

The Glasken Chronicles

Sean McMullen

This story is closely related to both "The Eyes of the Green Lancer" and "Destroyer of Illusions", which appear in Sean McMullen's new collection *Call to the Edge*, from Aphelion Publications, and "Souls in the Great Machine" from *Universe 2* (eds. Silverberg and Haber, 1992). Sean's "Alone in His Chariot", first published in *Eidolon* Issue 4 and also appearing in *Call to the Edge*, was recently awarded the 1992 "Best Short Fiction" Australian National Science Fiction ("Ditmar") Award.

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 harmony and mutiny.

We were encamped at the Fostoria Oasis after crossing the great desert of pebbles when I came upon a strange character named John Glasken. This man was nineteen metric tall, with a thick black beard and uncommon broad shoulders. He spoke the Alspring 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, ensuring 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 dashscript. Read Glasken's tale now, Master. Read to understand why I am returning to Glenellen with all possible haste.

There is nothing quite so disgusting as a spell in the public stocks. 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, it was no wonder that I longed for a bath as I returned to Villiers College, even though I'd already had one that month.

I found my room ransacked! Money, weapons, border pass, riding gear, my newly awarded degree, all gone. Even my knocking-socks had been vandalised. I sat down on the bed, utterly despondent. Reeking like a gutter, and now robbed; what worse blows could fate have in store for me? Then I saw it, the Mark of Libris on my pillow! The world stopped as I stared at the red stamp of a book closed over a dagger. The Mark was there to warn me of impending doom. They were going to kill me! Why? My drunken brawling and petty theft was of no interest to heads of state . . . and then I remembered Lemoral.

That was it. Lem normally testified in my favour whenever I was hauled before the magistrate, but had ignored my notes this time. She must have found out about, well, Joan Jiglesar, Carole Mhoreg, that wench from the refectory or perhaps even some girl from the previous week. That was the trouble with having powerful mistresses. Their patronage was wonderful, yet their revenge could be as devastating as a thunderbolt. All my travel gear was gone, so I quickly changed into my most sturdy clothes, bundled some loose gear into an improvised wayfarer's bedroll and left it by the door.

Money was the key to everything, and money was there for the bold to take. Snapwire in hand, I made my way down to the College Purser's office. The dinner bell was ringing, and I knocked smartly to make

sure that he was already gone. It took only moments to get past his cheap, two-tumbler lock. Leaving the door slightly ajar behind me, I crept across the darkened room to the strongbox.

The lock was difficult, even for me, but presently the tumblers yielded. I lifted a bag from the box and hefted it. About fifty coins, more than enough to get me . . . where? Perhaps I could hire an unwitting decoy to journey south while I 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 - ?"

I clubbed him over the head with the bag of coins. Pulling the door behind me I dashed out into the corridor and crashed blindly into the evening procession of edutors to the refectory high table. The bag slipped from my hand, sending gold and silver coins spilling before me in a jingling cascade.

By the tenth hour I was sitting in a cell in the Constable's watch-house. The edutors of Villiers College turned me over to the University Warden, accusing me of breaking into the Purser's office, stealing fifty one silver nobles and six gold royals, and striking the Rector unconscious. I was then handed over to the Constable's Runners, who took me before a magistrate and had me charged formally. Due to my skill with locks I 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 I awoke to a click at the door, and I looked up to see Lemoral being shown in. I stood up at once. She was not smiling. A bad sign.

"Ah, Lem, dearest, I have been unjustly - "

"They say that virtue is its own reward," she cut me short. "I see that the rewards of vice are more appropriate." Disaster. Contempt dripped from her words like poisoned honey.

"What do you mean?" I asked nervously.

"I am not without influence, Fras graduate, and there is much that I can do to make your life unpleasant. I can even arrange that the last five seconds of it are spent falling down the centre of a beamflash tower.

The idea of having been your dupe revolts me, the idea that a sketch of my nude body was pinned above your bed while you were in it with Joan Jiglesar makes me want to retch. I have been promoted to Dragon Silver Librarian, Glasken, and I don't want rumours of our liaison hanging over my career." Interesting. I'd rogered Jiggle in many places, and many other girls in my college bed, but never *that* girl in *that* bed. Whatever Lem's source of information, it was fallible.

"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."

It was true. I could practically feel the straps on my wrists and hear the ratchets clicking. Her 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 excessively - for these offences, at least."

"That's all?"

"That's all."

I agreed, of course. Next morning I was tried, found guilty, and sentenced to death. That was a nasty moment, but after a long, gloating pause the sadistic wretch of a magistrate added that I had been granted the Mayor's clemency. He then changed my sentence to one year in the blazing deserts of Baffin Land for every coin in the bag with which I had struck the Rector. Fifty seven years! After the trial I was chained inside an armoured wagon and driven to the wind train terminus. There I was marched, chain, ball and all, to the office of the Inspector of Customs. He signed for me, and I was held under guard until I was handed over to the train's warden.

A man that I took to be from the train entered, with scroll in his hand. He sent the guards out of the office, and two other armed, uniformed men replaced them.

"Now, 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 in Baffin Land," I 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 again. He turned to the guards. "Gag and bind him, then back the wagon up to the door."

Blindfolded, bound and gagged, I was driven through the streets of Rochester for perhaps an hour. From the street cries, sounds of working artisans and challenges from guards, I could tell that I was being taken to the area of the Palace and Libris, then inside. The air around me became cold as the doors rumbled shut behind the wagon, and I was lifted from the tray by someone of monstrous strength and held upright. My shackle was struck off with a chisel, then I was carried for some distance, through doors and past the challenges of several guards. We ascended two flights of stairs before I was put down on a hard bench. My hands and feet were untied, and my gag and blindfold came off last of all. Before me was a burly Dragon Red librarian, armed only with a heavy truncheon. He was obviously what I was meant to see, 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 my right opened and a thin, middle-aged Dragon Red came in, a striped uniform over his arm.

"I am your instructor," he said, throwing the uniform on the bench, then standing back with his arms folded. "Put those on." I had only the watch-house britches to remove, and the new uniform was clean and comfortable.

"Prisoner John Glasken, you have been re-directed from a long term on a chain gang in the Baffin Land deserts because of your training in arithmetic," the librarian told me. He took a piece of chalk from the box. "You will be well fed and clothed, and there will be no chain gangs or heavy work. You will work hard, however. The Mayor needs calculation and arithmetic as much as he needs the work of chain gangs."

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 to complete. Instead I take half a day breaking the task into five parts then share them out 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 could work for only, say, twelve hours a day, and so could 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 my 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 on offer here. "What sort of problems are calculated?" I asked, hoping to sound intelligent.

"Does a rower ask what a battle galley on the river is being used for? Would the knowledge help him row better? What we have here is indeed very like a galley, Fras Glasken. There is a machine of a thousand people, and three shifts to spread the work. This machine has hundreds of times more calculating power than an individual like you, and it never sleeps, gets sick or dies."

"But what if someone make 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

member of the team, an adder. You will now also cease to be John Glasken. You are ADDER 3084-T, and will find that number on badges on your tunic's breast and back."

And so it went, seemingly for hours. I was told the punishments for mistakes and misbehaviour, taught the daily routines, taught the ranks of guards and Dragon Librarians, and had the tasks of my fellow prisoners outlined to me. Us prisoners were called components.

I was given trials at a desk with a large frame abacus and three rows of levers, and taught to recognise a number from a row of metal flags in various combinations of up and down. I had to take the numbers specified by the top row and put it onto the abacus. I would then press a pedal and another number would appear on the row, and I 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 I keyed my 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 I pressed the pedal, the first number appeared. I learned about the other levers later. Although the skylights showed day and night, I began to lose track of time with the training that the Dragon Red gave me. The machine was called a calculator. The guards who patrolled the aisles were called regulators, and they punished, kept order, and sorted out problems with equipment and components. During my training I saw nobody except my instructor and some silent prisoners who brought meals. The meals were constipating and the drinks infrequent, except after training was over. Privy breaks were not encouraged during training, and each session was four hours long. At the end of each day I was locked in a small room with four bedcells, and I collapsed into mine as exhausted as if I'd been breaking stone.

One day, without warning, I was sent down a new corridor and into a vast, brightly lit hall. It was the calculator, and I was awed by the aisles that stretched down dozens of rows of desks, with wires crossing, and some carrying little message boxes from point to point. There was no conversation, only a continuous swishing of beads on wires and a clacking of levers like a field of muted crickets in the evening. A partition curtain ran down the centre of the hall, and I realised that I was only seeing one of the huge machine's processors.

I was shown to a seat at the rear of the calculator, and was shackled to a bench - though the irons were padded with leather, and the chain was light. The instructor Red stood behind me and pulled a lever from the 'Neutral' position to 'Stand Ready'.

"You will be on light work for the first two hours, while you adjust to the routine," he said. "If you perform up to your training standard, you will then be put on the full work 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?" I asked.

"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 Baffin Land?"

"I'm afraid not," he said gravely, shaking his head. A shiver went down my back. He moved the lever to 'Active'.

The sweat dripped from my armpits and ran down my ribcage as I began to work, but after a while I realised that the work was very like what I had been doing at the training desk, and was a lot slower. When the rate went up, I was able to cope with no trouble at all. At the half time break three Dragon Reds came over, smiling and nodding, and unpinned the 'T' on my badge. By the end of the shift I was weary, hungry, and bursting for a piss, but sure that I would not be discarded. I was put in a cell with three other men, all from my shift.

Two of them were about ten years older than me, and the other old enough to be quite grey. Meals were handed to us in tin bowls.

"So you're new, then?" asked MULTIPLIER 901.

"My first shift today," I 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."

"Does being discarded mean what I think it does?" I asked. He nodded.

"Have you ever heard of the calculator 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 rumours."

"I suppose that means we're in here for life," I said.

"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 are 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."

I was unsure of whether or not to feel relieved. CONVERTER went to a corner and began to use the piss-jar.

"Has anyone ever tried to escape?" I asked MULTIPLIER.

"Oh yes. Every so often someone thumps a guard and runs down the corridor, but they get clubbed down soon enough. 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 calculator 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 worry.

"Just one more question," I said as I scraped up the last of my stew. "Who are you all - you for example, PORT?"

"I used to be a money changer," said PORT. "Then I was caught for short-changing. Been here five years. We're all petty felons, ADD, just like you. Nobody misses us."

Ah, that hurt, but I must admit that it was true.

As the weeks passed I became a model component and was presently uprated to MULTIPLIER after a conversion course. I was told that I had to study to be a FUNCTION, a component with a number of special mathematical skills that could not be easily shared through a team. We had two hours of free time after the extra work of cleaning the cells and passages, cooking, repairing damaged calculator equipment and exercise each day. I used that time to study equations in probability and the theory of charts: My instructor had ordered me to study these as there was soon to be expansion in these areas.

As a FUNCTION one had a status only just below that of a Dragon Librarian, but was still a prisoner. I heard rumours that there were dalliances between the Dragon Librarians and the higher FUNCTIONS, which would make the time easier to bear. The weeks became months, and I studied hard - for what else was there to do? I was made a trainee FUNCTION, which meant that I was apprenticed to a senior FUNCTION.

My master was a vague, dreamy youth of about my age, FUNCTION 3073 who was called Nikalan before he vanished into the calculator. I shared a cell with him, and he was agreeable but bland company. He didn't even understand the one about the two nuns going to matins! Still, he was brilliant at maths. The others told me that he was nursing some great hurt: His sweetheart had been murdered.

"Eight-Four, there's something strange happening," he told me one evening.

"Strange? It's bloody horrible. Five system generations in a week, then all those simulations for the sub-calculator 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. There was something else, too. The equipment was confined to small desks, and runners took the results from calpoint to calnode."

"I know, Seven-Three, I know. Nearly all the components in the last generation were FUNCTIONS, so we had to do all our own menial addition and multiplication. No justice, I say. We slave away to become FUNCTIONS but when we're promoted they take our lackeys away."

"You're missing the point," he said patiently.

"Well, what's your idea?"

"They are designing a mobile calculator."

I sat back and thought about this. A mobile calculator meant they might take it outside Libris.

"They're using me a lot in the tests. That might mean that I'm being considered for it," I said hopefully.

"That's good. There are aspects of Libris that I really hate."

The aspect that I hated most was that of sex - or at least the fact that others seemed to be able to indulge while I could not. With a few thousand people of mixed sexes it was no surprise that opportunities were said to arise, yet they never did so for me. There was always a guard in the wrong place; there were women who looked willing, yet assignments always went wrong. Getting a female component pregnant was a serious offence, and I met with one poor clown who had been dealt with most unkindly for doing just that. Still, there were devices available to prevent such accidents, so why did no wench smile upon such an excellent find as John Glasken?

I thought a great deal on past lovers. Fat, raunchy wenches like Jiggle, and the slight, romantic girl, Lemoral. The latter I had met at the University, just at a time when I had been growing tired of shallow affairs and wanted something with more passion. For sheer lust Lemoral was a disappointment. She had none of the background of the average tavern wench and needed to be taught and coaxed every step of the way. Naturally I had to keep the more debauched of my exploits secret from her, yet on the occasions that I found myself before a magistrate she would come along and give testimony on my good character. The trouble was that she was a Dragon Librarian of middling rank, and their Highliber has spies everywhere. Someone who knew her must have reported me bundling into some wench and passed the news on. Love turned to hate in very short order.

The Dragon Reds who were our regulators were mostly men, but some women were sprinkled among them. One in particular caught my eye; a fine figure of a wench named Dolorian. She had style, unlike the uniformed icicle Lemoral or the fat, fierce brawlers from the taverns and bawdy houses. Tunic and blouse tailored to show her figure to effect, knee-length boots with high heels, and tight black fencing britches, I had never met anyone like her, and was desperate to impress.

I did pushups and situps by the hundred to shape up, sewed my uniform tight in selected places to bulge impressively, sang my heart out whenever I could borrow a communal lutina, and sketched her many times from a distance. Of course I did this for a good number of other women as well, but Dolorian remained my fondest hope.

The day after I was finally upgraded to FUNCTION I was sitting in my cell when I heard a tap at the bars.

"Shift check," said a husky voice. I looked up.

"Check," I replied to Dolorian, who had never been on cell duty before, then hastily added "Are you permanent on this shift now?"

"No, just relieving," she said, folding her arms under her breasts, and not without some difficulty.

"Such a pity," I sighed. "The sight of you is all that makes this drab place bearable."

She smiled, a soft, open smile which told me that I had a chance. Her tunic was of crushed red velvet, showing a great area of cleavage and fastened by one clasp above a row of buttons. I moved my hand, and the shadows of my fingers fondled her white skin as we continued to talk.

"You're a handsome, clever beast, Eight-Four," she observed, looking down at the shadows. Instead of swirling the honey-brown cloak to cover herself, she merely put a hand up to the clasp. I brought the shadow of my hand down to cover hers. As I moved the shadows, her fingers followed. On impulse, I moved them back to the clasp, then motioned them to tug. The clasp popped open, and each of the buttons below seemed in turn to depend on the clasp. Two mighty breasts with small, pink nipples surged out with such force that I stepped back from the bars in alarm.

"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 made my blood race so hard that I could feel a headache

approaching.

"For all your cleverness you cannot work a simple tunic, Fras Glasken," 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 would never try to escape from wherever you are."

There was a slight jingle behind her back. Keys! She was going to come in! There was at least a full half hour before the morning shift began. I nearly passed out with sheer anticipation. After all those months of deprivation I 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 my reach, swept the cloak around to cover herself, whispered "Later," then melted into the shadows. Perhaps two minutes later I was still frozen in mid-grasp when another regulator came by.

"Reaching for something, FUNCTION?" he asked, stopping to stare with his hands on his hips. Only then did I let my arms flop. "Come on, get your act together. The Highliber's making an announcement." All of us off-duty FUNCTIONS were herded into the back of the calculator hall. 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 shutdown. The Highliber entered and climbed the stairs to the System Controller's rostrum; a tall, strong yet finely featured woman with rather small hands. Several Dragon Reds, Blues and Silvers were lined up either side of her. Lemoral was there, and over near the edge was the rebuttoned Dolorian. A double squad of Tiger Dragons flanked us, matchlocks smouldering. "Components of the Libris Calculator," Zarvora began in a sharp, clear voice, "I am the Highliber. I designed and built the calculator."

She paused for a moment to let us assimilate this. "Some of you are to be given a change of scenery. We are building a new, mobile calculator to assist the Mayor's army in battle. It will consist of only a hundred components. Those selected for the Battle Calculator will step aside and be mustered for immediate departure."

The System Herald began to read out a list. Nikalan was first. There were no women selected, or any component with less than two years experience as a FUNCTION. I was not disappointed. After the morning shift Dolorian would return -

"The Inspector of Examiners also has a list of less experienced FUNCTIONS who are nonetheless strong, fit and suited to life on the battlefield." Lemoral gave the Herald a list. "FUNCTION 3084 . . ." Me! Lemoral smiled: This was her doing. Dolorian looked down with a grin. Conspiracy! Lemoral had asked Dolorian to fling open the gates of paradise before me, then slam them shut in my face. There were only nine more names on Lemoral's list, and minutes later we were marched out and chained inside covered wagons.

Our basic training took only a fortnight, as we were just being taught to keep up with the regulars and to defend ourselves as a last resort. We ran many miles in helmets and light ringmail, with forage pack, weapons and portable calculator desk strapped on for good measure. I excelled in sabre and musket training, but found the use of the buckle shield quite awkward. Interestingly, we were no longer known as component numbers, but by our names: On a battlefield it is much easier to respond to a name than to a number. My former master was now named Nikalan, and I had become his sabre tutor.

After the daily training there was no more entertainment than I'd had inside Libris - or conversely, the others were now subject to the same celibacy as had been forced upon me. The camp was on a cleared field not ten miles from the walls of Rochester, and was known to be used by the Mayoral army as a shooting range and skirmish ground. The perimeter was well guarded, but there was little point in trying to escape. I 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 that thousand component monster in Libris. Each component had fairly complex functions to perform, and there were runners to go between them as they worked, with problems and answers written on slates. It was of most use when applied to a set-piece battle, where enemy forces could be easily assessed. Clerks drew a quick map on tentcloth and set it on the ground. Coloured blocks represented groups and types of fighters, and were moved according to orders from the Battle Calculator, or reports from our scouts. The machine's advantage was that it treated the business as a game, like champions or chess, and was quick, accurate and flexible. Unlike human commanders, it had no emotions or expectations as it gave orders about when to move, where to stand firm, and what to shoot at. Signals were sent to the battlefield by coded trumpet calls, whistles, heliostats and signal flags. We had observers on mobile observation poles to provide a good overview of the real scene. As these would be a favoured target with enemy marksmen, they had to wear full plate armour. Finally we 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 calculator's team every time, and our men jeered us components. Soon the 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. Our team was winning one mock engagement for every one that the others did by the end of the second day, and during the third we 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 and we repelled them with the aid of the calculator guard, compensated for 'dead' components and resumed operations again. Once we were even required to solve problems while all the components were drunk, and again when we were hung over, and there were still more tests on how fast we could pack the calculator desks onto our backs, move a few hundred yards, then unpack and become operational again.

For all the training in tactical methodology that I had been given, I was quite unaware of the strategic value of the Battle Calculator. I paid little attention to the number of musketeers from the Inglewood Prefecture training with the Rochestrian troops, and it was fortunate for the Mayor that none of the neighbouring monarchs were any more observant than me. Inglewood was, like Rochester, a small sliver of territory dominated by the Tandaran Mayorate which separated the two states and maintained a strict arms embargo 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 at all we were marched out of the camp one afternoon, stripped naked, and made to dress in striped prison tunics. Next we were taken to a railside and put aboard a wind train with a consignment of felons being sent to work on the Morkalla paraline extension. The train rumbled away with a great clashing of gears and whirring of rotors, and at the Elmore railside the Tandara customs guards came aboard. The train was searched for weapons, and our guards were changed for leased Tandara regulars.

The train rumbled through the ghostly Bendigo Abandon, then west across the Inglewood border where the guards were changed again. All at once we were given fresh uniforms and calculator desks, and set free from our shackles - those of us who were not genuinely destined to break rocks and lay rails at Morkalla, that is. Now I 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 the show. The Battle Calculator could boost the power of that small force many times over, but that also implied that there was about to be real fighting. I was summoned to the tent of the Field Overhand of the Inglewood forces. There was another in the tent with Overhand Gratian; FUNCTION Nikalan Vittasner.

"Vittasner, Glasken, we are about to put the Battle Calculator to its first real test. Inglewood has declared

war on Tandara."

I felt my bowels go to ice. That was about as mismatched as putting me against the calculator in a maths contest.

"Vittasner, you are to be the Chief of Components during this battle. All will obey your orders with regard to the working of the Battle Calculator. Your title will be Chief."

"Yes sir," he mumbled.

"Glasken, you are to head the Component's 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?"

"Sir! Yes sir!"

"Both of you have already been trialed in these duties, and have been found to be the best out of the hundred components. Now, return to your men and prepare them. Dismissed."

"Sir!" we chorused.

Badges of rank were pinned to our arms; a black 'CC' on a silver background for Nikalan and the same with a 'CM' for me. That was the equivalent of Dragon Silver rank. I wished that Lemoral could be there to see me, but I knew that she would find out eventually and smiled at the thought.

We called the components together and Nikalan gave a vague talk about this being no different from the training runs that we had been doing. Then it was my 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 concealed jar of wine better bear that in mind. 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 soldiers. We may be just prisoners, but tomorrow we'll have the powers of an Overhand. We have the most to lose if the attack fouls up tomorrow; everyone will want a piece out of us. Remember that."

My first speech in public! A rambling, disjointed little farrago but brief and to the point. They had to be frightened into being absolutely trustworthy. Unlike the Libris calculator, this one had only one processor, so that there was no parallel processor to verify each calculation. The work had to be fast and accurate on one pass.

We began marching well before dawn the next morning, and came within sight of Castle Woodvale in the first hour of light. The weather was dry and sunny as we passed the boundary stone for the Tandara Mayorate. The castle stood among low, rolling hills and sparse woodland. A light wind was blowing from the north.

Our fifteen bombards were excellent engines 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 cost twenty times as much to build as a normal bombard, and must have come close to bankrupting the treasury of Inglewood.

At the border eight hundred Inglewood musketeers and bombardiers joined us, and after no more than a single hour we were set up on a low hill as the troops split up to block the paraline either side of the castle. I could already see a message pulsing from its beamflash tower, and the capital was only four hours march away - less by wind train or horse.

Scenario slates were given to us, and most of these had probably been worked out in advance back at the Libris calculator. They included the wind strength and direction, and estimated train speeds. Extra squads of peasants were marching with us carrying spades, axes and bundles of pikes.

The attack began while we were setting up the Battle Calculator and observation masts on a scrubby hill some distance from the castle. New scenario slates revealed that the Inglewood bombards had been brought to bear on the castle's walls and beamflash tower while the rest of the army frantically set about digging trenches, erecting stake walls and spreading caltraps.

An early bombard hit smashed the gallery of the beamflash tower, but news of the attack would have

been flashed north to the capital before the first shot had been fired. Relief forces would be in the mustering grounds already, or being bundled onto wind trains. There was a massive explosion some miles to the north, then another to the south. Scenario slates informed us that the paralines had been blown up with wagonloads of gunpowder.

Some time later the castle bombardiers were silenced, yet no final attack was made. Our troops withdrew, leaving only a token squad to guard the gate. We calculated the odds and movement times. It was already an hour and a half from the first alert, and the cavalry from the capital were visible to the lookout on our observation mast. Wind trains with foot soldiers would be following.

The lookouts reported that 1800 heavy lancers were riding hard down the highway from the north. They formed into one broad block to overwhelm our northern line, I noted from the coloured blocks on our cloth map. Scout lancers with hand heliostats warned our lookouts that two thousand musketeers were marching up the road from wind trains halted by the shattered rails to the south. The Tandarans had timed them to arrive with the lancers but now they would be a little late. Our musketeers were outnumbered five to one. We calculated odds, times, numbers and possible tactics based on which commanders' pennons had been reported by our 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.

I began to contemplate life as a Tantaran prisoner of war as the lancers formed up. There were weak points in the stake wall; even I could see that. They charged in a line, ignoring the obvious traps at the weak points. The moment that they charged, the calculator ordered firepots to be cast into the grass before the southern trenches, then sent our musketeers running north. The bombardiers poured grapeshot north at the lancers, shredding those who broke through and ignoring those floundering against the more heavily built stretches.

Soon the main body of lancers broke through, but instead of standing to fight the calculator ordered our bombardiers into full retreat. They ran before the lancers, met with the musketeers from the south, and turned to present a triple line of eight hundred muskets to the lancers. Orderly volleys slashed through the lancers as they reached the bombardiers and tried to move them - but they were chained to rocks, and the calculator had ordered the excess powder drenched so that they could not be spiked. The lancers faltered, unable to do anything with the bombardiers that they had just taken. Musket fire still shredded their ranks. On the groundsheet we 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 our shallow trenches, but 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 walls and outlined by flames. Not a single Inglewood death was yet registered on the scoreslate.

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 calculator ordered our peasant irregulars out to strip weapons from the fallen 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 calculator ordered our remaining musketeers into a triangle, with one side formed by the line of bombardiers. It need not have bothered: The signals were ignored.

The most desperate part of the battle came when those left in the castle charged out, adding another five hundred to the odds against us. The calculator processed, I calculated, relayed, determined odds and scribbled on slates. The calculator ordered its own guard of two hundred men into the fighting. There we were, one hundred unarmed components and ten armed regulators, yet we did not rebel. *We* were the Overhand, and these were *our* troops 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 our bombards unchained and brought to bear on the castle. A dozen or so shots had the main gate reduced to a pile of splinters, and the few left inside surrendered at once. Until now I had seen no action directly, apart from the shot that disabled the beamflash tower. Such a strange, detached way to fight a war.

Messages poured in about casualties, approaching Tandaran reinforcements, and the exhaustion quotients of our own fighters. The calculator ordered itself moved into the castle along with all the Inglewood bombards and musketeers, then the gate was blocked solid with stone rubble. Once it was operating again, it ordered ten of its most expendable FUNCTIONS, including me, into the decapitated beamflash tower to rig up a communications link with Inglewood - and hence to the great calculator at Rochester. Wind trains began arriving from Tandara, and this time they really meant business. Our lookouts estimated eleven thousand enemy outside by late evening.

During all this I laboured among the flies, dust and occasional musket balls to nail a wooden beamflash gallery together at the top of the tower while three Dragon Red librarians set up a mobile beamflash machine and telescope. With a link established to the Derby tower, and hence the rest of the beamflash network, tactical data poured in. Rochestrian troops had attacked over the border and taken Elmore, then gone on special wind trains to secure the main line all the way to the Bendigo Abandon and the junction railside at Eaglehawk. They might have been stopped by Tandaran reinforcements from the north, except that they were not able to pass the broken track and hostile bombards at Woodvale Castle.

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, and the spare FUNCTIONS were taking turns to work in the beamflash tower. Nikalan and I were assigned to the early afternoon shift. I 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," I complained as I mechanically scribbled on a slate. "The Mayor's gamble on the Highliber's machine had paid off. He's tripled his territory and will probably demand client status from the Tandaran mayor. Tandara's allies will be too frightened of the Battle Calculator to squawk."

"An elegant contest," Nikalan replied as he worked the beamflash key to send a separate message outwards. "The Battle Calculator was used to only 65% of its capacity yesterday, you know. We could have won against even greater odds."

I shuddered. "So, what will the Highliber have us doing next, I wonder? Declare war on the Southmoors? I hate being a component, I hate being a part of the brain of a machine, I hate not even knowing what is in these coded messages that we are handling."

Oh, but I know all the codes," said Nikalan dreamily. "These are simple messages. This one that I'm sending mentions that no Battle Calculator components died."

"Change it," I said listlessly. "Tell 'em I'm dead."

"But I would be disciplined -"

"So tell 'em you're dead too. Ah, Derby's transmitter relay is closing down for lunch. Wake me when they start again."

I dozed. I dreamed of the heady pressure of Dolorian's big, firm breasts pressing against my bare chest instead of being at arms length. Nikalan shook me awake.

"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."

I sat up with a gasp that damn near choked me. "What?" I cried seizing him by the tunic. "You really *did* change the message?"

"Yes."

"And the Rochester calculator accepted it?"

"Well, yes. The code was simple, and I only had to adjust the wording so that the checksums came out the same."

I released him and sat down heavily. "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?"

"That's right."

Mountain ranges of breasts trembled within my grasp, forests of thighs bid me 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."

I thought frantically for a moment.

"How about GLASKEN AND VITTASNER TO BE RELEASED?"

"But I don't want to be released. I like working in calculators."

"But I need your name to make up the wordage!"

"I'd really rather stay. My life is calculation."

The urge to fling him over the edge of the tower was almost beyond my control. He could probably have had us released from the Libris calculator with much the same trick.

"Well, it was a nice thought while it lasted. One favour, though, good Nikalan. Could you show me what the message might have looked like in code?"

I struck him on the head the moment that he had finished, then cried out that he had fainted and called for a relief team. I'll say one thing for Libris, when an order comes through, people jump. Before Nikalan had revived the senior controller came to see us with releases so fresh that the ink was not dry. I poured a phial of salts of nightwing down Nikalan's throat to keep him quiet.

War is a great time for opportunists, and in spite of the watchful eyes of the calculator regulators, I had managed to loot two gold royals, sixteen silver nobles and two border passes in the confusion. I blew five silver nobles on a captured Tandaran horse.

Eaglehawk and its railside were only five miles south, and between the chaos caused by the war, my stolen papers, ten silver nobles for two fares and one gold royal for a bribe, I managed to get us aboard a freight wind train by nightfall. I'd planned to ride the Nullarbor paroline to the Western Castelanies, but the damn thing turned due north to Robinvale while I slept.

After that things got really interesting. 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 travelling 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 . . .

At this point, master, Glasken fell asleep and began to snore swinishly. 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 marketplace. I am now pleased to report that we are returning to Glenellen. This scroll precedes us with a courier squad.

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.

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