the introduction of several inefficient work practices. On Zarvora's instruction, Tarrin began to restore the vast machine to what it had once been, but that process was disruptive in itself.

Without the Libris Calculor it was difficult to route military trains through the system optimally and new, secure beam flash codes could not be generated fast enough. Resource and stores inventory cards and punched tapes were beyond access, except through the Libris Calculor, yet Tarrin had taken some initiatives of value. The strategic resources and garrisons communications throughout the Southeast Alliance were temporarily transmitted in unsecured beam flash codes to

the War Assembly of Mayors. His reasoning was that it was better to risk disclosure to the enemy than not to use the resources at all. Zarvora agreed, having no choice.

Beamflash reports confirmed what she already suspected. The invaders were isolating the cities and towns while dominating the countryside. Zarvora acted at once to neutralize the Ghan strategy, ordering the destruction of all bridges and parallel links in isolated stretches of track. Beamflash towers were to be defended most strongly of all. Supplies that could not be carried into towns were to be destroyed, and cattle in farms threatened by the Ghans were to be shot or turned loose to be taken by the next Call.

The third experimental rocket was located in the marshaling yards, and Zarvora immediately ordered that a narrow-gauge coach be demolished down to the base frame to take the rocket on to Rochester. Glasken and Ettenbar joined in the work, along with Captain Wilsart of the Firefly.

"Nothing I like better than smashing up narrower-gauge rolling stock," Captain Wilsart laughed as he swung his axe in the lamplight.

"Well mind the base, we want that left usable," called Glasken. He was already supervising a team of carpenters who were rigging a cradle for the cumbersome first stage.

"What's this rocket for anyway?" Captain Wilsart asked.

"If I knew I'd be shot for telling you. Ettenbar, have the men clear that wood from the line. Captain, have the Firefly haul the rocket out of the marshaling yards and bring it alongside this wagon."

Another half hour passed, and the eastern sky began to brighten. Glasken saw the Firefly moving through the yards across sets of points and heard the muffled shanty of the navies as they pushed the pedals. Captain Wilsart was down on the tracks, throwing the switches in person, while he communicated with his driver via signals from his shutter lantern.

The Firefly was turned on the turntable, and finally began to rumble toward them. Glasken saw Captain Wilsart suddenly work the lantern frantically, then drop it and dash along the tracks in the path of the train. As he knelt between the tracks and began striking at something a shot rang out from a nearby carriage, then another. The captain slumped as Glasken aimed for the window where the gun flashes had been and fired at the varnished canvas just below the window shutter. He was rewarded with a thin scream, then he ran for where Captain Wilsart was crawling from the tracks. The Firefly approached, its brakes beginning to squeal and its gears grinding as the driver tried to engage reverse gearing.

Glasken was too late. The Firefly's fore wheel passed over Captain Wilsart,

nearly cutting him in two before the huge machine shuddered to a stop.

Glasken came running up with two of the carpenters as the crew of the galley engine jumped to the ground. The captain was still pinned beneath a wheel.

"Easy with him," said Glasken as they tried to make the man more comfortable. Captain Wilsart was breathing, but there was nothing that anyone could do for him.

"Mine, between tracks," he whispered. "Jammed dagger.." into release..." ' "

Glasken looked between the tracks and noted the dark lump just behind the fore wheels. In the distance the last of the Ghan raiding party was being hunted down by a squad of Zarvora's Tiger Dragons. Glasken swore softly to himself; then, as sunlight began to spill into the marshaling yards, he crawled beneath the engine and examined the mine. Gingerly he peeled the covering cloth back from the spring-loaded trigger transfixed by Captain Wilsart's dagger. The design was Rochestrian. He reached in and unscrewed the detonator, then returned to the bloodied figure of Captain Wilsart. As Zarvora arrived he held up the detonator.

"How is he?" asked Zarvora, although Captain Wilsart's fate was beyond question. Glasken drew a finger across his throat and shrugged.

"Captain, I shall never forget what you did for the Alliance and for me," Zarvora whispered to him.

Captain Wilsart coughed blood, which dribbled down his chin and onto his collar. "Died... for her honor," he said, reaching up and patting the traction wheel that was pinning him to the rail. "Glad it wasn't one o' those damned narrer-gauge engines as done it," he declared with his last breath.

Zarvora sat back, Captain Wilsart's blood on her hands, and soaking the knees of her trousers. "Brunel? Broad-gauge para lines. Now he dies for his engine's honor."

"But you fought for your Calculor's honor," observed Glasken.

"I fought for control of my Calculor, not its honor. This is... incomprehensible! I am surrounded by lunatics, madmen, and fanatical engineers."

"True, Frelle Overmayor, but at least we're loyal to you."

Lemorel had known from the start that the invasion of the Southern Alliance would be an order of magnitude more difficult than all of her previous campaigns, yet her army was larger than ever before and she was striking across desert, across the very country that her enemies had relied upon for a shield. Her spies and agents had also prepared her targets well.

The Woomera Confederation was in her hands within nine days. The city of Woomera itself was besieged, along with a few fortified beam flash towers, but nearly every big town had fallen in the surprise of the first onslaught. Some beam flash towers along the par aline had fallen to her men and bombards, but the price had been high. The towers were equipped with even newer Inglewood bombards than Lemorel's, and they had a greater range. Maralinga was the western most point of her conquests, yet it had fallen to guile instead of assault. A hundred

Ghans posing as coffee merchants had infiltrated the place and had seized it at the command of a coded message on the beam flash network itself.

The broad-gauge par aline was almost undamaged from the Lake to Maralinga, and Lemorel used it to fortify Maralinga against invasion from! Kalgoorlie. The deserts and the Nullarbor Plain combined to channel everything that passed between east and west along the par aline Kalgoorlie was powerless to ship troops or send messages farther east than Fisher.

It did not go all Lemorel's way, however. Even faced with torture and the staff of Great Western Paraline Authority were nothing less than The Ghans were finally reduced to pulling trucks of supplies along the to Maralinga using camels and horses. A scant twenty miles farther west the and galley trains were running along newly repaired track, supplying a barricade that would require the full weight of the Ghan army to breach, providing materials to repair beam flash towers that had been incapacitated out precaution. Out in the deserts, the western Kooree tribes were unhappy about Ghan raiding parties dashing across their land, and were quick to fight back. There could be no Ghan invasion of the western may orates for a long time.

Zarvora had expected that the invaders would attack Morgan and but Lemorel had another surprise for her. Over the following fortnight she directly east across the Barrier Grasslands, sending squads of lancers ahead spread havoc. She met with Southmoor envoys and the Central agreed to remain neutral while the Southmoors and Alspring Ghans fought Southern Alliance. In return for the dry and sprawling Balranald Emirate, Southmoors would be given all the Alliance Mayorates as far west as and Ghan troops and lancers would advance no further than the

River. The Southmoors would strike at the eastern border while the Ghans Mildura, Wentworth, Robinvale, and all the western par aline and

Unfortunately for Lemorel, Zarvora was not above preemptive strikes

In March, and against the advice of her War Assembly of Mayors, she a massive assault across the eastern border, striking deep into Southmoor centers, smashing bridges and physically removing par aline rails on such a that Southmoor transport was reduced to a tenth of normal capacity. She timed the strike with beam flash network reports of un seasonally heavy rains riving from the west. The Southmoor prohibition on beam flash worked against them, and they were unable to coordinate their defenses Ghans. Meantime the Ghan offensive in the west had been brought to shivering halt, as they were unused to fighting in cold, continuous, in lushly vegetated country.

By April, Zarvora had earned some respite and was fighting back in that the Ghans found bewildering. When the Ghans struck deep into enemy ri tory to frighten the cities into siege mode, the Alliance lancers

would strike their supply depots and harass them until they were forced to withdraw. Ghan victories became hard-won, bloody, and transitory, rather than glorious, quick, and decisive. Try as she might, Lemorel could cut neither the beam flash nor par aline links any farther east than Morgan.

For all her successes, Zarvora remained objective. Her ever-rebellious western castellanies had gone over to Lemorel without a fight, and the Southmoors were slowly beating her troops back out of their lands in the east. In mid-April the city of Woomera fell, and Lemorel shocked even her own over hands by burning the stubbornly defiant capital of the Woomera Confederation to a warren of smoking shells without allowing any inhabitants to escape. The end of the siege freed seventy thousand Ghan troops and siege engineers. She decided to bring them to bear against Robinvale, a key beam flash link whose capture would isolate a third of Zarvora's territory.

Meanwhile there were numerous inconclusive strikes and probes for weaknesses. At Dareton a hastily trained line of musketeers faced and broke a charge by five brigades of Ghan lancers. A pin bearing crossed muskets was pressed into Zarvora's wall map to denote the battle, while a scribe added crossed sabers to a map in Lemorel's distant command tent. Within the Libris Calculor, a large vector was added at Dareton for the 105th Calculor Musketeer and it was assigned several parameters of movement.

The sun was setting on the Dareton battlefield, and the sky above was clear with the promise of a chilly night. Beside a burned-out farmhouse in the red mud of Dareton the exhausted captain of the 105th Overmayor's Heavy Infantry leaned against a fence post and drained a mouthful of sour wine from a jug, then dropped it into the ashes. Two plucked chickens dangled from his forage belt, and he was wearing the grubby jacket of a Great Western Paraline conductor and boots looted from a dead Ghan lancer. His corporal-adjunct sat on a nearby wool bale, patiently reloading their muskets.

"Captain Glasken, I still say that it is immoral to loot--"

"For the last time, you rambling Southmoor ricebrain, there's a difference between foraging and looting. This is for the good of the Alliance war effort."

"You stole that conductor's jacket at Morgan. That did not assist the war effort."

"That's different, I don't like conductors and anyway, it's my size. What a nightmare, did you ever see so many lancers trying to kill you?"

"Until Peterborough, Fras Captain, nobody has ever tried to kill me."
"Can't even remember what I said."

"You said "Wait for my whistle ye--," then you called their parentage into question."

"Why not? Mine certainly is."

"Six hundred and twenty dead or gravely wounded, Fras, and us with barely a scratch. We are certainly favored in the eyes of Allah."

"Speak for yourself, look at my neck--and the piece out of my helmet. Cost me sixty-five silver nobles at Loxton. Hullo, there's the trumpet. One long, two short, long, two short. That's... regroup and report to the rail side

Glasken took his musket back and shouldered it as they tramped back across the broken ground to the rally pennant. In the western sky the Mirrorsun band had partly eclipsed the new moon. It was much thinner than before, except for three dishlike thickenings spaced about 40 degrees apart across the sky.

CASUALTY

Theresla was marched through the gates of Macedon in chains, with two aviad musketeers escorting her. Her beating was confident, however, and she even smiling enigmatically. The Mayor met her in the town square, where of the citizens had already been gathered. There was no doubt that this was to be a public humiliation.

"Always such a pleasure to meet with you, Mayor," Theresla declared as she walked up to him. "I came as fast as my chains would allow."

"The Overmayor has closed the school estates where our children are being raised," he declared loudly, as much for the benefit of the crowd as "As her invel-sister you are to be held until our children are free."

"The message that reached me was that the children can return they wish. Only their teachers are being held."

"You know what I mean! Our children cannot return here until they puberty, else they would live as vegetables under a perpetual Call."

None of Theresla's captors were particularly anxious to touch her, so was free to climb onto a low wall where all could see and hear her easily.

"The sea creatures have a complex society," she began. "It is more advanced than ours in many ways, yet it is still driven by politics and There are groupings of like-minded thinkers, power struggles, factions, and duels. At least I think that they are duels. Most of their concepts are beyond Austaric speech and my vocabulary. To them, we are all creatures of the creatures with puny mental powers but mighty tools. They have legends of when humans hunted them and nearly drove them to extinction."

"But we are not human," said the Mayor, climbing onto the wall beside her. "To look, who would know? The Overmayor is fighting a war

against stupid but annoyingly strong forces. The sea creatures do not want to intervene in a war between factions of their old enemies. They wish both sides a quick trip to 'the Chasm'--of hell, I suppose. The avia ds of Macedon could fight for her, however, sabotaging Ghan positions when the Call sweeps over the battlefields."

"There would be deaths," cried the Mayor, raising his arms. "I am opposed to anything that endangers the lineage and the genototem strength that we have cultivated so carefully."

"So you prefer to play spouse-swapping in safety while your allies and benefactors are blown to pieces? You might find that the Ghans are less liberal about the movement of citizens than Overmayor Cybeline. When you find access denied to the school estates you will really squeal."

"We have lived for two thousand years in hiding," retorted the Mayor. "We can do without the school estates, there are other ways."

"But not as good as a null zone over Macedon."

This was the stuff of aviad dreams and fairy tales: a null zone within the Calldeath lands, where children could be raised but that humans could not reach.

The

Mayor stared at her, his mouth hanging open.

"What sort of desperate lie is this?" he sneered.

"I am not desperate, but you are. As I said, the sea creatures are not a unified force, and the Phillip Bay dolphins are more sympathetic to us than the others. I have been negotiating a null zone over Macedon, and they are agreeable to it. There is a price, however, and that is aviad blood. Are you willing to fight for your children?" she demanded of the crowd.

Within an hour Theresla walked free through the gates of Macedon. Behind her the Mayor had already set up a recruiting office in his chambers.

Zarvora pondered the maps and charts that hung on the walls and littered the floors of a Libris hall that had been converted into her command headquarters. Vardel Griss, who was now her Overhand-in-Chief, was pointing to maps of the Great Western Paraline link to Kalgoorlie while Tarrin monitored a punched tape mechanism.

"Our spies tell us that several miles of track have been torn up just west of Maralinga, but nowhere else," said Griss as she gestured with her swagger stick. "If we could coordinate an attack from the west, it would force the Ghans to put some of their strength into a second front, giving us a chance to regroup and advance."

"Not a hope," said Zarvora.

"But Overmayor--"

"Tarrin, explain the problem."

"It's one of strategy," Tarrin began. "The western may orates would depend on the par aline to move their troops across the Nullarbor. The

Ghans are more mobile on their camels and horses, and the par aline is impossible to defend along its entire length. A few hundred Ghans could tie down ten thousand Kalgoorlians by a series of quick strikes on the par aline. The desert would make slow traveling for an army using the road, and that army would be fighting heat, distance, and supply lines under constant attack by raiders appearing out of the desert."

"Our spies also tell us that the Ghans are overextended in the west and fighting the Koorees as well," said Griss.

"It could be a ruse, a feint. The Ghans pretend to be weak, we advance, then we get shredded. We're holding them in the west. We must be satisfied with that."

Griss glared at him, but was unable to fault his reasoning. Feints were indeed a Ghan tactic. She turned back to the map.

"You talk like we have already been defeated, Fras."

"Strategically, we have," replied Tarrin in a flat detached voice. "Lemorel knows our strengths too well, and has hit us precisely where it hurts most. The time is right for a negotiated truce."

"Pah! Tactically we have many advantages," said Griss defiantly.

"Name one."

"The Southmoors will not sanction beam flash communications, so Lemorel's commands move slower than ours. With transport, our par aline grid and galley trains are running far more efficiently than those in enemy hands."

"But their cavalry is far more mobile and versatile,"

"But not invincible," insisted Griss. "They sent five brigades against us at Dareton, but our musketeers broke their charge with discipline and steady shooting."

"And they've learned from that! A Ghan overhand was shot by Lemorel herself for what happened at Dareton. Now the Ghans use mobile brigades whose officers choose their own ground for each battle while the Southmoors fight from well-defended trenches."

"We can move resources faster."

"But our resources are limited."

With the exchange played out, they turned to Zarvora, who was standing before a map of the southeast.

"Griss is right, up to a point," she said slowly. "We can move faster, so we can choose the battlefields. From the par aline at Robinvale we shall strike near Balranald, the weakest Emirate among the Southmoors."

"Weak? What about the hundred and fifty thousand Ghan cavalry that are hitting us along the entire length of our border with Balranald?" asked Griss.

"Ah no, Balranald's political ties with the other Southmoors have always been weak," Zarvora pointed out offhandedly.

"If I were the Emir of Cowra, faced with an unreliable client in the northwest and a strong invader and ally in the same area, I would

probably hand over everything north of the line between Balranald and the Central Confederation's border. We know that the Emir of Balranald has declared the city closed, which is unusual considering that we are nowhere near the place. He fears his Ghan allies."

"Seize the land between the Confederation and Balranald, and the Ghans would be cut off from the Southmoors."

"The Ghans would just invade the Central Confederation," warned Tarrin. "m truce--"

"But the Confederation has a strong beam flash grid, as well as cavalry that's used to plains-country fighting," interjected Griss. "The Ghans do not want multiple fronts."

"Yes, and a lot of Balranald territory is still controlled by its Emir," said Zarvora, tapping at that part of the map with her swagger stick. "If he and his subjects closed ranks against the Ghans, we could hold that strip indefinitely."

"But if we lose that strip, a wedge will be driven right through our heart lands," said Tarrin. "The Ghans will be setting up their bombards on the shores of the Rochester lake moat itself within a week."

Sondian was waiting under guard in the anteroom when Zarvora returned to her study. He stood and came forward as she reached her study door, and after turning the key in the lock she turned her back to the door and faced him.

"The greetings of the day, Fras Sondian. What can I do for you?" "Why nothing, I know you are hard pressed. I came to offer help."

"When I want a church, hospital, or market bombed during a Call you will be the first I contact," replied Zarvora in a light, cold voice. "Now go."

"Some of my Aviad Radicals and their people have suffered terribly under the humans. They seek retribution, but I restrain them as best I can. How can we help in the war?"

"Help? Your Radicals would commit a few atrocities of doubtful military value, then claim half my territory as a reward after the war. My answer was, is, and will always be no. Guards, see him to the gate."

The Mirrorsun band around the Earth had been transformed into a thin cable anchoring three immense concave dishes--pale red disks that shone with dull and metallic light as they traversed the night sky and faded into the blue of day. Zarvora watched the band changing on each night that was clear. She was sure that her first and only successful rocket had been responsible, and she had a good idea of what was soon to happen. Mirrorsun was going to hit back at the Wanderer battle satellites, something that might allow an entirely new technology onto the battlefields of the southeast. Even before the invasion she had freighted electro force devices from Kalgoorlie to Rochester.

With no warning at all, the elements of the Mirrorsun dishes rotated in unison and at precisely programmed angles, each of trillions of facets showing a reflective facet to the sun. One of the orbital fortresses had caused damage to its fabric months earlier, and thus they were all classified as requiring elimination. An area a quarter of the moon's face punched the sun's radiation back in a beam that focused on an orbital fortress that had just cleared a landmass and was over the Pacific Ocean. The fortresses had not been attacked in millennia and their self repairing and maintaining extensions had evolved vulnerabilities. Cooling vanes melted, pipes ruptured, internal circuits fried, and then the fortress detonated in a flash that lit up the Earth beneath it. The heavy shell continued to orbit amid the dispersing cloud of debris. An ancient comsat in geosynchronous orbit was next. A flickering change in direction of trillions of facets sent three searing cones of heat converging. The comsat became ash and vapor.

So far no alarm had gone out. High above the north pole another fortress blazed brightly like a tiny, intense sun in Mirrorsun's beams, then exploded into an expanding sphere of debris and ionized gas surrounding the tough; dead shell. The Mirrorsun facets switched to above the south pole, where another fortress was passing the axis of rotation of the Earth. Its solar collectors melted and disintegrated first; then coolant burst through heat-weakened walls, systems failed, and the internal structure of the fortress blew into space thousands of shining fragments.

By now the two other com sats on the far side of the earth were trying to poll the third. A malfunction was the first conclusion, but when they tried to a dead fortresses their alarms shrieked through space. The AIs of the surviving fortress satellites conferred briefly before the immense mirrors of Mirrorsun focused on the two com sats in turn. Their initial conclusion was an attack from immense laser projector on the Earth's surface.

The fourth fortress was scanning the Earth when it became a bead of liance drawn across the night sky, and its AI fought to turn its weapons on; bearings that were already melting. As it died the fifth fortress' AI was the configuration of the Mirrorsun band and it reached the correct conclusion. EMP pulse slashed across one Mirrorsun dish, but although it left a thin black line in its wake, it did not sever the fabric. The default setting of the units was now LOCK. The mirror focused more slowly, but the beams full on the fifth fortress. Its solar panels degraded and failed and the AI switchedI to battery backup. More pulses tore across the three dishes, leaving a tracery black scars. Huge areas of the mirror dishes went dead and their combined beam weakened.

The sixth orbiter now joined the fight. Not being under attack, it played the full fury of its EMP cannons on the mirrors, analyzing the command Mirrorsun's fabric by the pattern of failures on its surface. The fifth fortress

SOULS IN THE GREAT MACHINE

off the attack, realizing that it was being aided. It began to rotate itself with an internal gyroscope, trying to spread the heat dispersal over more of its surface.

Further out in space the cable that had seemed only an anchor for the three dishes had been far from passive. Like an immense particle accelerator it pumped a cluster of nanotech units up to 400 miles per second and spat them out into space. The sixth fortress was warned by its Doppler radar of the approach of the particles and it spun a cannister to pump a shield of particles to protect its flank. The nanotech units burst and sparkled in the cloud, yet they kept coming in an endless stream. Particle reserves fell to 50 percent, 40 percent, 30 percent. The AI realized that the stream was not self-directing, and it concluded that it could protect itself very simply. A moment later its ion rockets nudged it sideways in its orbit. Mirrorsun deployed a beam of focused sunlight that was a quarter of its former intensity. The fortress furled the arrays and began to rotate. Its AI noted that heat dispersal was tolerable, and that 90 percent of the solar cells had survived.

Far across the face of the Earth the AI of the fifth fortress began to cycle through damage-assessment routines. Its solar arrays were gone, its external sensors fused and blinded; the EMP weapons were jammed and their batteries almost drained. It still had control of its engines, however, and it could use its reserves of fuel to reach the orbit of the band and self-destruct. Its AI was still comparing optimal trajectories when a cloud of nanotech particles slammed into its outer armor, vaporizing themselves as they flayed it open to the backup cloud only milliseconds behind.

The sixth fortress nudged itself back into its original orbit as another cloud of particles hurtled toward it. They continued along their now harmless trajectory-then exploded! Debris intersected its orbit, raking the skin of the last fortress, tearing away armoring and solar arrays, and damaging one ion engine. Another cloud approached, and the orbital fortress pumped more shield particles out as it changed orbits again. The nanotech units exploded, absorbed by the cloud. The AI ran through an analysis: the resources of the Mirrorsun band were nearly infinite, while its own fuel and defenses would not last beyond the hour. It detached its armed engine module and fired it just before another wave of nanotech units pounded into the armored shell, destroying the AI.

Mirrorsun noted the engine module moving to a higher orbit and it directed a new stream of nanotech units to intercept the new trajectory. The module slipped behind the Earth, then climbed to meet the band, slowly and under constant attack. Hours later it passed through the band, flaying it with EMP bursts and particle clouds, tearing at its fabric until it was reduced to orbiting nanotech rags. As the module began the fall from apogee its command chip noted that it would now pass through the top layers of the atmosphere on the descent to perigee. The hail of nanotech units continued, exhausting its

protective particle clouds and smashing its remaining engines. Hours later the toughened cylinder plunged through the atmosphere, skipped back into space briefly, then dropped to earth, pulverizing itself in the Andes.

Slowly Mirrorsun began to reassemble itself. A third of its fabric was but reserves were already being pumped up from the moon's surface.

"Strange lights in the sky," Glasken observed as he lay on his drop cloth, "Something's changed with Mirrorsun, too. It looks tarnished and ragged."

"The Wanderers have halos, Fras Captain, that is another point," said Ettenbar from where he too lay looking upward. "There! Look at Theten."

Glasken snorted. "Well, so what? In a few hours we'll be dead, as likely not. What word of the Southmoors?"

"The Call of this morning scattered them worse than us. Perhaps were set to a longer interval, so we were less affected."

"We'd not have been affected at all without this prohibition on beam flash Call warnings."

"Ah but that is vital to allow the people of Balranald to ally themselves with ourselves, who use beam flash communication." "I've never worked out why Islam prohibits Call warnings." "No, no, Islam prohibits nothing specifically to do with the Call. recognize that the Call is an unknown to be treated with respect until such as it is understood, that is where the prohibition on artificial Call warnings originates. Were the Call discovered to be from a mundane source, why we moors would construct the finest beam flash grid in the world because our mathematics and len sware is the finest--"

"But that's unlikely to be before dawn tomorrow?"

"Regrettably."

Early the next morning they marched to a point where the highway a wide river. Rochester's small, shallow-draft battle galleys had penetrated all way to the customs chain at Haytown, and the only bridge between and the Confederation had been demolished. Ghans lancers had appeared on northern banks and fired at the galleys, but the boats were armored against arms fire and their grapeshot bombards scattered the lancers. Soon the access the border was secure, but heliostat messages told them that an attack was at Ravensworth Junction. Southmoor mounted musketeers had ridden forty through the night, along the back roads from Wanganella. They were now beginning to dig in.

Overhand Gratian of the Alliance forces called a hurried conference of his captains. The officers were grimy and haggard, but still well disciplined as they gathered around him in the drizzle that had ended a brief period of sunlight,

"The only viable bridge between Balranald and Haytown is here at Ravens

pour across to join the Southmoors. They have two dozen medium bombards on the banks and those could sink our battle galleys. We have to take the bridgehead and defend it. Captains Fitzen, Alluwanna, Kearley, Glasken, Ling-zo, and Richards will lead their companies in the attack on specific points in Ravensworth, then strike north to the bridge. Intelligence reports that their trenches are about five hundred yards from the river, so that's to our advantage. If we dig in there we can use bombards against their bridge repair crews." "A question, sir." "Glasken?"

"Won't we be in range of their bombards?"

"As a matter of fact, yes, and our battle calculator at Balranald estimates that no aid will be available to us. Everything the Alliance has in this sector will be thrown into an offensive north from Deniliquin against the Southmoor reinforcements. We here are facing very bad times."

"But if the floodwaters subside the Ghans can rig up a pontoon bridge out of range of our bombards and there's a hundred and fifty thousand of them."

"Correct, Captain Glasken, but nothing's certain in war."

The Alliance attack began about an hour past noon, with bombards pounding the higher buildings of the town to deny the Southmoors an overview. The infantry advanced in open order across scrubby pasture and at Glasken's whistle Jay Company started forward with Dunoonan holding the regimental colors and Ettenbar playing the regimental march on his zuma. Heavy, sustained fire burst from the distant buildings of the town and men began to cry out and drop before they had gone a dozen paces. To the right a line of two dozen knelt, aimed, and fired a ragged volley at the houses before rejoining the march. Another line knelt, fired, and stood, but the respite was transitory. Dunoonan staggered for a moment with the standard, then limped on, and the butt of Glasken's musket shattered along one edge as a ball caught it. Something tugged at Glasken's sleeve and stung his arm. Even as he was wincing, the back of Sergeant Condolonas' head burst with a sharp wet thud from a ball that had entered by his left eye. Glasken was splattered with warm, wet flesh, and his mesmerized determination to continue the lumbering charge was suddenly broken.

"South-Twenty, all to cover, charge!" he shouted, then broke into a run. Moments later they were pinned down behind an earth wall by sporadic but accurate fire from the outlying houses of the town. Glasken lay panting on his back with his eyes tightly shut, aware that blood was trickling down his sleeve, and that it was probably his. He opened his eyes to see Ettenbar beside him, trying to tighten the reed of his battle zurna.

"Damn hell, Ettenbar, couldn't you play something they liked?" panted

Glasken, at last looking down at his own blood-soaked sleeve. "That's 'Campbell's Retreat from the Red Castle'! What the hell do you mean playing a retreat during a charge?"

"With all deference to your rank, Frase Captain, it is 'Campbell's Farewell'--"

"It's 'Campbell's Retreat,' you stupid little Southmoor bastard! It's an old

Scottish trine. I was born in Sundew, I grew up in Sundew, and my people moved there from wherever Scotland was two thousand years ago. I spent the first eighteen years of my life wearing kilts, eating porridge, playing the bagpipes, and.

learning bloody Highland dancing even though two hundred miles of the place. I say it's 'Campbell's Retreat' I"

"Is regiment's tune," insisted Ettenbar sullenly.

Glasken noticed that sixteen dozen pairs of eyes and ears were following the argument with interest. He stared back, his mind full of jagged, jangling sion. I know what they're thinking, he told himself. Every one of them

"If these two loons keep arguing about musicology I might live an extra few minutes."

"Well?" he asked them.

" 'Campbell's Farewell to the Red Castle,' " chorused the men. Glasken flopped on his back again, unable to face them. They had all just faced many more would be dead within seconds of his next order.

"Is not retreat!" muttered Ettenbar, still fiddling with the reed.

"Gah, shaddup! Poll the men."

Of the 250 men who had started across the field, 195 had reached of the earth wall.

"And nine men can go no further due to injured legs, Captain,"

reported.

Glasken thought for a moment, then unfolded his tower scope and the houses. "Maybe two hundred Southmoors," he muttered.

"But Frase, the rate of fire was far above that."

"They probably have three guns each, and doubtless they're elite

There's a whole swag of tricks like that for overextended forces: have to hand, shoot straight, load fast, but.." yes, but I know tricks too. Get nine wounded together, over there, to the left. Give them a dozen spare each from the others. The rest are to drop their muskets and forage packs carry only sabers. They're to scrape the mud from their boots, too." i

"But, Captain, this is unheard of. The men need their packs."

"There's fifty behind us who still have their packs but don't need
Do it."

Glasken gave his officers and sergeants a short and unconventional

"... and when the command to really charge comes, it will be this white
i kerchief pulled from my jacket, waved twice and flung down.

Everyone's for that, then it's straight over the top without a yell. Run like the whirley-clappers for the Southmoor cover. Total silence, understand? The bastards won't expect that, they'll think their eyes are playing them false because their ears hear nothing. We'll be over that ground before they get more than two volleys into us, then it's sabers as has the advantage. Lieutenant Jendrik, if I'm dropped, they're yours."

The group started to break up, and Glasken pretended not to notice for a moment.

"Oi, I've not finished," he called so that all of the musketeers could hear. "Any of you caught fighting over prisoners or loot and it's fifty lashes each. Mark your gear so you can find it without arguing when you come back. There'll be too much to do what with digging in."

Bloody pathetic bravado, Glasken thought to himself. Anyone who's not stupid will see right through it. On the other hand, we must all be pretty damn stupid to be out here in the mud getting shot to pieces, so who knows?

Some minutes later the Southmoors heard Glasken's whistle, and a scatter of shots flashed atop the earth wall to their left. The heads appeared all along the wall and the Southmoors opened fire at once. The heads withdrew, then there was more whistling and cursing. The battle zurna brayed "Campbell's Farewell to the Red Castle" again, but the tune was cut short. "Rebellion," several Southmoors muttered. Again a few Alliance musketeer heads appeared. Another volley, the heads fell back---then more figures silently swarmed over the bank and came running across the field unnaturally fast.

Glasken had guessed well. There were three muskets to each Southmoor. One more hasty volley tore into the Alliance men; then the Southmoor fire became irregular as some tried to reload and others drew their flintlock pistols and delivered a less coordinated volley. There had been no time to dig stake trenches, and Glasken's unencumbered company flashed through the vegetable gardens with unexpected speed and agility, ducking, dodging, and scattering the cowering poultry.

Glasken's reflexes took over as he burst in among the Southmoors with his saber and demi blade whirling, slicing and punch-chopping with a half-decade of Baelsha training behind every movement. Now that the fighting was hand-to-hand, the versatile and battle-hardened men of the 105th had a distinct advantage, even though two dozen more had been sliced from their ranks by Southmoor fire. Jay Company of the 105th took their sector of the town after forty minutes more of bloody, desperate fighting, then went to the assistance of the others. Overhand Gratian was impressed. He assigned hundreds more men to Glasken, then left him to dig in and make sure that the bridge stayed down. Balranald was in need of as many musketeers and officers as Gratian could take there.

Glasken's mind had begun to move in slightly more strategic channels

during the course of the war, and he treated his Southmoor prisoners accordingly. While his officers called for all prisoners to be shot, Glasken ordered them stripped to their trews, then had their right hands struck one hard blow each with an axe handle before turning them loose to return to the Southmoor lines.

"A merciful gift, that of life," said Ettenbar.

"Nothing of the kind. They're weaponless and with broken fingers to boot. They'll tax their own army's support but help them not at all. A pity if any were lutanists or pipers, though."

He noticed that Ettenbar had removed the reed from his battle zurna, and was corking it into a bamboo tube. Glasken broke a twig from the peach tree above him.

"Oi there, Corporal Ettenbar, hold out your hand."

"Yes, Fras Cap--Ach!" he cried as the blow landed and he snatched his hand back.

Zarvora had begun to operate her transmitter even before the fifth and sixth orbital fortresses had been destroyed. She had watched the rapid changes and damage in the Mirrorsun band, then noted that one of the Wanderer satellites was surrounded. by a dispersing cloud of sparkles. She incorrectly concluded that all had been destroyed, but this was soon to be the case. The fortresses were by then too preoccupied with Mirrorsun to bother with her puny signals.

She sat at a bench in a darkened room with an array of batteries powering the coils of her tuned circuit while she tapped at a modified beam flash key. Tarrin stared at a tiny air gap through a lens, frowning in the darkness.

"I don't recognize the pattern that you are sending," he said as the hour chimed out from a distant clock tower "What is this thing meant to do?"

"Flash to you."

Tarrin sighed and squinted at the gap. "I see sparks now." His eyes "UNDERSTOOD AND ACKNOWLEDGED is the message, in standard calibration code."

"Undamaged," sighed Zarvora with relief, standing up and wringing her hands together so hard that her knuckles crackled. "Requisition a galley engine. I must go to Oldenberg with all this machinery."

"But it would fill two trucks or more, Frelle Overmayor."

"I know, it filled three when I had it shipped from Kalgoodie, before invasion. Now move!"

When he had gone Zarvora began to work the key again. As soon as she had noticed the rapid, ominously purposeful changes in the Mirrorsun band, she had sent a message to Denkar through her agents and carrier birds. He was to watch the skies, and if the Wanderers suddenly changed or vanished he was to connect. a spark flash transceiver to an unprotected external antenna and await her signal.

INSTANTANEOUS COMMUNICATION WITHOUT BEAM FLASH she typed. REPLY.
SPEAK TO ME. I LOVE YOU. TELL ME ABOUT KALGOORLIE. After only
seconds the sparks began to crackle faintly beneath the eyepiece of the
receiver.

I LOVE YOU TOO. THE SUN IS SETTING AND THE SKY IS CLEAR.

"It works!" shouted Zarvora, leaping to her feet and waving her fists
above her head. "It works, it works, the war is won, the universe is
changed." She caught herself, then glanced around, thankful that she
had not had an audience, then sat down and tapped a reply.

THE SUN IS HOURS DOWN IN ROCHESTER. SUMMON MAYOR

BOUROS. WE MUST DISCUSS THE WAR. I WANT CONTACT NAMES

FOR THE LOYAL COMPANY OF ELECTRO FORCE STUDIES OF OLDEN BERG

It was midnight before Zarvora was interrupted by Tarrin, who had
organized a galley engine and three trucks for her. Reluctantly she
powered down the spark gap transceiver and supervised its packing.
Down in the system console room of the Libris Calculor she found that
Dolorian was visiting to discuss a problem with beam flash protocols.

"Frelle Dolorian, just the Frelle I need. Rouse a lackey to find the
six others on this list. In two hours you are all to be packed and
ready to leave at the par aline terminus on the military platform."

"I--Military, Frelle Overmayor?"

"You have just joined my army, Lieutenant Dolorian. You rank ninth
in

Libris Gallery Lists, so you must know one end of a gun from the
other." "Yes, but, but--"

"You have the key beam flash codes and Calculor protocols memorized.
Because of your former association with Lemorel Milderellen you have
also been so thoroughly scrutinized by the Black Runners that your
security rating is within a point or two of mine. I shall explain the
rest on the train."

Parsimar Wolen was dragged from his bed by the Oldenberg Constable's
Runners, who had broken down the door. With his wife screaming that he
was seventy three innocent, and suffering from arthritis he was bundled
into a pony gig wearing only his nightshirt. At the assembly hall of
Oldenberg University, Parsimar saw that the other eight members of the
Oldenberg Loyal Company of Electroforce Studies were also there,
huddling together in their nightshirts.

"Jarel, what's happened?" he asked as they stood shivering together.

"Don't rightly know, Fras Parsimar. Boteken thinks that electro force
studies has been declared a heresy, an' that we're to be burned at the
stake."

"Heresy's only punishable by exile, and besides, burnin' at the stake
was struck off the books in 1640."

"We'll all be shot, then. I told you we should have stayed a secret

society."

It was very cold in the hall, and Parsimar was shivering. "Ah, Sergeant?" he quavered.

"Yes, Fras?"

"Might--might I have a blanket, please?" "Certainly, Fras, and slippers too?" "What? Ah, yes, thank you."

"The coffee and bread rolls will not be long. Seems we cau refectory by surprise."

The runner marched off smartly, leaving the two elderly guilds men after him.

"He were civil to us," said Jarel incredulously.

"Doesn't sound like we're felons," Parsimar concluded. "Looky there! the Overmayor herself."

Zarvora had the hall cleared of the runners. Soon only the nine remained, and she gathered them around her. :

"These are the plans for a spark flash radio transceiver, and out in the marshaling yards three par aline wagons are standing by with a model. I want you to build seven more transceivers, each small enough to fit into four horse-drawn military wagons. I want them working, and their trained, within a fortnight."

The guilds men gave a collective gasp.

"But, Frelle Overmayor, the blight of the Wanderers--" began Parsimar. "I have destroyed the Wanderers." For a moment they were speechless.

"Three cheers for the Overmayor," shouted Parsimar in a thin, reedy voice. When the last of the wheezing cheers had died away, Jarel raised his "The cost will be great, Frelle Overmayor. No less than five hundred royals."

"You can have five hundred thousand gold royals, you have unlimited sources, Fras, understand? Unlimited. The Rochester Home Guard has city, the artisans of the par aline workshops, the Guild of Watchmakers and Timers, and the University workshops and laboratories are being roused at very minute. Two hundred artisans, mechanics, engineers, and lackeys their way from Libris in Rochester to assist you. Who is Fras Parsimar your Guildmaster?"

"Delighted to meet you," she said, shaking his hand. "You are reporting directly to me. If anyone deliberately obstructs you, have them shot; Anyone! The City Constable, the City Librarian, the City

Parsimar was dizzy with what was flooding past him. Listening to the Overmayor was like trying to drink from a waterfall.

"But, Frelle Overmayor, I'm seventy-three--"

"Happy birthday. These drawings are an overview of the spark flash and I want to spend the morning reassembling the unit from Libris here, in this hall, to familiarize you with the design."

"I need my pills and tonics," Boteken interjected.

"The University's Faculty of Medicians will suspend all teaching and research work to tend your health. Nothing is as important as having those seven transceivers completed in two weeks. Ah, here is Lieutenant Dolorian. She is in charge of training."

Dolorian was carrying a sheaf of files under each arm. She was wearing a borrowed jacket, which she had unsuccessfully tried to button over her breasts. The effect was quite arresting. Parsimar goggled, then hastily tilted the lenses of his bifocals.

Zarvora left to finish the mobilization of Oldenberg behind the project. Dolorian continued the briefing from notes that Zarvora had dictated on the train.

"The six Wanderers were ancient military machines," Dolorian began, her hips swaying slightly as if to the beat of an inaudible tune. It had begun as a nervous mannerism when she had delivered her first public speech, but she soon realized that it was guaranteed to secure the undivided attention of every man in the audience. "Their purpose was to detect and destroy electro force devices of the enemy." '

"So the Wanderers were weapons that operated for two thousand years, Frelle?"

"Amazingly, yes. Just before the Ghan invasion, the Overmayor brought the Wanderers into conflict with whatever controls the Mirrorsun band. Less than a day ago there was a second battle in the sky and Mirrorsun was the victor. We can now use electro force machines in war, and the present war is going badly for us. Sparkflash radio wagons will give us instant communications, and they can move with our armies."

On the other side of the world, Brother Alex of the Monastery of the Holy Wisdom near Denver was listening to the thunderstorms in the mountains to the west. More precisely, he was listening to radio emissions from lightning far beyond the horizon. Using a rectifier made from a crystal of galena he had built an unpowered tuned circuit a decade earlier and was developing a system to predict storms' movement without the need for sail wing patrols by wardens.

Today the storms were very distant, he could hear only the faintest of lightning bursts. Faint but regular. Very regular. His hands rose to press the coil muffs hard against his ears. This was no thunderstorm, he realized.

"Electroforce signaling," he whispered. "Dear God in Heaven, an electro force machine!"

In all of Mounthaven's wardenates there was not another working on tuned circuits, while those in the Callhavens to the south could not even build aircraft. That meant somewhere farther away. Perhaps from the legendary continents of Asiaire or Australica. But surely the moving Sentinel stars would burn any electro force device Brother Alex suddenly recalled the strange events in the sky of some days past when Mirrorsun assumed strange, portentous shapes and the Sentinels moved through the skies surrounded by the most exquisite haloed clouds of sparkle. Everyone had assumed it to be some message of great astrological import, but now Brother Alex had his doubts. Suppose it had not been a glorious cosmic fiesta. Suppose it had been a war. Suppose the Sentinels had been vanquished.

For the next two hours the monk copied down the faint, coded transmissions from beyond the oceans, then reluctantly decided that he needed to spend time with the ancient textbooks in the library. As he walked through the cloisters clutching his sheaf of papers, a flock of gun wings from the nearby wing field droned through the clear spring sky in formation, their compression engines straining as they gained height.

"The universe has changed on this day in May, Anno Domini 3939," Brother Alex said to the wardens high above in their tiny fighting machines.

The seven transceivers took nearly a month to be made operational, but Zarvora knew that she had to accept the delay. The stalemate in the east was starting to work against her now, as the Southmoors had adapted better to trench warfare. Winter mist interfered with beam flash links, while the thick cloud often hindered the use of heliostats on the battlefield. Finally the Black Runners brought an unconfirmed report that the Ghans and Southmoors were to merge several divisions for a thrust from Deniliquin down to the Calldeath lands. Rochester was to be split in two.

Five of the seven spark flash transceivers were deployed in the west, northwest and northeast. One was even smuggled across Southmoor Territory into the Central Confederation. Troops freed from defending the beam flash towers were moved by par aline to Robinvale, where they were assembled into a new army. Dolorian was assigned to this force, with the seventh spark flash squad. The objective was to fortify a strip of land that Alliance forces had captured, a strip that reached all the way to the Central Confederation's border.

It never happened, for a horde of Ghan lancers and mounted musketeers appeared, seemingly from nowhere. Zarvora later estimated that some of the Ghan units had been brought from seven hundred miles away in no more than a week. The exhausted but well coordinated Ghans prevailed over the unprepared Alliance musketeers in a battle halfway between Robinvale and Balranaid, yet Overhand Gratian somehow gathered the

remains of his divisions into an orderly retreat. At Balranald they crossed the flooded river and destroyed the bridges.

"The Ghans were warned," Zarvora announced at the new Sparkflash Command Center in Oldenberg. "Someone who knew about the par aline movements deduced that troops were to be concentrated at Robinvale."

"That spy could be one of thousands," Vardel Griss replied. "The par aline system is vast."

"In three months it will be more secure. We shall have a spark flash unit on every galley train and in every fort, but until then we have to use the beam flash system, and that system is not secure. The codes were good, yet they were broken and used against us."

"Another calculator, Frelle?"

"Even the Kalgoorlie machine would take two years to break our new codes. No, we were betrayed, as were the fifteen thousand dead musketeers at the Battle of Robinvale. Damn. Still no report of Dolorian and Sparkflash Seven."

Griss looked at the wall map, and its seven green pins. The pin marked with a 7 was just north of Balranald. Zarvora returned to where the spark flash operator sat.

"She may not be captured, and if she is moving she cannot transmit. The spark flash gear takes five hours to set up and tune."

"Let us hope so--uh! That's odd."

Zarvora began to copy out characters from a spark flash signal. Griss looked over her shoulder, shaking her head.

"Very, very faint," said Griss. "I've never seen anything like it."

"It's familiar, I saw something similar in the fragments of texts in Kalgoorlie. It could be an ancient system of letters and numerals known as Morse Code, which depicts them in two types of strokes, short and long."

Zarvora reached for a book of tables. "It spells DENVER YANG-KI over and over."

"That's not any place I know. It--it could be from beyond the Calldeath lands."

"So it would seem, Frelle Griss. Ours may not be the only civilization." "Yang-Ki. It sounds like a name from old China. Will you reply?"

"What can I say? Thanks awfully for calling, but we are very busy so please go away."

"Something simpler, Frelle Overliber. It never hurts to be friendly. Give them a pre-Greatwinter place name, something big. What is the name of that huge abandon to the south of here?"

"Melbourne. Well, why not?"

Zarvora tapped: OVER MAYOR ZARVORA. MELBOURNE. HEARING
DENVER YANG-KI.

The ensuing exchange was less than productive, for American and Australian English had drifted apart during two thousand years of isolation. Zarvora keyed END OF TRANSMISSION several times, and presently the transmitter on the other side of the world signed off too.

"WE something FOR PEACE was their last message," said Zarvora. "They won't find it here, there's a war going on," said Griss.

Away to the north Dolorian and Major Haman, who was commanding the Sparkflash 7 unit, were hauling rafts carrying the spark flash wagons across the Murrumbidgee River in the driving rain while Alliance bombards on the south bank raked the attacking Ghans with grapeshot. The river was in flood and still rising and muddy water swirled about the wheels of the last of the wagons as it was hauled up the bank to safety.

"Are you all right, Lieutenant?" the driver of the transceiver wagon called down to the mud-encrusted figure who was pushing against the transverse beam.

"Only just," panted Dolorian, who was soaked, her long hair partly free of its bindings and plastered to her face by muddy water. "Hairpins at the bottom of the river. Nearly went with them. We're safe now, though."

"Not so, Frelle Lieutenant," called a runner who was waiting. "New Southmoor advance, word just came by dispatch rider. It's going to be all running battles. The Major wants to know your needs. He's at the pennant pole."

"Six silver hairpins and a Cargelligo or bile comb, dry clothes, hot chocolate, and a month's leave--oh, and a rich and handsome suitor who can play the lutina."

"Can't help, Frelle," panted the runner, who looked to be all of a weedy and pockmarked eighteen. "He wants to know what you need to get Sparkflash Seven working."

"Five hours in secure territory."

"There's a fortified trench square guarding what's left of the bridge pillars at Ravensworth."

"Ravensworth? That's liable to be the place of the next major attack as the Southmoors and Ghans try to link up. Better to destroy the wagons here, before they're captured. Riding hard we could reach to Central Confederation in a day, at most."

"At Ravensworth they're dug in securely and they have bombards, Frelle Lieutenant. Their captain fought at Dareton when they broke that cavalry charge. Glasken, that's his name. John Glasken. They say he's a good 'un to be under. Brave, a great leader, and seen action."

Dolorian sagged against the muddied wheel of the wagon. Unconsciously she flicked open the top button of her wet, filthy jacket, then walked two fingers slowly along a spoke as the rain pelted down on her. Bugles sounded assembly in the distance.

"More action than you'd ever suspect, Fras Corporal," she said huskily, then pushed away from the wheel and tramped through the red mud toward the pennant pole.

Captain John Glasken of the 105th Overmayor's Heavy Infantry was in his command tent when the wagons of Sparkflash 7 and their escort arrived at Ravensworth. Major Haman supervised the selection of a site for the wagons, then set off for the command tent. He noted that there was no guard, then entered. There was a piercing scream and he backed out again.

About a minute later Glasken emerged, buttoning his shirt and carrying his saber and scabbard under his arm. As he approached, a woman darted from the tent behind him with a coat over her head and vanished behind a pile of logs in the direction of the orderlies' area.

"I was, ah, taken with a fever," Glasken explained. "A nurse was tending me." "A nurse wi' par aline conductor's coat over her head?" asked Major Haman.

Glasken watched the unpacking of the radio wagons with perplexity as the Major briefed him on the requirements of Sparkflash 7.

"There are two mast wagons, a power wagon, and the transceiver wagon," he explained as Glasken struggled to understand what the thing was. "The mast wagons must be fifty yards apart, and they extends collapsible masts to a height of fifteen yards. Between them is strung a double wire called an antenna, after the ancient Anglaic word 'antenna.'" "

"But they're the same word," said Glasken.

"Fras Captain, manual says antenna is named after 'antenna,' so antenna is what I says. I 'ad two days of training from Overmayor herself---"

"Agreed, agreed. What's it to do?"

"It replaces beam flash towers, that's what. You can call all the way to Roch ester direct for orders."

"But the towers are far too short to be useful. A man on top of one of them might as well be up a tree."

"They're not workin' on light flashes, Fras Captain. They pick waves out of the air itself by that wire."

"Waves? Like on a river or lake?" "Aye, that's right. Now--" "But where's the water?"

"See here, are you ignorant or something'? Once the waves are picked up the operator sees the message at the spark gap. The little flashes of light are like beam flash transmissions--"

"But you just said it's waves and wires, and now it's back to light flashes and beam flash codes."

"Fras Captain, this is a major scientific advance."

"Well I have a scientific degree!"

After a further ten minutes of argument and exposition the two officers parted on less than amicable terms. For the next hour Glasken stripped and cleaned his rifle and pistols while he watched the masts being erected and braced with guy ropes. The double wire between the mast-top insulators was almost too fine to see. The cover of the power wagon was removed to reveal ten sets of pedals from a galley train mechanism, with the gearing connected to a barrel-shaped thing with wires trailing off to the transceiver wagon.

More hours passed, and the rain began again. After a tour of inspection Glasken returned to watch Sparkflash 7 working. There was an odd buzzing sound and the same smell of ozone that followed thunderstorms. Presently his curiosity got the better of him. He made his way over to the transceiver wagon, which was dark inside and filled with a buzzing, crackling sound. A Dragon Librarian sat in one corner; Glasken could see the blue arm band of rank above her military stripes. Her head was obscured by a baffle but her breasts were not. They were alluringly large. He cleared his throat.

"Captain John Glasken of the 105th reporting," he declared. The woman beckoned him in without looking away from the spark gap.

"You are just in time, Captain," she said in a husky voice. "I am in contact with the transmitter at Oldenberg, with the Overmayor herself."

Glasken slid onto the bench beside her and peered past her head into the spark-gap box, where a violet light was flickering on and off. The space was confined and he draped his arm over the operator's shoulder to see past her head. The sparks had a familiar pattern about them.

"I say, that's beam flash protocol, with standard code," he exclaimed with surprise. "CALIBRATION TEST 5 COMPLETING."

"Good work, Captain, I see you are an experienced operator," his companion purred approvingly.

Glasken realized that although his hand was resting on her left breast, his face had not been slapped. He gave an affectionate, experimental squeeze.

"Just as I can tell distant operators by their keystrokes, I can recognize you by your touch, Johnny Glasken."

"Frelle, I have never worked your switches before, enchanting thought though it be."

"Ah but you have, Fras Johnny," she said as she turned away from the spark gap.

"Dolorian!" cried Glasken, and he turned to stumble and crash his way out of the wagon at once. "Guards! Guards! Guards! An Alspring spy. Guards! Damn you, here! Quickly."

The Major arrived to find Dolorian standing beside the wagon with her hands in the air and ringed by a dozen of Glasken's infantry. Glasken watched from

SOULS IN THE GREAT MACHINE

a distance, calling for them to be careful and to shoot to kill if she moved. "What in hell goes on?" demanded Major Haman.

"Alspring spy," said Glasken, waving in Dolorian's direction with his saber. "A personal friend of Lemorel, their maniac leader."

"She's also the most experienced spark flash operator besides Overmayor herself," the Major shouted back.

"All the worse! A spy at the heart of our command."

"I have the Overmayor's security clearance," began Dolorian.

"That she does, Fras Captain."

"But she knows Lemorel. Lemorel taught her to shoot, they went shopping together, they were friends, and well, who knows what else?"

Dolorian raised her eyes to the sky for a moment. By now there was an audience of several dozen muddy musketeers gathered around them. "Well I never slept with her, Captain Glasken, which is more than you can say!" she said in a soft, clear voice.

"You slept with the Alspring Horde's supreme commander?" asked the incredulous Major.

"Ah, well, just a student dalliance," stammered Glasken. "And only once."

"From July 1697 to September 1699," Dolorian corrected him, "when she discovered that you had been cheating."

"You cheated on the enemy's supreme commander?" exclaimed the Major, scarcely believing what he had just heard.

"Three cheers fer Captain Glasken!" called an onlooker, and the musketeers cheered loudly.

Since taking Ravensworth, Glasken's force had demolished the bridge across the river right down to the stone foundations, then dug in at the edge of their own bombards' range. The bombards were finely made, the latest Inglewood type that shot calibrated lead balls with great accuracy, and thus outreached the enemy bombards across the river. The Alspring engineers tried to float their own bombards across on rafts, but the turbulent floodwaters and Alliance bombardment frustrated them. They gave up after the fifth bombard was lost.

All the while the Southmoors had been pouring cavalry along the roads from Wanganella, and in spite of sabotage and cavalry raids across the border it was only a matter of time before the gun carriages arrived. With Balranald in Alliance control and Haytown supposedly neutral, the importance of the Ravensworth bridge grew by the hour. One hundred thousand Alspring lancers and their support forces were building up on the north side of the bridge. Major Haman ordered the eight female nurses of the 105th to be escorted north, to the neutral Confederation's border and internment for the rest of the war. The medician remained. Dolorian worked the spark flash radio constantly,

sending estimates of enemy strength to Oldenberg and getting new intelligence through from the transmitters at Balranald and Robinvale, as well as the secret transmitter that had been smuggled into the Alliance embassy at Griffith. Using the Confederation's beam flash system, spies at Haytown alerted the embassy when a senior delegation of Alspring leaders arrived from the west. In particular, it was noted that the pennants of the Ghans' supreme commander were flying over the governor's mansion.

"Lemorel's there to demand access to the Haytown bridges," Glasken concluded when a runner brought him the message.

Haman was doubtful. "Why should she bother talking? She has a division besieging Balranald, and Haytown is not nearly as well fortified. Two days at a forced march and she could have Haytown in her purse."

"Good tactics, bad strategy," replied Glasken. "To crush Haytown would get her the Central Confederation as an enemy. The Confederation has a lot more strength in its lancer divisions than the Alliance, and they're a match for the Ghans in dry land fighting. It also has a long border near the Alspring supply lines. No, she'll bluster and threaten, then offer them some compromise they couldn't refuse."

Major Haman looked at the map on the folding table between them, then read through the radio transmissions again.

"Over the river there are a hundred thousand Alspring Ghans, who are particularly anxious to rebuild that bridge. On this side there are eleven thousand Southmoors on the roads from the south, and already there's a buildup of five thousand surrounding us. We have nine hundred men and three pathetic bombardards."

"Those brass-alloy bombardards are the finest that my taxes can buy," said Glasken indignantly.

"But there's still only three of them--what's that?"

A rattle of small arms fire broke the peace.

"An attack!" said Glasken, seizing his musket and lance point helmet.

The Southmoors had been expected to attack from the Ravensworth side of the Alliance trenches, and to pound the place with artillery first. Instead they had sent nearly the whole force of dismounted cavalry crawling through the open fields to the west and east until they were in a position to attack the Alliance bombard emplacements from two sides. The thin wedge of trenches held at first, then began to take breaches under the weight of suicidal attacks. In a half hour of fighting the bombardards were cut off, and the Alliance troops retreated to a second line of trenches while their trapped comrades fought on in isolation.

Dolorian had been following the developments from the shelter of the power wagon when a runner found her. He indicated a ragged rally pennant.

"That's the forward command post," he panted. "You are to report there."

Dolorian crawled miserably through the cold, red mud, trying to stay as low as possible and for once in her life wishing that her breasts were a little smaller. Ettenbar called to her from a foxhole, and she made her way across to him while shots flew waspishly overhead. He had been promoted to sergeant by now.

"All gone, Frelle Lieutenant," he cried. "Captain and Major, trapped with the bombards."

"Out there? They're cut off?"

"Lieutenant, you are the communications officer, the senior officer left here." He gave her as crisp a salute as he could manage. "Pleased to give orders, Frelle Lieutenant?"

"Me? But my commission is administrative."

"Orders, Frelle? Please? We are desperate. We want a leader with orders."

Dolorian raised her head to survey the field of struggling men, gun flashes, drifting smoke and mud-encrusted corpses.

"And I want a pile of cushions, my high-heeled boots, filtered coffee, and caramel cream chocolates."

"Regrettably, Frelle, those things are not in supply here."

"I want to die in bed, and of old age, preferably with company--"

A shot kicked up the mud between them, and they crouched down again.

"Ah, death, Frelle. Now I can accept that in your place. You give the order, I lead the attack."

Dolorian could feel tears welling from her eyes and mixing with the mud on her cheeks. There was a heavy blast in the distance as a spiked bombard exploded. "Fras Major and Captain are destroying the bombards, Lieutenant." "Sergeant Ettenbar, if the Southmoors break through, the incendiary bombs in the spark flash wagons must be ignited. Meantime, I want an attack to relieve the bombard crews."

Ettenbar smiled as he drew a double-barreled flintlock.

"Your orders, my duty, Lieutenant. Might I suggest that a nurse's jacket and headband are in the captain's tent. Southmoors are chivalrous, a nurse would be treated with honor--"

Dolorian reached out and snatched the gun from him. "You'd look silly as a nurse, Sergeant." "No, no, Frelle, I mean--"

"I lead the charge, you stand by to bum the spark flash wagons."

The third bombard had just been spiked when another onslaught of Southmoors fell on the doomed position, but the Alliance men were well armed and the Southmoors could not coordinate their superior numbers. They were lancers, trained to fight from horses. Major Haman lit the fuse to the bombard's touchhole, then made a flying leap for the corner

beside Glasken. The barrel jammed with 396

SEAN Mc MULLEN

wadding exploded. The shattering blast left their ears ringing, and the Southmoor attack faltered. The line of white cavalry uniforms smeared with red mud and began to fall back.

"That's all bombards, we have nothing they want," shouted Haman above the ringing in Glasken's ears.

"They'll have the bridge up in ten hours, now that we can't blast it any more," Glasken replied.

"Let 'em. We'll not last an hour, but main square could hold out for a couple more days. The Ghans don't know about spark flash wagons. I'm guessing pass us by, leaving a small force of bombards to pound us. Lieutenant Dolorian can call their numbers out to Overmayor for all time that's left." "Listen!" barked Glasken. "A Southmoor battle zuma." "Just tryin' to rally their men."

"No!" exclaimed Glasken. "It's "Campbell's Farewell to the Red Caste,"

the 105th this march. That's Ettenbar!"

"They're attacking to relieve us! Fools! The Southmoors will hit their wedge from both sides."

"Major, we should break out and meet them. Major?"

Glasken glanced around, but saw only bodies encrusted with red mud. One of them was probably the Major. A stray shot no doubt, he thought. Back in command of the encampment he blew his whistle in the code of the RALLY--CHARGE--AT MY SIGNAL. The men gathered as the rescue began to march over from the distant trenches.

"We're to link up with 'em, then retreat to the main square. Ready..." Glasken blew his whistle and they began to scramble out of their trenches and stumble south over the broken ground and corpses. The Major was not however; he was away piling barrels together in the powder well, a smoking matchlock fuse between his teeth. At Glasken's final whistle he smashed the top of a barrel in with the butt of a musket, took the fuse from his teeth, and plunged his dagger into a calico bag of granulated gunpowder.

"Good man, Johnny, now here's a sen doff to hasten ye," he said as he held the fuse above the black granules.

To Glasken the blast was the earth lifting beneath his feet and a brief sensation of flying. It was a strangely serene feeling.

Dolofian was picking herself out of the mud in Ettenbar's foxhole when explosion of the powder dump enveloped her like a thunderclap. Blood was streaming from a cut above her hairline where Ettenbar had clouted her with his heavy brass powder horn, and it was running into her eyes and mouth. She wiped her face, then pulled on her lance point helmet. Ettenbar had taken her saber, so she drew the Blantov 32 flintlock from her belt, slipped and stumbled over the muddy lip of the foxhole, and ran crouching into the battlefield.

Smoke and sulphur fumes were billowing out from the explosion and dirt was still raining down from the sky. Groups of men were straggling and hacking at each other all around her, and there were no organized volleys of fire. Off to her left she could see a Southmoor pennant at which an officer was rallying his men, waving his saber and blowing a tambalA hundred yards, she estimated. Still feeling dizzy, she dropped to her knees, cocked the striker of the Blantov, then flopped forward into red mud that was cold, and acrid with human blood. Raising herself on her elbows she took aim, gripping the gun with both hands.

"Must not aim high, must try to hit something," she whispered to herself. As Lemorel had taught her seven years earlier in Libris, she squeezed the trigger gently.

The Southmoor officer toppled, shot through the neck. His men hesitated, then broke and scattered. Dolofian forced herself to stand, her head pounding, then stumbled dizzily through the mud and bodies to where her victim had fallen. She was alone. What to do, what--her whistle! It also marked her as an officer. She blew the three quick blasts for RALLY, and almost at once shapes began gathering around her in the dispersing smoke: bleeding, limping, battered musketeer infantry with broken saber blades and muskets with splintered butts. "Lieutenant Dolofian!" exclaimed a short bearded man. "Status, what status?" she cried, not knowing what to do next.

The men shambled in closer, their weapons hanging limp, their eyes huge and round through masks of red mud. She noticed two bands on the sleeve of the bearded man. They were not listening to her or responding, she thought in despair.

"Corporal, what status?" she shouted, almost sobbing.

He pointed between her feet and she looked down to see that she was standing astride the body of the Southmoor officer that she had killed.

"Frelle Lieutenant, that Southmoor--"

"Well so bloody what?" she cried in exasperation. "I shot him. He's the enemy, isn't he?"

"Frelle Lieutenant, he's an Overhand. You just broke their attack."

The Southmoors were in too much disarray to mount another attack that day, so the Alliance troops had the battlefield to themselves. The medic ian found Glasken in a row of Alliance wounded behind their trenches. He was semiconscious and crying for black ale with no head and a proper chill. He revived when medicinal rye whisky was poured between his lips, and although he had no deep wounds, he had bad lacerations all down his left side.

"Ettenbar, where is he?" Glasken spluttered. "Damn-fool ordering that attack. I'll have his balls for--"

"Best hurry then, Fras Captain," said the medic ian "Sergeant Ettenbar is dying."

Glasken was helped to somewhere midfield, where Ettenbar had fallen. His battle zuma was beside him in the mud. The medic ian said that he had been shot high in the chest, and that his lungs were filling with blood.

"You bloody dummart!" sobbed Glasken, beating the mud beside Ettenbar with his fists. "I told you not to attack, I told you to defend the spark flash wagons."

"The Frelle Lieutenant..."

"Dolorian? Dolorian ordered the attack?"

"Her order.." she tried to lead, but... I hit her. I led."

"You what?" cried Glasken. He carefully raised Ettenbar's head to help clear the blood.

"Can't... have lady endangered, Fras... bad form. Besides... she couldn't--" Ettenbar began coughing, and blood streamed from his mouth and nostrils. Just like the captain of the Great Western galley engine, Glasken realized. The words of the sergeant who had put him through basic training eight years earlier returned to him: once they bleed from the mouth, don't bother.

"She... couldn't play the zurna."

Glasken covered his face with his free hand. "In the Deity's name, Etten bar!" was all that he could think to say.

Ettenbar coughed again, but more weakly. Glasken looked down to see that he was smiling, and his face was no longer contorted with pain.

"Fras Johnny, may Allah..." Ettenbar began, but he could not manage another breath. Glasken lowered his friend's head to the mud, then sat back on his haunches.

"I know, I know, old friend. Put in a good word for me in the afterlife, whether it is Allah, God, the Deity or whoever. I'll need it when I get there, and that's liable to be soon."

With the Alliance bombards destroyed, the Alspring engineers resumed work on rebuilding the bridge. By evening they had the under structure and beams in place on the stone foundations. Dolorian reported to Oldenberg that the enemy was working through the night, laying planks by lantern light.

There was talk of a ghost, a shadowy Southmoor who carded wounded off the battlefield. Glasken gave the story no credit.

"Think what you will, Fras Captain," said Sergeant Gyrom, "but you were one of those he rescued."

Glasken's eyes widened. "All this death about us, I'm surprised there's not more ghosts. Ach, now Lieutenant Dolorian's coming over. Why do I keep bumping into her?"

"Wish she'd bump into me," he said, nudging Glasken's ann. "Should I leave?"

"Yes. No! Yes... I suppose. Check if the medic ian wants for anything, then catch sleep."

Dolorian and Glasken paced slowly around the spark flash wagon. Mirrorsun was glowing luridly bright through the dispersing clouds. Its configuration was like three large, bright eyes.

"Fras Captain, I only want to apologize," she insisted. "Apology accepted, now leave me alone." "I don't have to grovel, Fras Captain." "Well don't."

"I could have my pick of any man in your 105th!" she snapped, stamping her foot in the mud.

"Sergeant Gyrom!" shouted Glasken. The sergeant hurried out of the medicians' tent and made his way to them through the Mirrorsun-tinted gloom. "Fras Captain?" he said as he stopped and saluted.

"Sergeant, arrange for the Lieutenant to have her pick of any man in the 105th."

Dolorian's temper flared, and she delivered such a slap to Glasken's face that she broke a fingernail and left a short, deep gash in his left cheek.

"Sergeant, leave us!" shouted Dolorian as Glasken reached into his pocket and pulled out some circles of wadding paper to hold against the cut. "Fras Captain?" asked Gyrom. "Dismissed," grunted Glasken.

Gyrom saluted smartly, turned on his heel, and left, decidedly glad to be away from them.

"Both of us should feel ashamed," said Dolorian quietly when the sergeant had gone.

Glasken grunted, but did not disagree.

"Fras, why are you so cold to me?" she suddenly burst out.

"You showed that you are cruel enough to dangle me on a string, then to let the string go."

"So? You made passionate vows to any number of women, all the while courting others."

"So they did not know about each other. That was all done in affection." "That was all lies, too. Over the past six years I've met fourteen girls who were at University with you. Your line was that you had been celibate for two years past before meeting each of them. Were you really at Rochester University for twenty-eight years? You would have had to have entered the university at four years old."

"Very funny."

"Perhaps... we could take up where we left off?" she ventured.

"Oh ho, and to raise me to the level of MULTIPLIER 37, FUNCTION 12,

FUNCTION 780, ADDER 1048, FUNCTION 9, PORT 97, MULTIPLIER

2114--and who was that short one with the bald head who liked to use pine scented bath salts? MULTIPLIER--no, FUNCTION 1680, he served in the original battle calculator with me so he must have been a FUNCTION. Then there was that Confederation ADDER, what was his number now? 3016 or 1630?"

Dolorian stamped her foot with anger, but she had been standing in a puddle, and splashed them both. It reminded Glasken of Jemli as she fare welled him on Kalgoorlie's par aline terminus.

"You know their numbers better than I do," Dolorian said sharply.

"I had to watch as you sauntered past with them to the solitary-confinement cells. I had to listen while many of them boasted about it later. I had to shrug and shake my head when they asked what I thought of you. I had to look away to my book of conversion protocol codes when they winked and made droopy signs with their fingers."

"Fras, I'm--"

"Let me finish!" exclaimed Glasken, throwing his hands into the air. "I know that you were doing it to rub humiliation in my face, and for no better reason than to please Lemorel. For all of my dalliances, Frelle Lieutenant, I never once ever deliberately humiliated or hurt any Frelle that I bedded. You ought to know that, you quizzed a few about me. Your face actually frightens me, the form of your breasts makes me feel ill. In my long years of celibacy in a nightmare monastery I had to do no more than whisper your name to send my lusts yelping away in terror."

Dolorian was unused to having to do the courting, and even less familiar with apology: being caught out was entirely beyond her experience. She hung her head, and the tear that ran down her nose and dripped from its tip was for genuine sorrow.

"Your point is made, Fras Captain. I have always loved life, but now I feel I want to die. Good night."

When she did not turn away, Glasken did so instead. Glasken's arms hung loose and limp, blood ran from the cut below his eye like a stream of dark tears.

Glasken visited the medic ian to have two stitches put in his cheek, then returned to the command tent. Sergeant Gyrom entered sometime later, carrying a sheaf of poor paper Glasken looked up from the papers on his pin lamp-lit table.

"I told you to catch sleep."

"NC briefs from Rochester, Fras Captain."

"Leave 'em with me."

"If ye don't mind me sayin', Fras Captain--"

"I probably will."

"A ravagin' beauty is that Frelle Dolorian."

"The word is 'ravishing," Sergeant."

"I think she likes you, Captain. Tomorrow may be the end o' ye, and--"

"That's true of every battle, Sergeant. The death rate is highest for captains ' "

"What I mean is that the Frelle Lieutenant... well, she's in the spark flash wagon and is cryin' a lot, and I'm sure it's over your cross words."

Glasken stared up at him for a moment, his chin cupped in his hands, then he reached for his pack and pulled out a jar.

"Share this among the men, and have a swig yourself. It may not make their last night on Earth as delightful as Frelle Dolorian undoubtedly could, but it's the best I can do for a few of you. Now leave me alone."

Around 3 A.M. the Alspring mortar-bombards were in place, and they began to fire ranging shots into the Alliance square. Glasken woke from an exhausted sleep to the sound of the first mortar shell exploding, and he made his way to the power wagon, where a team was standing ready to pedal. Dolorian was already with them, the white bandage around her head seeming to hover in the blackness as it gleamed in Mirrorsun's light.

"The final attack?" she asked.

"No, but if they have the bridge repaired well enough to take the weight of a siege mortar then they must be pouring their lancers across too."

"How long do we have?"

"Oh, they'll keep us awake like this, then bring up the Southmoor heavy infantry. They'll do what the dismounted lancers could not and we'll be a minor entry in the history books by noon."

"Perhaps a Call will come?" Dolodan suggested hopefully.

"The Alspringers use mobile heliostat towers, they'll have warning to anchor down. Use the spark flash tell the Overmayor about the bridge being repaired. When the square begins to break tomorrow run to the medic ian I left a nurse's coat and headband with him for you."

"Thank you, Fras Captain, but I'm sure the buttons would never fasten across my chest. Besides, I'm meant to be a soldier so I should act like one."

Glasken sighed. "The offer's there, Lieutenant. Now go your post." Dolorian did not turn away, but put a hand out to Glasken's arm. In the light of Mirrorsun, he could see that her face was clean, and that she was wearing her lipstick, ochre face powder, and ebony eye shadow below the bandage on her forehead. Without doubt, it was for him.

"Thank you for caring, Fras Captain," she said gently. Glasken's shoulders slumped.

"Very sentimental of me, Frelle Lieutenant," he said with his eyes downcast. Without another word she slipped a hand behind his head and

drew him closer. Their shadows blended into one for a moment as they embraced and kissed. A chorus of hoots and whistles broke from the watching pedal crew on the power wagon; then they saw Glasken striding toward them as the distinctive form of Dolorian made for the spark flash wagon. There was a discreet snickering above the distant thump of mortar-bombards being test-fired by the enemy. Glasken put his hands on his hips.

"Now there's only one thing I want to say to ye buggers before you get pedaling and that's--Mortar! Jump for it!"

The explosive shell scored a direct hit on the wagon, flaying the crew with shards of iron and wood splinters. Dolorian picked herself out of the cold mud, her ears ringing. She scanned the roil of smoke, descending fragments, and running men by the light of Mirrorsun, after-images of the flash dancing before her eyes. Voices were calling for the medic ian

"Captain Glasken!" she screamed. "Johnny."

There was no reply, not even a groan. She climbed into the spark flash wagon, and in the darkness pulled a heavy switch across to BATTERY mode. After clenching her hands to steady them and taking several deep breaths, she began to key out her message.

RAVENS WORTH OUTPOST OF 105TH TO ROCHESTER. RAVENS WORTH OUTPOST OF

105TH TO ROCHESTER. POWER WAGON DESTROYED BATTERY MODE ONLY. NO POWER FOR RECEIVER.

MESSAGE TO FOLLOW. AL SPRING ENEMY HAS REPAIRED BRIDGE.

SURVIVING ALLIANCE FORCE IN 200 YARD SQUARE AROUND TRANS

MITTER. ESTIMATE 150,000 ENEMY WITHIN 7 MILE RADIUS OF

TRANSMITTER. 300 ALLIANCE SURVIVORS. AL SPRING AND SOUTH MOOR FORCES

CLOSING IN.

She checked the battery dial in the dim light of her pin lamp. It was nearly down to the red band. Another mortar shell exploded nearby, shaking the wagon.

BATTERIES FAILING. BOMBARDMENT INTENSIFYING. ESTIMATE

ONE MORTAR SHELL IN FOUR IS NEW EXPLOSIVE TYPE. REPORT BY

LIEUTENANT DOLORIAN JELVERIA, SPARK FLASH 7, FIRST ALLIANCE

SPARK FLASH CORPS.

She hesitated a moment, then took a deep breath and added SENIOR SURVIVING OFFICER. END OF TRANSMISSION.

As Dolorian stepped from the wagon she suddenly remembered that there were two fully charged batteries in each of the mast wagons. If what remained of the encampment square held until daylight, she could make another transmission. The Overmayor would at least know what forces

were crossing the bridge, and have a last estimate of enemy strength. The batteries had only to be unclamped and carried to the spark flash wagon. She blew her whistle amid the dim forms of scurrying musketeers.

"I want four strong men here, at the double!" she shouted in a hoarse voice.

SOULS IN THE GREAT MACHINE

"Should we form a queue?" Glasken called from somewhere in the confusion.

Dolorian slid to the mud beside the spark flash wagon, giggling uncontrollably. Presently Glasken came over and sat beside her.

"I nearly choked. Keep your mouth open in case an explosive one comes down, that's what they told me: saves your eardrums. Well the bugger didn't mention the risk of swallowing a pint of mud and horse turds, did he?"

Glasken had a deep but short shrapnel wound in the lower leg. Medician Torumasen cleaned and sewed the gash, and in spite of Dolorian's protests he managed to walk a few experimental steps with a staff and bar crutch.

"I thought you were dead," she admitted as she supported him. "I--I reported it to Oldenberg. I said I was in command."

"No matter, Frelle. Leave it a few hours and both of those may become true."

She helped him to the command tent and he lay with his head in her lap while she stroked his hair and teased out the gritty knots.

"Now what manner of woman could capture your heart, Fras? I would guess one who is very pretty, but not so much as to catch the eye of too many men, one who is bright enough to appreciate your very real talents but not so bright as to overshadow you. Well off for funding, and.." you would probably expect a virgin as well."

"As a matter of fact I did lose my heart," replied Glasken dreamily. "She was pretty, intelligent, ambitious, poor, and someone else's wife." "Fras, my word! I was unfair. Who was she?" "Jemli Cogsworth. Milderellen is her maiden name."

It was some moments before Dolorian recovered her breath and composure. "Is--" "Yes."

"Enough! Too much! Far too much!" Dolorian exclaimed with her hands over her ears. "Change the subject, anything."

"Ah... I'm told you are a fine shot," ventured Glasken.

"Oh, I practiced my pistol work for years in Libris. It got me through promotions and re gradings and helped keep me out of duels."

"How so?"

"I've had five challenges to legal duels, but each time I hit the target more squarely than my challengers. That denied them the right to the duel."

"How many were over the poaching of other Frelles' men?"

"All," admitted Dolorian. "Lemorel's sister," she marveled with her next breath.

Glasken raised himself on one arm, then pressed his forehead against hers in the universal gesture of relaxed affection.

"I'm proud of you, Frelle Dolorian, and I think you lovely. Hardest of all to say, but I forgive you too. Does that help?"

Dolorian put her arms around him and kissed the remains of his left ear. "Darling Fras, sweet man," she whispered. "You no longer wish to die?" "Not unless it's for you."

An hour passed, during which the bombardment slowed to a shell every ten minutes. Dolorian was dozing when a flickering blue light blazed up outside the tent. It was followed by a deep hum mingled with a vast crackling in the air. She came back to her senses with a start.

"Callshewt! My batteries!" she shouted, seizing Glasken's rain cape and darting outside. At the spark flash wagon, two technicians were standing staring at the horizon. "It's a short-circuit, you're draining the power!" she called. "Cut the cables, use your saber."

"We haven't even got the insulator caps off, Frelle Lieutenant," one of them called back.

"You--" There was a distant rumbling explosion, followed by another, and another. "Then what was that noise.. and that smell in the air, like thunderstorms?"

"The sky lit up like lightning, Frelle. Aye, it may be a storm, you can hear the thunder." The man did not sound convinced by his own words.

Dolorian looked to the horizon, which was glowing red. "By the Call, are they the Alspring campfires?"

"Can't say as I've noticed, Frelle Lieutenant. Been busy with the clamps,

was glued down by some loon back in Oldenberg."

"They's cover fires," speculated a deeper voice behind the wagon. "The blue flash were probably a signal flare, a signal for 'em to all start fires to for smokescreen before dawn. Mark my words, Frelle Lieutenant, they's told of us as havin' this manner of spark flash Those fires are to blind us from reportin' their numbers before they flay us te pie meat come dawn."

Dolorian looked to the horizon again, not fully convinced by the

Beneath Glasken's rain cape she was shivering, and her feet were bare in the cold mud. I'll note it down for when we can transmit again," she decided. "Carry on."

"Ah, Lieutenant?"

"Yes?"

"We... we just wanted to say what a great shot that was you did." "What he means is, Lieutenant, is that we're with you." "You an' the Captain, too."

When Glasken awoke the sun was just above the horizon, but glowed pale and cold through a pall of smoke. The mortar-bombards had ceased to

fire during the night and there was not even sniper fire. Dolorian briefed him on what had happened while he slept. Glasken sniffed the air.

"Charred meat," he said in a flat voice, as if he was in a dream.

"They must be burning their dead," replied Dolorian.

"No, no... Strange, silent stillness. Not normal, not real. Perhaps we're dead. Was there an attack? Were we killed?"

His questions surprised Dolorian. She put a hand to her face and said, "Your only death was the little death." She kissed the wound on his cheek that she had made the night before.

"They should have attacked at dawn, when the sun from the eastern horizon was in our eyes. Is the spark flash wagon working?"

"Several coils and joints melted last night, probably because some terminal was connected awry in the dark. My crew should have it live in a quarter hour."

Glasken stood up with the aid of his crutch and looked out of the tent into the swirling smoke.

"There's nothing alive beyond the trenches," he said. "No noises, no shouts,

no jingles of gear and harnesses. How long has it been like this?"

"Hours. Since long before dawn."

"Your command, Lieutenant," he said as he began to limp toward the trenches facing the bridge. "I'll not be long."

"Johnny, get down!" she shouted, running in front of him and trying to push him back.

For all his wounds, Glasken resisted. "There's no alarm, Frelle Lieutenant," he said dreamily. "They're all dead. Your command, mind the square." He limped on.

"All dead?" she said aloud, then beckoned to Sergeant Gyrom. "Go after him, drag him to the ground at the first shot!" she hissed. "We'll stand ready with covering fire."

"Frelle!" said the sergeant with a crisp salute, then he went after Glasken in a crouching ran.

They made their way past the dogleg in the trench line, then out into the no man land of the previous day's fighting. They reached charred scrubland. Many of the trees were still burning, and the blackened grass was brittle underfoot. Glasken passed several corpses, charred and smelling obscenely succulent. Dark trenches gashed the red earth, and the reek of roasted flesh was even more sweet and pervasive.

"Captain, Fras Captain, come back!" Gyrom whispered, tugging at his ann. "This is an evil, devil place. The Ghans have sent daemons against us."

Glasken shook him off and tried to lift a heavy, charred plank that was lying at his feet. The effort made him reel, and he could feel his stitches tearing.

"Sergeant, help me lay this across the trench," he said softly, as if fearful to break the stillness.

Beyond the trench they walked down the road in utter stillness and silence. Nothing moved, nothing made a sound. Men, animals, insects and birds, all were dead. Smoke drifted and swirled like cream stirred into coffee. They reached the bridge. The railings had been burned away, but the boards had been covered with wet sand and gravel as a precaution against fire bombs. Down on the river a galley wrecked in fighting days earlier was burning where it had been grounded.

Bodies floated on the water. Glasken walked out onto the bridge.

"Fras Captain, the bridge isn't safe," called Gyrom.

"Walk in the middle, as I do," replied Glasken, neither stopping nor turning. "But the Ghans' camp is just beyond the bridge." "That's where I'm going."

Not far from the bridge was a vast field where the Ghan camp had been made. Glasken looked across the field but did not walk any further.

"Captain, they are all gone."

"Not so, Fras Sergeant, tents burn easily. They are still here."

Gyrom stared more closely at the nearest mound, then took a few steps toward it. He scrambled back. "You're right, Captain Glasken, these are all bodies. Thousands of men, with their horses and camels. Look over there, that great hole: thunderbolts from the sky."

"No, that was an ammunition dump exploding in the heat that did all this.

Some ancient weapon, perhaps. A glass that concentrates the sun so as to bum..."

"But this happened at night."

"Then I don't know what to say. Whatever has been turned loose here has made no distinction between Ghan and Alliance warriors, except for a circle a couple of hundred yards in radius.." centered somewhere near our spark flash wagon." He scratched at his stub bled jaw. "Sparkflash seven was at the very center."

Glasken gestured to Gyrom to return. The sergeant hurried after him and they crossed the bridge again.

"Have the men bring a barrow of gunpowder here," Glasken said as they stepped back onto the south bank. "Tell them to place the barrels low in the supporting framework, make sure that the walkway cannot be as easily rebuilt as last time."

Later that morning the explosion that shattered the bridge echoed out across the blackened land. A cloud of smoke and debris rose into the air, then silence returned.

"Annihilated!" the sergeant was crying over and over again as the cart returned to the circle. "It's the Overmayor. How did she do it?"

The forty riders that made their way through the charred landscape were evenly divided between Ghan, Southmoor, Confederation, and Alliance representatives.

A truce pennant fluttered above them on the lance of one of the Confederation officers. They rode uneasily at a brisk trot, surveying the desolation and fearful that it might come again. It was with considerable relief that they reached the untouched Alliance square at Ravensworth.

In a sense Lemorel had the advantage at Ravensworth, because she still had fifty thousand lancers just outside of Haytown. It would have taken but a word from her for the Alspring forces to break the treaty and pour through Haytown unopposed, crossing the river. In another sense time was running out. The renewed rain and unending mud and cold were draining the morale of her men, and now the circle of char seemed to be a warning that the Alliance was favored by the Deity. The truce delegation was a way to check just what was happening near Ravensworth. If the Alliance forces had some advanced weapon, then it was all over. If the catastrophe was something else, the drive to cut the Alliance in two would go ahead.

"Just as I suspected, no mighty weapon," she said to Overhand Baragania as they approached the Alliance encampment. "This was some natural disaster. Haytown will offer no resistance if my lancers cross their bridges without attacking the town. The Central Confederation will demand reparations, but their Overmayor wants to stay out of the war if possible."

Baragania was wide-eyed and ashen-faced. He rode hunched over, as if he expected to be shot at without warning. "Commander, this horror could well have been an act of wrath by the Deity. How can you be so sure of yourself?"

"It's obvious what has happened. The blocking of our way at the Ravensworth bridge meant that a huge buildup of metal weapons and cooking fires took place in a very small area. Why do you think that steam engines and the like are proscribed by all major religions, and why is industry now spread thin over the countryside? Metal, heat, and smoke. If they become too concentrated in a small area.. well look around you. When my army was compressed into this tiny area, it became like an industrial town in the ancient civilization. Old Anglaic writings talk of industry causing 'greenhouse warming.' Now we can see what that mysterious term 'greenhouse warming' really means."

Baragania looked about him. Her explanation was plausible, but the sheer magnitude of the forces that had been unleashed was still terrifying.

"Why were the Alliance forces spared?" he asked.

"I say they were not. This was but a pocket of a much larger Alliance unit, the rest of which was destroyed. As for this little area, well, why will nine of a city's spires be struck by lightning in a thunderstorm while a tenth is untouched? Pure chance."

"You will have to convince a lot more followers than me, Commander. The men are cold, homesick, and frightened. The war has gone from a triumphal promenade to a slow, bloody, hard-fought nightmare. Of late

there has been talk of the Deity sending all that rain to blight us as a sign of displeasure. Now... this."

"I explained it to you!" snapped Lemorel, growing impatient.

"I am an educated man, Commander. I can trace out the mathematics of planetary motion and explain the optics of a telescope. Thus I can accept what you say, but there are no more than a few hundred like me in all of your remaining army."

"Then the educated elite will have to convince the others."

"This is just my concern, Commander. The elite, as you call them, have the strongest sense of honor and chivalry. Violate the truce at Haytown or behave dishonorably in any otherwise, and you may find that the nails that hold your army together are pulling loose."

"I am a ruthless hammer, Overhand."

"You are a leader, even if your title be Commander. If none follow, you cannot lead."

"That's enough! You're treading a dangerous border."

"Commander, if you do not hear this from me, nobody else will tell you. Meantime the fears and mutterings will still be there. I shall say this once more because I really am dedicated to your service: behave with honor and do not lose the respect of your officers. We are on the balance, and the needle is finely poised."

"If you want to see honor dragged in the mud, just observe the Alliance captain in this encampment ahead. My spies have warned me that it is John Glasken, the very incarnation of dishonor."

"This officer cannot be the man you have spoken about. By all accounts he's a brave and popular leader whose men would follow him to hell and back."

Lemorel cut her riding whip across his arms with a sudden swoosh. Baragania flinched at the stinging blow.

"That's enough," she said between clenched teeth.

The incident was not lost on John Glasken, who was watching their approach with a heliostat telescope. The veiled one in blue, he thought to himself. Only their Supreme Commander would whip an Overhand: it just has to be Lemorel. If he could insult her sufficiently, she might just take offense and challenge him to a duel. She was said to be fond of personally executing senior officers who failed her and killing those who challenged her in duels.

"Let's hope that I live up to your small-arms training, Abbot Haleforth," Glasken whispered as he lowered the telescope.

Dolorian met him back at the command tent. "I made another transmission to Oldenberg," she reported. "They know about the charring now." "Lemorel's with that delegation, and disguised," he

explained hastily with a flourish of his telescope. "When I meet them I'll drop a few choice Glaskenisms, try to goad her into challenging me to a duel."

"Duel with Lemorel?" Dolorian cried in alarm. "Even if you were Frelle Zarvora I'd advise you to think again, Johnny. And how can you pace out a duel while walking with a crutch?"

"I can manage--but yes, the crutch would be a good prop to give her false confidence. After she bites at the bait I'll drop the crutch, have my leg bound with splints and walk flat footed. If I die, you're in charge. Make for the Confederation. They're neutral, and there's said to be no chocolate shortage."

"Good fortune, sweet Fras, and shoot straight."

"Good fortune, sweet Frelle, and do nothing that I would not be proud of."

Glasken chose to meet the truce party beside the spark flash wagon. The Confederation officer bearing the truce pennant rode up and saluted him. The other thirty nine representatives gathered in a wide semicircle.

"Are you in charge here?" he asked Glasken in Austaric after noting the standards and pennons flying over the camp.

"Captain John Glasken, I'm the most senior officer left alive," replied Glas ken, supporting himself with a staff and bar crutch. "What are you doing here?" "We heard an explosion two hours ago. We made for the cloud of smoke." Glasken leaned more heavily on his crutch. I'll put it another way. What are you Confederation neutrals doing out here with those Ghans and Southmoors,

and why won't those Alliance officers speak with me?"

"We are here only to observe."

Glasken bit his tongue, barely intercepting an obscene and sarcastic reply. "Is all that out there enough fact for you?" he snarled.

"We rode through it for seven miles. They're all dead, tens of thousands. How did you do it?"

"Me? With three hundred infantry, a medic ian and six signalers?"

"Thousands died last night, Captain, roasted instantly. You must have a weapon."

"Balls. We were preparing to be overwhelmed. I want to speak with the Alliance officers in your party."

"No. That would violate the terms of the truce sealed under that pennant," he said with a gesture upward. "There can be no exchanging of tactical information that could benefit either side."

Glasken made a desultory flourish in the direction of the command tent. "All right then, so how can I help you? A formal coffee? Dancing girls? A troupe of Alspring eunuchs to draw you a hot bath and lay out a change of under cottons

"Fras, I understand what a strain has been upon you--"

"Then get to the point."

The Confederation officer glanced about, puzzled and disappointed that there was no ancient super weapon to be seen in the scruffy but defiant little outpost.

He turned his attention back to Glasken.

"Last night the Ghan commanders summoned us to demand the use of the Haytown bridges. We were in their camp when the sky to the south was filled with a blue, flickering glow. A vast humming followed, then fires began below the horizon. It lasted only a few heartbeats. The Ghans sent scouts out, and they said everything was burning within seven miles of the bridge near Ravensworth. It seems now that a small circle at the center of that circle is the site of your camp."

Glasken felt himself go hollow inside, but tried not to show it. "It was not us."

"The Alspring Ghan delegation cites evidence that the Overmayor Zarvora was bringing ancient weapons to life."

"The Overmayor's experiments are pure science." He turned and pointed at the Ghans. "You Ghans, you attacked her testing ground at Woomera and killed her engineers and scholars. Can you swear by the Deity that you found anything there like this vast expanse of charring?"

The Ghans remained silent behind their veils.

"If this is the work of the Deity, however, then we were spared while the Ghans and Southmoors were annihilated," Glasken concluded.

An uneasy tone entered the pennant bearer's voice. "Why should the Deity favor you? What special righteousness and virtue does the Alliance have?"

"Look for evil, not righteousness," cried Glasken, turning back to the Confederation's pennant bearer. "Look to the Alspring leader who brought this calamitous war upon us. An Alliance renegade and outlaw, who wins her victories by stealth and betrayal. It is her the Deity is displeased with."

"Fine words from the man who ravished our Commander when she was a girl," Baragania interjected, tiding forward from his group.

Glasken rounded on him sharply. "I have never ravished anyone. My charm alone has always been sufficient, and my charm seduced Lemorel--But why look to my own sorry encounter with her? In our countless nights together her sister, Jemli Milderellen, told me--"

Lemorel's shot silenced Glasken. An instant later five dozen muskets were trained on the truce delegation, yet several of the Ghans had their own flintlocks trained on Lemorel as well. She extended her arm outward, then dropped her Morelac to the ground, one barrel still unspent. Glasken lay in the mud, shot side on high in the chest. The dark splotches of blood across his left bicep and chest mingled with the red mud that already smeared him.

"Medician!" someone called from the Alspring musketeers.

"Don't bother, I never miss," snapped Lemorel, tearing her veil away and sliding from her horse, but her face was pale and fearful. She had killed to cover her own lies, and now she had to conjure a very convincing reason. Dolorian noted her former friend's expression with grim interest, then walked forward to stand protectively astride Glasken's body.

"He abandoned me to the desert," Lemorel shouted in an Alspring dialect to Baragania. "He defiled me, then he defiled my sister!"

"You shot our commanding officer under the cover of a truce!" Dolorian screamed in Austaric.

"Austaric, all speak in Austaric!" demanded the Confederation's pennant bearer.

"As Captain Glasken's second-in-command I demand satisfaction," cried Dolorian. She shrugged off her jacket and stood before them in a blouse stained with river water from several days past. "Name your seconds and have them search me for hidden armor," she said with her hands on her hips and her breasts thrust out.

Lemorel raised her eyebrows, but did not smile. "You should know better than to challenge your teacher. This is a joke." "Afraid of me?" asked Dolorian. "Commander accepts!" shouted Baragania.

Lemorel whirled around in fury and glared at him. He stared back steadily. "Do you need a second, Commander?" he asked calmly.

"What good is a dead man as a second?" she replied. "I'll fight alone."

She tore off her outer robe, then strode across to Dolorian who held her arms out as she approached.

"Impressive breasts, Frelle Dolorian," said Lemorel as she checked for hidden armor. She stood back and held her own arms up for Dolorian.

"Medician, check her for armor," said Dolorian, folding her arms beneath her breasts as well as she could. Lemorel's face contorted at the slight, and something like a muffled squeal escaped her.

Because a Confederation truce had been violated, the pennant bearer was declared overseer by acclaim. He named four observers.

"As the challenged party, choose the weapons," he said to Lemorel. "Amnessons. Your officers have them as standard issue."

"Nice choice," Dolorian replied, rolling her hips for the benefit of the onlookers. "Long barrel, lightweight, and a friction trap for the recoil."

Lemorel sneered to hear her own lessons of seven years earlier quoted. Two guns were selected and brought over. Lemorel snatched one weapon and slashed the air with it, feeling the weight and balance. "Your target, Frelle Challenged," urged Dolodan.

Gyrom had found a sheet of poor paper and some colored pins in the command tent. The Confederation officers watched carefully as he pinned the paper in place, with a wide, black shield pin at the

center.

Lemorel hefted the gun again, then walked to the target and paced back. Without warning she whirled and fired, and a hole appeared beside the black pin. She was giving Dolorian the chance to better it if she could.

Dolorian pouted. She went down on one knee, supporting her left elbow with it as her hand steadied the long, functional barrel. Slowly she squeezed the trigger. The blast echoed into the silent, charred landscape. The shot smashed the pin.

"That was stupid of you, Frelle," snapped Lemorel, who had never before been beaten at the target. "You bettered my shot so you have the right to fight me, but do you think that I'll give you a chance to kneel down and aim like that?"

"No, Frelle, but I'll still try."

"You never learn, do you? Never discuss tactics with your enemy." They stood back to back. Reloaded pistols were returned to them. "Call your distance, Lieutenant Dolorian," the overseer said clearly.

"One hundred and fifty," said Dolorian, and there was a faint hiss of breath from Lemorel.

It was a very, very long call. The count began, and took quite some time. "... one hundred forty-nine, one hundred fifty!"

As Lemorel whirled she judged the distance, noted that Dolorian was beginning to kneel, then fired--just as her opponent suddenly bobbed up straight. Her shot took Dolorian low in the rib cage, a little to the left--but below the heart, where Lemorel had been aiming. The image of Dolorian falling was hazy through the gunsmoke as Lemorel lowered her arm. She shook her head, then turned to the overseer for a verdict.. just as the clearing smoke revealed Dolorian lying flat, and bracing her elbows in the red mud as she took aim. Her shot hit Lemorel side-on, in the right of her chest. The ball passed through her heart. She toppled to the red mud, her face a death mask of surprise.

The overseer looked to the observers, who inspected the two women. Lemorel was dead. Dolorian was still alive, and thus declared the winner. Medician Torumasen tore the fabric away from an ugly wound below Dolorian's left breast.

"Not good with pain," she whimpered through clenched teeth, tears flowing across her mud-stained cheeks. "But... got her!"

"I've checked the Captain," said Torumasen as he pressed cotton wadding soaked in eucalyptus oil against the wound. "He's alive. The shot passed through his arm, smashed the shaft of his crutch and deflected, then broke a rib and tore a furrow through his skin. He's in shock and unconscious, but he'll live. Lie still, your bleeding is very bad."

"Tell him.." feared reaching forty. Worse ways to go."

"Don't talk. Relax and you will bleed less."

Dolorian looked into his eyes. "Fras Medician, you can.." rip my blouse.." anytime."

"Not unless you're alive," he replied, feeling his heart wrench. "Don't drop your pack. There's everything for you to live for."

She pouted at Torumasen, then closed her eyes as he brushed his lips against hers. Moments later she was dead. As Torumasen pumped at her heart and breathed into her lips, the attention returned to the delegation.

"I appear to be in command," Sergeant Gyrom said to Overhand Baragania. "Are you through with spying on our defenses under the cover of truce, or should I line my men up for inspection?"

"We go," Baragania said, folding his arms and looking sadly down at Lemorel's body. "War with honor I understand. Not this. What happened here is... evil, obscene thing."

"Follow a devil, and such like will befall you."

"Devil has good disguises."

"You should have looked for the forked tail."

"Is hard to see when her hand be on your shoulder." The Overhand gestured across to Lemorel's body. "You bury our Commander?"

"Why not? I've become good at it, thanks to her."

One of Dolorian's crew transmitted the news back to Oldenberg. Within two days the fighting had stopped everywhere and the opposing armies were pulling back to truce lines. Lemorel was buffed on the battlefield, with all the other dead. Dolorian's body vanished.

The Southmoors ceded a buffer province to the Southeast Alliance that reached to the Central Confederation, while the Balranald Emirate declared itself independent of the other Southmoor nations. Other matters were not settled so easily. The Ghans who were holding the Woomera Confederation's cities refused to give them up. After annexing all independent castellanies as far as Peterborough, Zarvora's forces laid siege to the town, then sent three brigades north to Hawker and took that town in a surprise attack.

Tarrin sat in Zarvora's Libris study, listening in amazement while she finally explained the workings of her radio system to him, and how she had used it as a parallel and secure command network in the closing weeks of the war. There was also the matter of what had happened at Ravensworth.

"It was linked to the spark flash of that I am sure," she said. "The Mirrorsun band was involved. I think that it was an intense, hollow cone of heat, probably what it used to destroy the Wanderer stars."

"You mean it attacked the spark flash yet spared the very center, where the wagons were positioned?" "Believe me, Tarrin, I have given it a

great deal of thought. My feeling is that it could be a matter of aiming. Aim at a target using a drop-compensator sight, and the bead of the sight will cover the target itself."

"But why cover what you are shooting at?"

"The Wanderers were big, they may have been more than two hundred yards across. A direct hit would be a kill, even if the center was spared." She waved her hands in circles, then let them fall. "That theory will have to do for now."

Tarrin was less than convinced. "But the spark flash transmitters have been used since the Night of Fire."

"Yes..." Zarvora frowned at her mechanical orrery as she assembled a few of her speculations into the bones of a theory. "Perhaps there was some code used that made the Mirrorsun identify Sparkflash Seven as one of the Wanderers. That code triggered the response.." and it could happen again. I have set the Calculor analyzing Dolorian's last transmissions for clues, and when the fighting to free Woomera is done I may conduct experiments in the desert using cleared areas and a single transmitter. Until then, I have had all spark flash wagons returned to Oldenberg, where they are to be kept under guard."

"Until the end of the war?"

"That will be soon. My overhand at Peterborough predicts capitulation within three days. I shall go there to preside over the treason trials. Peterborough will be the interim capital of the Woomera Confederation until the city of Woomera is set free."

"But Lemorel had the Mayor of Woomera killed when the city fell, Frelle Highliber."

"His heir was studying at Rochester University at the time. Guard my spark flash wagons well while I am away, Fras Tarrin. If fools or traitors get hold of them it could be truly horrendous."

Glasken spent three weeks in a hospitalry near the slave markets at Balranald. His left arm was heavily bandaged, but his leg was soon well enough healed to carry his weight. On the day that he was due to be discharged and return to the 105th he was visited by Vellum Drusas of the Libris Inspectorate.

"Fras Glasken, the great hero of Ravensworth," boomed the inspector in a mellow and cheery voice. "Are you recovered enough to be honored?"

Glasken was sitting on the edge of the bed, easing his boot on over the bandages. To anyone who knew him well, he looked rather subdued.

"If truth be known, I'm feeling just a trifle flat," he said as he drew the laces tight. "My closest friends in the brigade were killed, and I've been three weeks in an Islamic hospital where I can't get anything stronger than coffee and the only nurses they let near me are men." Glasken fell silent, his fingers idle on the boot laces, then he looked up at Drusas. "All that sorrow leaves me sickened."

Drnsas put a hand on Glasken's shoulder and adopted the positive tone

of a good counselor. "Well Frasn Glasken, I can cure a little of that. I'm here to take you to the par aline terminus and send you to Rochester for a great and fabulous ceremony. It's not only your own medal. The late Frelle Dolorian's parents have asked that you accept her medal and honors on her behalf."

Glasken picked up his pack roll. He looked around one last time, as if he was about to leave something of great importance forever; then he limped out of the room with Drusas.

"Doesn't seem fair," he said as he signed for his musket, saber, flintlock, and dagger at the locker desk. "There's many as did braver than me. I just survived."

The hospitalry staff and many of the patients saw him off, hailing him as the liberator of the Emirate of Balranald, the man who held the bridge at Ravensworth against odds of a hundred to one, the man whom Lemorel could not kill, the man who broke the army of the Ghan invaders. Drusas had a gig waiting, and an escort of a dozen lancers.

"Balranald's like home," said Glasken as they drove along the streets. "It's a par aline terminus town like Sundew, a big place with lots of industry and wind trains taking crates and bales away to places with wonderful names." He gazed about at the turbulent bustle of town life, letting his nostalgia for Sundew wash over the memories of war. "Look there, the slave markets where I was sold for three hundred silver rikne--that's nine royals--back in 1700 after I'd escaped the battle calculor with Nikalan."

"Hah, a real bargain," laughed Drusas.

"And there, a rail-capping foundry, just like Sundew's. I was born in a lathe and-mud bond tenement like that one over there. My father was a par aline ganger."

"Well he obviously found better times," said Drusas, genuinely impressed and trying to show it. "Saving the fees for University is not common among gangers."

Glasken seemed hardly to hear him. "Look, a narrow-gauge par aline truck with Great Western colors and markings. It must be from their mixed-gauge par aline

"The war scattered rolling stock widely, Frasn."

"Aye, like people by the Call. That's how my stepmother died. One day I was in school and the Call rolled over, but we were tethered so it was nothing special. Then some lad burst in and said my mother was taken. I hardly cried, I just felt numb. A few weeks later Dad told me that we'd come into a lot of money. He also told me that I was a bastard--a real one, that is. My real mother was a big, jolly woman who cooked well and went in beer races. He married her once we were out of mourning and bought a share in a vineyard. It was odd, but I always remember how my first mother used to be so proud of me whenever

SEAN.McMULLEN

I got honors at that ratty little alms-school near the rail yards I always thought that those big sad eyes of my first mother only brightened when I studied well. Eventually I won a Mechanics Institute Scholarship to Rochester."

Drusas was unprepared to hear someone with Glasken's reputation speaking like this--and at such length. His own replies sounded awkward and forced, and he was very surprised to find his usual eloquence failing.

"But why did it take you eight years to get a four-year degree?"

"Not sure. In Rochester I had a lot of time to myself, and that led to thinking that whatever I did, my first mother would not be there when I graduated. Drink, revels, and wenches were there on offer, so that's why I'm what you see today." He sat up straight and clapped Drusas on the shoulder. "Here now, the par aline terminus."

"And here I must leave you, my remarkable scholar and man of action,"

said Drusas with some relief. "In your exalted future, spare a thought for old

Fras Drusas."

I'll even spare you a drink, Fras."

With Glasken aboard the train Drusas drove through the city to the new Alliance embassy where he filed a sheaf of forms. He also collected a purse and spent an entertaining night watching the dance festival in the market sector of the city with two shadow hands ever close behind to guard his purse and back. While they were with him he had no fear of darkened lanes and shadowed doorways.

The night was enjoyable, yet there was no wine to be had in the Islamic city.

The dancing was a wildly exciting spectacle, however, starring nomad performers from the north, many of them from Christian and Gentheist tribes. For the first time in many months Drusas felt a stirring at his loins as the show whirled to a climax. At his request one of the shadow hands indicated which streets might harbor harlots, and Drusas hurried along between the narrow, darkened buildings, sniffing at traces of perfume and gazing at forms outlined against gauze shutters.

Suddenly something made him stumble and he careered into the gloom of a deep-set doorway. Drusas was appalled to find an arm hooked under his chin and his feet free of the ground. By the Mirrorsun light he could make out a dagger point before his eyes, and there was wet blood gleaming on the blade.

"Glasken where?" said an accented voice. "Embassy say returned to regiment. Not so. Don't struggle. Shadowhands dead."

"Know--nothing," gasped Drusas frantically, his fingers scrabbling at a

thin,

hard ann.

"Order for Glasken from Overmayor. Go to occupation army at Peterborough."

"I'm only an Inspector. I just filed forms."

The blade point dropped, to begin pressing into the skin over his heart.

"I,"BusinessI can't with" Glasken. Where is?"

The dagger point was through Drusas' skin and pressing deeper.

"Train. To Rochester."

"With who?"

"Darren. Darren vis Babessa."

CONVERSION

Peterborough had been badly mauled in the siege to dislodge the Alspring agents and sympathizers. Not a single building had escaped damage, yet it was still an important town--and thus became Zarvora's new headquarters. In spite of the ruins and devastation beyond the windows of the Mayor's palace, however, it was a handful of beam flash reports from far away that filled Zarvora and Denkar with dismay.

/ SEYMOUR BURNED, EXCEPT FOR TEN YARD CIRCLE AT TOWN

CENTER. HUGE CHARRED CIRCLE. EVERYTHING DEAD. MARTIAL

LAW DECLARED

"There are more details, but the pattern fits everything we know about the way Mirrorsun attacks," Zarvora said.

"So it was Tarrin," said Denkar with a scowl as he shook his head slowly. "The Acting Dragon Black of Libris was a spy for Lemorel. No wonder she got our defenses handed to her on a golden platter."

"Not quite. The original plan must have been to capture me, but I reached safety. All he could do was sabotage and spy, but now he has an invincible weapon. He must have smuggled a spark flash wagon into the town and had it broadcast whatever that trigger code happens to be. He could annihilate any town or city like that."

"Four wagons, Zar, not one."

"Not so, Frasn's Husband. Research in Oldenberg has continued, although at a less frantic pace than at first. By the end of the year Tarrin will have a transmitter that will fit into a one horse gig and be powered by a single operator with a pedal generator. He could smuggle one into Kalgoorlie, here, anywhere. Look at this report: the central circle is only ten yards across. He must have found a way to fine tune what Mirrorsun can do with its weapon."

"We're not defenseless Jess. exclaimed Denkar, appalled by her sudden depression "We can seal every road and paralyze from the southern Calldeath lands to, to..."

"To where? The Northmoors? The Carpentarians, who are subjects of the

Alspring Ghans anyway? Disassembled transmitters could be carried on camel caravans across the deserts and we would have no way of knowing."

"But not yet. Tarrin's position is weak."

"Weak? Most of Woomera's territory is under Ghan rule, the Southmoors could be rallied within days, and the Southern Alliance would plunge into civil war if forced to choose between myself and Tarrin. Look at his demands. Full control of all beam flash towers, all para lines to be restored, his galley trains to be given total freedom of movement with no inspections."

"No! Galley trains can carry the transmitters even at their present size and weight!" cried Denkar, appalled at the idea. "He could kill whole cities with what he already has."

Zarvora had been fighting too many enemies for too long, and having victory snatched away after such a hard-fought war was nearly more than she could take. Tarrin knew her well, perhaps better than Denkar. He knew what would drive her to the wall.

"You think we should fight for time?" she asked wearily.

"Yes! Definitely yes!" Denkar shouted, frantically trying to revive the famed aggression in his wife.

"But Tarrin is just another ruler, little different from me. Why kill thousands,

even millions, just so I can be Overmayor?"

"Because you have a vision and Tarrin is a damn lackey! I'd follow you to hell and back, Zar. Glasken fought odds of a hundred to one in your name, Dolorian faced Lemorel across the line of honor for you. They did that because they knew you would never break. Lead us, because as sure as the pigeon craps on the statue nobody else can!"

Zarvora seemed not to hear. She sat staring at the messages, unmoving, her eyes unfocused. Denkar paced before her for a time, then went to a chalkboard and began drawing circles and figures. Suddenly Zarvora shook her head.

"The circle of char is seven miles in radius, so its center could be observed in safety from the gallery of a nearby beam flash tower," she said.

Denkar drew a tower symbol beside one of his circles. "Yes, yes, cunning.

Tell Tarrin that you will accept his terms if he can put a char circle exactly nine miles south of the Culleraine tower."

"We could watch in safety."

"Not just watch. Mayor Bouros has developed a spark flash that fits into a single wagon. When Tarrin sends a four-wagon spark flash to Culleraine we can monitor the code and have a dozen wagon-sized units ready to--"

"No!"

"We could be ahead of Tarrin within a single dayF'

"No! I'll not destroy my people to rule them."

"Tarrin is a lackey, he has no guts for a fair fight. Look, you could

have a gig-sized transmitter smuggled into Rochester or Oldenberg within a fortnight, ready for the code and your order."

"My order. Precisely. Glasken has been abducted to Rochester. Could I kill him after he has fought so hard for me?" She stared at his chalkboard circles.

"Tell me this: why Culleraine?" "We can observe it easily." "Then why Seymour?"

"I--I don't know. It's Tarrin's most secure territory, he had to invite us to send observers after Mirrorsun's fire descended."

"Precisely."

Glasken's blindfold and gag were removed once he was within the walls of Libris. When he was finally unbound he found himself in the very induction room that he had been taken to in 1699. This time Tarrin was waiting to meet him, flanked by two Southmoor guards.

"Welcome home, FUNCTION 3084," said Tarrin as Glasken rubbed his wrists.

"I thought there's a new law against this sort of thing," replied Glasken. "Not for you."

"What? The Overmayor--"

"Overmayor Zarvora has been assassinated in Peterborough. The Ghans took heart and renewed their invasion, so I was forced to sign a truce. I do not have the late Overmayor's talent to wage war."

Glasken shook his head. The news was like a slap across the face. Zarvora had seemed unkillable.

"So, why am I here? I'm a good officer, but a pretty average component." "For your own safety, Glasken. The Ghans want you dead. Lemorel died in a duel fought over your questionable honor, you held up her advance at Ravensworth when victory was at her fingertips, and you called down the fire that annihilated two-thirds of her army in her very moment of triumph. How did you do it?"

"The guards--"

"Cannot speak Austaric. Tell me how to call the fire, Glasken. I can save the Alliance with that secret."

Glasken scratched at the newly emerging stubble on his jaw as he thought over Tarrin's words. Victory at her fingertips, her moment of triumph: put together, the words said more than Tarrin had intended.

"You rogered Lemorel."

Tarrin went sheet-white, then lunged forward and backhanded Glasken across the face. The Southmoor guards moved in to seize Glasken, but he did not attempt to move.

"You filthy defiler," ranted Tan'in. "I should hang you by your testicles and lower you headfirst into a vat of boiling bane gold. What was the text of Lieutenant

Dolorian's last transmission before Mirrorsun's fire?"

"You mean you don't have it?"

"There was a thunderstorm over Oldenberg on that night. Parts of the message were lost."

Glasken stretched his legs and settled back in his chair, regarding Tarrin thoughtfully. Something about him was as suspicious as another man's trousers on the bedroom floor.

"I don't know what Dolorian transmitted."

"But you tugged the woman, you slept with her!"

"Ah-ha: tugged, slept. Important words. Did you discuss beam flash traffic with Lemorel while you were rolling about under her desk--"

Tarrin backhanded Glasken again.

"She didn't put that last message in her transmissions log, probably because you were in such a hurry to bundle her out of her treads. There must have been pillow talk."

"I was wounded, I soon fell asleep."

"Lies!"

Lies. You've never been wounded, you wouldn't understand. Even a flesh wound from a small-bore musket can leave you gibbering for days. I was blown up twice in the one day, I had nine gashes down one side and a piece of metal the size of your thumb pulled out of my leg."

"But you were Dolorian's commanding officer, she must have briefed you," insisted Tan'in, pacing in circles with his hands clasped over his head. "Think! The Alliance is hanging by your words."

Glasken scratched his head, then carefully folded his arms.

"Dolorian thought I was dead at the time. She typed that the Ravensworth bridge was repaired, and that the Ghans were putting across."

"I have the gist of that already. She added estimates of Ghan numbers, said your square was about to fall. What else? Something extra, some odd phrase?"

"As the eunuch said to the abbess, I'd oblige if I could, but I can't."

Tarrin met the fully reinstated Mayor Jefton in Zarvora's old study. Jefton looked about in distaste, for Tarrin had let the room slide into a chaos of files, scrolls, maps, and punched paper tape. Some Calculator display mechanisms and mechanical animals had fallen out of adjustment or were broken. Plates of food scraps and coffee mugs were all over the place, and Jefton shuddered at the mouse droppings and trails of

ants. He cleared some files from a chair, dusted it with his fly-whisk, and sat down.

"Glasken was no help with the text of that message, damn him," Tarrin reported.

"Then just transmit combinations of what we do have until Mirrorsun sends the fire again," Jefton suggested. "We only lack a dozen or so letters."

"No. Zarvora has new receivers from Kalgoorlie. If she overhears us bumbling about she'll suspect the truth and be down on us like a trainload of mortar shells."

"Not so. All the combinations will take less than a day to transmit."

"I order you to!"

"Nobody gives me orders!" shouted Tarfin. "I gave you back Rochester. Don't forget that I am Highliber and Overmayor. You serve me, Fras Jefton, don't forget it."

"And do not forget that Zarvora is still alive, whatever you told Glasken!" Jefton retorted sharply, sitting forward and gesturing with his fly-whisk. "You are no more Highliber or Overmayor than I am until you have Mirrorsun at your beck and call." He sat back and smiled accommodatingly. "Why not do as I say?"

Tarrin smashed his fist down on the keyboard. A blow from Zarvora would have splintered the wood, but Tarrin's fist just bounced off. He gave a yelp and sat rubbing the reddened skin, his eyes tightly closed.

"Well, why not?" asked Jefton again.

"Because I may not have all the combinations, and I'm not good enough at codes and mathematics to be sure that what the FUNCTIONS and regulators tell me is true."

Jefton sat back, impressed yet appalled by the admission.

"Well, use the University's edutors."

"Then everyone will have the full text. If they master the true code it will only take one rebel with one transmitter, and this city will be ash." "We could rule in safety from the Libris cellars." "But what would we rule, Mayor Jefton?"

Across in Peterborough, Denkar reread the full text of Dolorian's last message before the char, then shook his head. He was striding down the platform with Mayor Bouros, who had arrived on the first galley train from Kalgoorlie since the par aline restoration.

"Tarrin must be better at coding than I thought if he can make sense of this," he admitted. "Are you certain about the words?"

"There was a little interference, but our filters and directional antennas are very fine, Fras Denkar. The duty operator is convinced she got the full text."

"Poor Dolorian," said Denkar, handing the transcript back to Bouros. "There's something so sad, so compelling about her words."

A lackey showed them to where the Firefly was standing, now repaired and rearmed. They inspected a guard of honor, and the galley engine's

new captain "The track's repaired, so I can take ye as far as Maldon," the captain explained. "After that there's..." He swallowed. "There's narrer-gauge available."

"Thank you, Captain. Have the line cleared, then wait until Overmayor Zarvora arrives. She will travel with us."

"The Overmayor, Fras?"

"The Overmayor, Captain. She insisted that no other engine but the Firefly should carry her."

Practically bursting with pride, the captain left to get clearance for the line ahead while Denkar and Bouros waited in the control cabin. Mayor Bouros clamped his spectacles to his nose and read Dolorian's message again. As he finished he flicked the edge of the page. "I have seen this so many times that I'll soon be able to recite it, my friend."

"Pah, I already can," said Denkar with an elaborate orator's flourish. He proceeded to recite the full text.

"Splendid work," said Bouros, applauding.

"Ah, you never met her, Fras Mayor. She was very full of figure and had long, lustrous hair. She had style and a roving eye, yet she was discriminating."

"You had a little dalliance with her perhaps?" inquired Bouros.

"Quite a memorable dalliance. That was before the Overmayor and I met,

of course."

"I... suspect you were once a component in Libris."

Denkar considered, but felt no alarm. With so many components who had known him being liberated, it would be impossible to maintain the public version of his past for long. He turned away from Bouros to study the levers, dials, and pulley switches that controlled the galley engine, then patted the stopper in the speaking tube to insure that those in the pedal chamber could not eavesdrop. "I stayed in a prison with an open door for love of my jailer." "Hah, a strange and wonderful romance."

"Poor Dolorian. Always poor Dolorian. When I first saw the incomplete transcript of her message, why my heart nearly broke. I wanted to rush across with an army to save her."

"Ah, Fras, we all wished we could have gone to her side to fight the Ghans.

Even I, who never laid eyes upon her. Name me anyone who would not have--"

Denkar had slanted both hands down on the gear exchange panel, then turned to stare at Bouros with his eyes protruding as if pushed from behind.

"I cannot, Fras Mayor, and you are a genius!" he exclaimed, beaming as if he had just discovered one of Glasken's caches of gold.

Bouros looked back doubtfully. "If you have some brilliant insight, my friend, then you are the only genius in here."

Denkar grasped him by the shoulders and shook him as he spoke, his voice blazing with excitement.

"Dolorian reached out and touched my heart, and yours--and Mirrorsun's! The greatest of the ancient calculors were said to be sentient, and the Mirrorsun band must be controlled by ancient calculors. It heard her transmission and saved her."

Bouros sat dumbfounded for a moment, then dug a piece of chalk from his robes and began scratching on the cabin's floorboards.

"The area of char is the same as that she defined the enemy to occupy in her message, with a circle at the center where she was said to be! Yes, yes indeed, Fras Denkar. The figures support you."

Just then the captain returned with Zarvora behind him. Denkar waved them away from the figures on the floor.

"Frelle Zar, you must have read my mind," he cried, spreading his arms wide over the figures like a priest performing a religious sacrament.

Zarvora dropped to her knees beside Denkar and hugged him.

"Darling Denkar," she cried. "Next time I ever talk about giving up, kill me!"

"I--ah, so you have good news too?" replied her astonished husband. "Wonderful news. I decided to check certain matters in depth, so I sent a message through to the aviad town of Macedon. They sent observers to a border peak in the Calldeath lands that has a clear view of Seymour. With a powerful telescope they discovered Seymour to be untouched, although sealed off by units of the Alliance army. They also noticed the burned-out ashes of huge bonfires in practically every paddock."

"A bluff, by Greatwinter!" exclaimed Bouros.

"A bluff indeed, the cunning little rat!" added Denkar. "We were about to tell you the same thing."

They explained their theory of Mirrorsun and Dolorian to Zarvora as the Firefly glided out of the station and rattled over the point work in the Peterborough shunting yards.

"I have ordered a blockade of all may orates under Tarrin's control," continued Zarvora. "He will have trouble holding anything other than Rochester city for more than a day or two. I already have an army moving into place and I shall do what Lemorel did at Alspring: lay siege and bombard only the mayoral pal ace." '

"Libris is close by," said Denkar. "We owe the people of the Calculor too much to risk their lives."

Zarvora shook her head. "Starving Tarrin out could take years, and many others will suffer before he does."

"There may be a better way," suggested Bouros. "Glasken is back in the Libris Calculor as a FUNCTION, according to reports. The aviad friend of his, Ilyire, is familiar with Libris and he knows Glasken by sight. Can you smuggle llvir, intn l.ihri Ovarmnmvr9"

"Perhaps. Our double agent, Darien, is known to Ilyire. She could deliver the necessary papers and instructions and help him gain access to Libris. She goes by the name Parvarial Konteriaz when working for me, but her own name when about Tarrin's business."

"Is she trustworthy?"

"I think so--but so does Tarrin. She accidentally delivered Glasken into his hands."

Denkar stood up and looked through the forward window slit as they rolled south. His right hand was waving beside his ear, as if trying to coax an idea out of his head.

"Make ready to do all that we have discussed, but first get me to Phillip Bay and Theresla with one of the new spark flash transmitters on a wagon. Mind, it's vital that I not be delayed for genototem games at Macedon."

Guided by Zarvora's other agents, Darien found Ilyire at a tavern in a hamlet just east of Echuca. Tales of his transformation had been filtering through to her over the months, but at first she suspected that he had merely been spreading rumors to lure her back. Now even Glasken had confirmed that Ilyire had lost his fanatical protectiveness and she was eager to give him another chance.

The Bargeman's Jar was a low, rambling, ancient place that served as the hamlet's hostelry as well. Darien paused cautiously as she caught sight of the sign. She stared into a polished draper's plate to comb her hair and smear a film of scarlet onto her lips. In spite of the winter chill and mist she wore her traveling cape thrown back, and she even undid two buttons of her blouse.

At the taproom she presented a card to the maid, but the girl could not read. She fetched the vintner, who laboriously worked out that Darien could not speak, that she wanted a private room, and that she wanted Ilyire sent there. As she sat waiting, a Call warning bell began to ring in the distance. Ten minutes to a Call. She reached down and wound her timer, then clipped her tether to a rail in the gloomy room. The latch of the door clacked. Ilyire entered.

Darien held up her hands and began to sign a greeting, but Ilyire shot out a hand and twisted her arm up behind her back. She struggled silently, her face contorted with pain. He grasped her other arm and bound her hands behind her, and only then did he walk in front of the Dragon Silver Librarian. Her eyes were wide and white with fear, and she was shaking her head from side. He spoke to her in Alspring Ghan.

"No? You shake your head for no. Only yes and no are left to you, my little assassin, my dangerous vixen. Your voice is crippled, but you are deadly. You betrayed my master, Fras Glasken. Drusas delivered him to you and you gave him over to that filthy worm, Tarrin. Poor Master, betrayed after fighting so valiantly and suffering so much."

Darien shook her head again and struggled against her bonds.

"Darien, Frelle Darien, I am disappointed in you, and in myself. You are a traitor, but I love you still. Still, I must kill you. You once wanted me to break my slavish, perverted adoration for you and I have done just that. Alas, you will die because I have changed into what you wanted me to become."

He examined the papers in her sling bag and in her pockets. There were sealed orders for Glasken which seemed to be genuinely from Zarvora, but when he broke the seal the contents were in some military code that he could not follow. Other papers and border passes were made out to himself, and there were detailed instructions for breaking into Libris and locating Glasken. Most of the papers referred to Parvarial Konteriaz.

"Who is Frelle Parvarial, and how did you kill her? Poor girl. You had a mind to lure me to Rochester with genuine papers for my master from the Overmayor, then deliver both papers and myself to Fras Pretender-Liber Tarrin. Well then, the papers will reach my master, but your Tarrin will be disappointed." He pocketed the papers.

"A Call is close, Frelle Darien. Very soon your mind will be lured away and I shall unbind you and turn you loose to wander south to your death. Perhaps the Deity will spare you as he spares one in a thousand, that is the only chance I can give you. By rights I should plunge a knife into your heart--but I cannot do that."

He closed his eyes and concentrated for a moment.

"Not long now. I--I want to kiss you goodbye, but that would be obscene. Darien, Darien, do you wish for me to be as I was?"

The question was rhetorical, but to his surprise Darien gave a weak smile, stared straight at him, and shook her head. A moment later the Call blotted out the intelligence behind her eyes, and she was mindlessly striving to go south. Ilyire untied the cord that bound her wrists, unclipped the Call tether that held her to the room's railing, and led her outside. He held her facing south down the street, then released her. She walked away at a steady pace, never once looking back.

"Even facing death you loved me just a little," he said to her distant back, then he turned away, his face in his hands.

Glasken looked up from a copy of Systems Enhancement Abstracts as the hooded regulator turned a key in the lock of his cell. Without a word he beckoned Glasken to follow, but not any of his cellmates. They went to an empty tutorial room. The regulator latched the door and turned to face Glasken--who exclaimed in disbelief as the hood fell back.

"Ilyire!"

"No less, Fras Master. My humble self." 426

SEAN McMULLEH

"Theresla, she sent you."

"My silly sister? Hah!"

"Just wait a minute! What's this Master bit and who really sent you?"
"Overmayor... little bit, Fras Master." "Zarvora was assassinated."

"Not so. Still alive, still unpleasant."

"Tarrin! That lying fykart Tarrin told me she was dead."

"Is more. Men in cassocks and sandals seek you. Come to Kalgoorlie, go everywhere, even palace. Want you."

"Baelsha and its bloody abbot, I should have known. Nobody ever escaped from Baelsha before me. Are they far behind you?"

"Long way, Master. Killed five."

"You managed to kill five monks from Baelsha?" "Not easy. Spending weeks to recover." "Unbelievable. Can you get me out of Libris?"

"Mmm... can do, but stay first. Overmayor instructions for to follow."

"I was afraid of that. Ah, my friend, it will take a long night of drinking to tell you my story."

"Not so, Fras. I with you since Woomera."

"What?"

"I see all. You rescue Highliber at Peterborough, lead charge against South moors at Ravensworth, roger Frelle Dolorian. I carry you from battlefield, Master."

"What? But why?"

"You bury bones of Ervelle at Maralinga. Now I repay. I vow any man threaten master, I cut out his heart. Too late I discover Vellum Drusas false." "What did you do?" "I cut out his heart."

"Oop--That's it, no more! What do I have to do for the Overmayor?"

Ilyire handed across the coded instructions to Glasken, who read them slowly and carefully.

"A bold and delicate scheme, Fras Ilyire, and quite a role for you as well.

Listen carefully."

Glasken sat at the specialized FUNCTION desk in the Calculor, trying not to look suspicious or guilty but feeling as conspicuous as an emu in the stocks. Contrary to the falsely embellished tales of continual grinding work in the great machine, there were extended periods of

inactivity for many of the components during a normal shift. An algorithm written in by Zarvora in 1696 rotated the workload across components to keep the loadings even, but it had not been updated in twelve years, Now the Calculator was forty-six times larger. Glasken

knew that he would have five or ten minutes of slack once a particular pattern of work was cleared.

The bypass scheme that Denkar had developed in 1698 had not been updated either, and Glasken wondered whether it would still work. Sighing as if he had been hard done by, he began to set patterns of values in his transmission registers according to the instructions that Ilyire had brought. It took two minutes, according to the reciprocating clock above the observation gallery, and he silently thanked whoever had installed a minute hand since he had last worked there.

With three minutes left the status flag snapped to the ENTER position, giving Glasken such a start that he flinched on his seat and muttered "Fykart" under his breath. FUNCTION 12472 looked around. Glasken muttered "No fykart peace for wicked" by way of explanation as he flicked the beads back and forth to code a message that existed in his mind alone. FUNCTION 12472 wrote his name in her disruption complaints log and put a cross against it. He dumped the last of the code patterns to the output registers, then added the routing protocols for Rushworth, Seymour, and, and... He could not remember the name of the beam flash tower that sat on private land south of Seymour, on the edge of the Calldeath lands. There were nine such towers, he did remember that. Only one thing to do, he decided as his input register flag snapped up to signal that legitimate work had arrived: he followed SEYMOUR with COMMON.

A request from Zarvora to Theresla via Macedon went out to nine stations. This is it, thought Glasken as he worked the beads for a parallel routing problem between wind and galley trains at the Euroa interchange. There was a half hour to go before the end of the shift; then he had study time and a meal break. It would take only minutes for the message to reach each of the outpost towers, and while the local lackeys were scratching their heads over the odd code one tower in particular would be sending it on to Macedon. By the time he was leaving his shift a decoded transcript would be strapped to the back of an emu running from the township to the Melbourne Abandon, where Theresla lived. How long would that take? Hours? Days? Glasken was uncertain about distances beyond the Calldeath boundary. And if Theresla was not home? Then what?

"Can a bloody bird work a letterbox?" he asked out aloud, and FUNCTION 12472 frowned and put another cross against his name.

His mind returned to the other eight outpost towers while his fingers and feet did their Calculor work. By now the more conscientious operators would be reaching for their code books. Ten, fifteen minutes remained at most. A few would assume it was a military transmission gone astray and destroy it. Someone would have returned it to the beam flash tower above him by the time he was walking out of the hall. Someone else would put it aside in the Inwards Anomalies basket. After an hour, perhaps two, but no more than four, it would be put to the

Calculator for decoding. In very little time it would show up as uncrackable to the decoding routines. There would be a trace of the message, which would end up back at the output buffers of the Libris Calculator itself. I must be clear of the place by then, he reminded himself.

The System Herald declared the shift ended. Glasken stood up and stretched after locking his registers. He winked at FUNCTION 12472, who colored and made to put yet another mark against his name before she realized that he had not actually caused a disruption that time.

In his cell again, Glasken found that his cellmates were asleep. The door was locked, as Tarrin had brought back the old, penal Calculator conditions. Minutes passed. Ilyire did not come. Glasken waited until the regulators had ceased to walk past before extracting a snap wire from its hiding place and turning to the lock. After several minutes the lock had not yielded and his patience was beginning to fray. He carried on a running dialogue under his breath as he continued to work the lock.

"What sort of fykart administrator wouldn't change the fykart algorithms in twelve years but spends a bleeding fortune of my fykart taxes on new fykart locks to keep dummart components in fykart cells that they're not wanting to leave anyway--"

"I have key, Fras Master," murmured a voice under his bunk.

Glasken leaped aside, bringing his guard up, then collided with the cell wall and fell across his writing desk.

"Ilyire! Damn you! The others will wake."

"They bound and gagged, Master."

"I--Well then, let's hurry. The bloody place will be down about our ears in four hours."

"Did message reach Theresla?"

"Aye, but in a damn sloppy way. It's four hours before the screaming starts,

I figure, just after midmorning coffee break. The security regulators had better be wearing their brown trews, that's all I can say."

"I don't understand, Fras."

"Ach, just give me the key. Do you know where we can hde.

"Yes Master."

When they were securely hidden in a stores loft Glasken began to relax. "Nothing to do but wait," he said. "One matter, though. Where is the agent that Zarvora sent with you? She had better be safe and secure somewhere, for real chaos starts soon."

"She was traitor. I avenged you, Master. I send her into Call." "The devil you did!" "Once--still--love her."

"You love--Darrien!" Glasken suddenly went pale in the dim light.

"Gah, shaddup. Fargh Alspring fykart dummart. Did you read what the

Highliber said in my instructions?"

"In code, Master."

"But, but--no, I'm not about to tell you in case you do some fykart dummart thing as is worse."

Glasken sat in silence, thinking and weighing up risks. Ilyire became increasingly restive.

"Ilyire, how many guns have ye?"

"Two twin-barrel Morelacs."

"Aye, the Lemorel special. Give 'em here--and that throwing knife."
"Master, what to do?"

"Get myself killed, dummart, that's what."

"Not without my helping!"

"Thank you for the kind offer, but--Hey, who's that?"

w here.

Glasken brought the butt of a Morelac down on Ilyire's head as he turned away. He caught the Ghan as he fell and eased him to the floor.

"Call's touch, but it still feels good to do that after Maralinga in 1701."

Brother Alex stared at his notes and transcriptions, his mind almost numb with horror. The Australicians were fighting a war with over a quarter of a million warriors and tens of thousands had been killed within a few months. In Mounthaven the wars were highly ritualized, being fought between Airlords and flocks of wardens, and to very strict rules. No more than a few dozen rich noblemen would die in any conflict in Mounthaven, but the Australicians were burning whole cities.

As if that was not bad enough, the strange and distant continent's people had a religious revulsion for fuel-burning engines, yet Mounthaven's entire society, economy, and nobility was founded on diesel-powered gun wings and sail wings of the nobility, and the steam trams used by merchants and commoners. Chivalric air combat went back over a thousand years, yet here was a vast and populous continent that regarded them as heretics and devils.

Worst of all had been the contact with a group calling themselves the Radicals. They said they were a persecuted minority, that they wanted Mounthaven technology. Their weapons were flintlock guns, but Brother Alex had unwittingly told them of gun wings armed with reaction guns that could fire 300 shells per minute. They wanted to know more, they wanted details, specifications, and ideas... They wanted to kill their enemies by the millions.

Brother Alex disconnected his transceiver from its power pile, methodically dismantled it, and smashed the components. Into the fire in which he burned the boards and coils of his radio he dropped his

neatly stacked and sealed notes, diagrams and tables detailing both how to build the equipment and what it had revealed to him. Behind him young Brother James swept up the stray fragments, slowly shaking his head at both the waste and loss to scholarship. He was pleased with himself for having secretly copied out a few key passages and diagrams.

Work in the Libris Calculor was never so pleasant that components would go out of their way to do two shifts in one day. Thus there was no procedure to catch a component returning for a second, consecutive shift. Glasken hurried down the corridors, then slowed at the sight of the registration desk. There were four Dragon Orange guards there and a Dragon Red seated on the corner of the desk.

"And where might ye be goin'?" he asked as Glasken smiled and made to pass.

"I, ah, had to see the medic ian Ah--headache."

The Dragon Red turned to the register. "No names listed as is taking leave of the Calculor hall during this shift."

"I was, that is, I was in so much pain that I was carried out. I couldn't sign."

"Were that the case yer escort would have signed for ye, and there's no signature by anyone. Where's yer escort?"

"He stayed with the medic ian He's... got a headache too."

"And now ye haven't?"

"Ah, well it's a good medic ian you've got here, nothing but the best for us components." The Dragon Red slid from the desk and advanced on Glasken. Garlic was strong on the breath that he exhaled up at the much taller component. Glasken backed away until stopped by the wall. The Dragon Red's eyes were close-set and red-rimmed, and when he held a hand up to wave his finger in Glasken's face, he exposed a dotted line around the wrist with CUT HERE, SOUTH MOOR CALLBAIT tattooed beside it.

"I think ye're just late, FUNCTION 3084, I think that ye're so late that ye'll break the record set in 1699. Get over to that book and sign in under the red line on the Inwards column!"

Glasken signed. The five who were guarding the door were enjoying themselves, and were unlikely to search him.

"Ye'll get a demotion at next Humiliation Day," said the Dragon Red as

Glasken straightened. "Now get in there and rattle the beads."

Instead of making for the FUNCTION desks or the relief pool room, Glasken went straight to the privies and entered the door reserved for FUNCTIONS. It was nearly four hours into the shift, and not far from the beginning of the staggered coffee break. He took DISABLED signs from the mop closet and hung them on all privy doors but one. In this one he waited until the sound of approaching footsteps announced the

first FUNCTION. There was an exasperated curse from outside and then his door was pushed open. Glasken's fist slammed into the man's midriff; then he hit a precisely chosen spot on the FUNCTION's jaw with the point of his elbow. Within seconds he had removed the DISABLED signs from the other doors and returned to the cubicle to tie his unconscious victim and appropriate the desk identification badge from his tunic. In a gesture of compassion he unlaced the man's treads and propped him over the dump-hole, then jumped the locked door.

The desk assigned to his victim was in LOCK mode and as Glasken returned it to ACTIVE he glanced to the FUNCTIONS either side of him and tapped his forehead. They nodded back, satisfied that he was from the spares pool and replacing a component with a headache. A scan of the registers showed that heavy diagnostic work was in progress using decoding algorithms. They were already on to him. He suspected that traps had been set for the code pattern that he had used to send the message to Seymour, but he had to use the same pattern, and even the same addressing, if he wanted to contact Macedon. His fingers flew over the beads; then he set the registers, broke into the data-transmission stream, and began to set up his output registers to transmit to the beam flash network. They were sure to stop the message at the gallery above him--then he stopped and thought. Was there a direct link to Euroa? He set up a routing string through Euroa that might have only existed in his conjecture. Reaching under his tunic, he pulled back the strikers on both Morelacs. There was an emphatic click as he dispatched the contents of his output register.

Glasken's legitimate work was piling up by now, and it would not be long before a regulator was sent to check on him. He tried to drag recollections of beam flash procedure manuals out of a memory that had never been particularly willing to accept them. In normal routing practice--no, but this would be war routing, and there would be a contingency check before any transmission. The follow-up would catch his use of the same anomalous code, and they would send a HOLD command directly to Seymour. Unless, of course, something distracted them. He frantically typed the first two lines of a Rochester University drinking song in the code pattern and routed it directly to Seymour and the nine towers beyond. He dispatched it.

Almost at once a bell jangled somewhere high above him in the observation gallery. They had picked up the message. Regulators would be sent to detain him within seconds. What else to do? He drew a Morelac and fired at the gearbox of the main reciprocating clock.

Amid the screams and cries that erupted with the echoes of the shot, something whizzed past Glasken's ear and smashed into his output register. Automatically he turned and fired the second barrel at the observation gallery. A guard tumbled over the stone railing, screaming as he fell, and crashed to the desks below. Senior, unchained

components were now dashing about in a panic while lower-level compo
432

SEAN McMULLEN

nents struggled to hide under their desks and benches. Another guard fired, dropping a FUNCTION to Glasken's left. They're shooting at random, he thought as he took out the second Morelac and checked the strikers. His shot hit another guard in the gallery, who collapsed over the stone railing. The others backed off out of sight. Another figure appeared at an access hole cut in the brickwork for extensions that had never been continued because of the Kalgoorlie calculator's success. A Dragon Librarian clothed in black. Tarrin! Glasken took aim and squeezed the trigger. The flint stalker shattered, but the gun did not discharge.

"Fargh dummart gunsmiths, pox 'em all!" shouted Glasken as he frantically unclamped the flint from the other striker. By the time he was ready for another shot, Tan'in was nowhere to be seen.." and a fantastic headdress of gunmetal barrels and wooden stocks ringed Glasken's scalp, all with guards or regulators at the other end. Glasken lowered his Morelac to the floor very, very slowly.

It was late in the afternoon before anyone saw fit to get back to Glasken. Two guards and one FUNCTION were dead. Over a hundred components had been injured, and a lot of damage had been done by trampling feet and components smashing mechanisms under desks as they sought cover. The Libris Calculator had been disabled for the longest time since its commissioning. All of those who would have questioned Glasken were needed for the repairs.

Glasken's first message reached Theresla on the shores of the Phillip Bay. Its simple instruction was BEGIN, because aviad agents were ready in Rochester. She entered the water at once to communicate with the dolphins and relay to them a request for help. The dolphins deliberated, decided, then acted. A Call rolled over Rochester for the first time in recorded history.

The city had not been designed for safety during a Call. There were no mercy walls, Call rails, watch birds or trained terriers, and nobody wore anchors and timer belts. Ilyire raced through the corridors of Libris opening doors and un locking gates amid crowds of mindless, shambling people who could do nothing but walk south. Librarians, technicians, guards, senior staff, and readers wandered into the streets of Rochester and joined the crowds making for the south of the city. A ring road inside the wall led to the south gate and out across a wide stone bridge over the shallow lake and into the suburbs. The main gate was closed, and only a trickle of people were getting through the access door beside it. Ilyire hurried to the gatehouse, where he threw levers and chopped ropes until he could raise the drop gate. Once it was two yards clear of the ground he jammed the windlass using the gate captain's halberd of office. The crowd poured under it and across the bridge.

This Call did not last two or three hours, as it did everywhere else on the continent: it continued for five. Libris emptied, the mayoral palace emptied. The Constable's Watchhouse, the markets, the

University, the shops, the houses, the hostelrys, the taverns, the brothels, the blockhouses of the fortifications, every part of the city was purged of its citizens. A few were left, trapped in blind lane ways and corners, or locked in watch house cells or the stocks. Those locked in the cells of the mayoral palace and Libris were all of unquestioned loyalty to Zarvora and were mainly Dragon Librarians.

Ilyire wheeled a cartload of gunpowder into the middle of the main bridge after four hours had passed; then he released the main drop gate and secured it. The cart blew a span out of the heavy stone bridge. There were other bridges across the lake and dozens of boats, but the south bridge was wide and strong, a perfect route for a massed attack.

Suddenly the aberrant Call ceased. Most of the people of Rochester, Oldenberg, and all of the small towns in the null zone that was the Rochester Mayorate found themselves in open fields, about fifteen miles from home. All at once a rush began in the opposite direction. Tarrin managed to rally several hundred Dragon Librarians and lead them to the forefront of the horde of citizens. Their only weapons were pistols and sabers: those with muskets had dropped them the moment that the Call began.

"Nothing like it's ever happened," panted Tarrin as he jogged along with the others.

"Could the enemy be commanding the Call?" asked a Dragon Gold.

"Impossible," puffed the already winded Tarrin. "We must be first back. At least nobody else was better prepared."

But the loyal Dragon Librarians that Ilyire had just released from the Libris and palace cells were far better prepared. Ilyire had freed and armed them as soon as the Call ceased. The Calculator components had been just as safe, being imprisoned as well, and Ilyire had disarmed and chained up their regulators. The Dragon Librarians loyal to Zarvora were outnumbered, but they had the advantage of being behind high walls and having all the bombards and muskets that they could use. They also had the leadership of a hero of Ravensworth bridge: Captain John Glasken.

Zarvora had also been ready, with small spark flash transceivers stationed at the four compass points around Rochester. As soon as the extraordinary Call began she was informed, and commenced moving her troops in from loyal centers by galley train. For several days the fighting continued in the outer suburbs of Rochester and around the lake, but once Zarvora's troops had fought past par aline centers under Tarrin's control the end was a foregone conclusion. Tarrin was no warrior and for once the situation needed tactical rather than strategic skills. He was caught, tried, and sentenced in very short order, and was already hanging dead on a scaffold by the time Jefton was found hiding in a farmyard shed near Euroa. The Mayor-Seneschal of Rochester could only be tried and executed by his peers, and it would

be many months before the assembled Mayors of the Southeast Alliance sat in judgment over him, then knelt in their splendid robes and raised their muskets at the command of Overmayor Zarvora Cybeline.

The street-to-street fighting was still raging in Rochester's suburbs when Zarvora entered inner Rochester across one of the footbridges. With her were Denkar, Bouros, and several dozen Tiger Dragons. Glasken was nowhere to be seen, but was said to be directing bombard fire at rebel concentrations in the lakeside suburbs from the inner city walls. Zarvora's group split up after a hasty conferral and Bouros made for the artillery position. The Mayor of Kalgoorlie had never actually set eyes on Glasken, and he also had the mistaken idea that his own fame was so widespread that everyone knew him by sight.

"Where is that Glasken who got my sister with child?" he said to the bombardiers.

Muskets appeared from everywhere, pointing at Bouros.

"You leave Captain alone, an' back away," snarled a strong east Highland accent.

"Yes, mind your place, Kalgoorlie Callbait," added an educated Rochestrian voice.

"Touch our Captain we blow ugly head off," called a Southmoor.

Bouros thought for a moment. Rule one in engineering, he thought to himself:

Meet the functional requirements.

"Fras Glasken!" bellowed Bouros at the top of his lungs. "Your lady's in labor. Get to the beam flash tower!"

A tall, powerfully built man gave a start, then bolted in the direction of the tower.

Glasken stumbled out of the lift into the beam flash gallery, panting and flushed.

"Glasken!" shouted Zarvora from the beam flash transmitter mechanism.

"Do you take Jemli Milderellen as your lawful primary wife?"

"Who, me? But what of her husband?" Glasken called back.

"The Black Runners located him last week and persuaded him to sign an adultery admission," said Zarvora as she robbed her temples. "They are divorced."

"Then yes!"

Denkar led him to where Zarvora was tapping out a beam flash transmission.

"And now we wait," she concluded.

"Wait for the beam flash to Kalgoorlie?" cried Glasken. "My child

will be born, grown, and halfway through University--and still a bastard--before the reply returns."

"Not so, Fras," Denkar assured him. "A spark flash unit stands at the base of the Kerang tower and it's linked to another at the Kalgoorlie palace."

Zarvora was trying to massage a migraine from behind her left eye and she seemed to have aged several years in a matter of weeks.

"I am legitimizing your child because I owe you a lot, Glasken," she said hoarsely, "but in the name of the Deity will you settle down and sort out your love life?"

Zarvora gazed patiently through the eyepiece of the beam flash telescope as Denkar rubbed a wet towel across the back of her neck. She read the sparkles of code from the distant tower's heliostat out aloud, not bothering to work the key of the tape punch. Glasken was lying against a nearby pillar.

"Baby girl, Jemli well, weight at birth.." thirteen pounds! The poor woman.

Hmm, wrong blood type for Ilyire, but right for you."

"Can you send a reply?" asked Glasken.

"And an aviad," Zarvora continued, looking worse with each passing minute. "What is her name to be?"

"Call her Lessimar, after my stepmother."

Denkar rattled the door of the medicine closet. When it did not open Glasken drew his Gimley 40-bore and blew the lock off. Zarvora slowly lowered her hands from her ears, drew a key from her jacket, and tossed it to the flagstones beside Glasken. Denkar pulled the shattered lock away and took a jar from the closet. After pouring some whisky into two measure-glasses he tossed the jar to Glasken.

"Lameroo Medicinal Rye?" Glasken commented as he removed the cork. "What's this for? Changing my bandages?"

"To Lessimar Glasken," declared Denkar, holding up his measure-glass. Zarvora delicately dipped a fingertip into her measure-glass and licked it. Glasken swallowed several mouthfuls.

"Jemli and I tested as human," gasped Glasken once he had finished coughing.

"So did my parents," Denkar assured him. "It's rare, but aviads can be born to humans. Genototem scholars can explain it."

"As Overmayor I also have a magistrate's authority. I picked up this blank marriage certificate on the way here, so..."

She scratched at the parchment with a goose quill from beside the gallery's attendance roster, then handed it to Glasken. Moments later he was gone, in search of better company for a revel.

"Although pregnant, Jemli has been keeping company with estatiers, Costassian in particular," Zarvora remarked in a flat, cool voice.

"Ilyire is no longer there to occupy her," replied Denkar.

"Wrong. Glasken introduced her to life above her station, he taught her to mix with highborn, rich, vindictive nobodies with no dreams or vision. Now she wants an estate and a rich husband with a rifle."

"Glasken meets those criteria. One day he will be a mayor, too."

"And will still be Glasken. She will eventually demand refinement, Den, and that will cause grief. Still, for now I rewarded him with what he wanted, even if what he needed may not be her."

There were many treaties and arrangements signed over the weeks following Tarrin's defeat. The Southmoors broke into a number of small may orates and emirates, leaving the Emir of Cowra in charge of his immediate emirate and nothing more. Many of the new and smaller states were well disposed to the Southern Alliance.

The Alspring Ghans began returning to their desert cities, not so much in defeat as with the promise of something better than conquest. Six months of trying to control the staff of the Great Western Paraline Authority had backfired very seriously. Many Ghans had become hopelessly entranced by broad-gauge wind and galley trains, and they were scouring the desert for ancient iron rails and suitable track routes. A seven-foot-gauge par aline was to be built linking Alspring to Woomera, but in the meantime camel trains were opening up a flourishing trade.

The strange annihilation at Ravensworth was the subject of a great number of studies, and early in August an intermayorate conference of edutors at Griffith concluded that it had been caused by an excess of conductive smoke from many cooking fires combined with ionized paths traced by mortar shells and the proximity of a great deal of metal weaponry. It had induced a type of massive and localized lightning, providing proof that the prohibition on steam engines was based in physics and not religious mysticism. Metal, steam, and smoke were pronounced a deadly combination. It was definitely unwise to concentrate heavy industry in any one place or use steam engines to power trains.

Zarvora, Denkar, and Bouros knew differently, but chose to remain silent. They knew that Mirrorsun, the huge band with a potential surface area greater than that of the entire moon, was alive and conscious. With the war over they turned to the problems of communicating with it. It took time, but contact was established and a translation code agreed upon.

The Mirrorsun band had heard their spark flash radios in an otherwise lonely cosmos. When Dolodan sent out her message from Ravensworth about defeat and death being close, Mirrorsun interpreted the words as allies of the Wanderers attacking one of its fellow intelligences. It focused a massive blast of radiation on the area that Dolorian had radioed as being covered by enemy forces.

Nor was Mirrorsun the only voice on the radio bands. On another continent, Col-Arado had a single transceiver, operating from a Christian monastery. Before suddenly going silent it had told of a great and strange civilization in what had once been the Rocky Mountains of America. The gathering together of the ancient civilization's legacy accelerated beyond Zarvora's wildest dreams.

"Nobody but you should hold the key to Mirrorsun," Denkar told her.

"I

would have used its power as a weapon, but you would not. That earned you the right to deal with it."

"That may have just been my weakness," she countered.

"Then it's a weakness that we can all learn from. Where do we go from here with Mirrorsun?"

"More study and better communication. I shall use a Bouros calculator for an encryption interface. It can be housed in the old Calculator hall."

"But the hall still contains the Libris Calculator, Zar."

"It is no longer sufficiently fast or accurate, it must be decommissioned. The components can be given a general amnesty and a bag of royals each."

"But Zar, many don't want to go, remember? Tarrin tried to disband them on the eve of the war and they barricaded themselves inside. They saved the Libris Calculator for your use in your war with Lemorel and there are still five thousand components who want to stay. That's a lot of skilled, talented people,

Zarvora looked at him as if she were seeing him for the first time. It took her some moments to gather together the words of a reply.

"To me it was just a tool.." yet you are telling me that it is a whole world to those living within it."

"Perhaps not a world, but a home."

"All right, I did not fight the war to throw my troops out of home. Tell me what would please them."

The components of the Calculator were subdued and morose as they obeyed the SYSTEM HALT command and gathered, along with those off-duty, to attend Zarvora's briefing. When it had been the Rochester and Southeast Alliance Human Rights Association attempting to destroy the Calculator they could imagine there was a mistake. With Zarvora, there could be no doubt about it.

"Wish it was some new configuration," said PORT 3A sadly as they sat waiting.

"We could get together outside once in a while," MULTIPLIER 17 suggested. "You know, meet with abacus frames and run the machine."

"Oh yea, it could be in the meeting hall of the Echuca Library. We could invite some Dragon Librarians to walk among us with canes, hitting anyone who makes a mistake and dragging an occasional component off to the broom closet for some solitary confinement."

"A few of us have not thought it such a stupid idea--Ah now, here she comes." ' '

This time there was applause for Zarvora instead of cowering and terrified silence. She mounted the rostrum, then spoke in a more muted

voice than they were used to. Many ,rr,." l l"4o , *,i ,"
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"Components of the great machine known as the Calculator, today is a day of destiny for you all. Today you will go free, but being free does not mean that you cannot work in the Libris Calculator."

At this there was a flurry of whispers.

"Some of you may know that a new electro force calculator has been brought from Kalgoorlie. It is a thousand times smaller than the Libris Calculator, yet a thousand times faster. Now, imagine your Calculator in its current form being expanded a thousand times. The demand for regulators and technicians would be enormous. In a way, the electro force calculator is no different. I have great need of experienced folk to convert programs written in Calculator Conversation Protocol to the electro force calculator's language, CIND--Calculator Instruction Numeric Dio ale ct This will be a massive task, yet there is more again. Mayor Bouros of Kalgoorlie estimates a two-hundredfold increase in calculator speed by this time next year."

There was another wave of incredulous whispers.

"Those of you who stay in Libris will be paid as regulators to tend the new, electro force calculator. It will be harder work, with no more blind following of instructions. You will have to think. Take my offer seriously, you have five days to decide. Thank you once more for all the work that you have done here as souls in the great machine, the Libris Calculator. You changed the world."

The components had begun talking among themselves already. For the first time in over a decade, Zarvora had found herself ignored.

"So, it be a new configuration after all," said PORT 3A.

"New configuration be bugged, it's a complete rebuild," replied MULTIPLIER 17. "Do they have any manuals or diagrams, I wonder?"

"Look there, by the door. It's FUNCTION 9."

"Hey there, FUNCTION 9!" called MULTIPLIER 17 as they both hurried over to Denkar. "Where have you been for the past eighteen months?"

' 3A, 17, the day's fortune to you. Will you stay?"

"Oh aye, they'll need me," said PORT 3A. "It's all very well for a toy sized model, but not on the scale of the Libris Calculator."

"Not so. We've had prototypes working for months. I've been developing the CIND language myself. It's faster for writing programs because you can write out the whole thing in numerical symbols."

"Numerical?" said MULTIPLIER 17. "When can we see it?"

A crowd was beginning to gather around them by now, both regulators and components. Zarvora called for attention.

"I want volunteers to carry in boxes, pedal on the galley wagons, and to break up desks to make room."

A forest of arms shot up. The Great Calculator of Libris thus came to an unceremonious end, with its components chopping away the desks, wires,

frames, and mechanisms while others carried in boxes of relay units, plugs, and insulated electro force cables. Assembly began under Denkar's direction, and continued for several days until the first test calculations brought the relays clattering into life.

With the help of the electro force calculators in both Kalgoorlie and Rochester, Zarvora composed a string of messages in the ancient ASCII code and keyed them through her spark flash transmitter to the Mirrorsun band. This established protocols to render exchanges impenetrable to eavesdroppers elsewhere. It was unrewarding work at first, with hesitant and confusing transmissions between two intelligences quite alien to each other. The band had to work in Japanese, then English, then extrapolate the English into Austaric. This was why it had taken so long between Dolorian's desperate message to Oldenberg and Mirrorsun's burning the greater part of the Southmoor and Alspring armies. Under Zarvora's tuition the standard of Mirrorsun's Austaric improved, yet the concept of life at ground level was difficult for Mirrorsun to comprehend. In the end it was Zarvora who provided the solution.

Glasken peered through the curtains of his room in the Rochester mayoral palace. Four floors below, in the Courtyard of Triumph, the Overmayor was presenting medals conferred during the war. Ilyire stood behind Glasken, hearing only the cheering and band music.

"Oi, there goes one of their secret agents, wearing a mask," said Glasken. "Can't see the medal from here." He turned back to Ilyire. "Come and see, you don't know what you're missing." "My place is here, Master." "Still guarding my back?" "It has enemies, Master." "And your back?"

"I guard for guarding you."

Glasken parted the curtains again and looked down to where Sergeant Gyrom was accepting medals from the Overmayor on behalf of himself and Dolorian's family. There was a medal for Gyrom as well.

"What a life. I can't accept a bloody medal in public or go to my family for fear of Baelsha monks a-watch for me. How can I have a public invel-wedding to Varsellia?" He looked back to Ilyire, who was standing relaxed yet alert, his eyes always on the move for threats. "You don't have to be part of this, Ilyire." "But, Master, I am."

Ilyire looked either hurt or guilty, Glasken was not sure which. He gave Ilyire a reassuring slap on the shoulder, forgetting how little his aviad friend really weighed. Ilyire stumbled, but Glasken caught him by the arm.

"So, you want to live as a fugitive, protecting me because I am the

only one 440

SEAN McM to occupy your time,

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that you wronged who is still alive! You really need Darien don't you?"

"Master, is done what is done. I killed her, Master. Evil mistake, now only memory to love."

Glasken looked through the curtains again. "Oi, the herald stumbled while backing away from the Overmayor! Bouros caught him. Now he's up again, but his hat's on backwards. Pompous fop." Glasken closed the curtains. "Ilyire, I admit I enjoy having you around to deflect the blades and bullets from my unworthy body, but I'm not selfish. If I bring Darien back from the dead will you promise to leave me alone and guard, say, Frelle Cybeline instead?"

"Master, do not blaspheme."

l'rOllUSE.

"The dead are dead."

"Promise I"

"I promise."

Ilyire closed his eyes, and Glasken knew that he was shutting out the topic.

Ilyire opened his eyes again. Darien was standing with her hands pressed against her cheeks and her lips parted in an unfathomable expression. There was a gleaming medal on a green ribbon pinned above her left breast.

"Master, master, you bring her back from dead," Ilyire babbled, but Glasken was gone.

Darien held up a card in Glasken's writing.

LOOK ArI?ER EACH OTHER. LOVERS ARE EASY TO FIND, BUT LOVE IS RARE.

Glasken had slipped a message into the beam flash network to Macedon, asking the avia ds to watch for Darien on the Call tracks. The avia ds way was not to help humans passing through the Calldeath lands, but they owed Zarvora some favors.

The shadowy figures from Baelsha kept watch around Libris for several days after the ceremony. A confirmed sighting of Glasken at Elmore eventually drew them south, but before they could close in on the fugitive a Call swept over the little rail side town and lured Glasken away. The monks followed the trailing edge of the Call, keeping the anchor less figure of Glasken in sight, but they broke off the pursuit upon reaching the Calldeath lands. Glasken was as good as dead.

Zarvora watched the sky above Phillip Bay, while Theresla's dirk fang cats prowled about, guarding her. The sky was clear blue, with not a cloud or bird to be seen. She did not know what to expect, but Mirrorsun had agreed to this exact time and place. Thunder rumbled

somewhere in the distance. Thunder from a andClearsilverSky!
Thattwinoculars.had to mean something. She scanned the sky again with
her brass

When she finally caught sight of the object it was already quite low,
and perhaps a mile away. A tiny white sphere was descendin beneath a

red. oarashaped thing, like the seed of some feather down plant floating on the wind. It approached the horizon, stood out sharply against the waves, then splashed undramatically into the water.

About forty minutes later several dolphins became visible towing what looked like a vast red tent through the waves. Behind it a scorched white sphere bobbed sluggishly on the dark water. Theresla was visible as a dark figure being towed by one of the dolphins. She waded ashore, white skin showing in places through her grease and blacking.

"We must remove the fabric that broke the sphere's fall, it's smooth as glass and my dolphins are disturbed by it. They dragged it here only to get it out of their water."

They hauled the white sphere from the water and carried it to the ruins of a nearby hut. Zarvora tapped an array of numbered studs near where the parachute had been attached and the top of the sphere hinged open. Inside were white,

cube like packages, which she removed and began to put into her roll pack "What are these?" asked Theresla.

"Devices to communicate better with Mirrorsun, a type of spark flash that nobody can spy upon. The cloth that broke its fall can generate electro force essence if left spread out in sunlight. Even the cords that attach it are electro force connectors. Mirrorsun and I are about to explore each other's worlds."

Zarvora studied the markings on several of the boxes, then opened one and took out something like a bracelet. It was a plain, coppery color, but slightly flexible to the touch. A number of studs and square panels were inset.

"This is for you," said Zarvora as she read instructions on a sheet of smooth, skin like material. "Hold out your hand."

Zarvora cleaned the grease and lampblack from Theresla's left wrist with medicinal rye whisky and a cotton cloth. At the touch of a stud the band shrank and bonded with her wrist.

"So this is the same as a spark flash transceiver the size of a wagon?" asked rheresla, holding her wrist up and regarding the unlikely-looking machine skeptically. "Oh more, much more. It transceives sounds and pictures, and draws power

it her from your blood or body heat. You turn it off thus, with this stud." "So I am linked to you wherever I go, Frelle Invel-Sister?" "And to Mirrorsun, just as I am to be."

Zarvora attached her own bracelet, and they went through a few trials in local lode. Finally they changed mode to give Mirrorsun its first view of the Earth ore a human perspective.

las ken had surrendered himself to the Call at Elmore, and wandered south in unresisting, mindless rapture, safe within the Call from the

nursuin was rescued by the Macedon avia ds and escorted through the Calldeath lands. He came to his senses as if walking through an invisible curtain and found himself at the edge of a small town. It was a cool winter's morning with the sun bright in a cloudless sky. The place was a gaudy splash of terra cotta roofs, orderly and incongruous against the green fields and bush land of the Calldeath. There to meet him was Theresla.

"This is a null zone like Rochester," she explained as they walked the streets, "except that we are within the Calldeath lands."

Glasken noted that Theresla spent a lot of time with her left hand up to her neck or shoulder. There was a strange-looking bangle on her wrist.

"A pleasant town, and some pretty good wives he commented, trying to show enthusiasm as they walked.

"Ah-hah, now here is Bishop Pandoral," she said as they met with a tall,

lean, but kindly-looking woman. "What a trio we make: Bishop Lessimar Pandoral, Abbess Theresla, and Brother John Glasken."

"My son, I have always followed your progress," said Lessimar, "mostly with pride."

"Uh, thank you.." but why me?" "You are my son." "What?"

"Your father lied to you, Glasken," said Theresla.

"No, I checked the records."

"The records were altered. Lessimar was being beaten by an angry mo has an aviad--just before a Call. She escaped to Macedon and a new life. Your father had the town records altered to show that you were the child of an adulterous liaison with Jolene."

"The scrawny old goat!"

Lessimar held out her arms, but Glasken's knees buckled. They finally em braced kneeling together in the dusty street.

"Brother Glasken, they say you're as hard to kill as I am," said Lessimar with her arms around his neck. "I have always watched over you."

"Always?" quavered Glasken.

"Always. All those women, all that fighting and drinking--"

"But at least I got my degree!"

Theresla stood by for a time with her arms folded, her left wrist facing outward. Presently she wandered off with the Mayor as the crowd around the reunited mother and son grew bigger.

"An impressive fellow," the Mayor declared. "A pity that he turned out to be human. We could, ah, use him."

"True. His hair tests as human and he is not as strong as most aviad men.,:!i:i:

Although he has been trained to resist the Call in a limited way, he is as susceptible as any human."

"Well, he should be a great asset to the humans, whenever it's safe for him to return."

"He is Alpha Two Positive Gamma Negative."

"His genototem? Well, that's no surprise. We must monitor his offspring among the humans to see if any turn out to be avia ds

"His first is, Mayor. Gamma Negative, Mayor, remember what that means? With human women there is a significant chance that he can sire avia ds but any couplings he has with aviad women will result in aviad children. Exclusively."

The Mayor's eyes suddenly widened, and his mouth hung open as he stroked his chin. "I... shall get the medic ian to draw up a little list, I think. Thank you, Frelle Theresla. Thank you well indeed."

An hour later Theresla was packed and ready to leave. She called past Lessimar's house, where the preparations for an evening revel to celebrate Glasken's reunion with his real mother were under way.

"You should stay for the evening at least," Glasken insisted as Theresla kissed him on the cheek and tweaked his mustache. "You're the real guest of honor here."

"I am not one for revels, Fras. I am going north, to the Sydney Abandon. The cetezoids think of it as a holy place."

Glasken was surprised. "The Sydney Abandon? We know it to be huge, but nothing connects it to the sea creatures."

"All the more reason for me to go there. Take care, though. In the years ahead I shall be watching you."

"I was afraid you might say that. Still, I'm not going anywhere with Baelsha bogeys after me. That will make it hard to see my family."

"Do not fret, Glasken. Mayor Bouros will be off to see Baelsha's abbot in a fortnight, and he has some strong bargaining points for lifting the death order on you."

"Aye now, that's fantastic news. Two weeks, you say? Good. I'll be able to leave for Kalgoorlie. I suspect that Varsellia does not want her invel-wedding over either the beam flash or the spark flash. But what of you? When are you to leave?"

"Fras Glasken, remember how you vanished as soon as Ilyire and Darien turned their backs upon you?"

"Aye."

"Well I shall do the same. Let us say goodbyes now. Quickly, a last Glasken grapple."

"Look to yourself, and don't eat any strange mice," he said as they hugged each other.

"And stay out of trouble- inkn It it m" f" ' ,". ,...;4 .--: * look here, the Macedon medic ian his lovely wife Vivenia--and their beautiful little daughter who is walking already! Hullo, hullo."

The child cowered away from Theresla, who only laughed.

"Fras Glasken, you will be staying some weeks in Macedon, I hear," began the medic ian "Vivenia and I were wondering--"

"Fras Medician," interjected Theresla, "this man does not yet know the term 'genototem hospitality' or the difficulties you have had to keep inbreeding out of the aviad genototem. I could think of no better edutors than yourself and Vivenia, however. Why don't you all go for a walk in the gardens of the beam flash tower?"

Theresla was gone before Glasken returned. She traveled swiftly north through the Calldeath lands, escorted by creatures that struck fear into the hearts of everyone else. Days later she emerged into the farmlands of humans, and changed into the robes of a Libris Inspector before entering the town of Seymour.

Sondian's inner council was not pleased by Zarvora's near-absolute victory, and saw in it a real danger to their own interests. As they met in a fortified collective in the Calldeath lands near the Gambier Abandon they were grasping for ideas rather than reporting progress.

"The bombings should continue," suggested Theta 9. "They keep hostility between the two species alive."

"But do not build advantage for us," Sondian pointed out.

"Some devices from Mirrorsun do reach us by sympathizers," said Beta 2.

"Devices that cannot be disassembled and copied, and devices in very small quantities," scoffed Sondian. "Think! We have to do better than this."

Delta 7 lifted a little globe of the world from the table and held it up before her. It was grimy and battered with the millennia, but the continents were still clearly visible.

"Cross this gaggle of islands to the north of the continent and there is land for thousands of miles across, ah, China and Siberia," she said. "One more tiny strait and we reach the American continent with its flying machines and reaction guns. Remember what the monk with the spark flash implied? There are no avia ds there. A few of us could rule them."

"Crossing the water is a major obstacle," Beta 2 pointed out.

"There are hot-air balloons."

"They can ascend for barely an hour, and are at the wind's mercy."

"Macedon's engineers have developed a small, light, high-speed steam engine fired by oil--"

"But it was still too heavy for the biggest balloon possible."

Sondian raised his hand, one finger pointed upward. The others fell silent.

"Put that engine in a light canoe, however, and it could outpace the fastest fish or cetozoid. A crew of six could carry it when there is land."

"But Fras Sondian, it would take a decade to reach Mounthaven and Denver that way," said Theta 9, tracing the path on the little globe.

"Well then, there is no time to lose," replied Sondian with a nod of approval to Delta 7.

The eleven years that followed the end of the war saw things change beyond recognition yet remain very much the same on the surface.

The avia ds isolated themselves in thriving towns and farms in the Calldeath lands, and Mirrorsun supplied a huge solar powered sailplane from its fabricators. Originally designed to cruise high in the atmosphere and generate ozone, the template had been altered to accommodate aviad explorers. Offshore islands were discovered and colonized, providing sanctuaries forever beyond the reach of humans. Zarvora remained the sole contact with Mirrorsun, and controlled the bounty from its fabricators with a very firm hand.

The humans remained oblivious to all these developments, and life in their cities and may orates went on as before--more or less. Sparkflash technology was withdrawn and replaced with a few dozen small, sealed transceivers from Mirrorsun's fabricators. They were efficient, tight-band devices with a hundred channels each, but they could not be adjusted or duplicated. Zarvora would say only that skilled artisans built them in secret workshops. The wind and galley trains continued to run, markets thrived, combustion engines remained anathema, and the electric calculors slowly increased in speed, efficiency and size.

Sondian's expedition to the North American civilization vanished without a trace. In distant Mounthaven the wardens still put on jewel encrusted flight jackets and ascended in tiny gun wings to patrol their lands and duel with rivals. They were unaware that the Wanderers had been disabled, Mirrorsun was a total mystery to them, and there was not a single aviad on their entire continent. Half a world away, Sondian continued to recruit and train agents by the hundred and drew up new plans to destroy Zarvora's power and enslave the humans of Australia. The weapons and tiny aircraft of Mounthaven still featured heavily in his plans.

One chilly winter's evening in 1719 GW, Zarvora alarmed her Tiger Dragon escort by slipping away from a diplomatic reception and vanishing into the streets of Griffith. Try as they might they could not find the Overmayor, and the woman she was visiting was dead. It had taken Zarvora eleven years to track her down.

"It is true, I am a deserter," explained Torumasen, the former medician of Glasken's 105th. "I also brought Dolorian here, to neutral territory." He was wearing the medal won over a decade earlier but

only presented minutes ago. They were standing in a small courtyard behind his house, the centerpiece of which was Dolorian's grave. A splendid, life-size, marble nude of the woman reclined on a red granite slab carved in the shape of a large bed, which was sheltered beneath a slate roof.

"Very nice, but not quite what I had in mind for one of the two greatest heroes of the Milderellen Invasion," Zarvora decided.

"It is what she wanted, Frelle Overmayor: to be remembered as beautiful, sensual and in her prime."

"How could you know that?"

"Because she did not die in the battlefield mud. I dragged her back to life,

put her on a river galley and brought her here to Griffith. Dolorian lived thirty one days and was recovering, but.." alas, Milderellen's bullet had grazed a major artery and it finally burst. She died in a comfortable bed, asleep, and beside me. By then I had learned what she liked, Overmayor."

Torumasen raised his goblet of wine, then Zarvora clinked her goblet of spring water against it. In spite of the cold they remained standing beside the exquisite likeness of Dolorian.

"Why did you contact me?" asked Zarvora.

"I have a new love now, and we are soon to be married. I could not in fairness bring my bride home to, well, all this, so I wanted to ask you to move Dolorian's remains and memorial to the Shrine of Heroes at Rochester."

Zarvora gave a rare laugh.

"The

Shrine's custodians will scream nine flavors of hellfire.." but why not?

People need to know that soldiers who love life are no less brave than those who ... love killing. Perhaps, though, there should be a mosaic of Dolorian working the spark flash in the background. Yes?"

"You have a deal, Overmayor," said Torumasen, taking a sip of his wine.

He saw that she was looking up into the sky.

"She charmed even Mirrorsun," Zarvora said wisfully.

"The band in the sky remains very thin," said Torumasen, all the while wondering whether Dolorian might have been responsible for that as well. "Does that mean Greatwinter will not return?" "Yes." "Just yes?"

"Greatwinter is a complex term, Frasn Medician. The Anglaic civilization had accidentally changed the climate, and when the Call first appeared the seasons were already hotter. Mirrorsun was a vast

enterprise to give the world a sun shield but we have grown used to a hotter climate. In the Sydney Abandon there is a ruin called the Miocene Institute. We have discovered that the ancients were experimenting with the genototems of sea creatures, just as they altered them selves to make us. Apparently they built a race of aquatic creatures with enhanced intelligence, so--"

"To what end?" interjected Torumasen, who became philosophical after three drinks and was now up to his fifth. "Why breed more intelligence into a beast? Better wool or more milk, of course, but intelligence?"

Zarvora sighed and shrugged. "We breed more intelligent emus and terriers so they can be better trained to restrain shepherds gripped by the Call. Perhaps these sea creatures were meant to herd and tend fish in the same way as our drover emus and terriers look after herds and flocks on land. The experiments probably got out of hand, the creatures developed the Call, and here we are."

' But what about the wars between humans?" whispered Torumasen. "The nuclear bombs that caused nuclear winters?"

"I have commissioned detailed maps of our continent. At only two abandons are craters where the ground is turned to glass, as the bombs were reputed to do. Extend that to the rest of the world and you have a terrible war, but not a catastrophe. In the confusion and panic following the first Calls the humans must have blamed each other and sent their flying machines to attack in revenge."

There was a chorus of yelping terriers in the distance.

"Ah, my zealous Tiger Dragons and their tracker terriers are closing in," remarked Zarvora. "I should leave your house and return to them."

"I am truly pleased to meet you, Overmayor Cybeline," said Torumasen as they bowed in the darkness. "I once thought you just another despot. Now I see that you have vision."

"Although I remain a despot," concluded Zarvora.

She drew a strange, soft band from her jacket's pocket.

"Live well and long with your new love, Fras Medician, and take this as my wedding present."

"It's... I don't appear to have one," he replied, holding up the flaccid band. "It is Mirrorsun material. If ever again someone is as precious to you as Dolorian is in the grip of death, put this around their neck. Mind, however, it can only be used once."

Zarvora slowly walked away from the house along the dimly lit street. In the sky Mirrorsun was gleaming steadily, but the first traces of fog were gathering. From a balcony garden a marksman followed her head with the sights of his musket. He was breathing regularly, slowly. He exhaled, paused, and began to squeeze the trigger.

Ilyire's knife plunged into his back and tore through his heart. As Zarvora walked on, oblivious, the Ghan pulled some strands of his victim's hair free and rubbed them between his fingers.

"Aviad dummart," he whispered as he noted the texture, then he dropped to the street and caught up with Zarvora. As he fell in beside her he held up a bloodied hand.

"All your own work?" asked Zarvora.

"Another Aviad Radical," warned Ilyire. "They want to kill you and

take over Mirrorsun's fabricators to fight the humans. One day my eyes will not be sharp enough, Overmayor. Then you will die. You must take more care and help me to protect you."

"Ah, but you are wrong," replied Zarvora, draping an arm over his shoulder and gesturing up to Mirrorsun. "I am not only safe, I am immortal too." "Another of your visions, Overmayor?" he sighed glumly.

"The creation of my vision, Fras Ilyire. For the second time I have

become the first soul in a great machine."